Vitamin D Update Evidence Table

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Afzal et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; free of cancer; 20–100 years of age | Not specified |  | hospital | Denmark | 9791/9791/55 | 58/47–65 |  | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Afzal et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Education; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Tobacco Consumption In Pack-Years, Alcohol Consumption In Grams Per Week, Level Of Leisure Time, Work-Related Physical Activity; Other - Competing Risk Of Death | Primary-All Cancer | 25(OH)D | 50% reduction in plasma levels | 28 yrs | 2488/9791 | adjusted/HR | 1.06 | 1.02, 1.11 |  |
|  |  |  |  | Primary-Pancreatic Cancer | 25(OH)D | 50% reduction in plasma levels | 28 yrs | 109/9791 | adjusted/HR | 1.05 | 0.84, 1.30 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Afzal et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Almquist et al., 2010 | Nested Case Control | 19–50 years; 51–70 years; women | Not specified | Malmo¨ Diet and Cancer Study | Private Foundation | Malmo, Sweden | 1528/745/100 | 57 (7.2)/NR |  | Post menopausal; Other; pre- and peri-menopausal | quartile of mean 25OHD2: 16.2, 20.0, 22.7, 26.2 quartile of mean 25OHD3: 45.2, 62.0, 73.7, 93.4 quartile of total 25OHD: 57.5, 80.3, 96.3, 126.1 |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Almquist et al., 2010 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, SES; Anthropometrics- BMI; Medical Conditions- Menopausal Status; Sun Exposure- Screening Season; Smoking, Other Lifestyle Factors- Smoking Status, Alcohol Consumption | Primary-Breast Cancer | 25(0H)D3 | Quartile 1(<=70nmol/l) | 7.0 years | NR/213 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D3 | Quartile 2 (71–86nmol/L) | 7.0 years | NR/164 | adjusted/OR | 0.84 | 0.60, 1.15 |  |
|  |  |  |  |  | 25(0H)D3 | Quartile 3(87–105nmol/L) | 7.0 years | NR/176 | adjusted/OR | 0.84 | 0.60, 1.17 |  |
|  |  |  |  |  | 25(0H)D3 | Quartile 4(>=106nmol/L) | 7.0 years | NR/192 | adjusted/OR | 0.93 | 0.66, 1.33 | 0.710 |
|  |  |  |  |  | 25(0H)D2+D3 | Quartile 1(<=71nmol/l) | 7.0 years | NR/191 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D2+D3 | Quartile 2 (72–87nmol/L) | 7.0 years | NR/170 | adjusted/OR | 0.95 | 0.68, 1.31 |  |
|  |  |  |  |  | 25(0H)D2+D3 | Quartile 3(88–106nmol/L) | 7.0 years | NR/183 | adjusted/OR | 0.94 | 0.68, 1.32 |  |
|  |  |  |  |  | 25(0H)D2+D3 | Quartile 4(>=107nmol/L) | 7.0 years | NR/191 | adjusted/OR | 0.96 | 0.68, 1.37 | 0.780 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Almquist et al., 2010 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Anderson et al., 2010 | Prospective Cohort | The presence of at least one Vit D measurement from 2000 to 2009 in the electronic medical record | Not specified |  | Private Foundation | USA; Murray UT | 41,504/ 41504/ 74.8 | 55 (21)/NR |  | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | | **Follow-up** | | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR, RR, HR, %)** | | **Result** | | **95% CI** | **P-val** |
| Anderson et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/ Ethnicity)—Age, Gender; Medical Conditions—Type 2 Diabetes, Hyperlipidemia, Hypertension, Peripheral Vascular Disease | Secondary-Hypertension | serum 25(OH)D | very low (Vit D level <= 15 ng/ml) | | 1.3 yrs on average | | 7848/ 15121 | adjusted/HR | | 1.62 | | 1.38, 1.89 | P < 0.0001 |
|  |  |  |  |  | serum 25(OH)D | low (Vit D level 16–30 ng/ml) | | 1.3 yrs on average | | 8530/ 19474 | adjusted/HR | | 1.18 | | 1.05, 1.33 | P = 0.005 |
|  |  |  |  |  | serum 25(OH)D | normal (Vit D level > 30 ng/ml) | | 1.3 yrs on average | | 2750/ 6909 | adjusted/HR | | 1 | | reference |  |
| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | | | | | | | |
| **Author, Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | | **Food Composition Database or Suppl Composition Reported?** | | **Internal Calibration?** | | | **One of the Prespecified Biomarkers Methods Used?** | | **Time From Sample Collection to Sample Analysis Reported?** | | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Anderson et al., 2010 | N | Y | Y | N |  | |  | |  | | |  | |  | | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Aregbesola et al., 2013 | Prospective Cohort | 51–70 years; age 53–73 years | Current cancer; pneumonia, lung tuberculosis, bronchial asthma, chronic bronchitis | Kuopio Ischemic Heart Disease Risk Factor (KIHD) study | Government | Finland; Kuopio | 1421/ 1421/ 49.1 | 62.5 (6.5)/ NR |  | Not Reported | mean serum 25(OH)D3: 43.5 nmol/l (SD: 17.8) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Aregbesola et al., 2013 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Multivitamin Use; Demographics (Age, Sex, Race/Ethnicity)- Age, Gender; Anthropometrics- Body Mass Index; Sun Exposure- High Sun Exposure At Baseline Sampling; Smoking, Other Lifestyle Factors- Smoking, Leisure Time Physical Activity; Other - Year Of Education And Income, Occupation | Primary-Pneumonia | 25(OH)D3 | Tertile 1: 8.9–33.8 | 9.8 yrs | 38/925 | adjusted/HR | 2.4 | 1.2, 4.9 | 0.021 |
|  |  |  |  |  | 25(OH)D3 | Tertile 2: 33.9–50.7 | 9.8 yrs | 22/426 | adjusted/HR | 1.4 | 0.7, 2.8 |  |
|  |  |  |  |  | 25(OH)D3 | Tertile 3: 50.8–112.8 | 9.8 yrs | 13/70 | adjusted/HR | 1 | reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Aregbesola et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B | reference 9: http://rd.springer.com/article/10.1007/s00394-010-0138-3#page-1 |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Baker et al., 2010 | Nested Case Control | Pregnant or lactating women; singleton pregnancies; absence of chronic medical illnesses | any preexisting chronic medical condition; pregestational hypertension, kidney disease, diabetes, thrombophilias; congenital fetal anomalies; multiple gestation |  | Private Foundation | USA; Chapel Hill, North Carolina | 255/241/100 | 28/NR | Non-Hispanic White=71; Hispanic=62; Non-Hispanic Black=96; Race\_other1=12 | Other; pregnant | controls: median 25(OH)D 98 nmol/l (IQR 68–113) cases: median 25(OH)D 75 nmol/l (IQR 47–107) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Baker et al., 2010 | Nested Case Control | race/ethnicity | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Sun Exposure- Season Of Blood Draw; Other - Gestational Age At Serum Collection | Primary-Severe Preeclampsia | 25(OH)D | < 50 | NR | 22/160 | adjusted/OR | 5.41 | 2.02, 14.52 | 0.001 |
|  |  |  |  |  | 25(OH)D | 50–74.9 | NR | 10/51 | adjusted/OR | 2.16 | 0.85, 5.40 | 0.1 |
|  |  |  |  |  | 25(OH)D | >=75 | NR | 11/30 | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Baker et al., 2010 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Baker et al., 2011 | Nested Case Control | Pregnant or lactating women | Type 2 DM; preeclampsia, gestational hypertension; medically indicated preterm delivery; multiple gestation; major congenital fetal anomalies; kidney disease; thrombophilias; other major chronic disease |  | Hospital | USA; Chapel Hill, NC | 160/160/100 | 33/30–37 | Non-Hispanic White=53; Hispanic=11; Non-Hispanic Black=33; Race\_other1=5 |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Baker et al., 2011 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Sun Exposure- Season Of Blood Draw; Other - Gestational Age At Serum Collection | Primary-Preterm Birth | 25(OH)D | <50 nmol/L | NR | 3/11 | adjusted/OR | 0.82 | 0.19, 3.57 |  |
|  |  |  |  |  | 25(OH)D | 50–74.9 nmol/L | NR | 8/32 | adjusted/OR | 0.87 | 0.34, 2.25 |  |
|  |  |  |  |  | 25(OH)D | >=75 nmol/L | NR | 29/117 | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Baker et al., 2011 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | Y | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Barbour et al., 2012 | Prospective Cohort | 51–70 years; 70–79 years of age | difficulty with ADLs; cognitive impairment; inability to communicate with interviewer; intention to move; participation in other trial | Health ABC | Government | USA; Pittsburgh, PA and Memphis, TN | 2640/2501/61 in lowest quartile | 74.7 (2.9)/NR | Non-Hispanic Black=699 | Not Reported | Dietary calcium intake, median (IQR) (mg/d) 717 (515–973) 736 (532–995) 719 (517–978) 716 (501–940) Supplemental calcium intake (% yes) 18.3 25.0 17.4 28.7 Supplemental vitamin D intake (% yes) 8.3 13.1 8.1 12.2 in order of groups: hip fracture no/yes, |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Barbour et al., 2012 | Prospective Cohort | N/R | Other Nutrients Or Dietary Factors- Serum Calcium; Anthropometrics- Estimated BMD; Medical Conditions- Estimated GFR, Il-6; Other - Time To Complete 5 Chair Stands | Primary-Hip Fracture | 25(OH)D | Quartile 1: =17.78 ng/ml | 2 yrs | 84/2501 | adjusted/HR | 1.92 | 0.97, 3.83 | 0.217 |
|  |  |  |  |  | 25(OH)D | Quartile 2: 17.79–24.36 ng/ml | 2 yrs |  | adjusted/HR | 0.75 | 0.32, 1.72 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 24.37–31.94 ng/ml | 2 yrs |  | adjusted/HR | 1.86 | 1.00, 3.45 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: >31.94 ng/ml | 2 yrs |  | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Nonspine Fracture | 25(OH)D | Quartile 1: =17.78 ng/ml | 2 yrs | 247/2494 | adjusted/HR | 1.21 | 0.83, 1.75 | 0.752 |
|  |  |  |  |  | 25(OH)D | Quartile 2: 17.79–24.36 ng/ml | 2 yrs |  | adjusted/HR | 1.01 | 0.68, 1.49 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 24.37–31.94 ng/ml | 2 yrs |  | adjusted/HR | 1.12 | 0.78, 1.60 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: >31.94 ng/ml | 2 yrs |  | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Barbour et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | Y | B | post hoc power calculation Population a) sampling random Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Barnett et al., 2010 | Nested Case Control | 51–70 years; men; age =65 years | inability to walk without assistance from another person,; bilateral hip replacements; inability to provide self-reported data; residence not near a study site; judged by an investigator to have a medical condition that would result in imminent death; inability to understand and sign informed consent | Osteoporotic Fractures in Men (MrOS) study | Unclear | USA; Birmingham, Alabama; Palo Alto, California; San Diego, California; Minneapolis, Minnesota; Portland, Oregon; Pittsburgh, Pennsylvania | 1648/1648/0 | 73.6 (5.9)/NR | Non-Hispanic White=901; Hispanic=28; Non-Hispanic Black=31; Asian=27; Race\_other1=13 | Not Reported | 25.1 ± 8.1 ng/ml in controls 25.5 ± 7.5 ng/ml in cases |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Barnett et al., 2010 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Race; Medical Conditions- Statin Use, NSAIDs Use; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Physical Activity Score For The Elderly (PASE) Score; Other - First Degree Relative With A History Of Prostate Cancer | Primary-Prostate Cancer | 25(0H)D | Quartile 1(3.1–19.9ng/mL) | NR | 68/411 | adjusted/HR | 1 | reference | 0.940 |
|  |  |  |  |  | 25(0H)D | Quartile 2(20.0–24.9ng/mL) | NR | 91/415 | adjusted/HR | 1.35 | 0.91, 2.01 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3(25.0–29.9ng/mL) | NR | 53/406 | adjusted/HR | 0.64 | 0.41, 1.00 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4(30–75.6ng/mL) | NR | 85/416 | adjusted/HR | 1.2 | 0.81, 1.78 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Barnett et al., 2010 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Belderbos et al., 2011 | Prospective Cohort | 0–6 months; Healthy; >=37 weeks GA | Not specified |  | Private Foundation | Utrecht, Netherland | 161/NR/44 | 40 weeks (GA) (0.13)/NR | Race\_other1=70; Race\_other2=30 |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Belderbos et al., 2011 | Prospective Cohort | NR | Anthropometrics- Birth Weight | Primary-Respiratory Syncytial Virus Bronchiolitis | 25(0H)D | <50nmol/L-NR | NR | 36/NR | Adjusted/RR | 6.2 | 1.6, 24.9 |  |
|  |  |  |  |  | 25(0H)D | 50–74nmol/L-NR | NR | 48/NR | Adjusted/RR | 1.3 | NR |  |
|  |  |  |  |  | 25(0H)D | >=75nmol/l-NR | NR | 72/NR | Adjusted/RR | 1 | reference | 0.13 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Belderbos et al., 2011 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Bodnar et al., 2010 | Nested Case Control | Pregnant or lactating women; nulliparous, had no preexisting medical conditions, and delivered a live- born infant; had a maternal blood sample at <22 wk; self-identified as black or white | serum 25(OH)D concentrations were outside the detectable range |  | Government | USA; Pittsburgh, PA (latitude 40 degree N) | 412/412/100 | 21/14–42 | Non-Hispanic White=66; Non-Hispanic Black=34 |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Bodnar et al., 2010 | Nested Case Control | none | Demographics (Age, Sex, Race/Ethnicity)- SES; Anthropometrics- Prepregnancy BMI,; Smoking, Other Lifestyle Factors- Smoking During Pregnancy | Primary-Small-For-Gestational Age Births | 25(OH)D | <37.5 nmol/L-white women | NR | 8/11 | adjusted/OR | 7.5 | 1.8, 31.9 |  |
|  |  |  |  |  | 25(OH)D | 37.5–75 nmol/L-white women | NR | 27/134 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | >75 nmol/L-white women | NR | 42/128 | adjusted/OR | 2.1 | 1.2, 3.8 |  |
|  |  |  |  |  | 25(OH)D | <37.5 nmol/L-black women | NR | 17/65 | adjusted/OR | 1.5 | 0.6, 3.5 |  |
|  |  |  |  |  | 25(OH)D | 37.5–75 nmol/L-black women | NR | 13/63 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | >75 nmol/L-black women | NR | 4/11 | adjusted/OR | 2.2 | 0.5, 9.0 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Bodnar et al., 2010 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Bodnar et al., 2013 | Prospective Cohort | Pregnant or lactating women; women carrying twin pregnancies; 16 weeks–20 weeks 3 days gestation | Not specified |  | Government | USA | 211/211/100 | NR/NR | Non-Hispanic White=621; Non-Hispanic Black=238; Race\_other1=156 |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Bodnar et al., 2013 | Prospective Cohort | Not applicable | Demographics (Age, Sex, Race/Ethnicity)- Race/Ethnicity, Education; Anthropometrics- Prepregnancy BMI; Sun Exposure- Season; Smoking, Other Lifestyle Factors- Smoking Status; Other - Parity, Marital Status, Gestational Age At Blood Sampling, 17-A(Oh)progesterone | Primary-Preterm Birth At Less Than 35 Wk | 25(OH)D | < 75 | 24–28 weeks gestation | 42/85 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | >=75 | 24–28 weeks gestation | 33/126 | adjusted/OR | 0.4 | 0.2, 0.8 |  |
|  |  |  |  |  | 25(OH)D | per 1-SD increase | 24–28 weeks gestation | 75/211 | adjusted/OR | 0.5 | 0.3, 0.8 |  |
|  |  |  |  |  | 25(OH)D | Q1 (median 43.6) | 24–28 weeks gestation | 27/52 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | Q2 (median 72.7) | 24–28 weeks gestation | 24/53 | adjusted/OR | 1 | 0.4, 2.5 |  |
|  |  |  |  |  | 25(OH)D | Q3 (median 95.4) | 24–28 weeks gestation | 15/53 | adjusted/OR | 0.4 | 0.2, 1.1 |  |
|  |  |  |  |  | 25(OH)D | Q4 (median 116) | 24–28 weeks gestation | 9/53 | adjusted/OR | 0.2 | 0.1, 0.7 |  |
|  |  |  |  | Primary-Preterm Birth At Less Than 32 Wk | 25(OH)D | < 75 | 24–28 weeks gestation | 16/85 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | >=75 | 24–28 weeks gestation | 9/126 | adjusted/OR | 0.2 | 0.1, 0.6 |  |
|  |  |  |  |  | 25(OH)D | per 1-SD increase | 24–28 weeks gestation | 25/211 | adjusted/OR | 0.4 | 0.2, 0.8 |  |
|  |  |  |  |  | 25(OH)D | Q1 (median 43.6) | 24–28 weeks gestation | 10/52 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | Q2 (median 72.7) | 24–28 weeks gestation | 7/53 | adjusted/OR | 0.5 | 0.1, 1.7 |  |
|  |  |  |  |  | 25(OH)D | Q3 (median 95.4) | 24–28 weeks gestation | 6/53 | adjusted/OR | 0.4 | 0.1, 1.5 |  |
|  |  |  |  |  | 25(OH)D | Q4 (median 116) | 24–28 weeks gestation | 2/53 | adjusted/OR | 0.1 | 0.02, 0.7 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Bodnar et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Boer et al., 2012 | Prospective Cohort | 51–70 years; 65 years or greater; not institutionalized; expected to remain in the area\*\* for at least 3 years | wheelchair bound in the home; receiving hospice treatment; chemotherapy; radiation therapy | Cardiovascular Health Study | Government | USA; multiple | 1621/1621/70 | 74.0 (4.6)/NR | Non-Hispanic White=100 |  | serum vitamin D: 66.2+/-25.8 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Boer et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking, Physical Activity | Primary-Death | 25(OH)D | Normal level | 11 yrs | 539/1126 | adjusted/HR | 1 | Reference | NR |
|  |  |  |  |  | 25(OH)D | Low level (season specific, ranges 43–61 nmol/L) | 11 yrs | 287/495 | adjusted/HR | 1.32 | 1.14, 1.53 |  |
|  |  |  |  | Primary-Hip Fracture | 25(OH)D | Normal level | 11 yrs | 118/1126 | adjusted/HR | 1 | Reference | NR |
|  |  |  |  |  | 25(OH)D | Low level (season specific, ranges 43–61 nmol/L) | 11 yrs | 72/495 | adjusted/HR | 1.34 | 0.97, 1.84 |  |
|  |  |  |  | Primary-Cancer | 25(OH)D | Normal level | 11 yrs | 259/1126 | adjusted/HR | 1 | Reference | NR |
|  |  |  |  |  | 25(OH)D | Low level (season specific, ranges 43–61 nmol/L) | 11 yrs | 111/495 | adjusted/HR | 1.13 | 0.90, 1.42 |  |
|  |  |  |  | Primary-MI | 25(OH)D | Normal level | 11 yrs | 154/1126 | adjusted/HR | 1 | Reference | NR |
|  |  |  |  |  | 25(OH)D | Low level (season specific, ranges 43–61 nmol/L) | 11 yrs | 67/495 | adjusted/HR | 1.24 | 0.91–1.70 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Boer et al., 2012 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Bolland et al., 2010 | Prospective Cohort | Postmenopausal women; Healthy; normal lumber spine BMD; not taking agents for osteoporosis (including hormone replacement therapy or vitamin D supplements at doses >1000 IU/d); 25(OH)D >=25 nmol/L | Not specified | ACTRN 012605000242628 | Government | New Zealand | 1471/1471/100 | 74 (4.2)/NR |  | Post menopausal | Mean seasonally adjusted 25(OH)D concentration-50.5(17.7)nmol/L; Unadjusted mean-50.9(19.1)nmol/L. |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Bolland et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- Body Weight; Medical Conditions- Systolic Blood Pressure, And History Of Ischemic Heart Disease, Stroke Or Transient Ischemic Attack, Dyslipidemia, And Diabetes; Smoking, Other Lifestyle Factors- Smoking Status; Other - Treatment Allocation (Calcium Or Placebo) | Secondary-Death | 25(OH)D2; calcium | <50 nmol/L (also took calcium) | 5 yrs | 21/363 | adjusted/HR | 1.2 | 0.6, 2.5 | 0.57 |
|  |  |  |  |  | 25(OH)D2; calcium | >=50 nmol/L (also took calcium) | 5 yrs | 13/369 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D2 | <50 nmol/L (no calcium) | 5 yrs | 13/373 | adjusted/HR | 0.9 | 0.4, 2.0 | 0.82 |
|  |  |  |  |  | 25(OH)D2 | >=50 nmol/L (no calcium) | 5 yrs | 16/366 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-MI | 25(OH)D | <50 nmol/L | 5 yrs | 31/736 | Adjusted/HR | 1.2 | 0.7, 2.2 | 0.52 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 5 yrs | 21/735 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Stroke | 25(OH)D | <50 nmol/L | 5 yrs | 37/736 | Adjusted/HR | 1.4 | 0.8,2.5 | 0.20 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 5 yrs | 22/735 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-MI, Stroke, Or Sudden Death | 25(OH)D | <50 nmol/L | 5 yrs | 65/736 | Adjusted/HR | 1.2 | 0.8, 1.8 | 0.34 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 5 yrs | 45/735 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Tia | 25(OH)D | <50 nmol/L | 5 yrs | 24/736 | Adjusted/HR | 1.1 | 0.6, 2.0 | 0.76 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 5 yrs | 21/735 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Congestive Heart Failure | 25(OH)D | <50 nmol/L | 5 yrs | 12/736 | Adjusted/HR | 1 | 0.4, 2.4 | 0.97 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 5 yrs | 10/735 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Death | 25(OH)D | <50 nmol/L | 5 yrs | 34/736 | Adjusted/HR | 0.9 | 0.5, 1.6 | 0.73 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 5 yrs | 29/735 | Adjusted/HR | 1 | 1.00 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Bolland et al., 2010 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | Y | A | Justification of model- Y overall grade unchanged Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Brandstedt et al., 2012 | Nested Case Control | 51–70 years; born in 1923–1945; living in Malmo, Sweden | Not specified |  | Private Foundation | Malmo, Sweden | 1886/1842/0 | 61.7 (6.4)/NR |  | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Brandstedt et al., 2012 | Nested Case Control | age, time of blood donation | Demographics (Age, Sex, Race/Ethnicity)- Education Level; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Alcohol Consumption, Smoking | Primary-Prostate Cancer | 25(0H)D | Quartile 1(<=68nmol/L) | NR | 206/448 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2(69–84nmol/L) | NR | 237/469 | adjusted/OR | 1.25 | 0.95, 1.65 |  |
|  |  |  |  |  | 25(0H)D | Quartile3(85–102nmol/L) | NR | 245/471 | adjusted/OR | 1.37 | 1.03, 1.82 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4(>=103nmol/L) | NR | 230/454 | adjusted/OR | 1.34 | 0.99, 1.82 | 0.048 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Brandstedt et al., 2012 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Brodin et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; age >24 years | previous history of VTE; not officially registered inhabitants of the municipality of Tromso at baseline; missing values of serum 25(OH)D | Tromso study | Unclear | Norway | 6021/5905/63 | 62 (10)/NR |  | Not Reported | mean 25(OH)D: 58.1 +/- 19.8 nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Brodin et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- Body Mass Index; Smoking, Other Lifestyle Factors- Smoking, Physical Activity | Primary-Total Venous Thromboembolism | 25(OH)D | <=44 | 10.7 yrs | 50/1474 | adjusted/HR | 1 | Reference | 0.89 |
|  |  |  |  |  | 25(OH)D | 45–56 | 10.7 yrs | 58/1470 | adjusted/HR | 0.72 | 0.41, 1.30 |  |
|  |  |  |  |  | 25(OH)D | 57–69 | 10.7 yrs | 46/1481 | adjusted/HR | 0.93 | 0.55, 1.50 |  |
|  |  |  |  |  | 25(OH)D | >=70 | 10.7 yrs | 47/1480 | adjusted/HR | 0.76 | 0.45, 1.28 |  |
|  |  |  |  |  | 25(OH)D | per 1 sd decrease in serum 25(OH)D | 10.7 yrs | 201/5905 | adjusted/HR | 1.02 | 0.91, 1.22 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Brodin et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Brunner et al., 2011 | RCT/CCT | 51–70 years; Postmenopausal women; age 50–79 years | current daily use of at least 600 IU of supplemental vitamin D (single supplement and multivitamin combined) or calcitriol; history of renal calculi or hypercalcemia; predicted survival of less than 3 yr; current use of oral corticosteroids | Women’s Health Initiative (WHI) | Government | Not reported | 36,282/36282/100 | NR/50–79 | Non-Hispanic White=833; Hispanic=40; Non-Hispanic Black=91; Asian=19; Race\_other1=04; Race\_other2=12 | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Brunner et al., 2011 | RCT/CCT | NR | NR | Primary-Total Cancer | Vit D3; elemental calcium | 1,000 mg elemental calcium + 400 IU of vitamin D3 | 7 yrs | 1306/18176 | adjusted/HR | 0.98 | 0.90, 1.05 | 0.78 |
|  |  |  |  |  |  | placebo | 7 yrs | 1333/18106 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Invasive Breast Cancer | Vit D3; elemental calcium | 1,000 mg elemental calcium + 400 IU of vitamin D3 | 7 yrs | 505/18176 | adjusted/HR | 0.96 | 0.85, 1.09 | 0.26 |
|  |  |  |  |  |  | placebo | 7 yrs | 523/18106 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Invasive Colon Cancer | Vit D3; elemental calcium | 1,000 mg elemental calcium + 400 IU of vitamin D3 | 7 yrs | 117/18176 | adjusted/HR | 0.98 | 0.76, 1.27 | 0.72 |
|  |  |  |  |  |  | placebo | 7 yrs | 118/18106 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Invasive Rectal Cancer | Vit D3; elemental calcium | 1,000 mg elemental calcium + 400 IU of vitamin D3 | 7 yrs | 41/18176 | adjusted/HR | 1.42 | 0.88, 2.28 | 0.16 |
|  |  |  |  |  |  | placebo | 7 yrs | 29/18106 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Invasive Pancreatic Cancer | Vit D3; elemental calcium | 1,000 mg elemental calcium + 400 IU of vitamin D3 | 7 yrs | 32/18176 | adjusted/HR | 0.88 | 0.55, 1.41 | 0.46 |
|  |  |  |  |  |  | placebo | 7 yrs | 36/18106 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cancer Mortality | Vit D3; elemental calcium | 1,000 mg elemental calcium + 400 IU of vitamin D3 | 7 yrs | 315/18176 | adjusted/HR | 0.9 | 0.77, 1.05 | 0.25 |
|  |  |  |  |  |  | placebo | 7 yrs | 347/18106 | adjusted/HR | 1 | Reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Brunner et al., 2011 | RCT/CCT | Y | Y | N | N | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Burgi et al., 2011 | Nested Case Control | Navy female recruits | Not specified |  | Government | USA | 1200/1200/100 | 19.5 (1.8)/NR | Non-Hispanic White=54; Non-Hispanic Black=12; Race\_other1=34 | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Burgi et al., 2011 | Nested Case Control | age, race/ethnicity, length of military service, date of blood draw | Sun Exposure- Latitude Of Home | Primary-Stress Fracture | 25(OH)D | 1.5–19.7 ng/ml | NR | 600/1200 | adjusted/OR | 1 | Reference | 0.02 |
|  |  |  |  |  | 25(OH)D | 19.8–26.6 ng/ml | NR |  | adjusted/OR | 0.77 | 0.54, 1.11 |  |
|  |  |  |  |  | 25(OH)D | 26.7–32.8 ng/ml | NR |  | adjusted/OR | 0.76 | 0.52, 1.10 |  |
|  |  |  |  |  | 25(OH)D | 32.9–39.8 ng/ml | NR |  | adjusted/OR | 0.61 | 0.42, 0.91 |  |
|  |  |  |  |  | 25(OH)D | 39.9–112.5 ng/ml | NR |  | adjusted/OR | 0.51 | 0.34, 0.78 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Burgi et al., 2011 | N | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Burns et al., 2012 | RCT/CCT | expeditioners; free of disease; no use of medication known to affect bone | severe vit D deficiency (<12.5 nmol/L); serum Vit D >100 nmol/L |  | Trans-Antarctic Association, Private foundation: the Austin Hospital Medical Research Foundation. | Australian Antarctic Division | 110/102/17 | 41/24–65 | Non-Hispanic White=94 |  | Monthly- 55+/-14 nmol/L Bi-monthly- 60+/-15 nmol/L Single dose-63+/-12 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Burns et al., 2012 | RCT/CCT | NR | NR | Secondary-Femoral Neck BMD | D3 monthly (Vit D3 50,000 IU/month) |  | 36 | 0.86 (sd=0.14) | final=0.85 (sd=0.13) | -0.06 (-0.12, 0) | 0.06 |
|  |  |  |  |  | D3 bimonthly (Vit D3 50,000 IU in alternate months) |  | 35 | 0.82 (sd=0.10) | final=0.82 (sd=0.10) | -0.09 (-0.15, -0.03) | . |
|  |  |  |  |  | D3 single does (one does of Vit D3 50,000 IU pre departure) |  | 31 | 0.9 (sd=0.13) | final=0.91 (sd=0.13) |  | . |
|  |  |  |  | Secondary-Lumbar Spine (L1-L4) BMD | D3 monthly (Vit D3 50,000 IU/month) |  | 36 | 1 (sd=0.17) | final=0.98 (sd=0.16) | -0.09 (-0.17, -0.01) | 0.03 |
|  |  |  |  |  | D3 bimonthly (Vit D3 50,000 IU in alternate months) |  | 35 | 1 (sd=0.10) | final=1.00 (sd=0.09) | -0.07 (-0.14, -0.0) | 0.05 |
|  |  |  |  |  | D3 single does (one does of Vit D3 50,000 IU pre departure) |  | 31 | 1.08 (sd=0.17) | final=1.07 (sd=0.18) |  | . |
|  |  |  |  | Secondary-Total Proximal Femur BMD | D3 monthly (Vit D3 50,000 IU/month) |  | 36 | 1.02 (sd=0.13) | final=0.85 (sd=0.13) | -0.23 (-0.30, -0.16) | . |
|  |  |  |  |  | D3 bimonthly (Vit D3 50,000 IU in alternate months) |  | 35 | 1.01 (sd=0.08) | final=1.01 (sd=0.08) | -0.07 (-0.13, -0.01) | 0.02 |
|  |  |  |  |  | D3 single does (one does of Vit D3 50,000 IU pre departure) |  | 31 | 1.08 (sd=0.16) | final=1.08 (sd=0.15) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Burns et al., 2012 | RCT/CCT | ND | ND | ND | Y | ND | ND | Y | Y | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Burris et al., 2012 | Prospective Cohort | Pregnant or lactating women; White or Black race; fluency in English; gestational age <22 weeks | missing both second trimester maternal plasma and cord plasma |  | University and hospital | USA; Massachusetts | 1303/1133/100 | 33 (4.5)/NR | Non-Hispanic White=82; Non-Hispanic Black=18 | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Burris et al., 2012 | Prospective Cohort | none | Demographics (Age, Sex, Race/Ethnicity)- Maternal Age, Race; Anthropometrics- Prepregnancy BMI; Sun Exposure- Season Of Blood Draw | Secondary-Birth Weight | <25 |  | 47 | NR (NR) | Final=3.46 (SD=0.68) |  | . |
|  |  |  |  |  | 25–50 |  | 314 | NR (NR) | Final=3.55 (SD=0.52) |  | . |
|  |  |  |  |  | 50–75 |  | 543 | NR (NR) | Final=3.53 (SD=0.51) |  | . |
|  |  |  |  |  | >=75 |  | 229 | NR (NR) | Final=3.51 (SD=0.52) |  | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Burris et al., 2012 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Camargo et al., 2011 | Prospective Cohort | 0–6 months; cord blood available | Not specified |  | hospital | Wellington (41°S latitude) and Christchurch (43°S latitude), New Zealand | 922/922/49 | GA = 40 weeks (NR)/IQR: 39 – 41 |  | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Camargo et al., 2011 | Prospective Cohort | NA | Demographics (Age, Sex, Race/Ethnicity)- Maternal Age At Birth, New Zealand Deprivation Index, Age, Gender, Child’s Ethnicity; Medical Conditions- Maternal History Of Asthma, Paternal History Of Asthma; Sun Exposure- Study Site; Smoking, Other Lifestyle Factors- Smoking During Pregnancy, Passive Smoking; Other - Endotoxin On The Bedroom Floor, Damp Musty Smell In Any Room Of Home, Duration Of Exclusive Breastfeeding | Primary-Respiratory Infection | 25(0H)D | >=75nmol/L-by 3months old | NR | NR/251 | Adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 25–74nmol/L-by 3months old | NR | NR/491 | Adjusted/OR | 1.35 | 0.88, 2.08 |  |
|  |  |  |  |  | 25(0H)D | <25nmol/L-by 3months old | NR | NR/180 | Adjusted/OR | 2.04 | 1.13, 3.67 | 0.03 |
|  |  |  |  | Primary-Any Infection | 25(0H)D | >=75nmol/L-by 3months old | NR | NR/251 | Adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 25–74nmol/L-by 3months old | NR | NR/491 | Adjusted/OR | 1.49 | 0.92, 2.43 |  |
|  |  |  |  |  | 25(0H)D | <25nmol/L-by 3months old | NR | NR/180 | Adjusted/OR | 2.36 | 1.17, 4.73 | 0.02 |
|  |  |  |  | Primary-Wheeze | 25(0H)D | per 10nmol/L-by 15months old | NR | 331/922 | Adjusted/OR | 0.98 | 0.93, 1.02 | 0.3 |
|  |  |  |  |  | 25(0H)D | per 10nmol/L-by 3years of age | NR | 472/922 | Adjusted/OR | 0.96 | 0.91, 1.00 | 0.04 |
|  |  |  |  |  | 25(0H)D | per 10nmol/L-by 5 years of age | NR | 533/922 | Adjusted/OR | 0.95 | 0.91, 0.99 | 0.04 |
|  |  |  |  | Primary-Incident Asthma | 25(0H)D | per 10nmol/L-by 5 years of age | NR | 181/922 | Adjusted/OR | 1.03 | 0.97, 1.10 | 0.02 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Camargo et al., 2011 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | B | Population a) sampling random Outcome c) primary outcome changed to NA |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Cauley et al., 2008 | Nested Case Control | age, race or ethnicity, blood draw date | Other Nutrients Or Dietary Factors- Total Calcium Intake; Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking, Alcohol Use; Other - History Of Fracture, Oral Corticosteroid Use, Geographic Region | Primary-Hip Fractures | 25(OH)D | Quartile 1: 9.2–47.5 nmol/L | 7.1 yrs | NR/244 | adjusted/OR | 1.71 | 1.05, 2.79 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: 47.6–70.6 nmol/L | 7.1 yrs | NR/195 | adjusted/OR | 1.09 | 0.70, 1.71 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 60.2–70.6 nmol/L | 7.1 yrs | NR/167 | adjusted/OR | 0.82 | 0.51, 1.31 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: 70.7–121.5 nmol/L | 7.1 yrs | NR/193 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | per 2.5 nmol/L decrease | 7.1 yrs | NR/799 | adjusted/OR | 1.03 | 1.01, 1.05 | 0.015 |
|  |  |  |  |  | 25(OH)D | per 25 nmol/L decrease | 7.1 yrs | NR/799 | adjusted/OR | 1.33 | 1.06, 1.68 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Cauley et al., 2008 | Y | Y | Y | N |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Cauley et al., 2011 | Nested Case Control | 19–50 years; 51–70 years; Postmenopausal women; aged 50–79; unlikely to move or die within 3 years; not enrolled in WHI clinical trial; not currently participating in any other clinical trial | Use of bisphosphonates, selective estrogen receptor modulators (SERMs), or tamoxifen; ‘‘other’’ or ‘‘unknown’’ race/ethnicity, current hormone therapy; missing important covariates | WHI OS | hospital and university | USA | 2264/2232/100 | 64/50–70 | Non-Hispanic White=34; Hispanic=17; Non-Hispanic Black=33; Asian=10; Race\_other1=4 | Post menopausal |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Cauley et al., 2011 | Nested Case Control | age at screening, race/ethnicity, blood draw date | Other Nutrients Or Dietary Factors- Total Calcium Intake; Anthropometrics- Weight, Height; Medical Conditions- History Of Fracture; Smoking, Other Lifestyle Factors- Physical Activity | Primary-Fractures | 25(OH)D | <20 ng/ml-whites | 8.6 yrs | 150/270 | adjusted/OR | 1 | Reference | 0.02 |
|  |  |  |  |  | 25(OH)D | 20–<30 ng/ml-whites | 8.6 yrs | 156/321 | adjusted/OR | 0.82 | 0.58, 1.16 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-whites | 8.6 yrs | 84/189 | adjusted/OR | 0.56 | 0.35, 0.90 |  |
|  |  |  |  |  | 25(OH)D | <20 ng/ml-blacks | 8.6 yrs | 241/508 | adjusted/OR | 1 | Reference | 0.043 |
|  |  |  |  |  | 25(OH)D | 20–<30 ng/ml-blacks | 8.6 yrs | 108/193 | adjusted/OR | 1.48 | 1.05, 2.10 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-Blacks | 8.6 yrs | 30/57 | adjusted/OR | 1.33 | 0.73, 2.43 |  |
|  |  |  |  |  | 25(OH)D | <20 ng/ml-Hispanics | 8.6 yrs | 89/182 | adjusted/OR | 1 | Reference | 0.72 |
|  |  |  |  |  | 25(OH)D | 20–<30 ng/ml-Hispanics | 8.6 yrs | 71/140 | adjusted/OR | 1.02 | 0.69, 1.79 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-Hispanics | 8.6 yrs | 31/60 | adjusted/OR | 1.09 | 0.50, 2.37 |  |
|  |  |  |  |  | 25(OH)D | <20 ng/ml-Asians | 8.6 yrs | 37/80 | adjusted/OR | 1 | Reference | 0.22 |
|  |  |  |  |  | 25(OH)D | 20–<30 ng/ml-Asians | 8.6 yrs | 45/85 | adjusted/OR | 1.49 | 0.76, 2.93 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-Asians | 8.6 yrs | 30/59 | adjusted/OR | 1.66 | 0.68, 4.02 |  |
|  |  |  |  |  | 25(OH)D | <20 ng/ml-native Americans | 8.6 yrs | 29/55 | adjusted/OR | 1 | Reference | 0.29 |
|  |  |  |  |  | 25(OH)D | 20–<30 ng/ml-native Americans | 8.6 yrs | 9/18 | adjusted/OR | 0.64 | 0.15, 2.79 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-native Americans | 8.6 yrs | 6/15 | adjusted/OR | 0.43 | 0.09, 2.08 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Cauley et al., 2011 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | WHI observational study Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Cawthon et al., 2010 | Prospective Cohort | 51–70 years; walk without assistance, not have had bilateral hip replacement; >/= 65 years old | assay problem, insufficient sample for the vitamin D assay, missing data on covariates |  | Government | USA | 1490/1490/0 | 74/>=65 |  | Other; >80% Excellent/good health status |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Cawthon et al., 2010 | Prospective Cohort | NA | Other Nutrients Or Dietary Factors- Serum Calcium And Phosphate; Demographics (Age, Sex, Race/Ethnicity)- Age, Race, Education; Anthropometrics- Percentage Body Fat, Weight; Medical Conditions- GFR, Health Status, Presence Of At Least One Medical Condition; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Alcohol Use, Activity Level; Other - Marital Status, And Presence Of A Functional Or Mobility Limitation | Primary-Cancer Mortality | 25(OH)D | Quartile 1: <19.9 ng/ml | 7.3 yrs | NR/372 | adjusted/HR | 0.52 | 0.27, 1.00 | 0.086 |
|  |  |  |  |  | 25(OH)D | Quartile 2: =19.9 to <25.2 ng/ml | 7.3 yrs | NR/370 | adjusted/HR | 0.9 | 0.51, 1.60 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: =25.2 to <30.0 ng/ml | 7.3 yrs | NR/372 | adjusted/HR | 0.8 | 0.45, 1.41 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: =30.0 | 7.3 yrs | NR/376 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | Deficient, <20 ng/ml | 7.3 yrs | NR/376 | adjusted/HR | 0.51 | 0.27, 0.98 | 0.044 |
|  |  |  |  |  | 25(OH)D | Insufficient, 20 to <30 ng/ml | 7.3 yrs | NR/737 | adjusted/HR | 0.85 | 0.52, 1.40 |  |
|  |  |  |  |  | 25(OH)D | Sufficient, =30 ng/ml | 7.3 yrs | NR/377 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per SD decrease | 7.3 yrs | NR/1490 | adjusted/HR | 0.8 | 0.64, 0.99 | NR |
|  |  |  |  | Primary-All-Cause Mortality | 25(OH)D | Quartile 1: <19.9 ng/ml | 7.3 yrs | NR/372 | adjusted/HR | 0.95 | 0.68, 1.34 | 0.961 |
|  |  |  |  |  | 25(OH)D | Quartile 2: =19.9 to <25.2 ng/ml | 7.3 yrs | NR/370 | adjusted/HR | 1.05 | 0.75, 1.47 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: =25.2 to <30.0 ng/ml | 7.3 yrs | NR/372 | adjusted/HR | 0.89 | 0.64, 1.24 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: =30.0 | 7.3 yrs | NR/376 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | Deficient, <20 ng/ml | 7.3 yrs | NR/376 | adjusted/HR | 0.94 | 0.67, 1.32 | 0.706 |
|  |  |  |  |  | 25(OH)D | Insufficient, 20 to <30 ng/ml | 7.3 yrs | NR/737 | adjusted/HR | 0.97 | 0.72, 1.30 |  |
|  |  |  |  |  | 25(OH)D | Sufficient, =30 ng/ml | 7.3 yrs | NR/377 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per SD decrease | 7.3 yrs |  | adjusted/HR | 1.01 | 0.89, 1.14 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Cawthon et al., 2010 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Cohen et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; 45–84 years old | Current cardiovascular disease; measured serum concentrations of 25(OH)D at the baseline MESA examination; serum 25(OH)D concentration suggestive of high-dose vitamin D supplementation (>100 ng/ml) | MESA | Government | USA; multiple | 6436/6436/53 | 63.3 (10.2)/NR | Non-Hispanic White=586; Hispanic=186; Non-Hispanic Black=100; Race\_other1=128 | Not Reported | Serum D: <20ng/ml group:14.0 (4.4) 20–29 ng/ml group-24.8 (3.8) >/=30ng/ml group-37.4 (7.2) Table 1 also gives D2 and D3 levels |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Cohen et al., 2013 | Prospective Cohort | NA | Other Nutrients Or Dietary Factors- Vitamin D Intake; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race/Ethnicity, Education, Income; Anthropometrics- Body Mass Index; Medical Conditions- Diabetes, Chronic Kidney Disease; Smoking, Other Lifestyle Factors- Smoking Status; Other - Physical Activity, Systolic Blood Pressure, High-Density Lipoprotein Cholesterol, Low-Density Lipoprotein Cholesterol, Triglyceride Cholesterol, Parathyroid Hormone, And Natural Logarithm Of C-Reactive Protein Concentrations, Use Of Antihypertensives Or Lipid -Lowering Medications, Study Site | Primary-Incident Coronary Heart Disease Events | 25(OH)D | <85.92 | 8.5 yrs | 120/2131 | adjusted/HR | 1.32 | 0.95, 1.83 |  |
|  |  |  |  |  | 25(OH)D | 85.92–124.58 | 8.5 yrs | 134/2224 | adjusted/HR | 1.2 | 0.91, 1.58 |  |
|  |  |  |  |  | 25(OH)D | >=124.58 | 8.5 yrs | 107/2081 | adjusted/HR | 1 | reference | 0.04 |
|  |  |  |  |  | 25(OH)D | per 42.96 decrement | 8.5 yrs | 361/6436 | adjusted/HR | 1.15 | 1.01, 1.32 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Cohen et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Connor et al., 2012 | Nested Case Control | 51–70 years; >/= 65 years of age | Not specified |  | Government | USA; Birmingham, AL; Minneapolis, MN; Palo Alto, CA; Monongahela Valley near Pittsburgh, PA; Portland, OR; and San Diego, C | 1746/777/0 | 74 (6)/NR | Non-Hispanic White=91 | Overweight/obese; Other; diabetes = 10%; mild CKD (GFR<60 mL/min/1.73m3) =12% | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Connor et al., 2012 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Race; Anthropometrics- BMI; Medical Conditions- Self-Rated Health Condition, Kidney Function (EGFR), And History Of Diabetes; Sun Exposure- Latitude Of Study Site; Smoking, Other Lifestyle Factors- Physical Activity (PASE), Ever Smoked, Alcohol Drinks Per Week | Primary-Nonspine Fracture | 25(OH)D | Normal level | 4.6 yrs | 100/594 | adjusted/HR | 1.2 | 0.8, 1.8 |  |
|  |  |  |  |  | 25(OH)D | Low vit D | 4.6 yrs | 34/183 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Connor et al., 2012 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Daly et al., 2009 | RCT/CCT | 51–70 years; Healthy; Caucasian; men; age >50 years; community-living | taken calcium-vitamin D supplements in the preceding 12 months; medication use known to affect bone metabolism; participated in regular resistance training in the previous 6 months or greater than 150 min per week of weight-bearing exercise; BMI > 35 kg/m2; lactose intolerance; consumed more than four alcoholic beverages per day; a history of osteoporotic fracture; medical disease or medication use known to affect bone metabolism |  | Manufacturer | Australia; Melbourne | 167/124/0 | 61.2 (7.5)/NR | Non-Hispanic White=100 |  | serum 25(OH)D milk group: 78 ± 23 nmol/l control group: 76 ± 23 nmol/l |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Daly et al., 2009 | RCT/CCT | NR | Anthropometrics- Change In Weight; Smoking, Other Lifestyle Factors- Alcohol And Saturated Fat Intake | Secondary-DBP | D3 zxa |  | 66 | 69.5 (sd=10.1) | change=4.2 (2.1, 6.2) | +0.3 (-2.6, 3.2) | . |
|  |  |  |  |  | D3 control (no additional fortified milk) |  | 58 | 71 (sd=9.8) | change=3.9 (2.0, 5.8) |  | . |
|  |  |  |  | Secondary-SBP | D3 (400 ml reduced fact milk fortified with 1000 mg clacium+800 IU Vit D)/day |  | 66 | 123.7 (sd=11.7) | change=6.8 (4.2, 9.3) | +1.5 (-2.4, 5.4) | . |
|  |  |  |  |  | D3 control (no additional fortified milk) |  | 58 | 120.4 (sd=12.1) | change=5.3 (2.4, 8.2) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Daly et al., 2009 | RCT/CCT | ND | ND | Y | Y | ND | Y | Y | Y | Y | A |  |

| **ligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Dam et al., 2009 | Prospective Cohort | 30 years or greater; ambulatory; community dwelling; Caucasian | Not specified | Rancho Bernardo study | Government | USA; Southern California | 1065/656/62 | 74.6 (10.3)/NR | Non-Hispanic White=98 |  | Mean serum vitamin D concentration: men- 107.6±29.2 nmol/L, women- 100.8±33.1 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Dam et al., 2009 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Baseline Physical Activity Level, Alcohol Use | Secondary-Change In Grip Strength (Women) | 25(OH)D 10–80 nmol/l |  | 159 | NR (NR) | Change= -0.78 (-4.76, 6.32) | +1.55 (NC) | 0.22 |
|  |  |  |  |  | 25(OH)D 82.5–97.5 nmol/l |  | 181 | NR (NR) | Change= -3.30 (-1.34, 7.95) | +5.63 (NC) | . |
|  |  |  |  |  | 25(OH)D 100–112.5 nmol/l |  | 153 | NR (NR) | Change= -2.01 (-6.85, 2.83) | +0.32 (NC) | . |
|  |  |  |  |  | 25(OH)D 115–337.5 nmol/l |  | 163 | NR (NR) | Change= -2.33 (-7.10, 2.45) | reference (reference) | . |
|  |  |  |  | Secondary-Change In Grip Strength (Men) | 25(OH)D 10–90 nmol/l |  | 114 | NR (NR) | Change= -0.71 (-2.12, 3.54) | +1.63 (NC) | 0.22 |
|  |  |  |  |  | 25(OH)D 92.5–102.5 nmol/l |  | 86 | NR (NR) | Change= -0.64 (-3.91, 2.63) | +1.7 (NC) | . |
|  |  |  |  |  | 25(OH)D 105–120 nmol/l |  | 110 | NR (NR) | Change= -0.37 (-2.34, 3.07) | +1.97 (NC) | . |
|  |  |  |  |  | 25(OH)D 122.5–262.5 nmol/l |  | 99 | NR (NR) | Change= -2.34 (-5.15, 0.48) | reference (reference) | . |
|  |  |  |  | Secondary-Change In Timed Up And Go (Tug)(Women) | 25(OH)D 10–80 nmol/l |  | 159 | NR (NR) | Change= 21.92 (16.22, 27.62) | +13.79 (NC) | 0.002 |
|  |  |  |  |  | 25(OH)D 82.5–97.5 nmol/l |  | 181 | NR (NR) | Change= 7.37 (2.69, 12.04) | -0.76 (NC) | . |
|  |  |  |  |  | 25(OH)D 100–112.5 nmol/l |  | 153 | NR (NR) | Change= 8.48 (3.48, 13.48) | +0.35 (NC) | . |
|  |  |  |  |  | 25(OH)D 115–337.5 nmol/l |  | 163 | NR (NR) | Change= 8.13 (3.16, 13.10) | reference (reference) | . |
|  |  |  |  | Secondary-Change In Timed Up And Go (Tug) (Men) | 25(OH)D 10–90 nmol/l |  | 114 | NR (NR) | Change= 3.36 (-1.11, 7.82) | +1.94 (NC) | 0.99 |
|  |  |  |  |  | 25(OH)D 92.5–102.5 nmol/l |  | 86 | NR (NR) | Change= 3.52 (-1.75, 8.79) | +2.1 (NC) | . |
|  |  |  |  |  | 25(OH)D 105–120 nmol/l |  | 110 | NR (NR) | Change= 4.95 (0.69, 9.21) | +3.53 (NC) | . |
|  |  |  |  |  | 25(OH)D 122.5–262.5 nmol/l |  | 99 | NR (NR) | Change= 1.42 (-3.05, 5.09) | reference (reference) | . |
|  |  |  |  | Secondary-Change In Timed Chair Stands (TCS)(Women) | 25(OH)D 10–80 nmol/l |  | 159 | NR (NR) | Change= 21.98 (16.28, 27.67) | +14.28 (NC) | 0.002 |
|  |  |  |  |  | 25(OH)D 82.5–97.5 nmol/l |  | 181 | NR (NR) | Change= 7.38 (2.70, 12.06) | -0.32 (NC) | . |
|  |  |  |  |  | 25(OH)D 100–112.5 nmol/l |  | 153 | NR (NR) | Change= 8.51 (3.51, 13.51) | +0.81 (NC) | . |
|  |  |  |  |  | 25(OH)D 115–337.5 nmol/l |  | 163 | NR (NR) | Change= 7.70 (2.58, 12.62) | reference (reference) | . |
|  |  |  |  | Secondary-Change In Timed Chair Stands (TCS)(Men) | 25(OH)D 10–90 nmol/l |  | 114 | NR (NR) | Change= 3.36 (-1.11, 7.82) | +1.94 (NC) | 0.99 |
|  |  |  |  |  | 25(OH)D 92.5–102.5 nmol/l |  | 86 | NR (NR) | Change= 3.52 (-1.75, 8.79) | +2.1 (NC) | . |
|  |  |  |  |  | 25(OH)D 105–120 nmol/l |  | 110 | NR (NR) | Change= 4.95 (0.69, 9.21) | +3.53 (NC) | . |
|  |  |  |  |  | 25(OH)D 122.5–262.5 nmol/l |  | 99 | NR (NR) | Change= 1.42 (-3.05, 5.09) | reference (reference) | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Dam et al., 2009 | N | Y | N | N |  |  |  |  |  |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | N | NA | Y | Y | N | C | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Deo et al., 2011 | Prospective Cohort | 65 years or greater; not institutionalized; expected to remain in the community for at least 3 years; not under active treatment for cancer | Current cardiovascular disease; inadequate serum volume; able to provide informed written consent; taking lithium; history of primary hyperparathyroidism; implausible 25(OH)D concentrations | Cardiovascular Health Study | Government | USA; multiple | 2283/2283/70 | 74 (4)/NR | Non-Hispanic Black=14 |  |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Deo et al., 2011 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race, Education; Anthropometrics- BMI; Medical Conditions- Hypertension, Diabetes Mellitus; Sun Exposure- Season, Clinic; Smoking, Other Lifestyle Factors- Physical Activity | Primary-Sudden Cardiac Death | 25(OH)D | <20 ng/mL | 14 yrs (median) | 31/715 | Adjusted/HR | 1.47 | 0.88, 2.46 | Not significant |
|  |  |  |  |  | 25(OH)D | >=20 ng/mL | 14 yrs (median) | 42/1568 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Deo et al., 2011 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | A | reconciled - grade stays B --- Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Eaton et al., 2011 | Nested Case Control | 51–70 years; Postmenopausal women; 50–79 years | Current cancer; medications for bone loss (including bisphosphonates, calcitonin, and parathyroid hormone); history of ulcerative colitis or crown’s disease; history of surgery to remove part of the intestine; use of a special diet for malabsorption, celiac sprue or ulcerative colitis; high blood calcium; medications that contained estrogen (up to 1 y before study entry; oral and dermal forms only), androgens (including anabolic steroids, dehydroepiandrosterone, and testosterone), selective estrogen receptor modulators, antiestrogens | WHI | Government | USA; multiple | 2429/2429/100 | 65.1 (7.6)/NR | Non-Hispanic White=780; Hispanic=51; Non-Hispanic Black=132; Asian=16; Race\_other1=10; Race\_other2=12 |  | quartiles |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Eaton et al., 2011 | Nested Case Control | age, race/ethnicity, blood draw date, clinical center | Demographics (Age, Sex, Race/Ethnicity)- Age, Race; Anthropometrics- Waist Circumference, BMI; Medical Conditions- History Of Hypertension, Treated Diabetes, Cvd, Cancer; Sun Exposure- Month Of Blood Draw, Latitude; Smoking, Other Lifestyle Factors- Smoking Status, Weekly Alcohol Consumption, Physical Activity; Other - Breast And Colorectal Cancers, Cad-Trial Indicator, Systolic Blood Pressure | Primary-All-Cause Mortality | 25(OH)D | Quartile 1: 3.25–36.50 nmol/L | 10 yrs | NR/608 | adjusted/HR | 1.25 | 0.80–1.95 | 0.39 |
|  |  |  |  |  | 25(OH)D | Quartile 2: 36.51–49.95 nmol/L | 10 yrs | NR/606 | adjusted/HR | 1.13 | 0.73–1.75 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 49.96–65.38 nmol/L | 10 yrs | NR/608 | adjusted/HR | 1.17 | 0.75–1.81 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: 65.39–146.67 nmol/L | 10 yrs | NR/607 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cardiovascular Disease Mortality | 25(OH)D | Quartile 1: 3.25–36.50 nmol/L | 10 yrs | NR/608 | adjusted/HR | 1.27 | 0.81, 1.99 | 0.33 |
|  |  |  |  |  | 25(OH)D | Quartile 2: 36.51–49.95 nmol/L | 10 yrs | NR/606 | adjusted/HR | 1.14 | 0.74, 1.78 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 49.96–65.38 nmol/L | 10 yrs | NR/608 | adjusted/HR | 1.16 | 0.75, 1.80 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: 65.39–146.67 nmol/L | 10 yrs | NR/607 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cancer Mortality | 25(OH)D | Quartile 1: 3.25–36.50 nmol/L | 10 yrs | NR/608 | adjusted/HR | 1.39 | 0.88, 2.19 | 0.11 |
|  |  |  |  |  | 25(OH)D | Quartile 2: 36.51–49.95 nmol/L | 10 yrs | NR/606 | adjusted/HR | 1.22 | 0.79, 1.89 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 49.96–65.38 nmol/L | 10 yrs | NR/608 | adjusted/HR | 1.12 | 0.72, 1.72 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: 65.39–146.67 nmol/L | 10 yrs | NR/607 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Eaton et al., 2011 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A | WHI observational study Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Eliassen et al., 2011 | Prospective Cohort | 19–50 years; 51–70 years | Current cancer | NHSII | Government | USA; multiple | 1831/1831/100 | 44.9 (4.4)/NR |  |  | serum vitamin D: cases 63.4±23.7nmol/L, controls- 62.4±24.0 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Eliassen et al., 2011 | Prospective Cohort | age (± 2 years); menopausal status at diagnosis; month/year of collection (± 2 months); ethnicity (African-American, Asian, Hispanic, Caucasian, Other); luteal day ((date of next period-date of luteal blood draw) ± 1 day); and for each blood collection, t | Anthropometrics- BMI At Blood Collection; Sun Exposure- Season Of Blood Collection; Smoking, Other Lifestyle Factors- Physical Activity; Other - Premenopausal, Time Of Diagnosis Relative To Blood Collection, Age At Blood Collection, Family History Of Breast Cancer, Luteal Phase Of Premenopausal Women | Primary-Breast Cancer | 25(0H)D | Quartile 1(<18.4ng/mL) | NR | 141/441 | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2(18.4 to 24.6ng/m) | NR | 151/456 | adjusted/RR | 1.05 | 0.79, 1.39 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3(24.6 to <30.6ng/m) | NR | 145/452 | adjusted/RR | 0.95 | 0.71, 1.29 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 (>=30.6ng/mL) | NR | 176/482 | adjusted/RR | 1.2 | 0.88, 1.63 | 0.320 |
|  |  |  |  | Primary-Invasive Breast Cancer | 25(0H)D | Quartile 1(<18.4ng/mL) | NR | 95/395 | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2(18.4 to 24.6ng/m) | NR | 98/403 | adjusted/RR | 1.03 | 0.74, 1.44 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3(24.6 to <30.6ng/m) | NR | 97/404 | adjusted/RR | 1.01 | 0.72, 1.42 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 (>=30.6ng/mL) | NR | 125/431 | adjusted/RR | 1.29 | 0.92, 1.81 | 0.140 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Eliassen et al., 2011 | N | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | cases of breast cancer were reported on biennial questionnaires and confirmed by medical record review or verbal confirmation by the nurse --- Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Engel et al., 2010 | Nested Case Control | born between 1925 and 1950; French women | Not specified | French E3N cohort | Government | France | 1908/1833/100 | 56.9 (6.4)/NR |  |  | serum vitamin D: cases- 24.4+/-10.9 ng/ml, control- 25.1+/-11.0 ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Engel et al., 2010 | Nested Case Control | age (±2 years), menopausal status at blood collection, age at menopause (±2 years), study center, date of blood collection (same year) | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Other - Dietary Calcium Intake | Primary-Breast Cancer | 25(0H)D | <19.8 ng/mL | <=10 years | 226/630 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 19.8–27ng/mL | <=10 years | 198/600 | adjusted/OR | 0.81 | 0.63, 1.04 |  |
|  |  |  |  |  | 25(0H)D | >27ng/mL | <=10 years | 191/603 | adjusted/OR | 0.73 | 0.55, 0.96 | 0.020 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Engel et al., 2010 | N | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Fedirko et al., 2012 | Nested Case Control | Not specified | Not specified | EPIC | Government | Multiple Countries | 1202/1202/59.5 | 62.1 (7.2)/NR |  |  | by quintiles |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Fedirko et al., 2012 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Age At Diagnosis, Sex; Anthropometrics- BMI; Medical Conditions- Cancer Stage, Grade Of Tumor Differentiation, Location Of Primary Tumor; Sun Exposure- Season Of Blood Collection; Smoking, Other Lifestyle Factors- Smoking Status, Physical Activity; Other - Year Of Diagnosis | Primary-Colorectal Cancer Specific Mortality | 25(OH)D | Quintile 1:<36.3 | 73 mos | 104/242 | adjusted/HR | 1 | Reference | 0.04 |
|  |  |  |  |  | 25(OH)D | Quintile 2:36.4–48.6 | 73 mos | 85/239 | adjusted/HR | 0.76 | 0.56, 1.02 |  |
|  |  |  |  |  | 25(OH)D | Quintile 3:48.7–60.5 | 73 mos | 95/241 | adjusted/HR | 0.93 | 0.69, 1.24 |  |
|  |  |  |  |  | 25(OH)D | Quintile 4:60.6–76.8 | 73 mos | 78/240 | adjusted/HR | 0.78 | 0.58, 1.06 |  |
|  |  |  |  |  | 25(OH)D | Quintile 5:>76.8 | 73 mos | 82/240 | adjusted/HR | 0.69 | 0.50, 0.93 |  |
|  |  |  |  | Primary-Overall Mortality | 25(OH)D | Quintile 1:<36.3 | 73 mos | 128/242 | adjusted/HR | 1 | Reference | <0.01 |
|  |  |  |  |  | 25(OH)D | Quintile 2:36.4–48.6 | 73 mos | 108/239 | adjusted/HR | 0.82 | 0.63, 1.07 |  |
|  |  |  |  |  | 25(OH)D | Quintile 3:48.7–60.5 | 73 mos | 117/241 | adjusted/HR | 0.91 | 0.70, 1.18 |  |
|  |  |  |  |  | 25(OH)D | Quintile 4:60.6–76.8 | 73 mos | 95/240 | adjusted/HR | 0.78 | 0.59, 1.03 |  |
|  |  |  |  |  | 25(OH)D | Quintile 5:>76.8 | 73 mos | 93/240 | adjusted/HR | 0.67 | 0.50, 0.88 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Fedirko et al., 2012 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | B | Sampling was random |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Fiscella et al., 2010 | Prospective Cohort | Not specified | Not specified | NHANES-III | Government |  | 15,363/15363/52 | 43.64/NR | Non-Hispanic White=77; Hispanic=9; Non-Hispanic Black=10; Race\_other1=3 |  | serum vitamin D: 29.5 ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Fiscella et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Log (Age), Sex, Race/Ethnicity; Anthropometrics- BMI Category; Medical Conditions- Self-Reported Diabetes, Cvd; Sun Exposure- Interview Month, Region; Smoking, Other Lifestyle Factors- Currently Smoking Or Not, Physical Inactivity; Other - Self-Rated Health, Systolic Blood Pressure, EGFR, Total Cholesterol, Serum Albumin, CRP, Urinary Acr | Primary-Cardiovascular Death | 25(OH)D | Q1: <18 ng/mL | 138,549 person years | 933/15363 | Adjusted/IRR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Q2: 18–24.9 ng/mL | 138,549 person years |  | Adjusted/IRR | 0.71 | 0.54, 0.94 | NR |
|  |  |  |  |  | 25(OH)D | Q3: 25–31.9 ng/mL | 138,549 person years |  | Adjusted/IRR | 0.65 | 0.53, 0.79 | NR |
|  |  |  |  |  | 25(OH)D | Q4: >32 ng/mL | 138,549 person years |  | Adjusted/IRR | 0.79 | 0.62, 1.01 | NR |
|  |  |  |  |  | 25(OH)D | <18 ng/mL | 138,549 person years | 933/15363 | Adjusted/IRR | 1.4 | 1.16, 1.69 | <0.001 |
|  |  |  |  |  | 25(OH)D | >=18 ng/mL | 138,549 person years |  | Adjusted/IRR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Fiscella et al., 2010 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A | Sampling was random |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Forman et al., 2013 | RCT/CCT | 19–50 years; 51–70 years; Able to participate, understand English..; 30–80 years; written and spoken English; self-identified as black; with permission from primary care doctors | Current cancer; disorders of calcium metabolism or parathyroid function; type 1 diabetes; sarcoidosis; active malignancy other than non-melanoma skin cancer; active thyroid disease; cognitive impairment; plan on traveling to a sunny region during the supplementation phase of the study |  | Government | USA; Boston, MA | 283/283/65.4 | 51/44–59 | Hispanic=67; Non-Hispanic Black=933 |  | Median serum vitamin D- 15.7 (10.7–23.4 IQR) ng/ml |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Forman et al., 2013 | RCT/CCT | NR | NR | Secondary-Diastolic Blood Pressure | D3 Vit D3 1000 IU/day |  | 68 | 79.8 (se=1.3) | final=78.0 (se=1.6) | -0.9 (-5.7, 3.9) | 0.71 |
|  |  |  |  |  | D3 Vit D3 2000 IU/day |  | 73 | 77.6 (se=1.4) | final=76.0 (se=1.8) | -2.9 (-7.9, 2.1) | 0.26 |
|  |  |  |  |  | D3 Vit D3 4000 IU/day |  | 70 | 79.8 (se=1.6) | final=78.0 (se=1.6) | -0.9 (-5.7, 3.9) | 0.71 |
|  |  |  |  |  | D3 placebo |  | 72 | 78 (se=1.3) | final=78.9 (se=1.8) |  | . |
|  |  |  |  | Secondary-Systolic Blood Pressure | D3 Vit D3 1000 IU/day |  | 68 | 124.7 (se=2.1) | final=122.5 (se=2.0) | -2.4 (-8.6, 3.8) | 0.45 |
|  |  |  |  |  | D3 Vit D3 2000 IU/day |  | 73 | 122.8 (se=2.0) | final=120.0 (se=2.4) | -4.9 (-11.6, 1.8) | 0.15 |
|  |  |  |  |  | D3 Vit D3 4000 IU/day |  | 70 | 130.4 (se=2.4) | final=126.6 (se=2.6) | +1.7 (-5.3, 8.7) | 0.63 |
|  |  |  |  |  | D3 placebo |  | 72 | 122.2 (se=2.2) | final=124.9 (se=2.4) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Forman et al., 2013 | RCT/CCT | Y | ND | Y | ND | Y | ND | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Formiga et al., 2014 | Prospective Cohort | community dwelling adults born in 1924 | Not specified | Octabaix | Unclear | Spain | 312/312/60.6 | 85 (0)/NR |  | Other; Oldest old | 70 ± 75 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Formiga et al., 2014 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Sex, Educational Level, Marital Status; Medical Conditions- Charlton Index; Other - Barthel Index (Physical Performance), MEC (Cognitive Performance) | Primary-Total Mortality | 25(OH)D | Q1: <34.94 | 2.8 yrs | 15/71 | unadjusted/HR | 1.28 | 0.61, 2.6 | 0.41 |
|  |  |  |  |  | 25(OH)D | Q2: 34.94–61.65 | 2.8 yrs | 18/77 | unadjusted/HR | 1.36 | 0.67, 2.74 |  |
|  |  |  |  |  | 25(OH)D | Q3: 61.66–83.37 | 2.8 yrs | 11/84 | unadjusted/HR | 0.76 | 0.34, 1.68 |  |
|  |  |  |  |  | 25(OH)D | Q4:>83.37 | 2.8 yrs | 14/80 | unadjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cardiovascular Mortality | 25(OH)D | Q1: <34.94 | 2.8 yrs | 6/71 | unadjusted/HR | 1.04 | 0.33, 3.24 | 0.86 |
|  |  |  |  |  | 25(OH)D | Q2: 34.94–61.65 | 2.8 yrs | 6/77 | unadjusted/HR | 0.89 | 0.28, 2.80 |  |
|  |  |  |  |  | 25(OH)D | Q3: 61.66–83.37 | 2.8 yrs | 6/84 | unadjusted/HR | 1.47 | 0.45, 4.58 |  |
|  |  |  |  |  | 25(OH)D | Q4:>83.37 | 2.8 yrs | 7/80 | unadjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Formiga et al., 2014 | N | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Freedman et al., 2010 | Prospective Cohort | 19–50 years; 51–70 years; 17 years and older; completed MEC exam | no 25(OH)D; unknown mortality status | NHANES-III | Government | USA; multiple | 16,819/NR/12.2 | 44.5/NR | Non-Hispanic White=5; Hispanic=124; Non-Hispanic Black=338; Race\_other1=144 |  |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Freedman et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race/Ethnicity; Anthropometrics- BMI; Sun Exposure- Season/ Latitude; Smoking, Other Lifestyle Factors- Smoking History | Primary-Total Cancer Mortality | 25(OH)D | < 37.5 nmol/L-men and women, all seasons | 13.4 yrs | 116/NR | adjusted/RR | 1 | Reference | 0.43 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-men and women, all seasons | 13.4 yrs | 174/NR | adjusted/RR | 1.04 | 0.77, 1.41 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-men and women, all seasons | 13.4 yrs | 165/NR | adjusted/RR | 1.23 | 0.89, 1.69 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-men and women, all seasons | 13.4 yrs | 200/NR | adjusted/RR | 1.19 | 0.86, 1.65 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-men and women, all seasons | 13.4 yrs | 139/NR | adjusted/RR | 1.12 | 0.80, 1.57 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-men and women, all seasons | 13.4 yrs | 90/NR | adjusted/RR | 1.15 | 0.79, 1.68 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-men & women, winter/lower latitude | 13.4 yrs | 55/NR | adjusted/RR | 1 | Reference | 0.23 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-men & women, winter/lower latitude | 13.4 yrs | 79/NR | adjusted/RR | 1.3 | 0.77, 2.19 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-men & women, winter/lower latitude | 13.4 yrs | 57/NR | adjusted/RR | 1.2 | 0.64, 2.26 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-men & women, winter/lower latitude | 13.4 yrs | 78/NR | adjusted/RR | 1.67 | 0.98, 2.86 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-men & women, winter/lower latitude | 13.4 yrs | 54/NR | adjusted/RR | 1.31 | 0.77, 2.23 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-men & women, winter/lower latitude | 13.4 yrs | 32/NR | adjusted/RR | 1.5 | 0.74, 3.02 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-men & women, summer/higher latitude | 13.4 yrs | 61/NR | adjusted/RR | 1 | Reference | 0.67 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-men & women, summer/higher latitude | 13.4 yrs | 95/NR | adjusted/RR | 0.91 | 0.63, 1.32 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-men & women, summer/higher latitude | 13.4 yrs | 108/NR | adjusted/RR | 1.19 | 0.78, 1.82 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-men & women, summer/higher latitude | 13.4 yrs | 122/NR | adjusted/RR | 1.02 | 0.67, 1.54 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-men & women, summer/higher latitude | 13.4 yrs | 85/NR | adjusted/RR | 1.03 | 0.66, 1.63 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-men & women, summer/higher latitude | 13.4 yrs | 58/NR | adjusted/RR | 1.02 | 0.63, 1.45 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-men, all seasons | 13.4 yrs | 47/NR | adjusted/RR | 1 | Reference | 0.09 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-men, all seasons | 13.4 yrs | 95/NR | adjusted/RR | 1.66 | 0.98, 2.80 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-men, all seasons | 13.4 yrs | 90/NR | adjusted/RR | 1.43 | 0.90, 2.26 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-men, all seasons | 13.4 yrs | 122/NR | adjusted/RR | 1.52 | 0.82, 2.80 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-men, all seasons | 13.4 yrs | 90/NR | adjusted/RR | 1.66 | 1.06, 2.61 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-men, all seasons | 13.4 yrs | 69/NR | adjusted/RR | 1.85 | 1.02, 3.35 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-men, winter/lower latitude | 13.4 yrs | 25/NR | adjusted/RR | 1 | Reference | 0.55 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-men, winter/lower latitude | 13.4 yrs | 51/NR | adjusted/RR | 2.58 | 1.37, 4.87 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-men, winter/lower latitude | 13.4 yrs | 31/NR | adjusted/RR | 1.14 | 0.48, 2.70 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-men, winter/lower latitude | 13.4 yrs | 52/NR | adjusted/RR | 1.99 | 0.86, 4.13 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-men, winter/lower latitude | 13.4 yrs | 33/NR | adjusted/RR | 1.42 | 0.74, 2.72 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-men, winter/lower latitude | 13.4 yrs | 23/NR | adjusted/RR | 1.94 | 0.69, 5.45 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-men, summer/higher latitude | 13.4 yrs | 22/NR | adjusted/RR | 1 | Reference | 0.045 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-men, summer/higher latitude | 13.4 yrs | 44/NR | adjusted/RR | 1.28 | 0.51, 3.23 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-men, summer/higher latitude | 13.4 yrs | 59/NR | adjusted/RR | 1.55 | 0.81, 2.99 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-men, summer/higher latitude | 13.4 yrs | 70/NR | adjusted/RR | 1.33 | 0.53, 3.53 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-men, summer/higher latitude | 13.4 yrs | 57/NR | adjusted/RR | 1.76 | 0.87, 3.57 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-men, summer/higher latitude | 13.4 yrs | 46/NR | adjusted/RR | 1.84 | 0.85, 3.98 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-women, all seasons | 13.4 yrs | 69/NR | adjusted/RR | 1 | Reference | 0.29 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-women, all seasons | 13.4 yrs | 79/NR | adjusted/RR | 0.85 | 0.59, 1.22 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-women, all seasons | 13.4 yrs | 75/NR | adjusted/RR | 1.25 | 0.82, 1.90 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-women, all seasons | 13.4 yrs | 78/NR | adjusted/RR | 1.11 | 0.69, 1.79 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-women, all seasons | 13.4 yrs | 49/NR | adjusted/RR | 0.86 | 0.50, 1.46 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-women, all seasons | 13.4 yrs | 21/NR | adjusted/RR | 0.64 | 0.35, 1.18 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-women, winter/lower latitude | 13.4 yrs | 30/NR | adjusted/RR | 1 | Reference | 0.42 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-women, winter/lower latitude | 13.4 yrs | 28/NR | adjusted/RR | 0.74 | 0.36, 1.51 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-women, winter/lower latitude | 13.4 yrs | 26/NR | adjusted/RR | 1.27 | 0.51, 3.18 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-women, winter/lower latitude | 13.4 yrs | 26/NR | adjusted/RR | 1.44 | 0.61, 3.38 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-women, winter/lower latitude | 13.4 yrs | 21/NR | adjusted/RR | 1.28 | 0.50, 3.24 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-women, winter/lower latitude | 13.4 yrs | 9/NR | adjusted/RR | 1.01 | 0.26, 3.90 |  |
|  |  |  |  |  | 25(OH)D | < 37.5 nmol/L-women, summer/higher latitude | 13.4 yrs | 39/NR | adjusted/RR | 1 | Reference | 0.03 |
|  |  |  |  |  | 25(OH)D | 37.5–<50 nmol/L-women, summer/higher latitude | 13.4 yrs | 51/NR | adjusted/RR | 0.88 | 0.54, 1.43 |  |
|  |  |  |  |  | 25(OH)D | 50 –<62.5 nmol/L-women, summer/higher latitude | 13.4 yrs | 49/NR | adjusted/RR | 1.18 | 0.65, 2.12 |  |
|  |  |  |  |  | 25(OH)D | 62.5–80 nmol/L-women, summer/higher latitude | 13.4 yrs | 52/NR | adjusted/RR | 0.99 | 0.52, 1.87 |  |
|  |  |  |  |  | 25(OH)D | 80–<100 nmol/L-women, summer/higher latitude | 13.4 yrs | 28/NR | adjusted/RR | 0.7 | 0.34, 1.44 |  |
|  |  |  |  |  | 25(OH)D | >=100 nmol/L-women, summer/higher latitude | 13.4 yrs | 12/NR | adjusted/RR | 0.52 | 0.25, 1.10 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Freedman et al., 2010 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | B | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Ganmaa et al., 2012 | RCT/CCT | 9–18 years; 12–15 years; residing in Ulaanbaatar | Not specified |  | Manufacturer | China ;Ulaanbaatar, Mongolia | 120/117/47.5 | 13.1 (1.5)/NR |  | Other; latent tuberculosis | 18+/-10 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Ganmaa et al., 2012 | RCT/CCT | NR | NR | Primary-Tuberculin Skin Test(Tst) | Vit D | 800IU/day-NR | NR | 17/59 | Adjusted/RR | 0.41 | 0.16, 1.09 | 0.06 |
|  |  |  |  |  | Vit D | Placebo-NR | NR | 24/58 | Adjusted/RR | 1 | reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Ganmaa et al., 2012 | RCT/CCT | Y | Y | ND | Y | Y | N | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Gepner et al., 2012 | RCT/CCT | Postmenopausal women; Healthy; serum 25(OH)D concentrations between 10–60ng/ml; community dwelling; ambulatory | use of medications that interfere with vitamin D metabolism or affect bone turn over; active metabolites of vitamin D within 6 months of screening; history of CVD; serum calcium >10.5mg/dl; untreated hyperparathyroidism; history of nephrolithiasis, hypercalciuria, malignancy, tuberculosis, sarcoidosis; Paget’s disease; malabsorption syndromes; estimated glomerular filtration rate</=25 mL/minute; use of tanning beds or salons, unwilling to use sunscreen during periods of sun exposure >15 minutes |  | university | USA; Madison, WI | 114/114/100 | 63.9 (3.0)/NR |  | Post menopausal | serum vitamin D- 31.3+/-10.6 ng/ml |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Gepner et al., 2012 | RCT/CCT | NR | Anthropometrics- BMI | Secondary-Brachial DBP | D3 placebo |  | 57 | 72.6 (sd=7.1) | change=-0.4 (sd=4.4) |  | . |
|  |  |  |  |  | D3 Vit D3 2500 IU/day |  | 57 | 72.45 (sd=7.6) | change=-0.7 (sd=5.1) | -0.3 (-2.1, 1.5) | 0.73 |
|  |  |  |  | Secondary-Brachial SBP | D3 placebo |  | 57 | 122.2 (sd=11.8) | change=-2.5 (sd=10.9) |  | . |
|  |  |  |  |  | D3 Vit D3 2500 IU/day |  | 57 | 122.3 (sd=13.1) | change=-0.3 (sd=8.4) | +2.2 (-1.4, 5.8) | 0.23 |
|  |  |  |  | Secondary-Central DBP | D3 placebo |  | 57 | 73.7 (sd=7.1) | change=-0.5 (sd=4.4) |  | . |
|  |  |  |  |  | D3 Vit D3 2500 IU/day |  | 57 | 73.5 (sd=7.7) | change=-0.7 (sd=5.1) | -0.2 (-2.0, 1.6) | 0.82 |
|  |  |  |  | Secondary-Central SBP | D3 placebo |  | 57 | 115.6 (sd=11.1) | change=-2.1 (sd=9.7) |  | . |
|  |  |  |  |  | D3 Vit D3 2500 IU/day |  | 57 | 116.7 (sd=12.2) | change=-0.3 (sd=7.0) | +1.8 (-1.3, 4.9) | 0.26 |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Gepner et al., 2012 | RCT/CCT | Y | Y | Y | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Gernand et al., 2013 | Prospective Cohort | Pregnant or lactating women; singleton gestation; white, black or Puerto Rican maternal race/ethnicity; entry to prenatal care at 26 weeks or less; available stored serum sample at 26 weeks or less | Hypertension; Type 2 DM; diabetes; stillbirth; preterm birth; serum unsuitable for vitamin d measurement; missing covariates | Collaborative Perinatal Project | Government | USA; multiple | 2146/2146/100 | NR/NR | Non-Hispanic White=521; Hispanic=63; Non-Hispanic Black=416 | Other; pregnant | maternal serum vitamin D: 51.3+/-28.0 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Gernand et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Maternal Race/Ethnicity; Anthropometrics- Prepregnancy BMI, Height; Sun Exposure- Season And Study Site; Smoking, Other Lifestyle Factors- Smoking | Secondary-Birth Weight | <37.5 |  | 747 | NR (NR) | Final=3127 (SD=15) |  | . |
|  |  |  |  |  | >=37.5 |  | 1399 | NR (NR) | Final=3215 (SD=11) |  | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Gernand et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Ginde et al., 2009 | Prospective Cohort | >/= 65 years; Non-institutionalized US civilian population | Not specified | NHANES III | Government | USA; multiple | 3408/3408/56 | 73 (0.2)/NR | Non-Hispanic White=87; Hispanic=2; Non-Hispanic Black=7; Race\_other1=4 |  | median 25(OH) D level- 66.0 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Ginde et al., 2009 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race/Ethnicity; Anthropometrics- BMI; Medical Conditions- Asthma, Copd, Hypertension, Diabetes, Hyperlipidemia; Sun Exposure- Season; Smoking, Other Lifestyle Factors- Physical Activity, Smoking Status, Cigarette Pack Years; Other - Region, Renal Function, History Of MI, Stroke, Cancer (Nonskin) | Secondary-Cardiovascular Death | 25(OH)D | <25.0 nmol/L | 7.3 yrs | 767/115 | Adjusted/HR | 2.36 | 1.17, 4.75 | <0.05 |
|  |  |  |  |  | 25(OH)D | 25.0–49.9 nmol/L | 7.3 yrs | NR/904 | Adjusted/HR | 1.54 | 1.01, 2.34 | <0.05 |
|  |  |  |  |  | 25(OH)D | 50.0–74.9 nmol/L | 7.3 yrs | NR/1296 | Adjusted/HR | 1.26 | 0.85, 1.88 | NS |
|  |  |  |  |  | 25(OH)D | 75.0–99.9 nmol/L | 7.3 yrs | NR/775 | Adjusted/HR | 1.2 | 0.79, 1.81 | NS |
|  |  |  |  |  | 25(OH)D | >=100.0 nmol/L | 7.3 yrs | NR/318 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Ginde et al., 2009 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | B | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Goldring et al., 2013 | RCT/CCT | 0–6 months; 7 months–2 years; 3–8 years; children 0–3 years of age; mothers participated in vitamin D RCT from 27 weeks gestation; black, white, Asian or middle eastern | known sarcoidosis, osteomalacia, renal dysfunction, tuberculosis |  | Private Foundation | UK | 180/106/56 | 3/NR | Non-Hispanic White=26; Non-Hispanic Black=24; Asian=24; Race\_other1=26 | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Goldring et al., 2013 | RCT/CCT | Not applicable | Other Nutrients Or Dietary Factors- Vitamin Supplementation; Demographics (Age, Sex, Race/Ethnicity)- Maternal Ethnicity, Maternal Education; Smoking, Other Lifestyle Factors- Smokers In Household, Maternal Smoking During Pregnancy; Other - Family History Of Allergy, Number Of Children In Household, Baseline Maternal 25(Oh)d | Primary-Wheeze Ever | D | either 800 IU ergocalciferol daily or 200,000 IU calciferol (single dose) | 3 yrs | 11/56 | adjusted/OR | 0.56 | 0.20, 1.57 | 0.27 |
|  |  |  |  |  |  | control | 3 yrs | 14/50 | adjusted/OR | 1 | reference |  |
|  |  |  |  | Secondary-Lower Respiratory Tract Infection | D | either 800 IU ergocalciferol daily or 200,000 IU calciferol (single dose) | 3 yrs | 14/54 | adjusted/OR | 1 | 0.35, 2.91 | 1 |
|  |  |  |  |  |  | control | 3 yrs | 11/50 | adjusted/OR | 1 | reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Goldring et al., 2013 | RCT/CCT | Y | Y | NA | Y | Y | N | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Green et al., 2010 | Nested Case Control | Postmenopausal women; nurses; no history of cancer at the time of blood sample | Not specified | Nurses’ Health Study | Government | USA; multiple | 960/469/100 | 61.0/NR |  | Post menopausal | tertiles |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Green et al., 2010 | Nested Case Control | age +/- 2years, fasting status at the time of blood collection, and PMH use, month of blood collection, time of day that blood was drawn (62 hr) | Demographics (Age, Sex, Race/Ethnicity)- Age At Mammography; Smoking, Other Lifestyle Factors- Alcohol Intake, Smoking Status; Other - Personal History Of Benign Breast Disease, Age At Menarche, Parity, Age At First Birth, Use Of Postmenopausal Hormones, Age At Menopause | Secondary-Percent Mammographic Density | 1,25(OH)2D: 1st quartile (13.0–29.1 ng/ml) |  | 110 | NR (NR) | final=25.5 (NR) |  | . |
|  |  |  |  |  | 1,25(OH)2D: 2nd quartile (29.2–33.1 ng/ml) |  | 108 | NR (NR) | final=27.6 (NR) | +2.1 (NC) | . |
|  |  |  |  |  | 1,25(OH)2D: 3rd quartile (33.2–37.3 ng/ml) |  | 110 | NR (NR) | final=23.3 (NR) | -2.2 (NC) | . |
|  |  |  |  |  | 1,25(OH)2D: 4th quartile (37.4–56.2 ng/ml) |  | 114 | NR (NR) | final=25.8 (NR) | +0.3 (NC) | . |
|  |  |  |  |  | 25(OH)D: 1st quartile (cut points vary by batches) |  | 118 | NR (NR) | final=26.3 (NR) |  | . |
|  |  |  |  |  | 25(OH)D: 2nd quartile |  | 115 | NR (NR) | final=25.6 (NR) | -0.7 (NC) | . |
|  |  |  |  |  | 25(OH)D: 3rd quartile |  | 124 | NR (NR) | final=24.8 (NR) | -1.5 (NC) | . |
|  |  |  |  |  | 25(OH)D: 4th quartile |  | 112 | NR (NR) | final=25.7 (NR) | -0.6 (NC) | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Green et al., 2010 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | medical record reviews were used to confirm breast cancer diagnoses but article did not state whether diagnoses were verified independently Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Grimnes et al., 2012 | RCT/CCT | 19–50 years; 51–70 years; Postmenopausal women; 50–80 years; T-score in total hip or lumbar spine (L2–4)=-2.0 | Current cancer; Current cardiovascular disease; Type 2 DM; hormone replacement therapy or other therapy affecting bone remodeling during the last 12 months before enrollment; use of steroids; renal stone disease; systolic blood pressure >175mmHg or diastolic blood pressure >105mmHg; serum creatinine >110 µmol/l; suspected hyperparathyroidism; chronic disease like ischemic heart disease, diabetes, granulomatous disease, and cancer |  | Manufacturer | Norway | 297/297/100 | 63.5 (6.8)/NR |  | Post menopausal | serum vitamin D: high dose group- 70.7+/-23.0 nmol/L; standard dose group- 71.2+/-22.3 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Grimnes et al., 2012 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Sun Exposure- Reported Outdoor Time, Sunny Holidays, Sun Bed Use; Smoking, Other Lifestyle Factors- Smoking, Physical Activity | Secondary-Total Hip BMD | D3 high dose (6500 IU/day)+1000 mg elemental calcium/day-overall |  | 149 | 0.79 (sd=0.073) | change=0.31 (sd=1.59) | -0.25 (-0.63, 0.13) | 0.19 |
|  |  |  |  |  | D3 standard dose(800 IU/day)+1000 mg elemental calcium/day-overall |  | 148 | 0.791 (sd=0.082) | change=0.56 (sd=1.70) |  | . |
|  |  |  |  | Secondary-Femoral Neck BMD | D3 high dose (6500 IU/day)+1000 mg elemental calcium/day-overall |  | 149 | 0.758 (sd=0.066) | change=0.03 (sd=2.08) | -0.14 (-0.59, 0.31) | . |
|  |  |  |  |  | D3 standard dose(800 IU/day)+1000 mg elemental calcium/day-overall |  | 148 | 0.757 (sd=0.079) | change=0.17 (sd=1.87) |  | . |
|  |  |  |  | Secondary-L2-L4 BMD | D3 high dose (6500 IU/day)+1000 mg elemental calcium/day-overall |  | 149 | 0.901 (sd=0.072) | change=0.25 (sd=3.19) | -0.07 (-0.80, 0.66) | . |
|  |  |  |  |  | D3 standard dose(800 IU/day)+1000 mg elemental calcium/day-overall |  | 148 | 0.902 (sd=0.079) | change=0.32 (sd=3.23) |  | . |
|  |  |  |  | Secondary-Total Body BMD | D3 high dose (6500 IU/day)+1000 mg elemental calcium/day-overall |  | 149 | 1 (sd=0.054) | change=0.18 (sd=1.14) | -0.02 (-0.29, 0.25) | . |
|  |  |  |  |  | D3 standard dose(800 IU/day)+1000 mg elemental calcium/day-overall |  | 148 | 1.002 (sd=0.055) | change=0.20 (sd=1.23) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Grimnes et al., 2012 | RCT/CCT | Y | Y | Y | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Holland et al., 2012 | RCT/CCT | 0–6 months; 7 months–2 years; infants aged 1–11 months; living within the socioeconomically deprived study districts | vitamin D within previous 3 months; families expecting to move to another town within 18 months; rickets; clinical diagnosis of Kwashiorkor or Marasmus |  | Private Foundation | Kabul, Afghanistan | 3046/NR/48 | NR/NR |  | Malnourished/frailty | only box plot of figure 3 |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Holland et al., 2012 | RCT/CCT | NR | NR | Primary-All Pneumonia First Episode | Vit D3 | 100,000IU-confirmed chest radiograph confirmed | NR | 260/NR | Adjusted/IRR | 1.065 | 0.895, 1.268 | 0.476 |
|  |  |  |  |  |  | Placebo-confirmed chest radiograph confirmed | NR | 2445/NR | Adjusted/IRR | 1 | reference |  |
|  |  |  |  | Primary-All Pneumonia Repeat Episode | Vit D3 | 100,000IU-confirmed chest radiograph confirmed | NR | 138/NR | Adjusted/IRR | 1.685 | 1.282, 2.212 | <0.0001 |
|  |  |  |  |  |  | Placebo-confirmed chest radiograph confirmed | NR | 82/NR | Adjusted/IRR | 1 | reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Holland et al., 2012 | RCT/CCT | Y | ND | Y | N | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Hollis et al., 2011 | RCT/CCT | Pregnant or lactating women; maternal age of 16 years or greater at the time of consent; confirmed singleton pregnancy of fewer than 16 completed weeks of gestation at the time of consent; planned to receive ongoing prenatal care in the Charleston, SC, area,; ability to provide written informed consent at the first visit. | required chronic diuretic or cardiac medication therapy, including calcium channel blockers; suffered chronic hypertension; Pregnant women with preexisting calcium or parathyroid conditions; Women with a pregnancy at greater than 16 weeks of gestation as calculated by their last menstrual period; active thyroid disease |  | Government | USA; Charleston, SC | 502/350/100 | 27.0 (5.6)/18–41 | Non-Hispanic White=342; Hispanic=405; Non-Hispanic Black=252 |  | serum: delivered group- 59.5.8 nmol/L (6.0–172.5) exited group- 50.5.1nmol/L (6.5–120.5) vit D intake: 400 IU group- 181.6+/-108.4 IU/d, 2000 IU group- 195.8+/-135.0, 4000 IU group- 204.2+/-148.2 calcium intake: 400 IU group-1063.6+/-539.6 mg |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Hollis et al., 2011 | RCT/CCT | NR | NR | Secondary-Birth Weight | Vit D 4000 IU |  | 117 | NR (NR) | Final=3284.6 (3175.2, 3394.0) | +62.8 (-103.4, 229.0) | 0.23 |
|  |  |  |  |  | Vit D 2000 IU |  | 122 | NR (NR) | Final=3360.1 (3255.2, 3465.0) | +138.3 (-24.4, 301.0) | . |
|  |  |  |  |  | Vit D 400 IU |  | 111 | NR (NR) | Final=3221.8 (3094.9, 3348.8) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Hollis et al., 2011 | RCT/CCT | Y | ND | ND | N | ND | N | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Holvik et al., 2013 | Prospective Cohort | 51–70 years; age 65–79 years; home-dwelling | Not specified | Norwegian Epidemiologic Osteoporosis Studies (NOREPOS) | Government | Norway | 21774/1022/72 | 71.9 (3.9)/NR |  | Other; 46.1–59.2% good or very good health | median (25th and 75th percentiles) s-25(OH)D in the randomly sampled subcohort was 53.5 (42.2, 67.8) nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Holvik et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Gender; Anthropometrics- BMI; Sun Exposure- Month Of Blood Sample | Primary-Hip Fracture | 25(OH)D | Q1: 4.5–42.1 | 10.7 yrs | 317/256 | adjusted/HR | 1.34 | 1.05, 1.70 |  |
|  |  |  |  |  | 25(OH)D | Q2: 42.2–53.5 | 10.7 yrs | 294/255 | adjusted/HR | 1.13 | 0.90, 1.44 |  |
|  |  |  |  |  | 25(OH)D | Q3: 53.5–67.8 | 10.7 yrs | 272/255 | adjusted/HR | 1.1 | 0.87, 1.39 |  |
|  |  |  |  |  | 25(OH)D | Q4: 67.9–250.0 | 10.7 yrs | 279/256 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Holvik et al., 2013 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Hosseinpanah et al., 2011 | Nested Case Control | 19–50 years; 51–70 years; Healthy; free of CVD and kidney disease; age >30 | Not specified | Tehran Lipid and Glucose Study (TLGS) | Unclear | Tehran, Iran | 502/502/48.6 | 56.84 (11.17)/NR |  |  | 25-OH-D concentration (ng/ml): cases- 12.5 (8.4-24.4); controls 18.1(11–31) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Hosseinpanah et al., 2011 | Nested Case Control | age, sex, month of study entry, length of follow up | Anthropometrics- BMI; Medical Conditions- Diabetes Mellitus, Hypertension, Hypercholesterolemia, Hypertriglyceridemia, Low HDL | Primary-Cardiovascular Disease | 25(OH)D | <10 ng/mL | 5.7 yrs | 85/133 | Adjusted/OR | 2.9 | 1.76, 4.67 | <0.001 |
|  |  |  |  |  | 25(OH)D | 10–14.99 ng/mL | 5.7 yrs | 86/173 | Adjusted/OR | 1.46 | 0.83, 2.56 | 0.18 |
|  |  |  |  |  | 25(OH)D | >=15ng/mL | 5.7 yrs | 80/196 | Adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Hosseinpanah et al., 2011 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from C to B |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Houston et al., 2012 | Prospective Cohort | 70–79 years; black and white; no difficulty walking 1/4 mile, up 10 steps, or performing basic ADLs; free of life-threatening illness | lacked 25(OH)D measurements; missing data on pertinent covariates; lacked follow-up visits at year 4 or 6 | Health, Aging and Body Composition | Government | USA; Pittsburgh, Memphis | 2307/1971/51.1 | 74.7 (2.9)/NR | Non-Hispanic White=615; Non-Hispanic Black=385 | Other; diabetes, cvd, copd, knee pain | 1/3- 25(OH)D <50nmol/L, 2/3–<75nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Houston et al., 2012 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Multivitamin And Vitamin D-Containing Supplement Use; Demographics (Age, Sex, Race/Ethnicity)- Age, Gender, Race, education; Anthropometrics- BMI; Medical Conditions- Kidney Function, Cognitive Function, Depressive Symptoms, Diabetes Mellitus, Cardiovascular Disease, Chronic Obstructive Pulmonary Disease, Knee Pain; Sun Exposure- Season; Smoking, Other Lifestyle Factors- Smoking Status, Alcohol Consumption, Physical Activity; Other - Prior Hospitalization | Secondary-Knee Extensor Strength | 25(OH)D <50 nmol/L |  | 1818 | 12.83 (SE=0.27) | Final=11.9 (SE=0.2) | NC (NC) | 0.76 |
|  |  |  |  |  | 25(OH)D 50–<75 nmol/L |  |  | 13.01 (SE=0.27) | Final=11.9 (SE=0.2) | NC (NC) | . |
|  |  |  |  |  | 25(OH)D >=75 nmol/L |  |  | 12.91 (SE=0.27) | Final=11.8 (SE=0.2) | NC (NC) | . |
|  |  |  |  | Secondary-Grip Strength | 25(OH)D <50 nmol/L |  | 1971 | 28.87 (SE=0.51) | Final=29.2 (SE=0.4) | NC (NC) | 0.09 |
|  |  |  |  |  | 25(OH)D 50–<75 nmol/L |  |  | 29.71 (SE=0.50) | Final=29.8 (SE=0.4) | NC (NC) | . |
|  |  |  |  |  | 25(OH)D >=75 nmol/L |  |  | 29.81 (SE=0.50) | Final=30.0 (SE=0.4) | NC (NC) | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Houston et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | B | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Hutchinson et al., 2010 | Prospective Cohort | 19–50 years; 51–70 years; 25–84 | Not specified | Tromso | Government | Tromso, Norway | 7161/7161/59.8 | 58.9 (10.2)/NR |  |  | Mean 25(OH)D level in the total non-smoking population -52.3 +/-16.5, men- 53.5+/-16.0 and women- 51.5 +/-16.8 nmol/l (P<0.001). Mean 25(OH)D level for smokers was 72.0G+/-0.1, men-70.5+/-19.0 and women- 73.0+/-20.7 nmol/l (P=0.002). |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Hutchinson et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Gender; Anthropometrics- BMI; Medical Conditions- Hypertension, Prior Cvd, Diabetes, Prior Cancer; Smoking, Other Lifestyle Factors- Smoking; Other - Creatinine | Primary-All-Cause Death | 25(OH)D | Quartile 1: mean=33.8 (sd=7.6)-nonsmokers | 11.7 yrs | 247/1184 | adjusted/HR | 1.32 | 1.07–1.62 | NR |
|  |  |  |  |  | 25(OH)D | Quartile 2: mean=46.7 (sd=6.0)-nonsmokers | 11.7 yrs | 198/1187 | adjusted/HR | 1.06 | 0.86–1.31 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: mean=56.2 (sd=6.4)-nonsmokers | 11.7 yrs | 190/1192 | adjusted/HR | 1.09 | 0.88–1.34 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: mean=72.3 (sd=13.2)-nonsmokers | 11.7 yrs | 163/1188 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: mean=33.8 (sd=7.6)-smokers | 11.7 yrs | 156/597 | adjusted/HR | 1.06 | 0.83–1.35 | NR |
|  |  |  |  |  | 25(OH)D | Quartile 2: mean=46.7 (sd=6.0)-smokers | 11.7 yrs | 143/606 | adjusted/HR | 0.97 | 0.76–1.25 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: mean=56.2 (sd=6.4)-smokers | 11.7 yrs | 138/607 | adjusted/HR | 1.04 | 0.81–1.33 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: mean=72.3 (sd=13.2)-smokers | 11.7 yrs | 124/600 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cvd Mortality | 25(OH)D | Quartile 1: mean=33.8 (sd=7.6)-nonsmokers | 11.7 yrs | 106/1184 | adjusted/HR | 1.08 | 0.79–1.48 | NR |
|  |  |  |  |  | 25(OH)D | Quartile 2: mean=46.7 (sd=6.0)-nonsmokers | 11.7 yrs | 81/1187 | adjusted/HR | 0.84 | 0.61–1.15 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: mean=56.2 (sd=6.4)-nonsmokers | 11.7 yrs | 62/1192 | adjusted/HR | 0.71 | 0.51–1.01 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: mean=72.3 (sd=13.2)-nonsmokers | 11.7 yrs | 76/1188 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: mean=33.8 (sd=7.6)-smokers | 11.7 yrs | 45/597 | adjusted/HR | 0.93 | 0.61–1.44 | NR |
|  |  |  |  |  | 25(OH)D | Quartile 2: mean=46.7 (sd=6.0)-smokers | 11.7 yrs | 57/606 | adjusted/HR | 1.1 | 0.73–1.67 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: mean=56.2 (sd=6.4)-smokers | 11.7 yrs | 46/607 | adjusted/HR | 1.04 | 0.67–1.60 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: mean=72.3 (sd=13.2)-smokers | 11.7 yrs | 40/600 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cancer Mortality | 25(OH)D | Quartile 1: mean=33.8 (sd=7.6)-nonsmokers | 11.7 yrs | 72/1184 | adjusted/HR | 1.14 | 0.80–1.63 | NR |
|  |  |  |  |  | 25(OH)D | Quartile 2: mean=46.7 (sd=6.0)-nonsmokers | 11.7 yrs | 69/1187 | adjusted/HR | 1.13 | 0.80–1.61 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: mean=56.2 (sd=6.4)-nonsmokers | 11.7 yrs | 74/1192 | adjusted/HR | 1.23 | 0.87–1.75 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: mean=72.3 (sd=13.2)-nonsmokers | 11.7 yrs | 58/1188 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: mean=33.8 (sd=7.6)-smokers | 11.7 yrs | 55/597 | adjusted/HR | 0.82 | 0.56–1.21 | NR |
|  |  |  |  |  | 25(OH)D | Quartile 2: mean=46.7 (sd=6.0)-smokers | 11.7 yrs | 54/606 | adjusted/HR | 0.86 | 0.59–1.26 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: mean=56.2 (sd=6.4)-smokers | 11.7 yrs | 60/607 | adjusted/HR | 1.02 | 0.70–1.48 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: mean=72.3 (sd=13.2)-smokers | 11.7 yrs | 56/600 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Hutchinson et al., 2010 | N | Y | N | Y |  |  |  |  |  | N |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Islam et al., 2010 | RCT/CCT | 9–18 years; 19–50 years; 18–36 years; no history of serious medical conditions; residing in the city for at least 2 years; no history of medication known to affect bone metabolism | Not specified |  | Manufacturer | Dhaka, Bangladesh | 200/116/100 | 22.9 (3.9)/NR |  |  | placebo-35.0 +/-9.4 nmol/L Vit D-37.1+/-12.1 nmol/L VitD+Ca- 37.8+/-10.9 nmol/L MMN+D+Ca-36.9+/-12.5 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Islam et al., 2010 | RCT/CCT | NR | NR | Secondary-Femoral Neck BMC | D VD (Vit D 10 µg)/day |  | 40 | 3.384 (sd=0.660) | change=0.061 (sd=0.205) | +0.14 (0.05, 0.22) | . |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 3.436 (sd=0.551) | change=0.069 (sd=0.174) | +0.14 (0.07, 0.22) | . |
|  |  |  |  |  | D Placebo |  | 35 | 3.316 (sd=0.533) | change=-0.075 (sd=0.146) |  | . |
|  |  |  |  | Secondary-Femoral Neck BMD | D VD (Vit D 10 µg)/day |  | 40 | 0.8 (sd=0.118) | change=0.012 (sd=0.028) | +0.02 (0.01, 0.03) | . |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 0.799 (sd=0.120) | change=0.013 (sd=0.030) | +0.02 (0.01, 0.03) | . |
|  |  |  |  |  | D Placebo |  | 35 | 0.768 (sd=0.967) | change=-0.010 (sd=0.012) |  | . |
|  |  |  |  | Secondary-Lumbar Spine L2-L4 BMC | D VD (Vit D 10 µg)/day |  | 40 | 32.548 (sd=4.845) | change=0.620 (sd=2.442) | +0.58 (-0.84, 2.00) | 0.42 |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 31.782 (sd=5.469) | change=0.687 (sd=2.761) | +0.65 (-0.82, 2.12) | 0.39 |
|  |  |  |  |  | D Placebo |  | 35 | 32.399 (sd=4.853) | change=0.042 (sd=3.673) |  | . |
|  |  |  |  | Secondary-Lumbar Spine L2-L4 BMD | D VD (Vit D 10 µg)/day |  | 40 | 0.898 (sd=0.113) | change=0.013 (sd=0.036) | +0.02 (-0, 0.04) | 0.12 |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 0.895 (sd=0.138) | change=0.010 (sd=0.042) | +0.01 (-0.01, 0.03) | 0.22 |
|  |  |  |  |  | D Placebo |  | 35 | 0.891 (sd=0.101) | change=-0.003 (sd=0.049) |  | . |
|  |  |  |  | Secondary-Trochanter BMC | D VD (Vit D 10 µg)/day |  | 40 | 5.818 (sd=1.289) | change=0.158 (sd=0.549) | +0.31 (0.09, 0.53) | 0.01 |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 5.877 (sd=1.335) | change=0.090 (sd=0.419) | +0.24 (0.06, 0.43) | 0.01 |
|  |  |  |  |  | D Placebo |  | 35 | 5.885 (sd=1.125) | change=-0.151 (sd=0.389) |  | . |
|  |  |  |  | Secondary-Trochanter BMD | D VD (Vit D 10 µg)/day |  | 40 | 0.634 (sd=0.097) | change=0.002 (sd=0.021) | +0.02 (0.01, 0.03) | 0.002 |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 0.625 (sd=0.105) | change=0.001 (sd=0.026) | +0.02 (0.01, 0.03) | 0.01 |
|  |  |  |  |  | D Placebo |  | 35 | 0.619 (sd=0.082) | change=-0.017 (sd=0.029) |  | . |
|  |  |  |  | Secondary-Ward’s Triangle BMD | D VD (Vit D 10 µg)/day |  | 40 | 0.654 (sd=0.131) | change=0.010 (sd=0.035) | +0.03 (0.01, 0.04) | . |
|  |  |  |  |  | D VD-Ca (Vit D 10 µg + calcium 600 mg)/day |  | 41 | 0.654 (sd=0.132) | change=0.015 (sd=0.031) | +0.03 (0.02, 0.05) | . |
|  |  |  |  |  | D Placebo |  | 35 | 0.628 (sd=0.108) | change=-0.018 (sd=0.027) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Islam et al., 2010 | RCT/CCT | Y | ND | ND | Y | Y | ND | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jackson et al., 2011 | RCT/CCT | 19–50 years; 51–70 years; Postmenopausal women; 50–79 years; not likely to change residence; no evidence of a medical condition associated with predicted survival of less than 3 years at the time of enrollment | Not specified | WHI | Government | USA; multiple | 1970/1528/100 | NR/NR | Non-Hispanic White=828; Hispanic=42; Non-Hispanic Black=119; Asian=0; Race\_other1=08; Race\_other2=03 | Post menopausal | vitamin D intake: placebo- 7.54+/-6.36 ug/d, CaD- 7.42+/-5.84 ug/d calcium intake: placebo- 1049+/-625.7 mg/d, CaD- 1,039+/-635.1 mg/d |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Jackson et al., 2011 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Ethnicity, Height; Other - Whole-Body Bone Area, Percent Lean Mass, Physical Activity, Baseline Hormone Use And Hormone Therapy Trial Randomization (Final Model Nr) | Secondary-Intertrochanteric BMD | D3 (400 IU Vit D3+1000 mg elemental calcium)/day |  | 777 | 0.746 (sd=0.136) | final=0.749 (sd=0.135) | +0.02 (0.01, 0.04) | . |
|  |  |  |  |  | D3 placebo |  | 751 | 0.725 (sd=0.134) | final=0.725 (sd=0.137) |  | . |
|  |  |  |  | Secondary-Narrow Neck BMD | D3 (400 IU Vit D3+1000 mg elemental calcium)/day |  | 777 | 0.736 (sd=0.129) | final=0.742 (sd=0.133) | +0.02 (0.01, 0.03) | 0.003 |
|  |  |  |  |  | D3 placebo |  | 751 | 0.723 (sd=0.131) | final=0.722 (sd=0.136) |  | . |
|  |  |  |  | Secondary-Shaft BMD | D3 (400 IU Vit D3+1000 mg elemental calcium)/day |  | 777 | 1.18 (sd=0.181) | final=1.199 (sd=0.189) | +0.03 (0.01, 0.05) | . |
|  |  |  |  |  | D3 placebo |  | 751 | 1.155 (sd=0.181) | final=1.165 (sd=0.190) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Jackson et al., 2011 | RCT/CCT | Y | Y | Y | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jacobs et al., 2011 | Nested Case Control | breast cancer survivors who had completed primary treatment of early stage breast cancer within the previous 4 y. |  | Women’s Healthy Eating and Living (WHEL) | Government | USA; multiple | 1024/500/100 | 51.9 (9.0)/NR | Non-Hispanic White=857; Hispanic=53; Non-Hispanic Black=29 | Cancer in remission | All: deficient (<10ng/ml) 51, insufficient (>/=10, <20) 282, suboptimal (>/= 20, <30) 410, optimal (>/= 30) 281 |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Jacobs et al., 2011 | Nested Case Control | clinical site, cancer stage, age at cancer diagnosis, date of random assignment into the WHEL Study, and date of original cancer diagnosis | NR | Primary-Mortality | 25(OH)D | Insufficient, <20 ng/ml | 7.3 yrs | nr/164 | adjusted/OR | 1.13 | 0.72, 1.79 | 0.59 |
|  |  |  |  |  | 25(OH)D | Sufficient, =20 ng/ml | 7.3 yrs | nr/336 | adjusted/OR | 1 | Reference |  |
|  |  |  |  | Primary-Breast Cancer | 25(0H)D | <10ng/mL(deficient) | NR | nr/51 | adjusted/OR | 1.14 | 0.57, 2.31 |  |
|  |  |  |  |  | 25(0H)D | >=10 and <20ng/mL(insufficient) | NR | nr/282 | adjusted/OR | 1 | 0.68, 1.48 |  |
|  |  |  |  |  | 25(0H)D | >=20 and <30ng/mL(suboptimal) | NR | nr/410 | adjusted/OR | 1.05 | 0.76, 1.47 |  |
|  |  |  |  |  | 25(0H)D | >=30ng/mL(optimal) | NR | nr/281 | adjusted/OR | 1 | reference | 0.850 |
|  |  |  |  |  | 25(0H)D | <10ng/mL(deficient)-Premenopausal women | NR | nr/6 | adjusted/OR | 0.17 | 0.01, 4.56 |  |
|  |  |  |  |  | 25(0H)D | >=10 and <20ng/mL(insufficient)-Premenopausal women | NR | nr/31 | adjusted/OR | 1.02 | 0.33, 3.16 |  |
|  |  |  |  |  | 25(0H)D | >=20 and <30ng/mL(suboptimal)-Premenopausal women | NR | nr/45 | adjusted/OR | 1.76 | 0.64, 4.87 |  |
|  |  |  |  |  | 25(0H)D | >=30ng/mL(optimal)-Premenopausal women | NR | nr/36 | adjusted/OR | 1 | reference | 0.610 |
|  |  |  |  |  | 25(0H)D | <10ng/mL-Postmenopausal women | NR | nr/37 | adjusted/OR | 1.45 | 0.62,3.37 |  |
|  |  |  |  |  | 25(0H)D | >=10 and <20ng/mL-Postmenopausal women | NR | nr/202 | adjusted/OR | 1.09 | 0.68, 1.76 |  |
|  |  |  |  |  | 25(0H)D | >=20 and <30ng/mL-Postmenopausal women | NR | nr/266 | adjusted/OR | 0.9 | 0.60, 1.36 |  |
|  |  |  |  |  | 25(0H)D | >=30ng/mL-Postmenopausal women | NR | nr/187 | adjusted/OR | 1 | reference | 0.490 |
|  |  |  |  | Primary-Lethal Breast Cancer | 25(0H)D | <20ng/mL(insufficient) | NR | nr/164 | adjusted/OR | 1.13 | 0.72, 1.79 |  |
|  |  |  |  |  | 25(0H)D | >=20ng/mL(sufficient) | NR | nr/336 | adjusted/OR | 1 | reference | 0.590 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Jacobs et al., 2011 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jacobsen et al., 2012 | Prospective Cohort | 51–70 years; without prior history of ischemic heart disease | Not specified | Copenhagen City Heart Study | university and hospital fund | Copenhagen, Denmark | 10170/10170/56 | 57 (49–66)/NR |  | Not Reported | 25(OH)D level-44nmol/L(26–58) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Jacobsen et al., 2012 | Prospective Cohort | NA | Demographics (Age, Sex, Race/Ethnicity)- Sex, Age; Anthropometrics- BMI; Medical Conditions- Diabetes, Plasma Total Cholesterol, High-Density Lipoprotein Cholesterol, Systolic Blood Pressure, And Estimated Glomerular Filtration Rate; Sun Exposure- Month Of Blood Draw; Smoking, Other Lifestyle Factors- Physical Activity, Smoking, Alcohol Consumption | Primary-Nonfatal Ischemic Heart Disease | 25(OH)D | <25.0 nmol/L | 29 yrs | 381/2553 | Adjusted/HR | 1.08 | 0.85, 1.37 | 0.1 |
|  |  |  |  |  | 25(OH)D | 25.0–49.9 nmol/L | 29 yrs | 648/4068 | Adjusted/HR | 1.01 | 0.81, 1.26 |  |
|  |  |  |  |  | 25(OH)D | 50.0–74.9 nmol/L | 29 yrs | 391/2470 | Adjusted/HR | 0.91 | 0.72, 1.15 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 nmol/L | 29 yrs | 158/1079 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Nonfatal MI | 25(OH)D | <25.0 nmol/L | 29 yrs | 224/2553 | Adjusted/HR | 1.17 | 0.83, 1.63 | 0.4 |
|  |  |  |  |  | 25(OH)D | 25.0–49.9 nmol/L | 29 yrs | 350/4068 | Adjusted/HR | 0.97 | 0.71, 1.34 |  |
|  |  |  |  |  | 25(OH)D | 50.0–74.9 nmol/L | 29 yrs | 228/2470 | Adjusted/HR | 1.02 | 0.74, 1.42 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 nmol/L | 29 yrs | 89/1079 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Fatal Ischemic Heart Disease/MI | 25(OH)D | <25.0 nmol/L | 29 yrs | 422/2553 | Adjusted/HR | 1.53 | 1.18, 1.98 | <0.001 |
|  |  |  |  |  | 25(OH)D | 25.0–49.9 nmol/L | 29 yrs | 627/4068 | Adjusted/HR | 1.23 | 0.96, 1.58 |  |
|  |  |  |  |  | 25(OH)D | 50.0–74.9 nmol/L | 29 yrs | 367/2470 | Adjusted/HR | 1.18 | 0.91, 1.54 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 nmol/L | 29 yrs | 106/1079 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Jacobsen et al., 2012 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from C to B |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jacobsen et al., 2013 | Prospective Cohort | 51–70 years; had 25(OH)D measurement | Not specified | Copenhagen City Heart Study | University and hospital fund | Copenhagen, Denmark | 10170/10170/56 | 56 (48–65)/NR |  |  | 25(OH)D level-44nmol/L(26–58) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Jacobsen et al., 2013 | Prospective Cohort | NA | Demographics (Age, Sex, Race/Ethnicity)- Age, Gender; Anthropometrics- BMI; Medical Conditions- Hypertension, Diabetes Mellitus, Atrial Fibrillation, Use Of Antihypertensive Medication, Plasma Total Cholesterol, HDL Cholesterol, Estimated Glomerular Filtration; Sun Exposure- Month Of Blood Draw; Smoking, Other Lifestyle Factors- Physical Activity, Smoking, Alcohol Consumption | Primary-Ischemic Stroke | 25(OH)D | <25.0 nmol/L | 29 yrs | 350/2553 | Adjusted/HR | 1.36 | 1.09, 1.70 | <0.001 |
|  |  |  |  |  | 25(OH)D | 25.0–49.9 nmol/L | 29 yrs | 504/4068 | Adjusted/HR | 1.1 | 0.89, 1.36 |  |
|  |  |  |  |  | 25(OH)D | 50.0–74.9 nmol/L | 29 yrs | 277/2470 | Adjusted/HR | 0.92 | 0.74, 1.16 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 nmol/L | 29 yrs | 125/1079 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Jacobsen et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | A | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jassal et al., 2010 | Prospective Cohort | Caucasian; middle-class; community dwelling adults; Not specified | lacked 25(OH)D, 1, 25(OH)2D and PTH measurements; eGFR < 15mL/min/1.73 m^2 | Rancho Bernardo Study | Government | USA; San Diego, CA | 1073/1073/62% | 74 (10)/NR | Non-Hispanic White=100 | Not Reported | 25(OH)D - 42(14) ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Jassal et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI, Medical Conditions - Prevalent Cardiovascular Disease; Medical Conditions- Prevalent Cvd; Smoking, Other Lifestyle Factors- Exercise, Sun Exposure, Season Of Blood Draw; Other - Systolic Blood Pressure, LDL Cholesterol, Fasting Glucose, Log (Urine Albumin/Creatinine Ratio), eGFR | Primary-Cardiovascular Mortality | 25(OH)D | per SD increase in serum 25(OH)D | 10.4 yrs | 111/1073 | Adjusted/HR | 1.07 | 0.86, 1.33 | NS |
|  |  |  |  |  | 1,25(OH)2D | per SD increase in log of serum 1,25(OH)2D | 10.4 yrs | 111/1073 | Adjusted/HR | 0.98 | 0.80, 1.21 | NS |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Jassal et al., 2010 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | Y | A | should get ref 21 to verify eligibility criteria and sampling method --- Population a) sampling consecutive Outcome c) primary outcome changed to NA Grade changed from B to A |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jenab et al., 2010 | Nested Case Control | 19–50 years; 51–70 years; geographic or administrative boundaries at each study center; age 25–82 (mostly 35–70) | anal cancer; missing matching information; missing laboratory 25-(OH) D data | EPIC | Government | Germany (specify city, if given);UK;Denmark, France, Greece, Italy, the Netherlands, Norway, Spain, Sweden | 2496/2496/50.3 | 58.6 (7.2)/30.3–76.6 |  | Not Reported | Circulating 25-(OH)D geometric mean (5th–95th percentile): colon cases- 51.7 nmol/L (24.1–104.4) controls- 57.2 nmol/L (28.0–114.8) rectal cases-54.9 nmol/L (26.3–111.0) controls- 55.4 nmol/L (24.7–116.5) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Jenab et al., 2010 | Nested Case Control | age (plus or minus six months at recruitment), sex, study center, time of the day at blood collection, and fasting status at the time of blood collection (less than three hours, three to six hours, and more than six hours). Women were further matched by m | Other Nutrients Or Dietary Factors- Total Dietary Energy Consumption, Intake Of Total Fruits, Vegetables, Meat Or Meat Products; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Education; Anthropometrics- Body Mass Index; Sun Exposure- Season Of Blood Collection; Smoking, Other Lifestyle Factors- Smoking Status/Duration/Intensity, Total Physical Activity, Alcohol; Other - Time Of The Day At Blood Collection, Fasting Status At The Time Of Blood Collection, Menopausal Status, Phase Of Menstrual Cycle At Time Of Blood Collection, Usage Of Hormone Replacement Therapy At Time Of Blood Collection | Primary-Colorectal Cancer | 25(0H)D | Quintile 1: <25nmol/l | NR | 64/116 | adjusted/HR | 1.32 | 0.87, 2.01 | NR |
|  |  |  |  |  | 25(0H)D | Quintile 2:>=25<50nmol/l | NR | 473/873 | adjusted/HR | 1.28 | 1.05, 1.56 | NR |
|  |  |  |  |  | 25(0H)D | Quintile 3:>=50<75nmol/l | NR | 448/909 | adjusted/HR | 1 | reference | NR |
|  |  |  |  |  | 25(0H)D | Quintile 4:>=75<100nmol/l | NR | 173/382 | adjusted/HR | 0.88 | 0.68, 1.13 | <0.001 |
|  |  |  |  |  | 25(0H)D | Quintile 5:>=100nmol/l | NR | 90/216 | adjusted/HR | 0.77 | 0.56, 1.06 | <0.001 |
|  |  |  |  | Primary-Colon Cancer | 25(0H)D | Quintile 1:<25nmol/l | NR | 45/72 | adjusted/HR | 1.9 | 1.10, 3.29 | NR |
|  |  |  |  |  | 25(0H)D | Quintile 2:>=25<50nmol/l | NR | 300/549 | adjusted/HR | 1.36 | 1.05, 1.76 | NR |
|  |  |  |  |  | 25(0H)D | Quintile 3:>=50<75nmol/l | NR | 286/581 | adjusted/HR | 1 | reference | NR |
|  |  |  |  |  | 25(0H)D | Quintile 4:>=75<100nmol/l | NR | 104/242 | adjusted/HR | 0.86 | 0.62, 1.17 | <0.001 |
|  |  |  |  |  | 25(0H)D | Quintile 5:>=100nmol/l | NR | 50/126 | adjusted/HR | 0.71 | 0.46, 1.08 | <0.001 |
|  |  |  |  | Primary-Rectum Cancer | 25(0H)D | Quintile 1:<25nmol/l | NR | NR/NR | adjusted/HR | 0.77 | 0.37, 1.59 | NR |
|  |  |  |  |  | 25(0H)D | Quintile 2:>=25<50nmol/l | NR | NR/NR | adjusted/HR | 1.17 | 0.84, 1.65 | NR |
|  |  |  |  |  | 25(0H)D | Quintile 3:>=50<75nmol/l | NR | NR/NR | adjusted/HR | 1 | reference | NR |
|  |  |  |  |  | 25(0H)D | Quintile 4:>=75<100nmol/l | NR | NR/NR | adjusted/HR | 0.93 | 0.60, 1.45 | 0.288 |
|  |  |  |  |  | 25(0H)D | Quintile 5:>=100nmol/l | NR | NR/NR | adjusted/HR | 0.82 | 0.48, 1.40 | 0.320 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Jenab et al., 2010 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | B | cases ascertained from cancer registries, not verified independently Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Johansson et al., 2012 | Prospective Cohort | 70–81 years; able to walk without aids; give signed informed consent; provide self-reported data | Not specified | MrOS | Unclear | Sweden: Gothenberg, Malmö, Uppsala | 2878/2878/0 | 75.7/3.4 |  | Other; some with diabetes, htn, cancer, stroke, MI, angina | <25 nmol/l - 20 (74); 25–49 nmol/l 373 (75); 50–74 nmol/l- 735(57); 75–99 nmol/l- 317(42); =100 nmol/l- 106(34) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Johansson et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Current Age; Medical Conditions- Past History Of Cancer, Angina, Diabetes; Smoking, Other Lifestyle Factors- Outdoor Activity, Physical Activity Walking; Other - Current Time Since Baseline, Total Hip BMD, General Health | Primary-Death | 25(OH)D | per SD decrease | 8.2 yrs | 577/2878 | adjusted/HR | 1.16 | 1.06, 1.26 | NR |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Johansson et al., 2012 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Johnson et al., 2012 | RCT/CCT | Postmenopausal women; Postmenopausal women; 50–79 years of age | previous history of breast cancer, history of other cancers within the previous 10 years, medical conditions likely to result in death within 3 years, conditions likely to interfere with retention in the study | WHI Mammogram Density Ancillary Study | Government | USA | 492/330/100 | 62 (8)/NR | Non-Hispanic White=48; Hispanic=12; Non-Hispanic Black=36; Asian=4 | Post menopausal | Table 1 (need to discuss what to enter) |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Johnson et al., 2012 | RCT/CCT | NR | NR | Secondary-Percent Mammographic Density | D3 (Vit D3 400 IU+1,000 mg calcium)/day-overall |  | 179 | 3.7 (2.9, 4.8) | final=3.6 (2.9, 4.6) | +0.8 (-0.2, 1.8) | 0.1 |
|  |  |  |  |  | D3 placebo-overall |  | 151 | 2.8 (2.1, 3.7) | final=2.8 (2.2, 3.7) |  | . |
|  |  |  |  |  | D3 (Vit D3 400 IU+1,000 mg calcium)/day-Vit D intake at baseline < 200 IU/day |  | 87 | 3.6 (2.5, 5.2) | final=3.5 (2.5, 4.9) | +0.5 (-0.9, 1.9) | 0.47 |
|  |  |  |  |  | D3 placebo-Vit D intake at baseline < 200 IU/day |  | 77 | 3 (2.1, 4.5) | final=3 (2.1, 4.3) |  | . |
|  |  |  |  |  | D3 (Vit D3 400 IU+1,000 mg calcium)/day-Vit D intake at baseline >= 400 IU/day |  | 53 | 4.3 (2.9, 6.4) | final=4 (2.6, 6.0) | +1.7 (-0.1, 3.5) | 0.07 |
|  |  |  |  |  | D3 placebo-Vit D intake at baseline >= 400 IU/day |  | 44 | 2.7 (1.5, 4.8) | final=2.3 (1.3, 4.2) |  | . |
|  |  |  |  |  | D3 (Vit D3 400 IU+1,000 mg calcium)/day-Vit D intake at baseline 200 ~ 400 IU/day |  | 29 | 2.4 (1.1, 5.3) | final=2.8 (1.4, 5.6) | -0.4 (-2.5, 1.7) | . |
|  |  |  |  |  | D3 placebo-Vit D intake at baseline 200 ~ 400 IU/day |  | 24 | 2.5 (1.3, 5.1) | final=3.2 (1.7, 6.1) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Johnson et al., 2012 | RCT/CCT | Y | Y | N | N | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jones et al., 2012 | Prospective Cohort | Pregnant or lactating women; Healthy; nonsmoking; healthy, uncomplicated term pregnancy; >=2 frozen CB serum samples in storage; allergic outcomes assessed at 12 months of age (offspring) | Not specified |  | Government | Australia;Perth | 231/231/48.5 (neonatal) | 33.4 (4.5)/NR | Non-Hispanic White=797; Asian=39; Race\_other1=26 |  | The mean (SD) CB 25(OH)D3 = 58.4 (24.1) nmol/L, range= 9.18 to 246.34 nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Jones et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Infant Gender, Maternal Age, Maternal Ethnicity; Sun Exposure- Season Of Birth | Primary-Eczema | 25(OH)D3 | per 10 nmol/L rise in CB 25(OH)D3 | NR | 78/231 | adjusted/OR | 0.857 | 0.739, 0.995 | 0.042 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Jones et al., 2012 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | Y | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jorde et al., 2010 | RCT/CCT | 19–50 years; 51–70 years; 21–70 years; BMI between 28.0–47.0 kg/m2; without a history of diabetes, coronary infarction, angina pectoris, stroke, renal stone disease, or sarcoidosis | Pregnant; lactating; women <50 years of age without adequate contraception; serum calcium>2.55 mmol/ L; males with serum creatinine >129 umol/ L; females with serum creatinine >104 umol/L |  | Manufacturer | Norway | 438/330/64.2 | 47.5 (11.4)/NR |  | Overweight/obese; Other; using blood pressure or lipid lowering medication | 58.0 ± 21.1 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Jorde et al., 2010 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Gender | Secondary-DBP | D3 DD (40,000 IU Vit D3/week)+500 mg calcium/day |  | 114 | 76.5 (sd=9.8) | change=1.0 (sd=7.4) | +0.8 (-1.3, 2.9) | . |
|  |  |  |  |  | D3 DP (20,000 IU Vit D3/week)+500 mg calcium/day |  | 104 | 74.9 (sd=9.5) | change=1.0 (sd=8.3) | +0.8 (-1.4, 3.0) | . |
|  |  |  |  |  | D3 PP (placebo)+500 mg calcium/day |  | 112 | 74.8 (sd=10.0) | change=0.2 (sd=8.3) |  | . |
|  |  |  |  | Secondary-SBP | D3 DD (40,000 IU Vit D3/week)+500 mg calcium/day |  | 114 | 124 (sd=15) | change=1.2 (sd=11.4) | +2.3 (-0.9, 5.5) | . |
|  |  |  |  |  | D3 DP (20,000 IU Vit D3/week)+500 mg calcium/day |  | 104 | 121 (sd=13) | change=3.5 (sd=11.8) | +4.6 (1.3, 7.9) | . |
|  |  |  |  |  | D3 PP (placebo)+500 mg calcium/day |  | 112 | 125 (sd=16) | change=-1.1 (sd=12.8) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Jorde et al., 2010 | RCT/CCT | ND | ND | ND | N | Y | Y | Y | Y | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Jorde et al., 2010 | RCT/CCT | 19–50 years; 51–70 years; 21–70 years; BMI 28.0–47.0 kg/m2 | bisphosphonates; estrogen; h/o coronary infarction, angina; diabetes; stroke; renal stone disease; sarcoidosis; serum calcium > 2.55 mmol/L; males with serum creatinine > 129 µmol/L and females with serum creatinine > 104 µmol/L; using estrogen |  | Manufacturer | Norway | 421/312/NR | 50.8 (10.7)/NR |  | Overweight/obese | 57.7 +/-20.7 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Jorde et al., 2010 | RCT/CCT | NR | NR | Secondary-BMD L2-L4 | D3 DD (Vit D3 40,000 IU/week+500 mg calcium) |  | 110 | 1.27 (sd=0.155) | change=0.008 (sd=0.036) | +0.00 (-0.01, 0.01) | . |
|  |  |  |  |  | D3 DP (Vit D3 20,000 IU/week+500 mg calcium) |  | 97 | 1.235 (sd=0.161) | change=0.008 (sd=0.039) | +0.01 (0.0, 0.01) | . |
|  |  |  |  |  | D3 PP (Placebo+500 mg calcium) |  | 105 | 1.251 (sd=0.170) | change=0.007 (sd=0.042) |  | . |
|  |  |  |  | Secondary-BMD Total Hip | D3 DD (Vit D3 40,000 IU/week+500 mg calcium) |  | 110 | 1.107 (sd=0.133) | change=0.008 (sd=0.014) | -0.00 (-0.01, 0.0) | . |
|  |  |  |  |  | D3 DP (Vit D3 20,000 IU/week+500 mg calcium) |  | 97 | 1.067 (sd=0.128) | change=0.011 (sd=0.014) | +0.0 (-0.0, 0.01) | . |
|  |  |  |  |  | D3 PP (Placebo+500 mg calcium) |  | 105 | 1.092 (sd=0.130) | change=0.009 (sd=0.017) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Jorde et al., 2010 | RCT/CCT | ND | ND | ND | N | Y | Y | Y | Y | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kalra et al., 2012 | RCT/CCT | Pregnant or lactating women; between 12–24 weeks gestation | Not specified |  | Government | Lucknow, India | 299/71/100 | 26.7 (4.0)/NR |  |  | Group 1–31.7 nmol/L (IQR 14.0–57.2) Group 2- 32.0 nmol/L (IQR 14.5–45.7) |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Kalra et al., 2012 | RCT/CCT | NR | NR | Secondary-Birth Weight | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 35 | NR (NR) | Final=3.03 (1.71, 4.35) | -0.05 (-1.92, 1.82) | 0.96 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 36 | NR (NR) | Final=3.08 (1.71, 4.45) |  | . |
|  |  |  |  | Secondary-Weight At 3 Mo | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 33 | NR (NR) | Final=5.9 (5.8, 6.0) | +0 (-0.1, 0.1) | 1 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 31 | NR (NR) | Final=5.9 (5.8, 6.0) |  | . |
|  |  |  |  | Secondary-Weight At 6 Mo | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 24 | NR (NR) | Final=7.3 (7.1, 7.5) | +0.1 (-0.1, 0.3) | 0.37 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 28 | NR (NR) | Final=7.2 (7.0, 7.4) |  | . |
|  |  |  |  | Secondary-Weight At 9 Mo | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 18 | NR (NR) | Final=8.5 (8.3, 8.7) | +0.1 (-0.3, 0.5) | 0.58 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 22 | NR (NR) | Final=8.4 (8.1, 8.7) |  | . |
|  |  |  |  | Secondary-Length At Birth | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 35 | NR (NR) | Final=50.1 (49.8, 50.4) | -0.2 (-0.6, 0.2) | 0.35 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 36 | NR (NR) | Final=50.3 (50.0, 50.6) |  | . |
|  |  |  |  | Secondary-Length At 3 Mo | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 33 | NR (NR) | Final=59.9 (59.5, 60.3) | +0.1 (-0.6, 0.8) | 0.79 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 31 | NR (NR) | Final=59.8 (59.2, 60.4) |  | . |
|  |  |  |  | Secondary-Length At 6 Mo | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 24 | NR (NR) | Final=64.9 (64.0, 65.8) | +0.6 (-0.5, 1.7) | 0.28 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 28 | NR (NR) | Final=64.3 (63.6, 65.0) |  | . |
|  |  |  |  | Secondary-Length At 9 Mo | 3000 mg cholecalciferol (one dose 2nd trimester and 28 weeks gestation) |  | 18 | NR (NR) | Final=69.9 (69.2, 70.6) | +0.6 (-0.5, 1.7) | 0.27 |
|  |  |  |  |  | 1500 mg cholecalciferol (one dose 2nd trimester) |  | 22 | NR (NR) | Final=69.3 (68.5, 70.1) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Kalra et al., 2012 | RCT/CCT | Y | ND | Y | N | ND | ND | ND | ND | Y | C |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Karakas et al., 2013 | Prospective Cohort | Healthy; middle-aged | missing values; self-reported prevalent CHD; missing blood samples | MONICA/KORA Augsburg case-cohort study | Government | Germany (specify city, if given) | 1783/964/24.5 | 51.9 (0.42)/35–74 |  |  | male cases- 37.7(1.03), non-cases 43.9(1.02)\ female cases- 31.9(1.05), non-cases 39.7(1.01) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Karakas et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Sun Exposure- Season Of Blood Sampling; Other - Traditional Cardiovascular Risk Factors, CRP, Il-6, Sicam-1, Ip-10 | Primary-Coronary Heart Disease | 25(OH)D in men | 54.14–153.92 nmol/L | 11 yrs | 225/964 | Adjusted/HR | 0.84 | 0.52, 1.35 | 0.461 |
|  |  |  |  |  | 25(OH)D in men | 35.05–54.13 nmol/L | 11 yrs |  | Adjusted/HR | 0.66 | 0.43, 1.02 |  |
|  |  |  |  |  | 25(OH)D in men | 5.08–35.02 nmol/L | 11 yrs |  | Adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D in women | 47.70–127.69 nmol/L | 11 yrs | 73/819 | Adjusted/HR | 0.42 | 0.19, 0.93 | 0.028 |
|  |  |  |  |  | 25(OH)D in women | 33.16–47.69 nmol/L | 11 yrs |  | Adjusted/HR | 0.67 | 0.35, 1.29 |  |
|  |  |  |  |  | 25(OH)D in women | 9.87–33.15 nmol/L | 11 yrs |  | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Karakas et al., 2013 | N | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | A | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Karkkainen et al., 2010 | RCT/CCT | age at a minimum of 65 years at the end of November 2002,; living in the Kuopio Province at the onset of the trial,; not belonging to the former OSTPRE bone densitometry sample. | Not specified | OSTPRE-FPS | Manufacturer | Finland; Kuopio | 750/591/100 | 67.4 (1.9)/NR |  | Post menopausal | intervention- 50.1 (18.8) nmol/l control- 49.2 (17.7) nmol/l (p=0.544) |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Karkkainen et al., 2010 | RCT/CCT | NR | NR | Secondary-Femoral Neck BMD | D3 Vit D 800 IU+calcium 1,000 mg |  | 280 | 0.866 (sd=0.13) | final=0.848 (sd=0.13) | -0.002 (-0.02, 0.02) | . |
|  |  |  |  |  | D3 control (neither supplementation nor placebo) |  | 311 | 0.865 (sd=0.12) | final=0.850 (sd=0.12) |  | . |
|  |  |  |  | Secondary-Lumbar Spine BMD | D3 Vit D 800 IU+calcium 1,000 mg |  | 259 | 1.039 (sd=0.17) | final=1.047 (sd=0.17) | -0.013 (-0.041, 0.016) | . |
|  |  |  |  |  | D3 control (neither supplementation nor placebo) |  | 285 | 1.052 (sd=0.17) | final=1.060 (sd=0.17) |  | . |
|  |  |  |  | Secondary-Total Body BMD | D3 Vit D 800 IU+calcium 1,000 mg |  | 195 | 1.069 (sd=0.09) | final=1.078 (sd=0.10) | -0.003 (-0.02, 0.02) | . |
|  |  |  |  |  | D3 control (neither supplementation nor placebo) |  | 238 | 1.079 (sd=0.09) | final=1.081 (sd=0.10) |  | . |
|  |  |  |  | Secondary-Total Proximal Femur BMD | D3 Vit D 800 IU+calcium 1,000 mg |  | 280 | 0.948 (sd=0.14) | final=0.934 (sd=0.14) | -0.005 (-0.03, 0.02) | . |
|  |  |  |  |  | D3 control (neither supplementation nor placebo) |  | 310 | 0.953 (sd=0.13) | final=0.939 (sd=0.13) |  | . |
|  |  |  |  | Secondary-Trochanter BMD | D3 Vit D 800 IU+calcium 1,000 mg |  | 280 | 0.783 (sd=0.14) | final=0.779 (sd=0.13) | -0.01 (-0.03, 0.01) | . |
|  |  |  |  |  | D3 control (neither supplementation nor placebo) |  | 310 | 0.797 (sd=0.13) | final=0.790 (sd=0.13) |  | . |
|  |  |  |  | Secondary-Ward’s Triangle | D3 Vit D 800 IU+calcium 1,000 mg |  | 280 | 0.67 (sd=0.15) | final=0.652 (sd=0.14) | -0.001 (-0.02, 0.02) | . |
|  |  |  |  |  | D3 control (neither supplementation nor placebo) |  | 310 | 0.672 (sd=0.13) | final=0.653 (sd=0.13) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Karkkainen et al., 2010 | RCT/CCT | ND | ND | N | Y | N | Y | N | N | N | C |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Karkkainen et al., 2010 | RCT/CCT | age at a minimum of 65 years at the end of November 2002,; living in Kuopio province area at the onset of the trial; not belonging to the former OSTPRE bone densitometry sample.; ambulatory women |  | OSTRE-FPS | Private | Finland; Kuopio | 3139/3139/100 | 67.4 (1.9)/65–71 |  |  | Mean 25(OH)D concentrations (nmol/L): intervention- 50.1 (18.8) ;control- 49.2 (17.7) (P = 0.544) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Karkkainen et al., 2010 | RCT/CCT | NR | NR | Primary-No Falls | Vit D3; Ca | 1g/daily & 800 IU/daily | 3 y | 754/1566 | Crude/OR | 1.05 | 0.91, 1.20 | >0.05 |
|  |  |  |  |  | Placebo; Ca | Placebo | 3 y | 740/1573 | Crude/OR | 1 | Reference |  |
|  |  |  |  | Primary-Falls (>=1) | Vit D3; Ca | 1g/daily & 800 IU/daily | 3 y | 1109/1566 | Crude/OR | 1.13 | 0.97, 1.32 | >0.05 |
|  |  |  |  |  | Placebo; Ca | Placebo | 3 y | 1073/1573 | Crude/OR | 1 | Reference |  |
|  |  |  |  | Primary-No Fall Requiring Medical Attention (FRMA) | Vit D3; Ca | 1g/daily & 800 IU/daily | 3 y | 1308/1566 | Crude/OR | 0.84 | 0.70, 1.01 | >0.05 |
|  |  |  |  |  | Placebo; Ca | Placebo | 3 y | 1274/1573 | Crude/OR | 1 | Reference |  |
|  |  |  |  | Primary-Falls Requiring Medical Attention (FRMA) (=1) | Vit D3; Ca | 1g/daily & 800 IU/daily | 3 y | 1488/1566 | Crude/OR | 0.72 | 0.53, 0.97 | 0.03 |
|  |  |  |  |  | Placebo; Ca | Placebo | 3 y | 1466/1573 | Crude/OR | 1 | Reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Karkkainen et al., 2010 | RCT/CCT | ND | ND | N | Y | N | Y | N | N | Y | C |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kestenbaum et al., 2011 | Prospective Cohort | 51–70 years; >65 years; ambulatory | use of a wheelchair in the home; current treatment for cancer; institutionalization,; need for a proxy respondent to provide informed consent; plans to move from the area within 3 years | CHS | Government | USA; Forsyth County, NC, Sacramento county, CA, Washington County, MD, Pittsburgh, PA | 2312/2312/58 | 73 (4)/NR | Non-Hispanic Black=4 |  | 25.2+/- \_ 10.2 ng/ml (interquartile range: 17.8 to 31.5 ng/ml). |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Kestenbaum et al., 2011 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race, Education; Anthropometrics- BMI; Medical Conditions- Diabetes, Hypertension; Sun Exposure- Season Of The Year; Smoking, Other Lifestyle Factors- Smoking, Physical Activity; Other - Systolic Blood Pressure, Levels Of C-Reactive Protein, HDL Cholesterol, Calcium And Phosphorus, eGFR | Primary-All-Cause Mortality | 25(OH)D | >30 ng/ml | 14 yrs | 329/681 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | 15–30 ng/ml | 14 yrs | 668/1247 | adjusted/HR | 1.15 | 1.00, 1.33 |  |
|  |  |  |  |  | 25(OH)D | <15 ng/ml | 14 yrs | 229/384 | adjusted/HR | 1.29 | 1.05, 1.57 |  |
|  |  |  |  |  | 25(OH)D | continuous per 10 ng/ml | 14 yrs | 1226/2312 | adjusted/HR | 1.09 | 1.02, 1.17 | 0.012 |
|  |  |  |  | Primary-Cardiovascular Mortality | 25(OH)D | Continuous per 10 ng/ml lower 25(OH)D | 14 yrs | 389/2312 | Adjusted/HR | 1.06 | 0.94, 1.19 | 0.356 |
|  |  |  |  |  | 25(OH)D | <15ng/ml | 14 yrs | 107/681 | Adjusted/HR | 1.17 | 0.83, 1.67 |  |
|  |  |  |  |  | 25(OH)D | 15–30 ng/ml | 14 yrs | 207/1247 | Adjusted/HR | 1.01 | 0.78, 1.30 |  |
|  |  |  |  |  | 25(OH)D | >30 ng/ml | 14 yrs | 75/384 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Incident Heart Failure | 25(OH)D | Continuous per 10 ng/ml lower 25(OH)D | 14 yrs | 504/2312 | Adjusted/HR | 0.95 | 0.86, 1.05 | 0.303 |
|  |  |  |  |  | 25(OH)D | <15ng/ml | 14 yrs | 107/681 | Adjusted/HR | 1.17 | 0.83, 1.67 |  |
|  |  |  |  |  | 25(OH)D | 15–30 ng/ml | 14 yrs | 207/1247 | Adjusted/HR | 1.01 | 0.78, 1.30 |  |
|  |  |  |  |  | 25(OH)D | >30 ng/ml | 14 yrs | 75/384 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Incident Myocardial Infarction | 25(OH)D | Continuous per 10 ng/ml lower 25(OH)D | 14 yrs | 299/2312 | Adjusted/HR | 1.25 | 1.08, 1.44 | 0.002 |
|  |  |  |  |  | 25(OH)D | <15ng/ml | 14 yrs | 88/681 | Adjusted/HR | 1.4 | 0.93, 2.12 |  |
|  |  |  |  |  | 25(OH)D | 15–30 ng/ml | 14 yrs | 161/1247 | Adjusted/HR | 1.2 | 0.90, 1.59 |  |
|  |  |  |  |  | 25(OH)D | >30 ng/ml | 14 yrs | 50/384 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Kestenbaum et al., 2011 | Y | Y | N | N |  |  |  |  |  |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | Y | N | B | Population a) sampling consecutive Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Khadilkar et al., 2010 | RCT/CCT | 9–18 years; postmenarcheal; 14–15 years; attending a state run school from Feb 2006-April 2007 | Not specified |  | Unclear | Pune, India | 50/49/100 | 14.6/14.3–15.3 |  | Not Reported | Vit D + Ca- 24.5 nmol/L (12.7–33.2) Placebo +Ca- 20.8 nmol/L (12.7–30.4) |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Khadilkar et al., 2010 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Height, Weight; Other - Calcium Compliance, Baseline Value Of Dietary Calcium Intake | Secondary-L2-L4 Bone Mineral Apparent Density | D2 Vit D2 300,000 IU x 4 times/year + 250 mg elemental calcium/day-overall |  | 25 | NR (NR) | change=4.2 (0.6, 9.3) | +0.5 (NC) | . |
|  |  |  |  |  | D2 Placebo x 4 times/year + 250 mg elemental calcium/day-overall |  | 24 | NR (NR) | change=3.7 (1.0, 7.7) |  | . |
|  |  |  |  | Secondary-L2-L4 BMC | D2 Vit D2 300,000 IU x 4 times/year + 250 mg elemental calcium/day-overall |  | 25 | NR (NR) | change=10.5 (4.6, 17.2) | -0.8 (NC) | . |
|  |  |  |  |  | D2 Placebo x 4 times/year + 250 mg elemental calcium/day-overall |  | 24 | NR (NR) | change=11.3 (5.4, 18.0) |  | . |
|  |  |  |  | Secondary-Total BMC | D2 Vit D2 300,000 IU x 4 times/year + 250 mg elemental calcium/day-overall |  | 25 | NR (NR) | change=10.1 (6.1, 14.7) | +1.9 (NC) | . |
|  |  |  |  |  | D2 Placebo x 4 times/year + 250 mg elemental calcium/day-overall |  | 24 | NR (NR) | change=8.2 (4.9, 12.6) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Khadilkar et al., 2010 | RCT/CCT | ND | ND | ND | Y | Y | ND | Y | Y | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kilkkinen et al., 2009 | Prospective Cohort | 30 years or more | Current cardiovascular disease; lacking serum sample for 25(OH)D analysis | Mini-Finland Health Survey | Government | Finland;40 areas | 6219/6219/54.7 | 49.4 (13.6)/NR |  |  | 43.4 +/-19.7 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Kilkkinen et al., 2009 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Marital Status, Education; Anthropometrics- BMI; Medical Conditions- Diabetes, Blood Pressure; Smoking, Other Lifestyle Factors- Smoking, Physical Activity, Alcohol Consumption, HDL and LDL Cholesterol | Primary-Cardiovascular Death | 25(OH)D | M:62–180 nmol/l |F:56.0–151.0 nmol/l | 27.1 yrs (median) | 150/1253 | Adjusted/HR | 0.76 | 0.61, 0.95 | 0.005 |
|  |  |  |  |  | 25(OH)D | M:48.0–61.0 nmol/l |F:44.0–55.0 nmol/l | 27.1 yrs (median) | 171/1222 | Adjusted/HR | 0.86 | 0.70, 1.06 |  |
|  |  |  |  |  | 25(OH)D | M:38.0–47.0 nmol/l |F:34.0–43.0 nmol/l | 27.1 yrs (median) | 164/1284 | Adjusted/HR | 0.81 | 0.66, 1.00 |  |
|  |  |  |  |  | 25(OH)D | M:29.0–37.0 nmol/l |F:26.0–33.0 nmol/l | 27.1 yrs (median) | 194/1202 | Adjusted/HR | 1.04 | 0.86, 1.26 |  |
|  |  |  |  |  | 25(OH)D | M:5.0–28.0 nmol/l |F:4.0–25.0 nmol/l | 27.1 yrs (median) | 254/1258 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cerebrovascular Death | 25(OH)D | M:62–180 nmol/l |F:56.0–151.0 nmol/l | 27.1 yrs (median) | 33/1253 | Adjusted/HR | 0.48 | 0.31, 0.75 | 0.002 |
|  |  |  |  |  | 25(OH)D | M:48.0–61.0 nmol/l |F:44.0–55.0 nmol/l | 27.1 yrs (median) | 48/1222 | Adjusted/HR | 0.69 | 0.48, 1.00 |  |
|  |  |  |  |  | 25(OH)D | M:38.0–47.0 nmol/l |F:34.0–43.0 nmol/l | 27.1 yrs (median) | 68/1284 | Adjusted/HR | 0.97 | 0.70, 1.35 |  |
|  |  |  |  |  | 25(OH)D | M:29.0–37.0 nmol/l |F:26.0–33.0 nmol/l | 27.1 yrs (median) | 52/1202 | Adjusted/HR | 0.8 | 0.57, 1.14 |  |
|  |  |  |  |  | 25(OH)D | M:5.0–28.0 nmol/l |F:4.0–25.0 nmol/l | 27.1 yrs (median) | 92/1258 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Coronary Disease Death | 25(OH)D | M:62–180 nmol/l |F:56.0–151.0 nmol/l | 27.1 yrs (median) | 117/1253 | Adjusted/HR | 0.91 | 0.70, 1.18 | 0.2 |
|  |  |  |  |  | 25(OH)D | M:48.0–61.0 nmol/l |F:44.0–55.0 nmol/l | 27.1 yrs (median) | 123/1222 | Adjusted/HR | 0.95 | 0.74, 1.22 |  |
|  |  |  |  |  | 25(OH)D | M:38.0–47.0 nmol/l |F:34.0–43.0 nmol/l | 27.1 yrs (median) | 96/1284 | Adjusted/HR | 0.73 | 0.56, 0.95 |  |
|  |  |  |  |  | 25(OH)D | M:29.0–37.0 nmol/l |F:26.0–33.0 nmol/l | 27.1 yrs (median) | 142/1202 | Adjusted/HR | 1.17 | 0.93, 1.48 |  |
|  |  |  |  |  | 25(OH)D | M:5.0–28.0 nmol/l |F:4.0–25.0 nmol/l | 27.1 yrs (median) | 162/1258 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Kilkkinen et al., 2009 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kritchevsky et al., 2012 | Prospective Cohort | 70–79; community dwelling; black and white; no difficulty walking 0.25 miles, climbing 10 steps and performing basic ADLs; not enrolled in lifestyle intervention trials | PTH >250 pg/ml; 25(OH)D >75.25 pg/ml | Health ABC | Government | USA; Pittsburgh, Memphis | 3075/2638/51.2 | 74.7 (2.9)/NR | Non-Hispanic White=61; Non-Hispanic Black=39 | Other; well-functioning | serum 25(OH)D: 25.8 (10.3) ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Kritchevsky et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Gender, Race, Education; Anthropometrics- BMI; Medical Conditions- Prevalent Diabetes, Hypertension, CVD, Cancer, Lung Disease; Sun Exposure- Season; Smoking, Other Lifestyle Factors- Smoking Status, Pack-Years, Alcohol Consumption, Time Walking, Usual 20-M Walking Speed; Other - Cognition, Depressive Symptoms, Cholesterol, PTH | Primary-All-Cause Mortality | 25(OH)D | < 10 ng/ml | 8.5 yrs | 44/108 | adjusted/HR | 2.27 | 1.59, 3.24 | <0.001 |
|  |  |  |  |  | 25(OH)D | 10 to <20 ng/ml | 8.5 yrs | 241/750 | adjusted/HR | 1.48 | 1.20, 1.84 |  |
|  |  |  |  |  | 25(OH)D | 20 to <30 ng/ml | 8.5 yrs | 229/931 | adjusted/HR | 1.25 | 1.02, 1.52 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml | 8.5 yrs | 177/849 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | < 10 ng/ml-whites | 8.5 yrs | 10/25 | adjusted/HR | 2.02 | 1.02, 3.99 | 0.001 |
|  |  |  |  |  | 25(OH)D | 10 to <20 ng/ml-whites | 8.5 yrs | 82/279 | adjusted/HR | 1.54 | 1.16, 2.06 |  |
|  |  |  |  |  | 25(OH)D | 20 to <30 ng/ml-whites | 8.5 yrs | 138/620 | adjusted/HR | 1.22 | 0.96, 1.55 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-whites | 8.5 yrs | 143/691 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | < 10 ng/ml-blacks | 8.5 yrs | 34/83 | adjusted/HR | 2.59 | 1.57, 4.26 | <0.001 |
|  |  |  |  |  | 25(OH)D | 10 to <20 ng/ml-blacks | 8.5 yrs | 159/471 | adjusted/HR | 1.76 | 1.20, 2.57 |  |
|  |  |  |  |  | 25(OH)D | 20 to <30 ng/ml-blacks | 8.5 yrs | 91/311 | adjusted/HR | 1.6 | 1.07, 2.39 |  |
|  |  |  |  |  | 25(OH)D | >=30 ng/ml-blacks | 8.5 yrs | 34/158 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Kritchevsky et al., 2012 | Y | Y | N | N |  |  |  |  |  |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kuhn et al., 2013 | Prospective Cohort | Not specified | MI or stroke; without complete follow-up information; missing 25(OH)D values; missing covariate data | EPIC-Germany | Government | Germany (specify city, if given);Heidelberg, Potsdam | 3115/2132/NR | NR (NR)/NR |  | Not Reported | plasma 25(OH)D of the 2132 sub cohort- 47.2 +/- 18.3 nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Kuhn et al., 2013 | Prospective Cohort | NA | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI, Waist Circumference; Sun Exposure- Center; Smoking, Other Lifestyle Factors- Alcohol Intake, Smoking, Physical Activity | Primary-Myocardial Infarction | 25(OH)D | Q4: median 66.5 | 7.6 yrs | 118/533 | adjusted/HR | 1 | Reference | 0.19 |
|  |  |  |  |  | 25(OH)D | Q3: median 50.5 | 7.6 yrs | 117/533 | adjusted/HR | 0.95 | 0.70, 1.28 |  |
|  |  |  |  |  | 25(OH)D | Q2: median 40.4 | 7.6 yrs | 158/533 | adjusted/HR | 1.24 | 0.93, 1.66 |  |
|  |  |  |  |  | 25(OH)D | Q1: median 28.9 | 7.6 yrs | 166/533 | adjusted/HR | 1.43 | 1.07, 1.92 |  |
|  |  |  |  | Primary-Stroke | 25(OH)D | Q4: median 66.6 | 7.6 yrs | 111/533 | adjusted/HR | 1 | Reference | 0.19 |
|  |  |  |  |  | 25(OH)D | Q3: median 50.5 | 7.6 yrs | 101/533 | adjusted/HR | 0.86 | 0.63, 1.17 |  |
|  |  |  |  |  | 25(OH)D | Q2: median 40.4 | 7.6 yrs | 102/533 | adjusted/HR | 0.83 | 0.61, 1.12 |  |
|  |  |  |  |  | 25(OH)D | Q1: median 28.9 | 7.6 yrs | 157/533 | adjusted/HR | 1.37 | 1.02, 1.84 |  |
|  |  |  |  | Primary-Cvd As Composite Endpoint | 25(OH)D | Q4: median 66.5 | 7.6 yrs | 229/533 | adjusted/HR | 1 | Reference | 0.12 |
|  |  |  |  |  | 25(OH)D | Q3: median 50.5 | 7.6 yrs | 218/533 | adjusted/HR | 0.89 | 0.70, 1.14 |  |
|  |  |  |  |  | 25(OH)D | Q2: median 40.4 | 7.6 yrs | 260/533 | adjusted/HR | 1.06 | 0.83, 1.35 |  |
|  |  |  |  |  | 25(OH)D | Q1: median 28.9 | 7.6 yrs | 323/533 | adjusted/HR | 1.41 | 1.11, 1.79 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Kuhn et al., 2013 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | ref 25 might be helpful reconciled |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kuhn et al., 2013 | Nested Case Control | Varied by country: generally adults 40–65 | Not specified | EPIC | Private Foundation | Multiple Countries | 2,782/2782/100 | 50.7 (8.8)/NR |  |  | reported in quartiles |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Kuhn et al., 2013 | Nested Case Control | study center, age±3 months, menopausal status, exogenous hormone use at blood donation, time of day of blood collection, fasting status, phase of cycle | Demographics (Age, Sex, Race/Ethnicity)- Educational Level; Anthropometrics- BMI; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Alcohol Consumption, Smoking, Physical Activity; Other - Number Of Full-Term Pregnancies, Breastfeeding | Primary-Breast Cancer | 25(OH)D | Q1: <=39.3 | 4.1 yrs | 342/688 | adjusted/OR | 1 | reference | 0.67 |
|  |  |  |  |  | 25(OH)D | Q2: 39.4–50.9 | 4.1 yrs | 357/707 | adjusted/OR | 1.03 | 0.83, 1.29 |  |
|  |  |  |  |  | 25(OH)D | Q3: 51.0–63.0 | 4.1 yrs | 324/670 | adjusted/OR | 0.94 | 0.74, 1.19 |  |
|  |  |  |  |  | 25(OH)D | Q4: >63.0 | 4.1 yrs | 368/717 | adjusted/OR | 1.07 | 0.85, 1.36 |  |
|  |  |  |  |  | 25(OH)D | log2 (continuous) | 4.1 yrs | 1391/2782 | adjusted/OR | 1.01 | 0.86, 1.19 | 0.86 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Kuhn et al., 2013 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | Y | N | A | Discussion of power was in original article and may not be relevant to this specific nested case control. |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kukuljan et al., 2009 | RCT/CCT | 51–70 years; Healthy; men; community-dwelling; Caucasian | had taken calcium and/or vitamin D supplements; Osteoporosis; used medication known to affect bone metabolism; medical condition known to affect bone metabolism, any chronic condition that might limit their ability to be involved in the intervention; current smoking; chronic condition that might limit ability to be involved in the intervention; lactose intolerance |  | Private Foundation | Australia;Victoria | 180/85/0 | 59.9 (7.4)/50–79 | Non-Hispanic White=100 |  | serum 25(OH)D 86.2 ± 35.9 nmol/l |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Kukuljan et al., 2009 | RCT/CCT | NR | NR | Secondary-Step Test | Ca & Vit D3 fortified milk Ig & 800 IU daily |  | 43 | 9.90 (SD=2.9) | final=11.4 (SD=3.00) | -6 (-2.0, 0.75) | 0.38 |
|  |  |  |  |  | Control |  | 42 | 10.30 (SD=2.8) | final=12.0 (SD=3.30) |  | . |
|  |  |  |  | Secondary-Gait Speed | Ca & Vit D3 fortified milk Ig & 800 IU daily |  | 43 | 2.84 (SD=0.96) | final=2.79 (SD=1.17) | +0.13 (-0,36, 0.62) | 0.6 |
|  |  |  |  |  | Control |  | 42 | 3.08 (SD=1.36) | final=2.66 (SD=1.12) |  | . |
|  |  |  |  | Secondary-Sway, Eyes Open, On Floor | Ca & Vit D3 fortified milk Ig & 800 IU daily |  | 43 | 294.00 (SD=282) | final=326 (SD=344) | +147 (32.4, 261.6) | 0.01 |
|  |  |  |  |  | Control |  | 42 | 320.00 (SD=366) | final=179 (SD=147) |  | . |
|  |  |  |  | Secondary-Sway, Eyes Closed, On Floor | Ca & Vit D3 fortified milk Ig & 800 IU daily |  | 43 | 364.00 (SD=318) | final=241 (SD=192) | -79 (-207, 49) | 0.22 |
|  |  |  |  |  | Control |  | 42 | 285.00 (SD=232) | final=320 (SD=373) |  | . |
|  |  |  |  | Secondary-Sway, Eyes Open, On Foam | Ca & Vit D3 fortified milk Ig & 800 IU daily |  | 43 | 737.00 (SD=762) | final=596 (SD=733) | +248 (9, 487) | 0.04 |
|  |  |  |  |  | Control |  | 42 | 597.00 (SD=532) | final=348 (SD=266) |  | . |
|  |  |  |  | Secondary-Sway, Eyes Closed, On Foam | Ca & Vit D3 fortified milk Ig & 800 IU daily |  | 43 | 1317.00 (SD=875) | final=1045 (SD=787) | -209 (-721, 303) | 0.42 |
|  |  |  |  |  | Control |  | 42 | 1437.00 (SD=1217) | final=1254 (SD=1489) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Kukuljan et al., 2009 | RCT/CCT | ND | ND | Y | Y | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Kukuljan et al., 2011 | RCT/CCT | 19–50 years; 51–70 years; Healthy; male; normal to below average BMD; community dwelling; Caucasian | use of calcium-vitamin D supplementation within the past 12 months; Prior fragility fracture; chronic condition that might limit participation in the trials; participation in resistance training; BMI >35kg/m2; lactose intolerance; any medical conditions or medication use known to affect bone metabolism; current smoker |  | Manufacturer | Australia; Geelong | 180/89/0 | 59.9 (7.4)/NR | Non-Hispanic White=100 |  | calcium intake: 911–1064 mg/d Serum vitamin D level: 34.5+/-14.4 ng/ml |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Kukuljan et al., 2011 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Changes In Weight | Secondary-L1-L3 Total Volumetric BMD | D3 fortified milk (400 ml/day containing 1000 mg calcium+800 IU Vit D3) |  | 45 | 164 (sd=25) | change=-0.6 (-2.1, 0.8) | -0.6 (-2.7, 1.6) | . |
|  |  |  |  |  | D3 controls |  | 44 | 171 (sd=34) | change=-0.05 (-1.5, 1.4) |  | . |
|  |  |  |  | Secondary-L1-L3 Trabecular Volumetric BMD | D3 fortified milk (400 ml/day containing 1000 mg calcium+800 IU Vit D3) |  | 45 | 115 (sd=22) | change=-1.5 (-3.1, 0.9) | -2.3 (-6.4, 1.8) | . |
|  |  |  |  |  | D3 controls |  | 44 | 120 (sd=34) | change=0.8 (-2.9, 1.2) |  | . |
|  |  |  |  | Secondary-Mid-Femur Cortical Volumetric BMD | D3 fortified milk (400 ml/day containing 1000 mg calcium+800 IU Vit D3) |  | 45 | 1104 (sd=39) | change=-1.0 (-1.4, -0.6) | -0.3 (-1.0, 0.4) | . |
|  |  |  |  |  | D3 controls |  | 44 | 1108 (sd=38) | change=-0.7 (-1.3, -0.2) |  | . |
|  |  |  |  | Secondary-Mid-Tibia Cortical Volumetric BMD | D3 fortified milk (400 ml/day containing 1000 mg calcium+800 IU Vit D3) |  | 45 | 1105 (sd=43) | change=-1.2 (-1.7, -0.7) | -0.1 (-0.8, 0.6) | . |
|  |  |  |  |  | D3 controls |  | 44 | 1113 (sd=49) | change=-1.1 (-1.6, -0.5) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Kukuljan et al., 2011 | RCT/CCT | Y | ND | Y | Y | ND | Y | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Laaksi et al., 2010 | RCT/CCT | 19–50 years; 18–28 years; no regular medication; passed the entry medical examination as healthy | use of supplementary vitamin D, multivitamins and cod liver oil |  | Government | Finland; Pori Brigade | 164/328/0 | NR/NR |  |  | Serum vitamin D level: intervention group- 78.7+/-™14.9 nmol/L placebo- 74.4™+/-20.8 nmol/L |

| **Main Analyses (Dichotomous Outcomes)** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Laaksi et al., 2010 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Smoking | Primary-Self Reported Common Cold Symptoms | Vit D3 | 400 IU | 6 months | 45/80 | Crude/OR | 1.17 | 0.63, 2.16 | 0.619 |
|  |  |  |  |  | Placebo | Placebo | 6 months | 44/84 | Crude/OR | 1 | reference |  |
|  |  |  |  | Primary-No Days Absent From Duty | Vit D3 | 400 IU | 6 months | 41/80 | Crude/OR | 1.89 | 1.01, 3.54 | 0.045 |
|  |  |  |  |  | Placebo | Placebo | 6 months | 30/84 | Crude/OR | 1 | reference |  |

| **Main Analyses (Continuous Outcomes)** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Laaksi et al., 2010 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Smoking | Secondary-Days Absent From Duty | Vit D3 400 IU |  | 80 | NR (NR) | final=2.2 (SD=3.2) | -0.8 (-1.9, 0.3) | 0.096 |
|  |  |  |  |  | Placebo |  | 84 | NR (NR) | final=3.0 (SD=4.0) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Laaksi et al., 2010 | RCT/CCT | Y | ND | Y | N | Y | Y | N | ND | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Lee et al., 2011 | Nested Case Control | 19–50 years; 51–70 years; U.S. male physicians; 40–84 years | vitamin A or beta carotene; cancer except non melanoma skin cancer; myocardial infarction, stroke, or transient ischemic attack; renal or liver disease; peptic ulcer; gout | Physicians’ Health Study | Government | USA; multiple | 618/618/0 | NR/NR |  |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Lee et al., 2011 | Nested Case Control | NR | Other Nutrients Or Dietary Factors- Fasting Status, Dairy Calcium Intake; Demographics (Age, Sex, Race/Ethnicity)- Age, Race; Anthropometrics- BMI; Sun Exposure- Seasons; Smoking, Other Lifestyle Factors- Smoking Status, Vigorous Exercise | Primary-Colorectal Cancer | 25(0H)D | Quartile 1 (median 15.7ng/mL) | NR | 57/153 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 (median 22.3ng/mL) | NR | 41/138 | adjusted/OR | 0.71 | 0.42, 1.21 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3(median 26.7ng/mL) | NR | 74/173 | adjusted/OR | 1.24 | 0.76, 2.04 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4(median 37.9ng/mL) | NR | 57/154 | adjusted/OR | 1.08 | 0.62, 1.87 | 0.670 |
|  |  |  |  |  | 1,25(OH)2D | Quartile 1 (median 25.5pg/mL) | NR | 66/159 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 2 (median 31.2pg/mL) | NR | 60/156 | adjusted/OR | 0.91 | 0.55, 1.50 |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 3(median 34.7pg/mL) | NR | 53/149 | adjusted/OR | 0.84 | 0.51, 1.38 |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 4(median 41.1pg/mL) | NR | 45/139 | adjusted/OR | 0.7 | 0.41, 1.18 | 0.240 |
|  |  |  |  | Primary-Colon Cancer | 25(0H)D | Quartile 1 (median 15.7ng/mL) | NR | 36/106 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 (median 22.3ng/mL) | NR | 37/109 | adjusted/OR | 0.95 | 0.52, 1.74 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3 (median 26.7ng/mL) | NR | 52/126 | adjusted/OR | 1.34 | 0.75, 2.39 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 (median 37.9ng/mL) | NR | 47/118 | adjusted/OR | 1.38 | 0.73, 2.64 | 0.350 |
|  |  |  |  |  | 1,25(OH)2D | Quartile 1 (median 25.5pg/mL) | NR | 49/117 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 2 (median 31.2pg/mL) | NR | 40/111 | adjusted/OR | 0.83 | 0.46, 1.49 |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 3 (median 34.7pg/mL) | NR | 47/118 | adjusted/OR | 0.96 | 0.54, 1.68 |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 4 (median 41.1pg/mL) | NR | 33/104 | adjusted/OR | 0.64 | 0.34, 1.19 | 0.220 |
|  |  |  |  | Primary-Rectal Cancer | 25(0H)D | Quartile 1 (median 15.7ng/mL) | NR | 20/44 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 (median 22.3ng/mL) | NR | 15/41 | adjusted/OR | 0.53 | 0.18, 1.60 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3 (median 26.7ng/mL) | NR | 9/37 | adjusted/OR | 0.42 | 0.13, 1.40 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 (median 37.9ng/mL) | NR | 13/37 | adjusted/OR | 0.45 | 0.14, 1.46 | 0.050 |
|  |  |  |  |  | 1,25(OH)2D | Quartile 1 (median 25.5pg/mL) | NR | 20/44 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 2 (median 31.2pg/mL) | NR | 13/37 | adjusted/OR | 0.57 | 0.20, 1.60 |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 3 (median 34.7pg/mL) | NR | 10/36 | adjusted/OR | 0.43 | 0.13, 1.39 |  |
|  |  |  |  |  | 1,25(OH)2D | Quartile 4 (median 41.1pg/mL) | NR | 12/36 | adjusted/OR | 0.75 | 0.27, 2.09 | 0.720 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Lee et al., 2011 | Y | N | Y | Y |  |  |  |  |  | N |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | Y | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Lin et al., 2012 | Prospective Cohort | 19–50 years; 51–70 years; Healthy; 40–69 years | death before start of intervention |  | Government | China; Linxian | 1101/1101/45 | 56.5 (7.9)/NR | Asian=100 | Other; hypertension 27% | 254 had serum vitamin D<19.6 nmol/L 278 had serum D of 19.6–31.8 nmol/L 262 had serum D of 31.9–48.3 nmol/L 307 had serum D of =48.4 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Lin et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI; Medical Conditions- Hypertension; Smoking, Other Lifestyle Factors- Tobacco Smoking, Alcohol | Primary-All-Cause Mortality | 25(OH)D | continuous 25(OH)D | 24 yrs | 793/1101 | adjusted/HR | 1.01 | 0.97, 1.05 | 0.735 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-men | 24 yrs | 479/608 | adjusted/HR | 0.99 | 0.94, 1.04 | 0.7 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-women | 24 yrs | 314/493 | adjusted/HR | 1.03 | 0.97, 1.10 | 0.348 |
|  |  |  |  | Primary-Cancer Deaths | 25(OH)D | continuous 25(OH)D | 24 yrs | 217/1101 | adjusted/HR | 0.97 | 0.89, 1.05 | 0.406 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-men | 24 yrs | 141/608 | adjusted/HR | 1 | 0.91, 1.10 | 0.967 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-women | 24 yrs | 76/493 | adjusted/HR | 0.88 | 0.75, 1.03 | 0.115 |
|  |  |  |  | Primary-Cerebrovascular Death | 25(OH)D | continuous 25(OH)D | 24 yrs | 279/1101 | adjusted/HR | 1.05 | 0.98, 1.12 | 0.141 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-men | 24 yrs | 157/608 | adjusted/HR | 1.04 | 0.96, 1.13 | 0.337 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-women | 24 yrs | 122/493 | adjusted/HR | 1.06 | 0.96, 1.17 | 0.277 |
|  |  |  |  | Primary-Cardiovascular Death | 25(OH)D | continuous 25(OH)D | 24 yrs | 200/1101 | adjusted/HR | 0.98 | 0.91, 1.06 | 0.678 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-men | 24 yrs | 119/608 | adjusted/HR | 0.94 | 0.85, 1.04 | 0.223 |
|  |  |  |  |  | 25(OH)D | continuous 25(OH)D-women | 24 yrs | 81/493 | adjusted/HR | 1.06 | 0.93, 1.20 | 0.399 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Lin et al., 2012 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | N | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Lips et al., 2010 | RCT/CCT | ambulatory; mentally competent; If patients had serum 25(OH)D concentrations = 6 but = 9ng/mL; men and women | Current cancer; treatment with > or equal to .800 IU vitamin D/d or with active metabolites of vitamin D within 6 mo of screening; or treatment with any drug that might affect vitamin D metabolism or interfere with postural stability |  | Manufacturer | USA; 9 centers; Multiple Countries; Europe- 3 centers | 213/213/NR | 77.6 (6.6)/NR |  |  | serum vitamin D- placebo- 14.1+/-5.5 ng/ml, D3-13.7+/-4.4 ng/ml serum calcium-placebo- 9.4+/-0.4mg/dl, D3- 9.4+/-0.4mg/dl |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Lips et al., 2010 | RCT/CCT | NR | NR | Secondary-Short Physical Performance Battery (SPPB) Summary Score | Vit D3 8,400 IU/weekly |  | 109 | 9.00 (SD=2.3) | change= 0.355 (0.108, 0.601) | -0.25 (-0.60, -0.10) | 0.17 |
|  |  |  |  |  | Placebo |  | 104 | 9.07 (SD=2.0) | change= 0.601 (0.351, 0.852) | reference (NR) | . |
|  |  |  |  | Secondary-Short Physical Performance Battery (SPPB) Gait Speed | Vit D3 8,400 IU/weekly |  | 109 | 93.70 (SD=31.5) | change= 3.10 (-0.252, 6.458) | -0.84 (-5.63, 3.95) | 0.73 |
|  |  |  |  |  | Placebo |  | 104 | 88.70 (SD=25.9) | change= 3.94 (0.567, 7.38) | reference (NR) | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Lips et al., 2010 | RCT/CCT | Y | ND | Y | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Looker et al., 2013 | Prospective Cohort | 51–70 years; >/=65 years | prior fracture; ineligible for linkage to the Medicare denominator file; enrolled in a HMO | NHANES III | Government | USA; multiple | 4749/4749/74.3 | 75.2 (NR)/NR | Non-Hispanic White=925; Non-Hispanic Black=37; Race\_other1=17; Race\_other2=21 | Not Reported | osteoporotic fracture- yes: 57.5 nmol/L, no: 60.1 nmol/L hip fracture- yes: 57.6 nmol/L, 60.0 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Looker et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race | Primary-Major Osteoporotic Fracture | 25(OH)D | per 1 SD unit decline in serum 25OHD | 7 yrs | 400/4749 | adjusted/RR | 1.27 | 1.12, 1.44 |  |
|  |  |  |  |  | 25(OH)D | per 1 SD unit decline in serum 25OHD-65–79 | 7 yrs | 212/NR | adjusted/RR | 1.14 | 0.97, 1.34 |  |
|  |  |  |  |  | 25(OH)D | per 1 SD unit decline in serum 25OHD->=80 | 7 yrs | 188/NR | adjusted/RR | 1.4 | 1.13, 1.74 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Looker et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | reconciled |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Macdonald et al., 2013 | RCT/CCT | 51–70 years; Postmenopausal women; Healthy; 60–70 years of age; non-smoking | Type 2 DM; asthma; malabsorption; abnormal biochemical profile; blood pressure>160mm Hg systolic or >99 mm Hg diastolic; use of corticosteroids, anti-inflammatories, hypotensive, hypolipemic; unstable thyroid function; planned trips that would result in increased UV light exposure | Vitamin D and CardiOvascular Risk [VICtORy] | university | UK; Scotland | 264/259/100 | 64.6 (2.3)/NR |  | Post menopausal | 35.8±16.4 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Macdonald et al., 2013 | RCT/CCT | Not relevant | Other Nutrients Or Dietary Factors- Calcium Intake; Smoking, Other Lifestyle Factors- Physical Activity | Secondary-Total Hip BMD | D3 400 IU |  | 83 | 0.917 (sd=0.102) | final=0.912 (sd=0.103) | -0.002 (-0.036, 0.032) | 0.91 |
|  |  |  |  |  | D3 1000 IU |  | 88 | 0.923 (sd=0.132) | final=0.923 (sd=0.135) | +0.009 (-0.029, 0.047) | 0.64 |
|  |  |  |  |  | placebo |  | 88 | 0.92 (sd=0.118) | final=0.914 (sd=0.118) |  | . |
|  |  |  |  | Secondary-Total Lumbar Spine BMD | D3 400 IU |  | 83 | 1.075 (sd=0.141) | final=1.076 (sd=0.135) | +0.006 (-0.038, 0.050) | 0.79 |
|  |  |  |  |  | D3 1000 IU |  | 88 | 1.068 (sd=0.161) | final=1.071 (sd=0.164) | +0.001 (-0.046, 0.048) | 0.97 |
|  |  |  |  |  | placebo |  | 88 | 1.081 (sd=0.153) | final=1.070 (sd=0.153) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Macdonald et al., 2013 | RCT/CCT | Y | Y | Y | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Magnus et al., 2013 | Nested Case Control | Pregnant or lactating women; approximately 18 weeks gestation | Not specified | Norwegian Mother and Child Cohort Study | Private Foundation | Norway | 1,248/1672/100 | NR (NR)/NR |  |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Magnus et al., 2013 | Nested Case Control | unclear | Other Nutrients Or Dietary Factors- Maternal Multivitamin Use; Demographics (Age, Sex, Race/Ethnicity)- Maternal Age At Pregnancy, Education; Anthropometrics- Prepregnancy BMI; Medical Conditions- Maternal History Of Asthma; Sun Exposure- Season; Smoking, Other Lifestyle Factors- Smoking, Physical Activity | Primary-Asthma | 25(OH)D | 20 nmol/L increase in 25(OH)D | 36 mos | 489/1672 | adjusted/OR | 0.91 | 0.81, 1.02 |  |
|  |  |  |  |  | 25(OH)D | <51 | 36 mos | 114/316 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | 51–75 | 36 mos | 187/584 | adjusted/OR | 0.84 | 0.61, 1.17 |  |
|  |  |  |  |  | 25(OH)D | >75 | 36 mos | 188/771 | adjusted/OR | 0.67 | 0.48, 0.95 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Magnus et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Mai et al., 2012 | Nested Case Control | 19–50 years; 51–70 years; 19 years or older; of Nord-Trondelag; 65 years or less | Not specified | HUNT study | Manufacturer | Nord-Trondelag, Norway | 2613/2542/57 | 39.7 (8.5)/NR |  | Not Reported | women cases- 56.7 (23.7) nmol/L, controls- 59.5 (23.1) nmol/L men cases-54.8 (20.8) nmol/L, controls- 58.9 (23.5) nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Mai et al., 2012 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Education; Anthropometrics- BMI; Sun Exposure- Season Of Blood Collection; Smoking, Other Lifestyle Factors- Daily Smoking, Physical Activity; Other - Allergic Rhinitis, Copd, Social Benefit, Economic Difficulties | Primary-Asthma | 25(OH)D | >=75.0-female | 11 yrs | 81/328 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | 50.0–74.9-female | 11 yrs | 125/555 | adjusted/OR | 0.8 | 0.57, 1.13 |  |
|  |  |  |  |  | 25(OH)D | <50.0-female | 11 yrs | 170/566 | adjusted/OR | 0.94 | 0.67, 1.32 |  |
|  |  |  |  |  | 25(OH)D | each 25-nmol/L reduction-female | 11 yrs | 376/1449 | adjusted/OR | 0.97 | 0.85, 1.12 |  |
|  |  |  |  |  | 25(OH)D | >=75.0-male | 11 yrs | 33/247 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | 50.0–74.9-male | 11 yrs | 77/384 | adjusted/OR | 1.5 | 0.95, 2.38 |  |
|  |  |  |  |  | 25(OH)D | <50.0-male | 11 yrs | 98/462 | adjusted/OR | 1.47 | 0.93, 2.32 |  |
|  |  |  |  |  | 25(OH)D | each 25-nmol/L reduction-male | 11 yrs | 208/1093 | adjusted/OR | 1.14 | 0.94, 1.37 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Mai et al., 2012 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| McCullough et al., 2009 | Nested Case Control | Not specified | pre or perimenopausal at baseline; no appropriate match; one or less vials of serum; extreme 25(OH)D level | Cancer Prevention Study-II (CPS-II) | Unclear | USA; 21 states | 1032/1032/100 | 69.6 (5.8)/NR | Non-Hispanic White=971; Race\_other1=29 |  | Plasma 25(OH)D cases- 56.5 (22.0) nmol/L controls- 56.2 (22.2) nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| McCullough et al., 2009 | Nested Case Control | race, ethnicity, date of blood draw | Demographics (Age, Sex, Race/Ethnicity)- Birth Year, Race; Anthropometrics- Body Mass Index At Blood Collection, Weight Change From Age 18 Years To Blood Collection; Sun Exposure- Season; Other - Parity And Age At First Birth | Primary-Breast Cancer | 25(0H)D | <36.7nmol/L | 1month–6.9years | 89/193 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 36.7<49.8nmol/L | 1month–6.9years | 115/217 | adjusted/OR | 1.29 | 0.86, 1.94 |  |
|  |  |  |  |  | 25(0H)D | 49.8<60.8nmol/L | 1month–6.9years | 99/204 | adjusted/OR | 1.14 | 0.75, 1.72 |  |
|  |  |  |  |  | 25(0H)D | 60.8<73.2nmol/L | 1month–6.9years | 118/220 | adjusted/OR | 1.44 | 0.96, 2.18 |  |
|  |  |  |  |  | 25(0H)D | >73.2nmol/L | 1month–6.9years | 95/198 | adjusted/OR | 1.09 | 0.70, 1,68 | 0.600 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| McCullough et al., 2009 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | Reconciled In the 2009 report: Population b) Y=random or consecutive, N=other sampling like convenience; Outcome c) NA for all observational studies. If we followed this, then this article would have grade A. |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Mena et al., 2013 | Prospective Cohort | 50–74 years of age between 2000 and 2002 | Prior cancer; Current cancer; diagnosis of any type of cancer prior to baseline | Esther | Government | Germany (specify city, if given); Saarland | 9,580/9007/46 | NR (NR)/50–74 |  |  | reported by season for each quartile |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Mena et al., 2013 | Prospective Cohort | Not relevant | Other Nutrients Or Dietary Factors-; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Education; Anthropometrics- Obesity; Smoking, Other Lifestyle Factors- Smoking, Physical Activity; Other - Family History Of Cancer | Primary-Total Cancer | 25(OH)D | Q1 | 8 yrs | 235/2253 | adjusted/HR | 1.1 | 0.93, 1.30 |  |
|  |  |  |  |  | 25(OH)D | Q2+Q3 | 8 yrs | 396/4500 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Q4 | 8 yrs | 242/2254 | adjusted/HR | 1.12 | 0.95, 1.32 |  |
|  |  |  |  | Primary-Prostate Cancer | 25(OH)D | Q1 | 8 yrs | 38/882 | adjusted/HR | 1.16 | 0.78, 1.74 |  |
|  |  |  |  |  | 25(OH)D | Q2+Q3 | 8 yrs | 66/1737 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Q4 | 8 yrs | 67/1505 | adjusted/HR | 1.21 | 0.86, 1.70 |  |
|  |  |  |  | Primary-Breast Cancer | 25(OH)D | Q1 | 8 yrs | 38/1464 | adjusted/HR | 1.08 | 0.72, 1.60 |  |
|  |  |  |  |  | 25(OH)D | Q2+Q3 | 8 yrs | 71/2951 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Q4 | 8 yrs | 28/846 | adjusted/HR | 1.39 | 0.89, 2.18 |  |
|  |  |  |  | Primary-Colorectal Cancer | 25(OH)D | Q1 | 8 yrs | 37/2373 | adjusted/HR | 1.02 | 0.68, 1.53 |  |
|  |  |  |  |  | 25(OH)D | Q2+Q3 | 8 yrs | 69/4741 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Q4 | 8 yrs | 30/2368 | adjusted/HR | 0.77 | 0.50, 1.20 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Mena et al., 2013 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Menant et al., 2012 | Prospective Cohort | 70–90 years; independent in ADLs = activities of daily living; able to walk 400m without assistance; community dwelling | multiple sclerosis; medical or psychological conditions that may prevent them from completing assessments; dementia or developmental disability; psychotic symptoms; Parkinson’s disease; motor neuron disease; CNS inflammation | Memory and Ageing Study | Government | Australia; Sydney | 463/926/54 | 78 (4.6)/70–90 |  |  | serum vitamin D- 62.2±24.6 nmol/L; |

| **Main Analyses (Dichotomous Outcomes)** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Menant et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Education; Anthropometrics- BMI | Primary-Falls In Men | 25(OH)D | >= 50nmol/l | 1 y | 94/215 | Crude/IRR | 1.93 | 1.19, 3.15 | 0.008 |
|  |  |  |  |  | 25(OH)D | > 50nmol/l | 1y |  | Crude/IRR | 1 | Reference |  |
|  |  |  |  | Primary-Falls In Women | 25(OH)D | >= 50nmol/l | 1 y | 115/248 | Crude/IRR | 0.83 | 0.56, 1.23 | 0.362 |
|  |  |  |  |  | 25(OH)D | > 50nmol/l | 1 y |  | Crude/IRR | 1 | Reference |  |

| **Main Analyses (Continuous Outcomes)** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Menant et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Education; Anthropometrics- BMI | Secondary-Grip Strength | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 28.7 (SD=11.7) | +4.7 (3.3, 6.1) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 24.0 (SD=10.3) |  | . |
|  |  |  |  | Secondary-Quadriceps Strength | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 28.9 (SD=11.9) | +6 (5, 7) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 22.9 (SD=10.4) |  | . |
|  |  |  |  | Secondary-Finger Press Reaction Time | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 235.4 (SD=45.2) | -11.7 (NR) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 247.1 (SD=50.0) |  | . |
|  |  |  |  | Secondary-Sway, Eyes Open-Floor | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 76.5 (SD=40.1) | -5.4 (-11.0, 0.2) | 0.06 |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 81.9 (SD=46.0) |  | . |
|  |  |  |  | Secondary-Sway, Eyes Open-Foam | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 182.2 (SD=97.5) | -5.6 (-17.7, 6.5) | 0.37 |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 187.8 (SD=89.9) |  | . |
|  |  |  |  | Secondary-Physiological Profile Assessment (PPA) Fall Risk Score | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 0.8 (SD=0.9) | -0.2 (-0.3, -0.1) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 1.0 (SD=0.9) |  | . |
|  |  |  |  | Secondary-Maximal Balance Range | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 155.7 (SD=56.8) | +21.1 (14.2, 28.0) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 134.6 (SD=49.7) |  | . |
|  |  |  |  | Secondary-Coordinated Stability Score | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 13.6 (SD=12.4) | -5.0 (-7, -3) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 18.6 (SD=13.3) |  | . |
|  |  |  |  | Secondary-Choice Stepping Reaction Time | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 987.4 (SD=215.1) | -73.4 (-101.7, -45.1) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 1060.8 (SD=223.0) |  | . |
|  |  |  |  | Secondary-6 M Walk Speed | 25(OH)D > 50 nmol/l |  | 309 | NR (NR) | final= 0.73 (SD=0.16) | +0.06 (0.04, 0.08) | . |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 154 | NR (NR) | final= 0.67 (SD=0.17) |  | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Menant et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Messenger et al., 2012 | Prospective Cohort | 51–70 years; 65 and older; men | inability to walk without assistance from another person; bilateral hip replacements; inability to provide self-reported data | Osteoporotic Fractures in Men Sleep Study MrOS | Government | USA; multiple | 813/813/0 | 76.1 (5.6)/NR | Non-Hispanic White=91 |  | quartiles |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Messenger et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Race, Sex; Anthropometrics- BMI; Medical Conditions- History Of Hypertension, Diabetes, And CV Event; Smoking, Other Lifestyle Factors- Smoking, Alcohol Use; Other - Diastolic BP, PASE Score, Statin Use, HDL, LDL, Triglycerides, Glucose, Insulin, Site And Season | Primary-Cardiovascular Disease(CHD & CVA) | 25(OH)D | 4.8–20.1 ng/ml | 4.4 yrs (median) | 39/204 | Adjusted/HR | 1.18 | 0.69, 2.03 | 0.85 |
|  |  |  |  |  | 25(OH)D | 20.2–25.2 ng/ml | 4.4 yrs (median) | 33/203 | Adjusted/HR | 1.11 | 0.65, 1.91 |  |
|  |  |  |  |  | 25(OH)D | 25.3–30.0 ng/ml | 4.4 yrs (median) | 35/202 | Adjusted/HR | 0.97 | 0.57, 1.64 |  |
|  |  |  |  |  | 25(OH)D | 30.1–55.4 ng/ml | 4.4 yrs (median) | 33/204 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Messenger et al., 2012 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Meyer et al., 2013 | Nested Case Control | cases: new cases of prostate cancer; cases: donated serum>=1yr before diagnosis; Not specified | Prior cancer; controls: alive and free from cancer; missing data |  | Manufacturer | Norway- 17 of 19 counties | 4212/4212/0 | 48.2 (9.2)/NR |  |  | serum vitamin D: cases- 64.4+/-22.2 nmol/L, controls- 62.4+/-22.3 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Meyer et al., 2013 | Nested Case Control | age at serum sampling, date of serum sampling, county of residence | Demographics (Age, Sex, Race/Ethnicity)- Education; Sun Exposure- Month | Primary-Prostate Cancer | 25(0H)D | <30nmol/L | NR | 72/164 | adjusted/RR | 0.82 | 0.58, 1.15 |  |
|  |  |  |  |  | 25(0H)D | 30–49nmol/L | NR | 528/1081 | adjusted/RR | 1.02 | 0.87, 1.21 |  |
|  |  |  |  |  | 25(0H)D | 50–69nmol/L | NR | 718/1489 | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 70–89nmol/L | NR | 537/1003 | adjusted/RR | 1.24 | 1.05, 1.47 |  |
|  |  |  |  |  | 25(0H)D | >=90nmol/L | NR | 251/475 | adjusted/RR | 1.17 | 0.93, 1.48 |  |
|  |  |  |  |  | 25(0H)D | 30-nmol/L increase | NR | NR/4212 | adjusted/RR | 1.13 | 1.02, 1.25 |  |
|  |  |  |  |  | 25(0H)D | <30nmol/L-Winter and Spring | NR | 49/112 | adjusted/RR | 0.8 | 0.52, 1.23 |  |
|  |  |  |  |  | 25(0H)D | 30–49nmol/L-Winter and Spring | NR | 304/590 | adjusted/RR | 1.09 | 0.86, 1.40 |  |
|  |  |  |  |  | 25(0H)D | 50–69nmol/L-Winter and Spring | NR | 288/585 | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 70–89nmol/L-Winter and Spring | NR | 145/273 | adjusted/RR | 1.14 | 0.85, 1.53 |  |
|  |  |  |  |  | 25(0H)D | >=90nmol/L-Winter and Spring | NR | 38/88 | adjusted/RR | 0.74 | 0.46, 1.18 |  |
|  |  |  |  |  | 25(0H)D | 30-nmol/L increase-Winter and Spring | NR | NR/1648 | adjusted/RR | 0.97 | 0.83, 1.14 |  |
|  |  |  |  |  | 25(0H)D | <30nmol/L-Summer and Autumn | NR | 13/27 | adjusted/RR | 0.97 | 0.45, 2.10 |  |
|  |  |  |  |  | 25(0H)D | 30–49nmol/L-Summer and Autumn | NR | 132/304 | adjusted/RR | 0.87 | 0.66, 1.16 |  |
|  |  |  |  |  | 25(0H)D | 50–69nmol/L-Summer and Autumn | NR | 296/625 | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 70–89nmol/L-Summer and Autumn | NR | 297/625 | adjusted/RR | 1.34 | 1.05, 1.71 |  |
|  |  |  |  |  | 25(0H)D | >=90nmol/L-Summer and Autumn | NR | 180/324 | adjusted/RR | 1.46 | 1.07, 2.00 |  |
|  |  |  |  |  | 25(0H)D | 30-nmol/L increase-Summer and Autumn | NR | NR/1905 | adjusted/RR | 1.25 | 1.08, 1.45 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Meyer et al., 2013 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Michael et al., 2011 | Prospective Cohort | 51–70 years; 65–79 years | Not specified | WHI CT | Government | USA ;multiple | 534/534/100 | 70.3 (3.7)/50–79 | Non-Hispanic White=92; Hispanic=8; Race\_other1= |  | serum vitamin D- 48.2+/-21.4 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Michael et al., 2011 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Race/Ethnicity; Anthropometrics- BMI; Medical Conditions- Chronic Conditions; Sun Exposure- Clinic Latitude, Season, Time Walked Outside; Other - DM Trial Arm | Primary-Physical Performance Summary Score | 25(OH)D | >= 75 nmol/l | 6 y | NR/64 | Adjusted/RR | 3.66 | 1.88, 5.45 | <0.001 |
|  |  |  |  |  | 25(OH)D | 50–74nmol/l | 6 y | NR/148 | Adjusted/RR | 2.32 | 0.89, 3.75 |  |
|  |  |  |  |  | 25(OH)D | 25–49 nmol/l | 6 y | NR/255 | Adjusted/RR | 1.64 | 0.28, 3.01 |  |
|  |  |  |  |  | 25(OH)D | >= 25 nmol/l | 6 y | NR/67 | Adjusted/RR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Michael et al., 2011 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | eligibility criteria not clear from this article but exclusion criteria were probably named in the original studies exposure a unclear |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Michaelsson et al., 2010 | Prospective Cohort | 51–70 years; birth 1920–1924; Age approximately 71; male; Uppsala resident | Not specified | Uppsala Longitudinal Study of Adult Men | Swedish Research Council | Uppsala, Sweden | 1,194/1194/0 | 71.0 (0.6)/NR |  | Other; more than 1/3 being treated for hypertension | For 10th–90th percentile: Mean Dietary Intake: 5.8ug/d(2.2) Mean total intake: 6.0ug/d (2.4) Plasma 25(OH)D: 46–93 nmol/L (18–37 ng/ml) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Michaelsson et al., 2010 | Prospective Cohort | NA | Other Nutrients Or Dietary Factors- Calcium Intake; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- Weight, Height; Medical Conditions- Hypertension, Type 2 Diabetes; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking Status; Other - Socioeconomic Status, Plasma PTH, Serum Calcium, Cystatin C, Serum Phosphate, Plasma Cholesterol, Self-Perceived Health | Primary-Overall Mortality | 25(OH)D | < 10th percentile (<46 nmol/L) | 12.7 yrs | 76/119 | adjusted/HR | 1.43 | 1.11, 1.84 |  |
|  |  |  |  |  | 25(OH)D | 10th–90th percentile (46–93 nmol/L) | 12.7 yrs | 444/956 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | >90th percentile (>93 nmol/L) | 12.7 yrs | 64/119 | adjusted/HR | 1.27 | 0.97, 1.66 |  |
|  |  |  |  | Primary-Cardiovascular Mortality | 25(OH)D | < 10th percentile (<46 nmol/L) | 12.7 yrs | 24/119 | adjusted/HR | 1.53 | 0.97, 2.41 |  |
|  |  |  |  |  | 25(OH)D | 10th–90th percentile (46–93 nmol/L) | 12.7 yrs | 135/956 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | >90th percentile (>93 nmol/L) | 12.7 yrs | 18/119 | adjusted/HR | 1.16 | 0.69, 1.93 |  |
|  |  |  |  | Primary-Cancer Mortality | 25(OH)D | < 10th percentile (<46 nmol/L) | 12.7 yrs | 27/119 | adjusted/HR | 1.99 | 1.29, 3.08 |  |
|  |  |  |  |  | 25(OH)D | 10th–90th percentile (46–93 nmol/L) | 12.7 yrs | 118/956 | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | >90th percentile (>93 nmol/L) | 12.7 yrs | 19/119 | adjusted/HR | 1.56 | 0.95, 2.56 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Michaelsson et al., 2010 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | didn’t specify exclusion criteria |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Molgaard et al., 2010 | RCT/CCT | 9–18 years; girls; 11–12 years of age; Danish birth and citizenship | not specified; calcium or other vitamins or minerals; chronic diseases; intake of drugs that could influence bone metabolism |  | Government | Copenhagen and Frederiksberg Denmark | 225/221/100 | 11.4 (0.2)/NR | Non-Hispanic White=100 |  | Vitamin D intake: placebo-2.6±1.4ug/d Serum vitamin D level: placebo-43.4±17.1 nmol/L Calcium intake: placebo-955±588 mg/d |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Molgaard et al., 2010 | RCT/CCT | age | Anthropometrics- Size - Bone And Body Size (The Outcome Is Adjusted Bone Mineral Content), Bone Area, Height, Weight; Other - Baseline Vitamin D, Tanner Stage, Vitamin D Receptor Genotype, Estrogen Receptor Genotype | Secondary-L1-L4 BMC | D3 10 µg Vit D3/day |  | 74 | 28.9 (sd=6.4) | final=36.3 (sd=8.6) | -1.2 (-4.3, 1.9) | . |
|  |  |  |  |  | D3 5 µg Vit D3/day |  | 73 | 29.4 (sd=7.8) | final=37.6 (sd=10.3) | +0.1 (-3.2, 3.4) | . |
|  |  |  |  |  | D3 placebo |  | 74 | 29.2 (sd=7.7) | final=37.5 (sd=10.2) |  | . |
|  |  |  |  | Secondary-L1-L4 BMD | D3 10 µg Vit D3/day |  | 74 | 0.695 (sd=0.089) | final=0.780 (sd=0.113) | -0.01 (-0.05, 0.03) | . |
|  |  |  |  |  | D3 5 µg Vit D3/day |  | 73 | 0.698 (sd=0.092) | final=0.786 (sd=0.115) | -0.0 (-0.04, 0.04) | . |
|  |  |  |  |  | D3 placebo |  | 74 | 0.697 (sd=0.102) | final=0.788 (sd=0.121) |  | . |
|  |  |  |  | Secondary-Whole Body BMD | D3 10 µg Vit D3/day |  | 74 | 0.872 (sd=0.070) | final=0.917 (sd=0.080) | +0.01 (-0.02, 0.03) | . |
|  |  |  |  |  | D3 5 µg Vit D3/day |  | 73 | 0.866 (sd=0.066) | final=0.915 (sd=0.075) | +0.01 (-0.02, 0.03) | . |
|  |  |  |  |  | D3 placebo |  | 74 | 0.863 (sd=0.064) | final=0.909 (sd=0.075) |  | . |
|  |  |  |  | Secondary-Whole Body BMC | D3 10 µg Vit D3/day |  | 74 | 1308 (sd=303) | final=1561 (sd=366) | +38 (-74, 150) | . |
|  |  |  |  |  | D3 5 µg Vit D3/day |  | 73 | 1311 (sd=277) | final=1559 (sd=324) | +36 (-70, 142) | . |
|  |  |  |  |  | D3 placebo |  | 74 | 1277 (sd=273) | final=1523 (sd=324) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Molgaard et al., 2010 | RCT/CCT | Y | ND | ND | Y | ND | ND | Y | Y | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Moschonis et al., 2010 | RCT/CCT | 51–70 years; Postmenopausal women; women; 55–65 years of age | Osteoporosis; Prior cancer; Current cancer; Current cardiovascular disease; Type 2 DM; thiazide diuretics, glucocorticoids,; calcium, vitamin D, magnesium, phosphorus; t-score<-2.5; any other degenerative chronic degenerative disease, e.g., nephrolithiasis, hyper- or hypothyroidism,, impaired liver or renal function; smoking; less than 1 year postmenopausal; abnormal values on hematologic and biochemical examinations; taking medications and/or dietary supplements that affect bone metabolism | Postmenopausal Health Study | Manufacturer | Greece | 66/66/100 | 60.7 (5.0)/NR |  | Post menopausal | Vitamin D intake: 0.61±0.61 ug/d Serum vitamin D level:26.2±8.5 nmol/L Calcium intake: 682.9±226.1 mg/d |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Moschonis et al., 2010 | RCT/CCT | Not described | NR | Secondary-Pelvis BMD | D3 (1200 mg calcium+7.5 µg D3)/day for the first 12 months + (1200 mg calcium+22.5 µg D3)/day for the next 18 months |  | 35 | 1.096 (sd=0.078) | final=1.089 (sd=0.087) | +0.02 (-0.02, 0.06) | . |
|  |  |  |  |  | D3 control (neither counselling nor dietary products) |  | 31 | 1.067 (sd=0.102) | final=1.067 (sd=0.084) |  | . |
|  |  |  |  | Secondary-Total Body BMD | D3 (1200 mg calcium+7.5 µg D3)/day for the first 12 months + (1200 mg calcium+22.5 µg D3)/day for the next 18 months |  | 35 | 1.134 (sd=0.072) | final=1.135 (sd=0.067) | +0.03 (-0.01, 0.06) | . |
|  |  |  |  |  | D3 control (neither counselling nor dietary products) |  | 31 | 1.124 (sd=0.083) | final=1.106 (sd=0.078) |  | . |
|  |  |  |  | Secondary-Total Spine BMD | D3 (1200 mg calcium+7.5 µg D3)/day for the first 12 months + (1200 mg calcium+22.5 µg D3)/day for the next 18 months |  | 35 | 1.119 (sd=0.124) | final=1.234 (sd=0.135) | +0.04 (-0.03, 0.11) | . |
|  |  |  |  |  | D3 control (neither counselling nor dietary products) |  | 31 | 1.139 (sd=0.152) | final=1.193 (sd=0.139) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Moschonis et al., 2010 | RCT/CCT | Y | ND | Y | Y | ND | N | ND | ND | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Moschonis et al., 2011 | RCT/CCT | 51–70 years; Postmenopausal women; Healthy; 55–65 years of age; self-dependent | Prior cancer; Current cancer; Current cardiovascular disease; Type 2 DM; e.g., thiazide diuretics, glucocorticoids; taking dietary supplements related to bone metabolism (calcium, magnesium, phosphorus, vitamin D); BMD T-score<-2.5; any bone degenerative chronic disease (nephrolithiasis, liver or kidney disease, cancer, hyper- or hypothyroidism, hyperparathyroidism; postmenopausal less than 1 year; taking medications or dietary supplements that affect bone metabolism; bone degenerative chronic disease; <1 year past menopause; smoking, osteoporosis, abnormal values on hematologic and biochemical examinations | Postmenopausal Health Study | Manufacturer | Greece | 173/65/100 | 62.4 (5.3)/NR |  | Post menopausal | Vitamin D intake: 0.89±0.66ug/d Calcium intake: 789.6±213.5mg/d |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Moschonis et al., 2011 | RCT/CCT | NR | NR | Secondary-Heel BMD | D3 CaD (800 mg calcium+10 µg Vit D3)/day |  | 26 | 0.476 (sd=0.091) | final=0.459 (sd=0.081) | -0.002 (-0.04, 0.04) | . |
|  |  |  |  |  | D3 control |  | 39 | 0.472 (sd=0.083) | final=0.461 (sd=0.083) |  | . |
|  |  |  |  | Secondary-L2-L4 BMD | D3 CaD (800 mg calcium+10 µg Vit D3)/day |  | 26 | 1.121 (sd=0.158) | final=1.113 (sd=0.160) | +0.01 (-0.07, 0.10) | . |
|  |  |  |  |  | D3 control |  | 39 | 1.134 (sd=0.176) | final=1.101 (sd=0.167) |  | . |
|  |  |  |  | Secondary-Total Body BMD | D3 CaD (800 mg calcium+10 µg Vit D3)/day |  | 26 | 1.112 (sd=0.077) | final=1.135 (sd=0.083) | +0.04 (0, 0.08) | . |
|  |  |  |  |  | D3 control |  | 39 | 1.095 (sd=0.079) | final=1.094 (sd=0.079) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Moschonis et al., 2011 | RCT/CCT | ND | ND | Y | Y | ND | N | ND | N | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Munger et al., 2013 | Nested Case Control | Healthy; US Navy, MC active duty | Not specified |  | Government | USA | 923/558/4.9 | 20.6 (4.0)/NR | Non-Hispanic White=607; Hispanic=126; Non-Hispanic Black=21; Not reported=54 | Other; presumed healthy | Nested case control, so baseline vitamin D tertiles reported for cases and controls |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Munger et al., 2013 | Nested Case Control | age, sex, race/ethnicity, dates of serum collection, and branch of active duty service (Navy or Marine Corps) | Sun Exposure- Latitudes Of State Of Residence Prior To Enlistment | Primary-Type 1 Diabetes Mellitus | 25(0H)D | <75nmol/L-Cases with >=2 samples | 5.4 years | 45/102 | Adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 75–<100nmol/L-Cases with >=2 samples | 5.4 years | 76/236 | Adjusted/RR | 0.6 | 0.38, 0.97 |  |
|  |  |  |  |  | 25(0H)D | >=100nmol/L-Cases with >=2 samples | 5.4 years | 65/220 | Adjusted/RR | 0.56 | 0.35, 0.90 | 0.03 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Munger et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Murdoch et al., 2012 | RCT/CCT | 9–18 years; 19–50 years; 51–70 years; 18 years and older; staff or students of Canterbury District Health Board or University of Otago; able to give written informed consent; anticipating residence in Christchurch for the study period | Consumption of vitamin D supplements other than as part of a daily multi with a daily intake =400IU; Current cancer; Pregnant; history of hypercalcemia or nephrolithiasis; use of immuno-suppressants or medications that interfere with vitamin D metabolism (e.g., thiazide diuretics, phenytoin, carbamazepine, primidone, phenobarbital, prednisone>10mg/d, methotrexate, azathioprine, cyclosporine); sarcoidosis; kidney disorders requiring dialysis or polycystic kidney disease; cirrhosis; baseline plasma calcium corrected for albumin>10.4mg/dL or <8.4mg/dL; Enrollment or planned enrollment in other research study that would conflict with the present study; planned pregnancy during the study period | VIDARIS | Government | New Zealand | 322/322/75 | 48 (10)/NR | Non-Hispanic White=93; Asian=3; Not reported=2; Race\_other1=4; Race\_other2=1 | Not Reported | Serum vitamin D level:28±9 ng/ml Plasma calcium: 9.2±0.4 mg/dL |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Murdoch et al., 2012 | RCT/CCT | NR | NR | Primary-Number of URTIs per Person | Vit D3 & Placebo | 100,000IU-NR | 18 months | 3.7/161 | Adjusted/RR | 0.97 | 0.85,1.11 | 0.65 |
|  |  |  |  |  | Vit D3 & Placebo | Placebo-NR | 18 months | 3.7/161 | Adjusted/RR | 1 | reference |  |
|  |  |  |  | Primary-No Of Days If Missed Work Per Episode | Vit D3 & Placebo | 100,000IU-NR | 18 months | 0.76/161 | Adjusted/RR | 1.03 | 0.81, 1.30 | 0.82 |
|  |  |  |  |  | Vit D3 & Placebo | Placebo-NR | 18 months | 0.76/161 | Adjusted/RR | 1 | reference |  |
|  |  |  |  | Primary-Duration Of Symptoms | Vit D3 & Placebo | 100,000IU-NR | 18 months | 12/161 | Adjusted/RR | 0.96 | 0.73, 1.25 | 0.76 |
|  |  |  |  |  | Vit D3 & Placebo | Placebo-NR | 18 months | 12/161 | Adjusted/RR | 1 | reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Murdoch et al., 2012 | RCT/CCT | Y | ND | Y | Y | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Neuhouser et al., 2012 | Nested Case Control | Same as for CRC cohort | Same as for CRC cohort | Women’s Health Initiative Calcium and Vitamin D Clinical Trial | Government | USA; multiple cities | 2,160/2160/100 | 62.4 (6.9)/NR | Non-Hispanic White=783; Hispanic=36; Non-Hispanic Black=151; Not reported=30 | Post menopausal |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Neuhouser et al., 2012 | Nested Case Control | NR | NR | Primary-Colorectal Cancer | 25(0H)D | >=64.5nmol/L | NR | 231/500 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 43.6<64.5nmol/L | NR | 250/520 | adjusted/OR | 2.76 | 1.30, 5.89 |  |
|  |  |  |  |  | 25(0H)D | 32.7<43.6nmol/L | NR | 306/578 | adjusted/OR | 1.51 | 0.72, 3.14 |  |
|  |  |  |  |  | 25(0H)D | <32.7nmol/L | NR | 293/562 | adjusted/OR | 4.45 | 1.96, 10.10 | 0.003 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Neuhouser et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | cancers confirmed by medical record review by health professionals |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Neuhouser et al., 2012 | Nested Case Control | 19–50 years; 51–70 years; Postmenopausal women; 50–79 years of age; If age=55, no menstrual period for at least 6 months; If age 50–54, no menstrual period for at least 12 months; life expectancy of at least 3 years | calcitriol or =600IU vitamin D per day; Hypertension; daily corticosteroids; any invasive cancer in prior 10 years, breast cancer at any time, suspicious mammography findings; MI in prior 6 months; stroke or TIA in prior 6 months; history of renal calculi or hypercalcemia; mental illness, dementia, alcohol or drug dependency; any medical condition with predicted survival < 3 years; chronic hepatitis, severe cirrhosis; severe underweight or anemia | WHI | Government | USA; multiple cities | 620/620/100 | 65.1 (6.8)/NR | Non-Hispanic White=757; Hispanic=44; Non-Hispanic Black=171; Not reported=28 | Post menopausal |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Neuhouser et al., 2012 | Nested Case Control | age, latitude of the clinical center (or clinical center location if latitude was not available), race/ethnicity, and blood collection date | Other Nutrients Or Dietary Factors- Vitamin D, Calcium, Red Meat Intake; Demographics (Age, Sex, Race/Ethnicity)- Age, Race; Anthropometrics- BMI, Waist Circumference; Smoking, Other Lifestyle Factors- Smoking, Physical Activity, Alcohol Use; Other - Screening For CRC, Use Of Hormone Therapy | Primary-Breast Cancer | 25(0H)D | >=64.9nmol/L | NR | 53/130 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 50.9<64.9nmol/L | NR | 84/162 | adjusted/OR | 0.99 | 0.75, 1.31 |  |
|  |  |  |  |  | 25(0H)D | 36.7<50.9nmol/L | NR | 68/147 | adjusted/OR | 1.11 | 0.83, 1.49 |  |
|  |  |  |  |  | 25(0H)D | <36.7nmol/L | NR | 105/181 | adjusted/OR | 1.06 | 0.78, 1.43 | 0.600 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Neuhouser et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | cancers confirmed by medical record review by health professionals |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Ng et al., 2009 | RCT/CCT | 19–50 years; 51–70 years; ambulatory; 18–80 years; stable medical condition; no change in medications for 6 months prior to study entry | Current cancer; Pregnant; current liver or kidney disorders; BMI >35 kg/m2; current tobacco use; h/o hypercalcemia, nephrolithiasis, sarcoidosis; recent hospitalization; malignancy and malabsorption; medications that interfere with vitamin D metabolism such as phenytoin and carbamazepine; use of immunosuppressants |  | Government | USA; Long Island, NY | 162/296/79.7 | 58.1 (13.4)/NR | Non-Hispanic White=885; Non-Hispanic Black=41; Asian=54; Race\_other1=20 |  | The baseline 25-OHD levels ranged from 16 to 156 nmol/l with a mean level of 63.7+/-28.7 nmol/l in the study population. serum vitamin D: active- 64.3+/-5.4 nmol/L, placebo- 63.0+/-25.8 nmol/L calcium intake: active- 762.8+/-375.7 mg/d, placebo- 854.6+/- |

| **Main Analyses (Dichotomous Outcomes)** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Ng et al., 2009 | RCT/CCT | NR | NR | Primary-Upper Respiratory Tract | Vit D; IU/day | 2000IU/day | 12 weeks | 28/78 | Crude/OR | 0.79 | 0.41, 1.54 | 0.61% |
|  |  |  |  |  |  | Placebo | 12 weeks | 29/70 | Crude/OR | 1 | reference |  |

| **Main Analyses (Continuous Outcomes)** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Ng et al., 2009 | RCT/CCT | NR | NR | Secondary-Duration Of Upper Respiratory Tract | Vit D 2000IU/day |  | 78 | NR (NR) | final=5.4 (SD=4.8) | +1.0 (-1.2, 1.4) | 0.86 |
|  |  |  |  |  | Placebo |  | 70 | NR (NR) | final=5.3 (SD=3.1) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Ng et al., 2009 | RCT/CCT | Y | ND | ND | Y | Y | N | Y | ND | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Nieves et al., 2012 | RCT/CCT | 19–50 years; Postmenopausal women; women; Black; age over 45; natural spontaneous menopause or surgical ovariectomy at least 1 year prior to recruitment | Other systemic bone disease (e.g., Paget’s); Current cancer; Current cardiovascular disease; Type 2 DM; Autoimmune disease; in the preceding 6 months; cardiac and pulmonary conditions; gastrointestinal, hepatic, and renal diseases; active hyperthyroidism; treatment with insulin, oral hypoglycemic agents, or thyroid hormone; smoking; drug abuse; rheumatoid arthritis |  | Government | USA; New York | 127/103/100 | 61.2 (7.6)/NR | Non-Hispanic Black=100 | Vitamin d deficient/depleted; Post menopausal | Serum 25(OH)D: 11.6±5.7 ng/ml |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Nieves et al., 2012 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI | Secondary-Femoral Neck BMD | D3 1,000 IU Vit D3 |  | 55 | NR (NR) | change=-0.2 (NR) | +0.6 (NC) | . |
|  |  |  |  |  | D3 placebo |  | 48 | NR (NR) | change=-0.8 (NR) |  | . |
|  |  |  |  | Secondary-Spine BMD | D3 1,000 IU Vit D3 |  | 55 | 1.154 (sd=0.16) | change=-0.5 (NR) | +0.1 (NC) | . |
|  |  |  |  |  | D3 placebo |  | 48 | 1.212 (sd=0.15) | change=-0.6 (NR) |  | . |
|  |  |  |  | Secondary-Total Hip BMD | D3 1,000 IU Vit D3 |  | 55 | 1.043 (sd=0.14) | change=-0.5 (NR) | +0.2 (NC) | . |
|  |  |  |  |  | D3 placebo |  | 48 | 1.04 (sd=0.13) | change=-0.7 (NR) |  | . |
|  |  |  |  | Secondary-Trochanter BMD | D3 1,000 IU Vit D3 |  | 55 | NR (NR) | change=-0.3 (NR) | +0.15 (NC) | . |
|  |  |  |  |  | D3 placebo |  | 48 | NR (NR) | change=-0.45 (NR) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Nieves et al., 2012 | RCT/CCT | ND | ND | ND | Y | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Oeffelen et al., 2011 | Prospective Cohort | 3–8 years; newborns of mothers visiting prenatal clinics assessed at 4- and 8-years of age | Not specified | Prevention and Incidence of Asthma and Mite Allergy (PIAMA) birth cohort study | Government | The Netherlands | 3963/862/48.1 | NR/NR |  | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Oeffelen et al., 2011 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Gender; Smoking, Other Lifestyle Factors- Smoking In The House At 3 Months Of Age | Primary-Bronchial Hyperresponsiveness | 25(OH)D | Tertile 1: range 23.1–60.2 nm | 8 yrs | 80/204 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Tertile 2: range 60.7–78.8 nm | 8 yrs | 88/209 | adjusted/OR | 1.16 | 0.62, 2.18 |  |
|  |  |  |  |  | 25(OH)D | Tertile 3: range 79.0–303.8 nm | 8 yrs | 87/194 | adjusted/OR | 1.19 | 0.63, 2.23 |  |
|  |  |  |  | Primary-Atopy | 25(OH)D | Tertile 1: range 23.1–60.2 nm | 8 yrs | 93/346 | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Tertile 2: range 60.7–78.8 nm | 8 yrs | 101/237 | adjusted/OR | 2.19 | 1.17, 4.12 |  |
|  |  |  |  |  | 25(OH)D | Tertile 3: range 79.0–303.8 nm | 8 yrs | 93/279 | adjusted/OR | 1.23 | 0.64, 2.39 |  |
|  |  |  |  | Primary-Asthma | 25(OH)D | Tertile 1: range 23.1–60.2 nm | 5–8 yrs | NR/NR | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Tertile 2: range 60.7–78.8 nm | 5–8 yrs | NR/NR | adjusted/OR | 0.97 | 0.57, 1.65 |  |
|  |  |  |  |  | 25(OH)D | Tertile 3: range 79.0–303.8 nm | 5–8 yrs | NR/NR | adjusted/OR | 0.68 | 0.39, 1.19 |  |
|  |  |  |  | Primary-Severe Asthma | 25(OH)D | Tertile 1: range 23.1–60.2 nm | 5–8 yrs | NR/NR | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Tertile 2: range 60.7–78.8 nm | 5–8 yrs | NR/NR | adjusted/OR | 1.06 | 0.59, 1.90 |  |
|  |  |  |  |  | 25(OH)D | Tertile 3: range 79.0–303.8 nm | 5–8 yrs | NR/NR | adjusted/OR | 0.61 | 0.32, 1.15 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Oeffelen et al., 2011 | Y | Y | N | Y |  |  |  | Y | Y | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | Y | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Park et al., 2010 | Nested Case Control | 19–50 years; 51–70 years; men; 45–75 years of age; living in Hawaii or California | Not specified | Multiethnic Cohort Study | Government | USA; CA and HI | 985/985/0 | 68.7 (7.2)/NR | Non-Hispanic White=166; Hispanic=159; Non-Hispanic Black=415; Race\_other1=35; Race\_other2=226 | Not Reported | Serum vitamin D level:33.1±15.5 ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Park et al., 2010 | Nested Case Control | age at blood draw, fasting hours, season of blood draw | Other Nutrients Or Dietary Factors- Calcium Intake; Vitamin D Intake; Anthropometrics- BMI; Other - Physical Activity Level, Family History Of Prostate Cancer | Primary-Prostate Cancer | 25(0H)D | Q1:<22.9ng/mL | NR | 82/245 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Q2: 22.9<31.0ng/mL | NR | 84/250 | adjusted/OR | 1.05 | 0.70, 1.58 |  |
|  |  |  |  |  | 25(0H)D | Q3: 31.0<39.9ng/mL | NR | 72/244 | adjusted/OR | 0.81 | 0.52, 1.28 | 0.470 |
|  |  |  |  |  | 25(0H)D | Q4: >=39.9ng/mL | NR | 91/246 | adjusted/OR | 1.17 | 0.72, 1.89 | 0.600 |
|  |  |  |  |  | 25(0H)D | Deficient: <20ng/mL | NR | 53/159 | adjusted/OR | 1.1 | 0.68, 1.78 |  |
|  |  |  |  |  | 25(0H)D | Insufficient: 20<30ng/mL | NR | 98/302 | adjusted/OR | 1.04 | 0.73, 1.48 |  |
|  |  |  |  |  | 25(0H)D | 30<50ng/mL | NR | 137/424 | adjusted/OR | 1 | reference | 0.170 |
|  |  |  |  |  | 25(0H)D | >=50ng/mL | NR | 41/100 | adjusted/OR | 1.52 | 0.92, 2.51 | 0.320 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Park et al., 2010 | N | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | No exclusion criteria listed or anything about how many people actually received the survey and how they were chosen... |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Perna et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; residence in the state of Saarland,; sufficient knowledge of the German; age 50–74 years | history of CVD; unknown history of CVD; missing baseline measurements of 25(OH)D | ESTHER | Government | Germany (specify city, if given);Saarland | 7709/7709/59.3 | NR/50–74 |  | Other; 46.3% hypertension | 14.5% of population had serum D of <30 nmol/L, 44.5%- 31–<50 nmol/L, 41.1% >/= 50 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Perna et al., 2013 | Prospective Cohort | NA | Other Nutrients Or Dietary Factors- Regular Multivitamin Supplement Intake; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI; Medical Conditions- Hypertension, DM, CKD; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking, Physical Activity; Other - CRP, Family History Of CVD, Fish Consumption | Primary-Total Cvd | 25(OH)D | < 30 | 6.5 yrs | 171/1114 | adjusted/HR | 1.24 | 1.02, 1.50 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 448/3430 | adjusted/HR | 1.14 | 0.99, 1.32 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 392/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 1011/7709 | adjusted/HR | 0.95 | 0.89, 1.01 |  |
|  |  |  |  | Primary-Nonfatal Cvd | 25(OH)D | < 30 | 6.5 yrs | 136/1114 | adjusted/HR | 1.17 | 0.94, 1.45 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 383/3430 | adjusted/HR | 1.15 | 0.98, 1.35 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 335/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 854/7709 | adjusted/HR | 0.98 | 0.91, 1.05 |  |
|  |  |  |  | Primary-Fatal Cvd | 25(OH)D | < 30 | 6.5 yrs | 40/1114 | adjusted/HR | 1.55 | 1.01, 2.37 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 71/3430 | adjusted/HR | 1.05 | 0.73, 1.49 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 65/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 176/7709 | adjusted/HR | 0.89 | 0.66, 0.94 |  |
|  |  |  |  | Primary-Total Chd | 25(OH)D | < 30 | 6.5 yrs | 92/1114 | adjusted/HR | 1.32 | 1.02, 1.72 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 236/3430 | adjusted/HR | 1.19 | 0.98, 1.45 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 208/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 536/7709 | adjusted/HR | 0.92 | 0.84, 1.01 |  |
|  |  |  |  | Primary-Nonfatal Chd | 25(OH)D | < 30 | 6.5 yrs | 77/1114 | adjusted/HR | 1.28 | 0.97, 1.71 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 204/3430 | adjusted/HR | 1.18 | 0.95, 1.46 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 179/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 460/7709 | adjusted/HR | 0.96 | 0.88, 1.06 |  |
|  |  |  |  | Primary-Fatal Chd | 25(OH)D | < 30 | 6.5 yrs | 16/1114 | adjusted/HR | 1.53 | 0.80, 2.94 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 32/3430 | adjusted/HR | 1.18 | 0.70, 1.99 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 31/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 79/7709 | adjusted/HR | 0.7 | 0.54, 0.93 |  |
|  |  |  |  | Primary-Total Stroke | 25(OH)D | < 30 | 6.5 yrs | 64/1114 | adjusted/HR | 1.31 | 0.95, 1.81 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 165/3430 | adjusted/HR | 1.2 | 0.94, 1.54 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 124/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 353/7709 | adjusted/HR | 0.91 | 0.81, 1.02 |  |
|  |  |  |  | Primary-Nonfatal Stroke | 25(OH)D | < 30 | 6.5 yrs | 55/1114 | adjusted/HR | 1.26 | 0.89, 1.77 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 146/3430 | adjusted/HR | 1.19 | 0.92, 1.55 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 112/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 313/7709 | adjusted/HR | 0.91 | 0.81, 1.02 |  |
|  |  |  |  | Primary-Fatal Stroke | 25(OH)D | < 30 | 6.5 yrs | 9/1114 | adjusted/HR | 1.86 | 0.74, 4.66 |  |
|  |  |  |  |  | 25(OH)D | 30–<50 | 6.5 yrs | 20/3430 | adjusted/HR | 1.44 | 0.68, 3.03 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 6.5 yrs | 12/3165 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | per 25 | 6.5 yrs | 41/7709 | adjusted/HR | 0.86 | 0.61, 1.23 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Perna et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Pfeifer et al., 2009 | RCT/CCT | 51–70 years; healthy; 70 years of age and older; serum vitamin D<78nmol/L | vitamin D and vitamin D metabolites; Osteoporosis; Prior fragility fracture; Pregnant; Severe cardiovascular disease; chronic renal failure, history of drug, alcohol, tobacco, caffeine abuse; hypercalcemia; primary hyperparathyroidism; diabetes mellitus |  | Manufacturer | Germany (specify city, if given);Bad Pyrmont; Graz, Austria | 242/470/74 | 77 (4)/NR |  |  | Serum vitamin D level:55±18 nmol/L Calcium intake: 608±38 mg/d |

| **Main Analyses (Dichotomous Outcomes)** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Pfeifer et al., 2009 | RCT/CCT | age height weight gender serum 25(OH)D nutritional calcium intake intact PTH levels | NR | Primary-Falls (>=1) | Vit D3; Ca | 1000 mg & 800 IU daily | 12 mo | NR/122 | Crude/RR | 0.73 | 0.54, 0.96 | <0.01 |
|  |  |  |  |  | Ca | 1000 mg daily | 12 mo | NR/120 | Crude/RR | 1 | Reference |  |

| **Main Analyses (Continuous Outcomes)** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Pfeifer et al., 2009 | RCT/CCT | age height weight gender serum 25(OH)D nutritional calcium intake intact PTH levels | NR | Secondary-Quadriceps Strength Left Leg | Ca & Vit D3 1000 mg & 800 IU daily |  | 114 | 211.00 (SD=83) | final= 236 (SD=75) | +12 (-8.6, 32.6) | 0.25 |
|  |  |  |  |  | Ca 1000 mg daily |  | 114 | 217.00 (SD=90) | final= 224 (SD=83) |  | . |
|  |  |  |  | Secondary-Body Sway Total Length | Ca & Vit D3 1000 mg & 800 IU daily |  | 114 | 86.00 (SD=32) | final= 81 (SD=32) | -5 (-13, 3) | 0.22 |
|  |  |  |  |  | Ca 1000 mg daily |  | 114 | 90.00 (SD=42) | final= 86 (SD=30) |  | . |
|  |  |  |  | Secondary-Timed Up And Go (Tug) | Ca & Vit D3 1000 mg & 800 IU daily |  | 114 | 9.00 (SD=5.9) | final= 7.5 (SD=3.4) | -0.8 (-1.9, 0.3) | 0.16 |
|  |  |  |  |  | Ca 1000 mg daily |  | 114 | 8.50 (SD=3.9) | final= 8.3 (SD=5.1) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Pfeifer et al., 2009 | RCT/CCT | ND | ND | Y | Y | Y | Y | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Pike et al., 2012 | Prospective Cohort | women 20–34 years; children born to these women from 1998 to 2002 | infants born at<35 weeks gestation |  | Private Foundation | UK | 860/836/48.26 (children) | 30.37 (3.81)/NR |  | Other; mother/child pairs: slightly more than 20% of mothers had history of asthma and nearly half had atopy | Maternal late serum vitamin D: median 59.00 nmol/L (IQR:40.52–84.89) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Pike et al., 2012 | Prospective Cohort | NR | NR | Primary-Current Doctor-Diagnosed Asthma | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 87/836 | adjusted/RR | 0.98 | 0.92, 1.04 | 0.56 |
|  |  |  |  | Primary-Current Wheeze In Last 12 Months | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 117/833 | adjusted/RR | 0.99 | 0.94, 1.05 | 0.76 |
|  |  |  |  | Primary-Any Wheeze At Or Before 6 Years | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 504/823 | adjusted/RR | 1 | 0.98, 1.02 | 0.95 |
|  |  |  |  | Primary-Transient Wheeze | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 367/707 | adjusted/RR | 1 | 0.98, 1.02 | 0.89 |
|  |  |  |  | Primary-Persistent Late Wheeze | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 137/475 | adjusted/RR | 0.98 | 0.94, 1.03 | 0.49 |
|  |  |  |  | Primary-Persistent Late Wheeze With Atopy | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 46/251 | adjusted/RR | 0.91 | 0.84, 0.99 | 0.04 |
|  |  |  |  | Primary-Persistent Late Wheeze Without Atopy | 25(OH)D | per 10 nmol/l rise in CB 25(OH)D3 | 6 yrs | 48/253 | adjusted/RR | 1.01 | 0.94, 1.09 | 0.73 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Pike et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | Y | N | B | >20% lost to follow-up but had partial data. Not sure whether sufficient |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Pilz et al., 2009 | Prospective Cohort | 19–50 years; 51–70 years; 50–75 years of age | Not specified | Hoorn Study | Private Foundation | Hoorn, Netherlands | 614/614/50 | 69.2 (3rd quartile) (6.5)/NR | Non-Hispanic White=100 | Other; more than 20% Type 2 Diabetes or impaired glucose tolerance |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Pilz et al., 2009 | Prospective Cohort | NA | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- Waist-To-Hip Ratio, Percent Body Fat; Medical Conditions- Hypertension; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking, Physical Activity; Other - HDL Cholesterol, Glomerular Filtration Rate | Primary-All-Cause Mortality | 25(OH)D | 1st quartile (mean 25(OH)D 30.6 nmol/L) | 6.2 yrs | 21/152 | adjusted/HR | 1.97 | 1.08, 3.58 | 0.027 |
|  |  |  |  |  | 25(OH)D | 2nd–4th quartiles (mean 25(OH)D 45.6–78.9) | 6.2 yrs | 30/462 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Cardiovascular Mortality | 25(OH)D | 1st quartile (mean 25(OH)D 30.6 nmol/L) | 6.2 yrs | 12/152 | adjusted/HR | 5.38 | 2.02, 14.34 | 0.001 |
|  |  |  |  |  | 25(OH)D | 2nd–4th quartiles (mean 25(OH)D 45.6–78.9) | 6.2 yrs | 8/462 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Pilz et al., 2009 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | N | B | Alicia didn’t actually record selections. Large loss to followup. |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Powe et al., 2010 | Nested Case Control | Pregnant or lactating women; nulliparous; Delivering singleton live births after 20 weeks gestation | Hypertension; history of diabetes; thyroid, liver, chronic renal disease; pre-existing chronic hypertension | MGH Obstetric Maternal Study | Private Foundation | USA; Boston | 170/NR/100 | 30.4 (6.0)/NR | Non-Hispanic White=664 | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Powe et al., 2010 | Nested Case Control | gestational age at blood draw | Demographics (Age, Sex, Race/Ethnicity)- BMI, Race; Sun Exposure- Season Of Blood Draw; Other - Gestational Age At Blood Collection | Primary-Severe Preeclampsia | 25(OH)D | Quartile 1 (ND) | NR | 39 (overall)/NR | adjusted/OR | 1.5 | 0.57, 3.96 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2 (ND) | NR |  | adjusted/OR | 1.04 | 0.39, 2.76 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3 (ND) | NR |  | adjusted/OR | 0.67 | 0.23, 1.91 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4 (ND) | NR |  | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Powe et al., 2010 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Prentice et al., 2013 | RCT/CCT | Postmenopausal women; age 50–79; intending to reside in area for =3 years | intention to continue taking = 600 IU per day; current use of calcitriol; current use of daily corticosteroids; Any invasive cancer in prior 10 years, breast cancer, no mammogram within 2 years prior to enrollment; self-reported urinary tract stones | WHI | Private Foundation | USA; multiple sites | 36,282/30604/100 | 50–54: 14.2%; 55–59: 22.8%; 60–69: 45.5%; 70–79: 17.5%/50–79 | Non-Hispanic White=831; Hispanic=42; Non-Hispanic Black=91; Asian=20; Race\_other1=04; Race\_other2=12 | Post menopausal | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Prentice et al., 2013 | RCT/CCT | NR | Other Nutrients Or Dietary Factors- Usual Intake Of Vitamin D And Calcium; Demographics (Age, Sex, Race/Ethnicity)- Baseline Age, Non-White Ethnicity; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Current Or Past Cigarette Smoking | Primary-Total Fracture | D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7.2 yrs | 872/7718 | adjusted/HR | 0.97 | 0.88, 1.07 | NR |
|  |  |  |  |  |  | placebo | 7.2 yrs | 870/7584 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Primary-Hip Fracture | D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7.2 yrs | 68/7718 | adjusted/HR | 0.86 | 0.62, 1.20 | NR |
|  |  |  |  |  |  | placebo | 7.2 yrs | 80/7584 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Primary-Total Invasive Cancer | D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7.2 yrs | 553/7718 | adjusted/HR | 0.88 | 0.78, 0.98 | NR |
|  |  |  |  |  |  | placebo | 7.2 yrs | 617/7584 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Primary-Death | D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7.2 yrs | 331/7718 | adjusted/HR | 0.95 | 0.81, 1.11 | NR |
|  |  |  |  |  |  | placebo | 7.2 yrs | 338/7584 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Primary-MI | 25(OH)D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7 yrs | 193/7718 | Adjusted/HR | 1.18 | 0.88, 1.59 | 0.17 |
|  |  |  |  |  |  | placebo | 7 yrs | 167/7584 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Coronary Heart Disease | 25(OH)D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7 yrs | 229/7718 | Adjusted/HR | 1.08 | 0.82, 1.42 | 0.4 |
|  |  |  |  |  |  | placebo | 7 yrs | 211/7584 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Total Heart Disease | 25(OH)D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7 yrs | 621/7718 | Adjusted/HR | 1 | 0.86, 1.18 | 0.56 |
|  |  |  |  |  |  | placebo | 7 yrs | 642/7584 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Stroke | 25(OH)D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7 yrs | 184/7718 | Adjusted/HR | 1.18 | 0.86, 1.62 | 0.96 |
|  |  |  |  |  |  | placebo | 7 yrs | 162/7584 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Total Cardiovascular Disease | 25(OH)D3; calcium carbonate | 1000mg/day of Ca & 400IU/day of Vit D3 | 7 yrs | 848/7718 | Adjusted/HR | 1.04 | 0.90, 1.19 | 0.77 |
|  |  |  |  |  |  | placebo | 7 yrs | 813/7584 | Adjusted/HR | 1 | Reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Prentice et al., 2013 | RCT/CCT | Y | Y | N | N | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Prince et al., 2008 | RCT/CCT | 51–70 years; older women; history of falling in the prior 12 months; serum vitamin D<24.0ng/ml | current vitamin D consumption; Other systemic bone disease (e.g., Paget’s); current consumption of bone or mineral active agents other than calcium; bone mineral density z-score at the hip of <-2.0; fracture in the past 6 months; marked neurological conditions; medical conditions that influence bone mineral metabolism |  | Manufacturer | Australia;Perth | 302/302/100 | 77.4 (5.0)/70–90 |  | Vitamin d deficient/depleted | Serum vitamin D: 17.7±5.1 ng/mL |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Prince et al., 2008 | RCT/CCT | NR | NR | Primary-Falls (>=1) | Vit D2; Ca | 1000mg of Ca & 1000 IU of Vit D2 daily | 1 y | 80/151 | Adjusted/OR | 0.61 | 0.37, 0.99 | < 0.05 |
|  |  |  |  |  | placebo; Ca | 1000mg of Ca & placebo daily | 1 y | 95/151 | Adjusted/OR | 1 | Reference |  |
|  |  |  |  | Primary-1 Fall | Vit D2; Ca | 1000mg of Ca & 1000 IU of Vit D2 daily | 1 y | 32/151 | Crude/OR | 0.5 | 0.28, 0.88 | < 0.05 |
|  |  |  |  |  | placebo; Ca | 1000mg of Ca & placebo daily | 1 y | 51/151 | Crude/OR | 1 | Reference |  |
|  |  |  |  | Primary-Falls (=2) | Vit D2; Ca | 1000mg of Ca & 1000 IU of Vit D2 daily | 1 y | NR/151 | Crude/OR | 0.86 | 0.50, 1.49 | > 0.05 |
|  |  |  |  |  | placebo; Ca | 1000mg of Ca & placebo daily | 1 y | NR/151 | Crude/OR | 1 | Reference |  |
|  |  |  |  | Primary-First Fall In Winter/Spring | Vit D2; Ca | 1000mg of Ca & 1000 IU of Vit D2 daily | 1 y | 38/151 | Crude/OR | 0.55 | 0.32, 0.96 | < 0.05 |
|  |  |  |  |  | placebo; Ca | 1000mg of Ca & placebo daily | 1 y | 54/151 | Crude/OR | 1 | Reference |  |
|  |  |  |  | Primary-First Fall In Summer/Autumn | Vit D2; Ca | 1000mg of Ca & 1000 IU of Vit D2 daily | 1 y | 42/151 | Crude/OR | 0.81 | 0.46, 1.42 | > 0.05 |
|  |  |  |  |  | placebo; Ca | 1000mg of Ca & placebo daily | 1 y | 41/151 | Crude/OR | 1 | Reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Prince et al., 2008 | RCT/CCT | Y | ND | Y | Y | Y | N | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Racovan et al., 2012 | RCT/CCT | 19–50 years; 51–70 years; Postmenopausal women; 50–79 years at baseline; no evidence of a medical condition associated with a predicted survival of less than 3 years | calcitriol use; corticosteroid use; hypercalcemia, renal calculi | WHI | Government | USA; multiple | 32,435/32521/100 | 62.34 (6.91)/NR | Non-Hispanic White=8415; Hispanic=382; Non-Hispanic Black=846; Asian=203; Race\_other1=120; Race\_other2=035 | Post menopausal | categories: <200, 200–<400, 400–<600, >/=600 IU/day |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Racovan et al., 2012 | RCT/CCT | Age, race/ethnicity, BMI, solar irradiance, total vitamin D intake, multivitamin use, education, HT, smoking history, alcohol consumption, or breastfeeding history. | NR | Primary-Rheumatoid Arthritis | Vit D; Calcium 1000ng | 400IU-NR | 5.1 years | 45/16283 | Adjusted/HR | 1.15 | 0.75, 1.75 | 0.53 |
|  |  |  |  |  | Vit D; Calcium 1000ng | Placebo-NR | 5.1 years | 41/16238 | Adjusted/HR | 1 | reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Racovan et al., 2012 | RCT/CCT | Y | Y | NA | N | ND | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Rejnmark et al., 2009 | Nested Case Control | Referred for mammogram; No previous breast cancer | Not specified |  | Private Foundation | Denmark | 562/NR/100 | 58/29–87 |  |  |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Rejnmark et al., 2009 | Nested Case Control | age, menopausal status, season of blood draw, body weight, calcium intake, smoking habits, fresh fruit consumption, alcohol intake | NR | Primary-Breast Cancer | 25(0H)D | <60nmo/L | NR | NR/NR | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 60–84nmol/L | NR | NR/NR | adjusted/RR | 0.94 | 0.59, 1.47 |  |
|  |  |  |  |  | 25(0H)D | >84nmol/L | NR | NR/NR | adjusted/RR | 0.52 | 0.32, 0.85 | <0.05 |
|  |  |  |  |  | 25(0H)D | <60nmo/L-Premenopausal women | NR | NR/NR | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 60–84nmol/L-Premenopausal women | NR | NR/NR | adjusted/RR | 0.59 | 0.26, 1.33 |  |
|  |  |  |  |  | 25(0H)D | >84nmol/L-Premenopausal women | NR | NR/NR | adjusted/RR | 0.38 | 0.15, 0.97 | <0.05 |
|  |  |  |  |  | 25(0H)D | <60nmo/L-Postmenopausal women | NR | NR/NR | adjusted/RR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 60–84nmol/L-Postmenopausal women | NR | NR/NR | adjusted/RR | 1.2 | 0.67, 2.16 |  |
|  |  |  |  |  | 25(0H)D | >84nmol/L-Postmenopausal women | NR | NR/NR | adjusted/RR | 0.71 | 0.38, 1.30 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Rejnmark et al., 2009 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Roth et al., 2013 | RCT/CCT | 9–18 years; 19–50 years; Pregnant or lactating women; age 18–<35 years; gestational age of 26–<30 weeks; current residence in Dhaka at a fixed address; planned to deliver at the Shimantik maternity center | use of any dietary supplement containing more than 400 IU/ day (10 mcg/day) of vitamin D within the month prior to enrolment, or refusal to stop taking supplemental vitamin D at any dose after enrollment; current use of anticonvulsant or anti-mycobacterial (tuberculosis) medications; severe anemia (hemoglobin < 70 g/L); systolic blood pressure =140 mm Hg or diastolic blood pressure =90 mm Hg; positive urine dipstick for proteinuria or glycosuria; complicated medical or obstetric history; reported prior history of delivery of an infant with a major congenital anomaly, birth asphyxia, or perinatal death | Antenatal Vitamin D in Dhaka (AViDD) trial | Private Foundation | Dhaka, Bangladesh | 160/147/100 | 22.4 (3.5)/NR |  |  | Serum 25(OH)D placebo: 44.0 ± 20.9 nmol/l vitamin D: 45.4 ± 18.4 nmol/l |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Roth et al., 2013 | RCT/CCT | NR | NR | Secondary-Birth Weight | 35000 IU Vit D3 3rd trimester |  | 73 | NR (NR) | Final=2802 (2675, 2929) | +14 (-138, 166) | 0.86 |
|  |  |  |  |  | Placebo |  | 74 | NR (NR) | Final=2788 (2700, 2876) |  | . |
|  |  |  |  | Secondary-Length At Birth | 35000 IU Vit D3 3rd trimester |  | 73 | NR (NR) | Final=48.2 (47.6, 48.8) | +0.2 (-0.5, 0.9) | 0.55 |
|  |  |  |  |  | Placebo |  | 74 | NR (NR) | Final=48 (47.5, 48.5) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Roth et al., 2013 | RCT/CCT | Y | Y | N | Y | Y | Y | ND | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Rouzi et al., 2012 | Prospective Cohort | 19–50 years; 51–70 years; Postmenopausal women; Healthy; age=50 years; independent mobility; unrestricted diet; normal liver, renal function | Osteoporosis; Prior cancer; Current cancer; t-score<-2.5 |  | Government | Jeddah, Saudi Arabia | 707/707/100 | 61.3 (7.2)/NR |  | Post menopausal | Serum 25(OH)D: 34.27±22.80 nmol/L |

| **ain Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Rouzi et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Smoking, Other Lifestyle Factors- Smoking, Coffee/Tea Consumption; Other - Previous Fractures, Hormone Levels, Bone Turnover Markers | Primary-Fragility Fractures | 25(OH)D | <17.90 nmol/L | 5.2 yrs | 138/707 | adjusted/OR | 1.25 | 0.91, 1.70 |  |
|  |  |  |  |  | 25(OH)D | >45.1 nmol/L | 5.2 yrs |  | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Rouzi et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Sabetta et al., 2010 | Prospective Cohort | Healthy | Current cardiovascular disease; Type 2 DM; Pregnant; chronic pulmonary, renal hepatic, hematologic, neurologic, neuromuscular, or metabolic disorder; immunosuppression; high-dose aspirin therapy |  | a private family | USA; Greenwich, CT | 198/198/57 | NR/20–88 | Race\_other1=78; Race\_other2=16; Race\_other3=6 |  | Serum vitamin D: 28.4±0.8 ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Sabetta et al., 2010 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Use Of Vitamins Other Than D, Herbals And Other Supplements; Demographics (Age, Sex, Race/Ethnicity)- Sex, Age; Anthropometrics- Skin Pigmentation; Other - Receipt Of Seasonal and/or H1n1 Influenza Vaccine | Primary-Acute Viral Respiratory Tract Infections | 25(0H)D | >=38ng/ml | 4 months | 3/18 | Crude/OR | 0.24 | 0.07, 0.87 |  |
|  |  |  |  |  | 25(0H)D | <38ng/ml | 4 months | 81/180 | Crude/OR | 1 | reference | 0.015 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Sabetta et al., 2010 | N | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | Y | Y | A | no inclusion criteria |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Salehpour et al., 2012 | RCT/CCT | 9–18 years; 19–50 years; Healthy; women; 18–50 years of age; BMI=25kg/m2; free of known osteoporosis, gastrointestinal disease, diabetes mellitus, CVD, renal disease, hypertension | Pregnant; any; On a weight loss program; taking weight loss drugs; weight change of >3kg during the prior 3 months; lactating; smoking; drinking alcohol; taking nutrition supplements, cholesterol or TAG-lowering agents as well as anti-hypertensive agents |  | university | Tehran, Iran | 85/85/100 | 38 (8.1)/NR |  | Overweight/obese | S-25(OH)D Vit D group - 36.8 +/- 30 nmol/l Placebo group - 46.9 +/- 32 nmol/l |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Salehpour et al., 2012 | RCT/CCT | NR | Other Nutrients Or Dietary Factors- Dietary Intake; Anthropometrics- Fat Mass, Waist Circumference; Smoking, Other Lifestyle Factors- Physical Activity (Not Smoking) | Secondary-DBP | D3 Vit D 25 µg/day |  | 42 | 67.9 (sd=10.1) | final=70.2 (sd=8.8) | -1.9 (-6.1, 2.3) | . |
|  |  |  |  |  | D3 placebo |  | 43 | 71.9 (sd=9.1) | final=72.1 (sd=10.6) |  | . |
|  |  |  |  | Secondary-SBP | D3 Vit D 25 µg/day |  | 42 | 110.5 (sd=17.5) | final=111 (sd=11.3) | -3.4 (-8.7, 1.9) | . |
|  |  |  |  |  | D3 placebo |  | 43 | 116.7 (sd=11.4) | final=114.4 (sd=13) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Salehpour et al., 2012 | RCT/CCT | Y | ND | N | Y | ND | ND | Y | Y | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Salovaara et al., 2010 | RCT/CCT | 51–70 years; women; Birth between 1932 and 1941; Age 65 and over at current followup; Residence in Northern Savonia |  | OSTPRE Study | Hospital | Finland | 3195/3195/100 | 67.3 (1.8)/NR |  | Not Reported | Serum vitamin D: 49.1±17.7 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Salovaara et al., 2010 | RCT/CCT | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking, Use Of Alcohol; Other - Parental Hip Fracture, Glucocorticoid Use, Diagnosed Rheumatoid Arthritis, Secondary Osteoporosis | Primary-Any Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 78/1586 | adjusted/HR | 0.83 | 0.61, 1.12 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 94/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Any Nonvertebral Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 71/1586 | adjusted/HR | 0.87 | 0.63, 1.19 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 82/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Any Osteoporotic Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 42/1586 | adjusted/HR | 0.81 | 0.54, 1.22 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 52/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Distal Forearm Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 23/1586 | adjusted/HR | 0.7 | 0.41, 1.20 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 32/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Proximal Humerus Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 6/1586 | adjusted/HR | 1.01 | 0.32, 3.14 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 6/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Hip Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 4/1586 | adjusted/HR | 2.23 | 0.41, 12.29 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 2/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Vertebral Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 9/1586 | adjusted/HR | 0.67 | 0.29, 1.58 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 13/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Upper Extremity Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 41/1586 | adjusted/HR | 0.75 | 0.49, 1.16 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 50/1609 | adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Lower Extremity Fracture | vitamin D; calcium | 400 IU cholecalciferol + 500 mg calcium carbonate | 3.01 yrs | 22/1586 | adjusted/HR | 1.02 | 0.58, 1.80 |  |
|  |  |  |  |  |  | control (no intervention or placebo) | 3.01 yrs | 20/1609 | adjusted/HR | 1 | Reference |  |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Salovaara et al., 2010 | RCT/CCT | Y | Y | ND | Y | N | Y | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Salzer et al., 2012 | Nested Case Control | 19–50 years; 51–70 years; Individuals 30, 40, 50, and 60 years of age; women 50–69 years of age; residence in Vasterbotten Sweden; no symptoms of MS prior to blood sampling | Not specified | Risk of Multiple Sclerosis | Manufacturer | Sweden | 576/576/92.2 | 26/16–60 | Race\_other1=99; Race\_other2=1 | Not Reported | Serum vitamin D: 40nmol/L (range 0–122) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Salzer et al., 2012 | Nested Case Control | Sex, biobank, sampling date, age | NR | Primary-Multiple Sclerosis | 25(0H)D | >=75nmol/l | NR | 192/576 | Adjusted/OR | 0.39 | 0.16, 0.98 | NR |
|  |  |  |  |  | 25(0H)D | <75nmol/l | NR |  | Adjusted/OR | 1 | reference | NR |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Salzer et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | Y | Y | N | N | A | Sampling = Consecutive |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Salzer et al., 2012 | Nested Case Control | Pregnant or lactating women | Not specified | Gestational Risk factors of Multiple Sclerosis (GRoMS) | Manufacturer | Sweden | 222/222/100 | 27/19–40 |  |  | Serum vitamin D: 40nmol/L (0–335)\_ |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Salzer et al., 2012 | Nested Case Control | sex, biobank, sampling date, age | NR | Primary-Multiple Sclerosis | 25(0H)D | >=75nmol/l | NR | 37/222 | Adjusted/OR | 1.8 | 0.53, 5.8 | NR |
|  |  |  |  |  | 25(0H)D | <75nmol/l | NR |  | Adjusted/OR | 1 | reference | NR |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Salzer et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | Y | Y | N | N | A | Sampling = Consecutive |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Schierbeck et al., 2012 | Prospective Cohort | 19–50 years; 51–70 years; Postmenopausal women; Healthy; women; Age 45–58; Recently postmenopausal with last menstrual bleeding 3–24 months before enrollment or perimenopausal with elevated FSH; Caucasian | Osteoporosis; Other systemic bone disease (e.g., Paget’s); Prior fragility fracture; Prior cancer; Current cancer; Uncontrolled chronic disease, thromboembolic disease; Current or past treatment with glucocorticoids, alcohol or drug addiction; Current or previous post-menopausal hormone therapy in past 3 months | Danish Osteoporosis Prevention Study | University | Denmark | 2,013/2013/100 | 50.0 (2.8)/NR | Non-Hispanic White=100 | Post menopausal | Serum 25(OH)D: Low vitamin D group: 35±10 High vitamin D group: 80±26 |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Schierbeck et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Education; Anthropometrics- Waist-Hip Ratio; Smoking, Other Lifestyle Factors- Smoking; Other - Family History Of MI, Use Of Menopausal Hormone Therapy Was Not Controlled For But Did Not Differ Between High And Low Vitamin D Groups | Primary-Heart Failure | 25(OH)D | <50 nmol/l | 16 yrs | 10/788 | Adjusted/HR | 1.88 | 0.71, 5.01 | 0.206 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/l | 16 yrs | 8/1225 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Myocardial Infarction | 25(OH)D | <50 nmol/l | 16 yrs | 13/788 | Adjusted/HR | 0.83 | 0.41, 1.67 | 0.597 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/l | 16 yrs | 22/1225 | Adjusted/HR | 1 | Reference |  |
|  |  |  |  | Primary-Stroke | 25(OH)D | <50 nmol/l | 16 yrs | 47/788 | Adjusted/HR | 1.68 | 1.10, 2.56 | 0.017 |
|  |  |  |  |  | 25(OH)D | >=50 nmol/l | 16 yrs | 42/1225 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Schierbeck et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Scholl et al., 2013 | Prospective Cohort | Pregnant or lactating women | Current cancer; Hypertension; Type 2 DM; Autoimmune disease; Type 1 diabetes; seizure disorders; drug or alcohol abuse; other serious non-obstetric conditions | Camden Study | Government | USA; Camden NJ | 1,141/1141/100 | 22.8 (5.4)/NR | Non-Hispanic White=140; Hispanic=513; Non-Hispanic Black=347 | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Scholl et al., 2013 | Prospective Cohort | Not relevant | Other Nutrients Or Dietary Factors- Total Calcium Intake; Demographics (Age, Sex, Race/Ethnicity)- Age, Ethnicity; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking; Other - Gestational Stage At Entry | Primary-Preeclampsia | 25(OH)D | <30 | 20 weeks gestation | 12/121 | adjusted/OR | 2.13 | 1.07, 4.26 | 0.027 |
|  |  |  |  |  | 25(OH)D | 30–40 | 20 weeks gestation | 12/116 | adjusted/OR | 2.09 | 1.04, 4.22 |  |
|  |  |  |  |  | 25(OH)D | 40–50 | 20 weeks gestation | 7/154 | adjusted/OR | 0.94 | 0.41, 2.17 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 20 weeks gestation | 38/750 | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Scholl et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Schottker et al., 2013 | Prospective Cohort | 51–70 years; age 50–74 years | Not specified | ESTHER | Government | Germany (specify city, if given) | 9578/9578/56.2 | 62 (6.5)/NR |  | Not Reported | 25(OH)D: 51.1 +/- 24.6 nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Schottker et al., 2013 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Regular Intake Of Multivitamin Supplements, Fish Consumption; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Medical Conditions- Chronic Kidney Disease, Diabetes, Hypertension, Cardiovascular Disease, Cancer; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Physical Activity, Smoking; Other - Serum C-Reactive Protein Concentrations, Total Cholesterol | Primary-All-Cause Mortality | 25(OH)D | <30 | 9.5 yrs | 238/1444 | adjusted/HR | 1.68 | 1.41, 2.01 |  |
|  |  |  |  |  | 25(OH)D | 30–50 | 9.5 yrs | 448/4199 | adjusted/HR | 1.17 | 1.01, 1.35 |  |
|  |  |  |  |  | 25(OH)D | >50 | 9.5 yrs | 397/3935 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | <30->=65 years of age | 9.5 yrs | 142/609 | adjusted/HR | 1.41 | 1.13, 1.77 |  |
|  |  |  |  |  | 25(OH)D | 30–50->=65 years of age | 9.5 yrs | 269/1706 | adjusted/HR | 1.09 | 0.90,1.31 |  |
|  |  |  |  |  | 25(OH)D | >50->=65 years of age | 9.5 yrs | 236/1394 | adjusted/HR | 1 | reference |  |
|  |  |  |  |  | 25(OH)D | <30–<65 years of age | 9.5 yrs | 238/835 | adjusted/HR | 2.08 | 1.58, 2.76 |  |
|  |  |  |  |  | 25(OH)D | 30–50–<65 years of age | 9.5 yrs | 448/2493 | adjusted/HR | 1.3 | 1.04, 1.63 |  |
|  |  |  |  |  | 25(OH)D | >50–<65 years of age | 9.5 yrs | 397/2541 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Secondary-Cvd Mortality | 25(OH)D | <30 | 9.5 yrs | 71/1439 | adjusted/HR | 1.29 | 0.94, 1.76 |  |
|  |  |  |  |  | 25(OH)D | 30–50 | 9.5 yrs | 137/4188 | adjusted/HR | 0.94 | 0.73, 1.21 |  |
|  |  |  |  |  | 25(OH)D | >50 | 9.5 yrs | 142/3927 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Secondary-Cancer Mortality | 25(OH)D | <30 | 9.5 yrs | 90/1439 | adjusted/HR | 1.42 | 1.08, 1.87 |  |
|  |  |  |  |  | 25(OH)D | 30–50 | 9.5 yrs | 172/4188 | adjusted/HR | 1.04 | 0.83, 1.29 |  |
|  |  |  |  |  | 25(OH)D | >50 | 9.5 yrs | 171/3927 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Secondary-Respiratory Disease Mortality | 25(OH)D | <30 | 9.5 yrs | 13/1439 | adjusted/HR |  | NR |  |
|  |  |  |  |  | 25(OH)D | 30–50 | 9.5 yrs | 26/4188 | adjusted/HR |  | NR |  |
|  |  |  |  |  | 25(OH)D | >50 | 9.5 yrs | 16/3927 | adjusted/HR | 1 | reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Schottker et al., 2013 | N | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Science et al., 2013 | Prospective Cohort | 3–8 years; 9–18 years; age 3–15 years | underlying chronic medical conditions |  | Government | Canada | 947/743/52.5 | 9.3 (3.4)/NR |  | Not Reported | serum 25(OH)D: median (IQR) 62.0 (51.0–74.0) nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Science et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex | Primary-Respiratory Tract Infections | 25(OH)D | per 1-unit change in log levels | 156 days | 229/743 | adjusted/HR | 0.52 | 0.35, 0.79 | 0.002 |
|  |  |  |  |  | 25(OH)D | <25 | 156 days | NR/4 | unadjusted/HR | 0.72 | 0.13, 3.94 | 0.7 |
|  |  |  |  |  | 25(OH)D | >=25 | 156 days | NR/739 | unadjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | <50 | 156 days | NR/152 | unadjusted/HR | 1.54 | 1.07, 2.21 | 0.021 |
|  |  |  |  |  | 25(OH)D | >=50 | 156 days | NR/591 | unadjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | <75 | 156 days | NR/565 | unadjusted/HR | 1.35 | 1.01, 1.82 | 0.043 |
|  |  |  |  |  | 25(OH)D | >=75 | 156 days | NR/178 | unadjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Science et al., 2013 | Y | N | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Scott et al., 2010 | Prospective Cohort | 19–50 years; 51–70 years; on electoral rolls in southern Tasmania; community dwelling | institutionalized; contraindications to MRI | Tasmanian Older Adult Cohort Study (TASOAC) | University | Australia; Tasmania | 686/686/49 | 62 (7)/50–79 | Non-Hispanic White=98 | Not Reported | Serum 25OH(D) Low vitamin D: 37.1±8.4 High vitamin D: 67.8±13.4 |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Scott et al., 2010 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Use Of Vitamin D Supplements; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex; Anthropometrics- BMI; Sun Exposure- Self-Reported Sun Exposure And Season Of Blood Draw; Smoking, Other Lifestyle Factors- Physical Activity | Secondary-Appendicular Lean Mass | 25(OH)D > 50nmol/l |  | 389 | 62.20 (SD=9.6) | NR (NR) | +0.01 (-0.52, 0.54) | 0.963 |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 297 | 59.30 (SD=9.9) | NR (NR) |  | . |
|  |  |  |  | Secondary-Leg Strength | 25(OH)D > 50nmol/l |  | 389 | 100.80 (SD=50.1) | NR (NR) | +5.74 (0.65, 10.82) | 0.027 |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 297 | 91.50 (SD=47.8) | NR (NR) |  | . |
|  |  |  |  | Secondary-Leg Muscle Quality | 25(OH)D > 50nmol/l |  | 389 | 5.90 (SD=2.3) | NR (NR) | +0.49 (0.17, 0.82) | 0.003 |
|  |  |  |  |  | 25(OH)D = 50nmol/l |  | 297 | 5.50 (SD=2.3) | NR (NR) |  | . |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Scott et al., 2010 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | N | B | random except stratified by sex loss to follow-up = 20% |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Semba et al., 2010 | Prospective Cohort | 51–70 years; adults=65 years of age; community dwelling | Not specified | InCHIANTI |  | Italy | 1,006/NR/32.7 | 78.0/72.0–85.0 |  |  |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Semba et al., 2010 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Education; Anthropometrics- BMI; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking, Physical Activity; Other - Blood Lipids, Renal Insufficiency, Mini Mental Status Exam Score | Primary-All-Cause Mortality | 25(OH)D | Q1:<26.2 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 2.11 | 1.22, 3.64 | NR |
|  |  |  |  |  | 25(OH)D | Q2:26.2–40 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 1.41 | 0.83, 2.40 |  |
|  |  |  |  |  | 25(OH)D | Q3: 40–63.9 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 1.12 | 1.09, 1.15 |  |
|  |  |  |  |  | 25(OH)D | Q4: >63.6 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 1 | reference |  |
|  |  |  |  | Primary-Cardiovascular Disease Mortality | 25(OH)D | Q1:<26.2 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 2.64 | 1.68, 2.19 | NR |
|  |  |  |  |  | 25(OH)D | Q2:26.2–40 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 1.68 | 0.76, 3.72 |  |
|  |  |  |  |  | 25(OH)D | Q3: 40–63.9 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 2.19 | 1.05, 4.60 |  |
|  |  |  |  |  | 25(OH)D | Q4: >63.6 nmol/L | 6.5 yrs | nr/NR | adjusted/HR | 1 | reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Semba et al., 2010 | N | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B | design b- unclear |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Sempos et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; age >=20 years | Pregnant; missing information on vital status; missing data for serum total 25(OH)D, serum creatinine, SBP; no follow-up time from data of examination | NHANES III | Government | USA | 15099/15099/51 | 45 (SE=0.47)/NR | Non-Hispanic White=77; Hispanic=5; Non-Hispanic Black=10; Race\_other1=8 | Not Reported | Serum 25(OH)D 64 nmol/liter (SE 0.73) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Sempos et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race/Ethnicity; Sun Exposure- Season | Primary-Death From All-Cause | 25(OH)D | <20 | 15 yrs | 79/251 | adjusted/RR | 1.6 | 1.2, 2.2 |  |
|  |  |  |  |  | 25(OH)D | 20–29 | 15 yrs | 297/1270 | adjusted/RR | 1.5 | 1.2, 1.8 |  |
|  |  |  |  |  | 25(OH)D | 30–39 | 15 yrs | 592/2340 | adjusted/RR | 1.3 | 1.1, 1.5 |  |
|  |  |  |  |  | 25(OH)D | 40–49 | 15 yrs | 694/2790 | adjusted/RR | 1.1 | 0.96, 1.3 |  |
|  |  |  |  |  | 25(OH)D | 50–59 | 15 yrs | 668/2526 | adjusted/RR | 1.2 | 1.01, 1.30 |  |
|  |  |  |  |  | 25(OH)D | 60–74 | 15 yrs | 775/3046 | adjusted/RR | 1.1 | 0.99, 1.30 |  |
|  |  |  |  |  | 25(OH)D | 75–99 | 15 yrs | 533/2156 | adjusted/RR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | 100–119 | 15 yrs | 110/518 | adjusted/RR | 1.1 | 0.9, 1.4 |  |
|  |  |  |  |  | 25(OH)D | >=120 | 15 yrs | 36/202 | adjusted/RR | 1.4 | 0.9, 2.2 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Sempos et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | ref 9: http://www.cdc.gov/nchs/data/series/sr\_01/sr01\_032.pdf |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Shand et al., 2010 | Prospective Cohort | 9–18 years; 19–50 years; Pregnant or lactating women; =18 years; 10–20 weeks gestation; increased risk for pre-eclampsia | Not specified | EMMA | none | Canada; Vancouver CA | 227/NR/100 | NR/NR | Non-Hispanic White=611; Race\_other1=204; Race\_other2=136; Race\_other3=5 |  |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Shand et al., 2010 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Multivitamin Use; Demographics (Age, Sex, Race/Ethnicity)- Age, Ethnicity; Anthropometrics- BMI; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking Status | Primary-Preeclampsia | 25(OH)D | <37.5 | 10–20 weeks gestation | 10/NR | adjusted/OR | 0.91 | 0.31, 2.62 |  |
|  |  |  |  |  | 25(OH)D | >=37.5 | 10–20 weeks gestation | 18/NR | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | <50 | 10–20 weeks gestation | 17/NR | adjusted/OR | 1.39 | 0.54, 3.53 |  |
|  |  |  |  |  | 25(OH)D | >=50 | 10–20 weeks gestation | 11/NR | adjusted/OR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | <75 | 10–20 weeks gestation | 21/NR | adjusted/OR | 0.57 | 0.19, 1.66 |  |
|  |  |  |  |  | 25(OH)D | >=75 | 10–20 weeks gestation | 6/NR | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Shand et al., 2010 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Shin et al., 2013 | Prospective Cohort | Pregnant or lactating women | diabetes; preeclampsia; anemia; severe infections during pregnancy | COhort for Childhood Origin of Asthma and allergic diseases (COCOA) | Government | Korea | 1545/525/mothers: 100, newborns: 46.9 | maternal age: 32.2 (maternal age: 3.4)/newborns: 0–6 months |  | Not Reported | mean cord blood plasma 25(OH)D 32.0 nmol/L (IQR, 21.4 to 53.2) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Shin et al., 2013 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Multivitamin Use During Pregnancy; Sun Exposure- Season Of Birth; Smoking, Other Lifestyle Factors- Exposure To Passive Smoking During Pregnancy | Primary-Respiratory Tract Infections | 25(OH)D | <25.0 | 6 months | 74/180 | adjusted/OR | 3.41 | 1.57, 7.42 | 0.0008 |
|  |  |  |  |  | 25(OH)D | 25.0–74.9 | 6 months | 89/292 | adjusted/OR | 2.14 | 1.00, 4.58 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 | 6 months | 9/53 | adjusted/OR | 1 | Reference |  |
|  |  |  |  | Primary-Acute Nasopharyngitis | 25(OH)D | <25.0 | 6 months | 67/180 | adjusted/OR | 4.64 | 1.88, 11.44 | 0.0002 |
|  |  |  |  |  | 25(OH)D | 25.0–74.9 | 6 months | 75/292 | adjusted/OR | 2.71 | 1.11, 6.59 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 | 6 months | 6/53 | adjusted/OR | 1 | Reference |  |
|  |  |  |  | Primary-Otitis Media | 25(OH)D | <25.0 | 6 months | 10/180 | adjusted/OR | 3.06 | 0.38, 24.46 | 0.3625 |
|  |  |  |  |  | 25(OH)D | 25.0–74.9 | 6 months | 18/292 | adjusted/OR | 3.42 | 0.45, 26.15 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 | 6 months | 1/53 | adjusted/OR | 1 | Reference |  |
|  |  |  |  | Primary-Bronchiolitis | 25(OH)D | <25.0 | 6 months | 9/180 | adjusted/OR | 2.74 | 0.34, 22.11 | 0.4819 |
|  |  |  |  |  | 25(OH)D | 25.0–74.9 | 6 months | 19/292 | adjusted/OR | 3.62 | 0.47, 27.63 |  |
|  |  |  |  |  | 25(OH)D | >=75.0 | 6 months | 1/53 | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Shin et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Shui et al., 2012 | Nested Case Control | US male health professionals aged 40–75 in 1986; provided chilled blood sample between 1993 and 1995; For controls, PSA test within 2.5 years of date of diagnosis of matched case | cases with T1a tumors | Health Professionals’ Follow-up Study | Private Foundation | USA | 2,591/2584/0 | 64.4 (7.8)/NR | Non-Hispanic White=95; Not reported=5 | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Shui et al., 2012 | Nested Case Control | age, PSA test before blood collection, time (of day) of blood collection, season of blood collection, year | Other Nutrients Or Dietary Factors- Energy Adjusted Lycopene And Calcium Intakes, Total Energy Intake, Red Meat Servings Per Week, Fish Servings Per Week; Demographics (Age, Sex, Race/Ethnicity)- Age, Race; Anthropometrics- BMI, Height; Medical Conditions- Type 2 Diabetes Status; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking, Coffee Intake, Vigorous Physical Activity; Other - Follow-Up Time, Family History Of Prostate Cancer, Vasectomy Status | Primary-Lethal Prostate Cancer | 25(0H)D | Quartile 1 | 5.2 years | 41/366 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 | 5.2 years | 33/369 | adjusted/OR | 0.78 | 0.47, 1.30 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3 | 5.2 years | 21/335 | adjusted/OR | 0.5 | 0.28, 0.88 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 | 5.2 years | 19/348 | adjusted/OR | 0.44 | 0.24, 0.79 | 0.002 |
|  |  |  |  | Primary-Overall Prostate Cancer | 25(0H)D | Quartile 1 | 5.2 years | 310/635 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 | 5.2 years | 298/634 | adjusted/OR | 0.93 | 0.74, 1.17 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3 | 5.2 years | 319/653 | adjusted/OR | 0.99 | 0.79,1.24 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 | 5.2 years | 333/662 | adjusted/OR | 1.07 | 0.86, 1.34 | 0.450 |
|  |  |  |  | Primary-Advance Stage At Diagnosis | 25(0H)D | Quartile 1 | 5.2 years | 51/376 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 | 5.2 years | 43/379 | adjusted/OR | 0.96 | 0.61, 52 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3 | 5.2 years | 32/366 | adjusted/OR | 0.63 | 0.39, 1.03 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 | 5.2 years | 40/662 | adjusted/OR | 0.85 | 0.53,1.35 | 0.220 |
|  |  |  |  | Primary-High Grade Prostate Cancer | 25(0H)D | Quartile 1 | 5.2 years | 69/394 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quartile 2 | 5.2 years | 55/391 | adjusted/OR | 0.81 | 0.54, 1.21 |  |
|  |  |  |  |  | 25(0H)D | Quartile 3 | 5.2 years | 51/385 | adjusted/OR | 0.75 | 0.50, 1.13 |  |
|  |  |  |  |  | 25(0H)D | Quartile 4 | 5.2 years | 64/393 | adjusted/OR | 0.99 | 0.67, 1.46 | 0.870 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Shui et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A | very minimal eligibility criteria |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Signorello et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; 40–79 years of age; English speaking; No cancer treatment within the previous year | Not specified | Southern Community Cohort Study | Government | USA | 3,704/3704/NR | NR/NR | Non-Hispanic White=27; Non-Hispanic Black=69; Not reported=4 | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Signorello et al., 2013 | Prospective Cohort | sex, race, age at enrollment, enrollment site, date of blood collection | Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking Status, Total Physical Activity | Primary-All-Cause Mortality | 25(OH)D | Quartile 4: (>21.64 ng/mL) | NR | 364/827 | adjusted/OR | 1 | Reference | <0.001 |
|  |  |  |  |  | 25(OH)D | Quartile 3: (15.16–21.64 ng/mL) | NR | 405/868 | adjusted/OR | 1.17 | 0.95, 1.45 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: (10.18–15.15 ng/mL) | NR | 482/945 | adjusted/OR | 1.41 | 1.14, 1.74 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <10.18 ng/mL) | NR | 601/1064 | adjusted/OR | 1.8 | 1.43, 2.27 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: (>21.64 ng/mL)-African Americans | NR | 181/400 | adjusted/OR | 1 | Reference | 0.003 |
|  |  |  |  |  | 25(OH)D | Quartile 3: (15.16–21.64 ng/mL)-African Americans | NR | 266/565 | adjusted/OR | 1.15 | 0.87, 1.53 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: (10.18–15.15 ng/mL)-African Americans | NR | 353/730 | adjusted/OR | 1.19 | 0.91, 1.57 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <10.18 ng/mL)-African Americans | NR | 475/855 | adjusted/OR | 1.6 | 1.20, 2.14 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: (>21.64 ng/mL)-non African Americans | NR | 179/419 | adjusted/OR | 1 | Reference | <0.001 |
|  |  |  |  |  | 25(OH)D | Quartile 3: (15.16–21.64 ng/mL)-non African Americans | NR | 136/296 | adjusted/OR | 1.09 | 0.78, 1.52 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: (10.18–15.15 ng/mL)-non African Americans | NR | 129/214 | adjusted/OR | 1.99 | 1.37, 2.90 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <10.18 ng/mL)-non African Americans | NR | 122/203 | adjusted/OR | 2.11 | 1.39, 3.21 |  |
|  |  |  |  | Primary-Cancer Death | 25(OH)D | Quartile 4: (>21.64 ng/mL) | NR | 115/228 | adjusted/OR | 1 | Reference | 0.53 |
|  |  |  |  |  | 25(OH)D | Quartile 3: (15.16–21.64 ng/mL) | NR | 102/228 | adjusted/OR | 0.79 | 0.52, 1.21 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: (10.18–15.15 ng/mL) | NR | 127/255 | adjusted/OR | 1.03 | 0.66, 1.59 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <10.18 ng/mL) | NR | 133/243 | adjusted/OR | 1.28 | 0.78, 2.11 |  |
|  |  |  |  | Primary-Circulatory Disease Death | 25(OH)D | Quartile 4: (>21.64 ng/mL)-African Americans | NR | 41/109 | adjusted/OR | 1 | Reference | 0.01 |
|  |  |  |  |  | 25(OH)D | Quartile 3: (15.16–21.64 ng/mL)-African Americans | NR | 76/162 | adjusted/OR | 1.67 | 0.95, 2.93 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: (10.18–15.15 ng/mL)-African Americans | NR | 116/225 | adjusted/OR | 1.78 | 1.05, 3.01 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <10.18 ng/mL)-African Americans | NR | 144/258 | adjusted/OR | 2.53 | 1.44, 4.46 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: (>21.64 ng/mL)-non African Americans | NR | 40/107 | adjusted/OR | 1 | Reference | 0.01 |
|  |  |  |  |  | 25(OH)D | Quartile 3: (15.16–21.64 ng/mL)-non African Americans | NR | 38/84 | adjusted/OR | 1.09 | 0.51. 2.30 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: (10.18–15.15 ng/mL)-non African Americans | NR | 37/56 | adjusted/OR | 3.66 | 1.50, 8.95 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <10.18 ng/mL)-non African Americans | NR | 39/61 | adjusted/OR | 3.25 | 1.33, 7.93 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Signorello et al., 2013 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Simpson et al., 2011 | Prospective Cohort | 0–6 months; 7 months–2 years; 3–8 years; birth to 8 years of age at recruitment; born at St. Joseph’s Hospital in Denver CO; positive for diabetes-susceptibility alleles in the HLA region | Not specified | Diabetes Autoimmunity Study in the Young (DAISY) | Private Foundation | USA; Denver CO | 185/185/51 | 11.9 (4.4)/NR | Non-Hispanic White=76 | Other; at increased risk for Type 1 diabetes | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Simpson et al., 2011 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Ethnicity; Other - HLA Genotype,, Age At First Islet Autoimmunity Positivity | Primary-Islet Autoimmune (IA) | 25(0H)D; 9months | Inadequate (<=50nmol/L vs adequate )-Study 1c | NR | 30/128 | Adjusted/HR | 0.72 | 0.24, 2.17 | 0.56 |
|  |  |  |  | Primary-Type 1 Diabetes In IA Positive | 25(0H)D | Inadequate (<=50nmol/L vs adequate )-Study 2b | NR | 55/185 | Adjusted/HR | 0.44 | 0.14, 1.45 | 0.18 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Simpson et al., 2011 | Y | Y | Y | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Skaaby et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; age 30–71 years | Not specified | Monica10 and Inter99 | Private Foundation | Denmark | 2649 (Monica10), 6497 (Inter99)/8329/49.8 (Monica10), 50.8 (Inter99) | 55.4 (Monica10), 46.1 (Inter99)/41.0–72.8 (Monica10), 29.7–61.3 (Inter99) |  | Not Reported | Median vitamin D 61.0 nmol/l, interquartile range 44.7–80.9 nmol/l (Monica10); median 48.0 nmol/l, interquartile range 32.0–65.0 nmol/l (Inter99). |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Skaaby et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Gender; Medical Conditions- Body Mass Index; Sun Exposure- Season Of Blood Sample; Smoking, Other Lifestyle Factors- Intake Of Fish, Physical Activity, Smoking Habits, Alcohol Consumption; Other - Education | Primary-Ischemic Heart Disease | 25(OH)D | per 10nmol/L | 10 yrs | 478/8131 | adjusted/HR | 1.01 | 0.98, 1.05 | 0.44 |
|  |  |  |  |  | 25(OH)D | Q1 | 10 yrs |  | adjusted/HR | 1 | reference | 0.25 |
|  |  |  |  |  | 25(OH)D | Q2 | 10 yrs |  | adjusted/HR | 1.17 | 0.91, 1.51 |  |
|  |  |  |  |  | 25(OH)D | Q3 | 10 yrs |  | adjusted/HR | 1 | 0.76, 1.31 |  |
|  |  |  |  |  | 25(OH)D | Q4 | 10 yrs |  | adjusted/HR | 1.24 | 0.95, 1.62 |  |
|  |  |  |  | Primary-Stroke | 25(OH)D | per 10nmol/L | 10 yrs | 316/8131 | adjusted/HR | 1 | 0.96, 1.05 | 0.92 |
|  |  |  |  |  | 25(OH)D | Q1 | 10 yrs |  | adjusted/HR | 1 | reference | 0.78 |
|  |  |  |  |  | 25(OH)D | Q2 | 10 yrs |  | adjusted/HR | 1.08 | 0.79, 1.49 |  |
|  |  |  |  |  | 25(OH)D | Q3 | 10 yrs |  | adjusted/HR | 1.18 | 0.86, 1.63 |  |
|  |  |  |  |  | 25(OH)D | Q4 | 10 yrs |  | adjusted/HR | 1.13 | 0.80, 1.59 |  |
|  |  |  |  | Primary-All-Cause Mortality | 25(OH)D | per 10nmol/L | 10 yrs | 633/8329 | adjusted/HR | 0.95 | 0.92, 0.99 | 0.005 |
|  |  |  |  |  | 25(OH)D | Q1 | 10 yrs |  | adjusted/HR | 1 | reference | 0.041 |
|  |  |  |  |  | 25(OH)D | Q2 | 10 yrs |  | adjusted/HR | 0.79 | 0.64, 0.98 |  |
|  |  |  |  |  | 25(OH)D | Q3 | 10 yrs |  | adjusted/HR | 0.81 | 0.65, 1.01 |  |
|  |  |  |  |  | 25(OH)D | Q4 | 10 yrs |  | adjusted/HR | 0.73 | 0.57, 0.92 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Skaaby et al., 2013 | Y | Y | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Smit et al., 2012 | Prospective Cohort | 51–70 years; age >=60; non-institutionalized; complete data on frailty; complete data on serum vitamin D concentrations | Not specified |  | Government | USA; multiple | 4731/NR/53.5 | 69.4 (0.3)/NR | Non-Hispanic White=878; Non-Hispanic Black=60; Race\_other1=17; Race\_other2=45 | Malnourished/frailty; Other; pre-frail, not frail | not frail: 71.9 ± 0.9 nmol/l pre-frail: 65.6 ± 1.1 nmol/l frail: 60.4 ± 2.3 nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Smit et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Race-Ethnicity, Gender, Education; Anthropometrics- BMI; Medical Conditions- Chronic Disease Index; Sun Exposure- Latitude; Smoking, Other Lifestyle Factors- Smoking | Primary-Mortality | 25(OH)D | Quartile 1: <49.5 nmol/l-frail | 12 yrs | NR/NR | adjusted/HR | 2.98 | 2.01, 4.42 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: 49.5–66.4 nmol/l-frail | 12 yrs | NR/NR | adjusted/HR | 2.37 | 1.44, 3.89 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 66.5–84.1 nmol/l-frail | 12 yrs | NR/NR | adjusted/HR | 2.5 | 1.48, 4.21 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: >84.1 nmol/l-frail | 12 yrs | NR/NR | adjusted/HR | 1.43 | 0.83, 2.46 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <49.5 nmol/l-pre-frail | 12 yrs | NR/NR | adjusted/HR | 1.97 | 1.61, 2.40 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: 49.5–66.4 nmol/l-pre-frail | 12 yrs | NR/NR | adjusted/HR | 1.62 | 1.29, 2.03 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 66.5–84.1 nmol/l-pre-frail | 12 yrs | NR/NR | adjusted/HR | 1.51 | 1.16, 1.97 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: >84.1 nmol/l-pre-frail | 12 yrs | NR/NR | adjusted/HR | 1.82 | 1.41, 2.35 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1: <49.5 nmol/l-not frail | 12 yrs | NR/NR | adjusted/HR | 1.25 | 0.97, 1.60 |  |
|  |  |  |  |  | 25(OH)D | Quartile 2: 49.5–66.4 nmol/l-not frail | 12 yrs | NR/NR | adjusted/HR | 1.2 | 0.96, 1.49 |  |
|  |  |  |  |  | 25(OH)D | Quartile 3: 66.5–84.1 nmol/l-not frail | 12 yrs | NR/NR | adjusted/HR | 1.11 | 0.88, 1.40 |  |
|  |  |  |  |  | 25(OH)D | Quartile 4: >84.1 nmol/l-not frail | 12 yrs | NR/NR | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Smit et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Solomon et al., 2010 | Nested Case Control | Pooled nested case-control study included data from the following cohort studies: the ATBC Study; CLUE; NYU-WHS; MEC; PLCO; SWHS and SMHS. | Not specified | Cohort Consortium Vitamin D Pooling Project of Rarer Cancers | Government | Multiple Countries | 2285/2282/33.5 | median: 62 (controls)/IQR: 57–67 (controls | Non-Hispanic White=821; Non-Hispanic Black=42; Asian=100; Race\_other1=26 | Not Reported | <37.5 nmol/L 25(OH)D - cases: 19.3%, controls: 27.5% <25 nmol/L 25(OH)D - cases: 12.1%, controls: 10.6% |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Solomon et al., 2010 | Nested Case Control | age, race/ethnicity, sex, cohort, and date of blood draw | Demographics (Age, Sex, Race/Ethnicity)- Age, Race/Ethnicity, Sex; Anthropometrics- BMI; Medical Conditions- Diabetes; Sun Exposure-; Smoking, Other Lifestyle Factors- Smoking; Other - Date Of Blood Draw | Primary-Pancreatic Cancer | 25(0H)D | <25nmol/L | NR | 115/256 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 25<37.5nmol/L | NR | 164/389 | adjusted/OR | 1.04 | 0.74, 1.44 |  |
|  |  |  |  |  | 25(0H)D | 37.5<50.0nmol/L | NR | 208/494 | adjusted/OR | 1.1 | 0.79, 1.55 |  |
|  |  |  |  |  | 25(0H)D | 50.0<75.0nmol/L | NR | 306/764 | adjusted/OR | 1.06 | 0.76, 1.48 |  |
|  |  |  |  |  | 25(0H)D | 75.0<100.0nmol/L | NR | 120/310 | adjusted/OR | 1.08 | 0.73, 1.59 |  |
|  |  |  |  |  | 25(0H)D | <=100nmol/L | NR | 39/69 | adjusted/OR | 2.24 | 1.22, 4.12 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Solomon et al., 2010 | Y | Y | Y | Y |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Sorensen et al., 2012 | Nested Case Control | gave birth in Norway between 1992 and 1994; n available serum sample of sufficient quality for 25-OH D analysis | Not specified |  | Government | Norway | 328/328/49 | 9.0 (3.6)/NR |  | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Sorensen et al., 2012 | Nested Case Control | NR | Demographics (Age, Sex, Race/Ethnicity)- Sex; Sun Exposure- Season Of Blood Sample | Primary-Type 1 Diabetes | 25(0H)D | <=54nmol/L-Offspring of pregnant women | NR | 39/94 | Adjusted/OR | 2.38 | 1.12, 5.07 |  |
|  |  |  |  |  | 25(0H)D | >54 and <=59nmol/L-Offspring of pregnant women | NR | 31/88 | Adjusted/OR | 1.78 | 0.85, 3.74 |  |
|  |  |  |  |  | 25(0H)D | >69nmol/L and 89nmol/L-Offspring of pregnant women | NR | 22/75 | Adjusted/OR | 1.35 | 0.63, 2.89 |  |
|  |  |  |  |  | 25(0H)D | >89nmol/L-Offspring of pregnant women | NR | 17/71 | Adjusted/OR | 1 | reference | 0.031 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Sorensen et al., 2012 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | Y | B | 1st reviewer comment for grade C: No sample size calculation, rationale for model (or factors controlled for), no information on blinding |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Suila et al., 2012 | RCT/CCT | born at term; birth weight appropriate for gestational age | Not specified |  | Government | Finland; Helsinki | 113/82/50 | birth/NR |  | Not Reported | 53 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Suila et al., 2012 | RCT/CCT | NR | Other - Gender | Secondary-Cortical Bone Density | D3 Vit D3 1600 IU/day |  | 29 | NR (NR) | final=716 (se=7) | -8 (-12.1,-3.9) | . |
|  |  |  |  |  | D3 Vit D3 1200 IU/day |  | 28 | NR (NR) | final=726 (se=7) | +2 (-2.1, 6.1) | 0.34 |
|  |  |  |  |  | D3 Vit D3 400 IU/day |  | 25 | NR (NR) | final=724 (se=8) |  | . |
|  |  |  |  | Secondary-Total And Trabecular Bone Density | D3 Vit D3 1600 IU/day |  | 29 | NR (NR) | final=430 (se=12) | -18 (-25, -11) | . |
|  |  |  |  |  | D3 Vit D3 1200 IU/day |  | 28 | NR (NR) | final=451 (se=12) | +3 (-4, 10) | 0.39 |
|  |  |  |  |  | D3 Vit D3 400 IU/day |  | 25 | NR (NR) | final=448 (se=13) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Suila et al., 2012 | RCT/CCT | Y | ND | ND | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Sun et al., 2012 | Nested Case Control | 19–50 years; 51–70 years; female; registered nurses; aged 30–55 | Missing 25(OH)D data | Nurses’ Health Study | Government | USA; multiple | 928/928/100 | 60.8 (5.9)/NR | Non-Hispanic White=976 |  | Cases- 55.0(25.5) nmol/L; Control-56.8(22.7) nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Sun et al., 2012 | Nested Case Control | date and age at blood draw, menopausal status, use of postmenopausal hormone, race, smoking status | Anthropometrics- BMI; Medical Conditions- History Of Chronic Conditions, High Cholesterol; Smoking, Other Lifestyle Factors- Physical Activity, Smoking, Alcohol Consumption; Other - EGFR, C-Reactive Protein | Primary-Ischemic Stroke | 25(OH)D | 9.2–45.7 nmol/l | 17 yrs | 171/325 | Adjusted/HR | 1.49 | 1.01, 2.18 | 0.04 |
|  |  |  |  |  | 25(OH)D | 45.8–65.4 nmol/l | 17 yrs | 160/314 | Adjusted/HR | 1.26 | 0.89, 1.79 |  |
|  |  |  |  |  | 25(OH)D | 66.5–264.3 nmol/l | 17 yrs | 133/289 | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Sun et al., 2012 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Szulc et al., 2009 | Prospective Cohort | 51–70 years; men; age 50–85 | none | MINOS study | Manufacturer | Montceau les Mines, France | 782/782/0 | 64 (7)/NR |  | Not Reported |  |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Szulc et al., 2009 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Vitamin D Supplementation; Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Medical Conditions- Health Status; Smoking, Other Lifestyle Factors- Smoking, Physical Performance And Activity | Primary-Mortality | 25(OH)D | per SD decrease | 10 yrs | 600/782 | adjusted/HR | 1.22 | 1.01, 1.48 |  |
|  |  |  |  |  | 25(OH)D | Quartile 1 <65 nmol/l summer or <40 nmol/l other months | 10 yrs | NR/NR | adjusted/HR | 1.44 | 1.03, 2.03 |  |
|  |  |  |  |  | 25(OH)D | Quartiles 2–4 | 10 yrs | NR/NR | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Szulc et al., 2009 | Y | Y | Y | Y |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Szulc et al., 2009 | Prospective Cohort | 51–70 years; men; age 50–85 years | Not specified | MINOS study | Unclear | Montceau les Mines, France | 681/NR/0 | 64 (7)/NR |  | Not Reported | 25(OH)D alive: 70.8 ± 28.8 nM deceased: 57.5 ± 27.5 nM |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Szulc et al., 2009 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Medical Conditions- History Of Ischemic Heart Disease, Arterial Hypertension, Stroke, Parkinson’s Disease, Diabetes Mellitus, Pulmonary Diseases, Gastrointestinal And Liver Diseases, Prostate Cancer; Smoking, Other Lifestyle Factors- Smoking, Alcohol Intake, Professional Physical Activity, Leisure Physical Activity, Physical Performance Score; Other - Aortic Calcification Score (ACS), Serum 17be2 | Primary-Mortality | 25(OH)D | Quartile 1 | 10 yrs | NR/NR | adjusted/HR |  | NR | <0.05 |
|  |  |  |  |  | 25(OH)D | Quartiles 2–4 | 10 yrs | NR/NR | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Szulc et al., 2009 | Y | Y | Y | N |  |  |  | Y | N | N |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | Y | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Thornton et al., 2013 | Prospective Cohort | 3–8 years; 9–18 years; age 5–12 years; enrolled in the public primary school system | Not specified | Bogotá School Children Cohort | Unclear | Bogota, Columbia | 475/475/52 | 8.9 (1.6)/NR |  | Other; ~7–12.5% stunted | 25(OH)D: 73.2 ± 19.8 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Thornton et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex | Primary-Earache/Discharge With Fever | 25(OH)D | Deficient: <50 | 140 days | nr/48 | adjusted/RR | 2.36 | 1.26, 4.44 |  |
|  |  |  |  |  | 25(OH)D | Insufficient: 50–<75 | 140 days | nr/222 | adjusted/RR | 0.35 | 0.19, 0.65 |  |
|  |  |  |  |  | 25(OH)D | Sufficient: >=75 | 140 days | nr/205 | adjusted/RR | 1 | Reference |  |
|  |  |  |  | Primary-Cough With Fever | 25(OH)D | Deficient: <50 | 140 days | nr/48 | adjusted/RR | 0.77 | 0.57, 1.04 |  |
|  |  |  |  |  | 25(OH)D | Insufficient: 50–<75 | 140 days | nr/222 | adjusted/RR | 0.53 | 0.44, 0.65 |  |
|  |  |  |  |  | 25(OH)D | Sufficient: >=75 | 140 days | nr/205 | adjusted/RR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Thornton et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | Y | NA | Y | N | N | B | Outcome c) primary outcome changed to NA |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Tolppanen et al., 2013 | Prospective Cohort | 3–8 years; 9–18 years; children from the single and twin births from pregnant women expected to give birth between 1 April 1991 and 31 December 1992; women (mothers) had to be resident in Avon while pregnant, those who left shortly after enrollment were omitted from further follow-up | Not specified | Avon Longitudinal Study of Parents and Children | Government | UK; South West England | 14,062/3323/47.9 | 9.84 (SE: 0.02)/NR | Non-Hispanic White=936; Race\_other1=65 | Not Reported | serum 25OHD3: 24.9 ng/ml (SE: 0.01) serum 25OHD2: 1.4 ng/ml (IQR: 0.5–2.8) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Tolppanen et al., 2013 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Serum Concentrations Of Other Hormones Or Metabolites That Are Related To Vitamin D Homeostasis; Demographics (Age, Sex, Race/Ethnicity)- Ethnicity; Anthropometrics- BMI; Sun Exposure- Season, Time Spent Outdoors During Summer, Protection From Ultraviolet B Exposure; Other - Head Of Household Social Class, Mother’s And Partner’s Education | Primary-Wheezing | 25(OH)D2 | per doubling of exposure | 1 yrs | 141/3323 | adjusted/OR | 0.83 | 0.68, 1.00 |  |
|  |  |  |  |  | 25(OH)D3 | per doubling of exposure | 1 yrs | 141/3323 | adjusted/OR | 1.14 | 1.03, 1.28 |  |
|  |  |  |  | Primary-Asthma | 25(OH)D2 | per doubling of exposure | 1 yrs | 464/3323 | adjusted/OR | 0.89 | 0.78, 1.02 |  |
|  |  |  |  |  | 25(OH)D3 | per doubling of exposure | 1 yrs | 464/3323 | adjusted/OR | 1.02 | 0.93, 1.12 |  |
|  |  |  |  | Primary-Flexural Dermatitis | 25(OH)D2 | per doubling of exposure | 1 yrs | 300/3748 | adjusted/OR | 0.83 | 0.72, 0.94 |  |
|  |  |  |  |  | 25(OH)D3 | per doubling of exposure | 1 yrs | 300/3748 | adjusted/OR | 1.09 | 1.00, 1.18 |  |
|  |  |  |  | Primary-Fvc | 25(OH)D2 | per doubling of exposure | 15 yrs | NR/NR | adjusted/SD change in outcome | 0.04 | 0.00, 0.09 |  |
|  |  |  |  |  | 25(OH)D3 | per doubling of exposure | 15 yrs | NR/NR | adjusted/SD change in outcome | 0 | -0.03, 0.03 |  |
|  |  |  |  | Primary-Fev | 25(OH)D2 | per doubling of exposure | 15 yrs | NR/NR | adjusted/SD change in outcome | 0.06 | 0.01, 0.10 |  |
|  |  |  |  |  | 25(OH)D3 | per doubling of exposure | 15 yrs | NR/NR | adjusted/SD change in outcome | 0 | -0.03, 0.03 |  |
|  |  |  |  | Primary-Fef | 25(OH)D2 | per doubling of exposure | 15 yrs | NR/NR | adjusted/SD change in outcome | 0 | -0.01, 0.01 |  |
|  |  |  |  |  | 25(OH)D3 | per doubling of exposure | 15 yrs | NR/NR | adjusted/SD change in outcome |  | -0.01, 0.00 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Tolppanen et al., 2013 | Y | Y | Y | N |  |  |  | Y | N |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | N | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Tomson et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; non-industrial Civil Servants; male; age 40–64 years | Not specified | Whitehall study | Private Foundation | UK; London | 5409/5409/0 | 76.9 (4.9)/NR |  | Other; self-reported health good/excellent 77.4% | median 25(OH)D 56 nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Tomson et al., 2013 | Prospective Cohort | NR | Anthropometrics- Body Mass Index,; Medical Conditions- Recall Of A Diagnosis Of Ischaemic Heart Disease, Stroke, Cancer, Or Diabetes, Plus Self-Reported Health/Frailty; Smoking, Other Lifestyle Factors- Smoking Status, Drinking Status; Other - LDL-C, HDL-C, Apolipoprotein A1, Apolipoprotein B, And Blood Pressure, Albumin, Fibrinogen, And C-Reactive Protein, Estimated Glomerular Filtration Rate | Primary-Death, Ischemic Heart Disease | 25(OH)D | Doubling Concentration | 13.1 yrs | 659/5409 | adjusted/HR | 0.84 | 0.70, 1.02 |  |
|  |  |  |  | Primary-Death, Stroke | 25(OH)D | Doubling Concentration | 13.1 yrs | 378/5409 | adjusted/HR | 0.81 | 0.63, 1.03 |  |
|  |  |  |  | Primary-Death, Other Vascular | 25(OH)D | Doubling Concentration | 13.1 yrs | 321/5409 | adjusted/HR | 0.71 | 0.54, 0.93 |  |
|  |  |  |  | Primary-Death, All Vascular | 25(OH)D | Doubling Concentration | 13.1 yrs | 1358/5409 | adjusted/HR | 0.8 | 0.70, 0.91 |  |
|  |  |  |  | Primary-Death, Cancer | 25(OH)D | Doubling Concentration | 13.1 yrs | 809/5409 | adjusted/HR | 0.84 | 0.71, 1.00 |  |
|  |  |  |  | Primary-Death, All Non-Vascular | 25(OH)D | Doubling Concentration | 13.1 yrs | 1857/5409 | adjusted/HR | 0.77 | 0.69, 0.86 |  |
|  |  |  |  | Primary-Death, All Causes | 25(OH)D | Doubling Concentration | 13.1 yrs | 3215/5409 | adjusted/HR | 0.78 | 0.72, 0.85 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Tomson et al., 2013 | Y | N | N | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | N | Y | N | NA | Y | N | N | B | should get references 21, 22 to check eligibility and sampling --- Outcome c) primary outcome changed to NA Grade changed from C to B |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Toxqui et al., 2013 | RCT/CCT | 9–18 years; 19–50 years; Healthy; 18–35 years old; non-smoking; non-pregnant; non-breastfeeding | iron metabolism related diseases; amenorrhea; menopause; chronic gastritis, renal disease or blood donor status; allergy to dairy components |  | Government | Spain | 165/109/100 | 26.5 (3.8)/NR | Non-Hispanic White=100 |  | Serum: D-placebo 62.9 ± 20.8 nmol/L D-fortified 62.3 ± 20.8 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Toxqui et al., 2013 | RCT/CCT | NR | NR | Secondary-Systolic Blood Pressure | D 200 IU/day |  | 55 | 109.3 (sd=10.4) | final=105.9 (sd=9.1) | -2.4 (-5.9, 1.1) | 0.178 |
|  |  |  |  |  | D placebo |  | 54 | 107.7 (sd=11.7) | final=108.3 (sd=9.4) |  | . |
|  |  |  |  | Secondary-Diastolic Blood Pressure | D 200 IU/day |  | 55 | 67.1 (sd=8.3) | final=66.6 (sd=7.3) | -0.1 (-2.9, 2.7) | 0.944 |
|  |  |  |  |  | D placebo |  | 54 | 69.2 (sd=9.4) | final=66.7 (sd=7.5) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Toxqui et al., 2013 | RCT/CCT | ND | ND | ND | Y | ND | N | Y | N | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Travis et al., 2009 | Nested Case Control | 19–50 years; 51–70 years; center-specific criteria | Not specified | European Prospective Investigation into Cancer and Nutrition (EPIC) | Government | Multiple Countries | 1404/1404/0 | 60.5 (6.2)/NR |  | Not Reported | Serum 25OHD controls: 53.5 nmol/L, 95% CI (51.9, 55.1) cases: 53.6 nmol/L, 95% CI (52.0, 55.3) |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Travis et al., 2009 | Nested Case Control | study center, age at enrollment (66months), time of day of blood collection (61 hour), and time between blood draw and last consumption of food or drink (<3, 3–6,>6 hours; for Umea, Sweden <4, 4–8, >8 hours) | Demographics (Age, Sex, Race/Ethnicity)- Education; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking Status, Alcohol Intake, Physical Activity | Primary-Prostate Cancer | 25(0H)D | Quintile 1 (2.5–40.4nmol/L) | 4.1 years | 125/276 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | Quintile 2(40.5–50.4 nmol/L) | 4.1 years | 143/293 | adjusted/OR | 1.27 | 0.89, 1.81 |  |
|  |  |  |  |  | 25(0H)D | Quintile 3(50.5–59.1nmol/L) | 4.1 years | 128/279 | adjusted/OR | 1.23 | 0.85, 1.76 |  |
|  |  |  |  |  | 25(0H)D | Quintile 4 (59.2–70.8nmol/L) | 4.1 years | 114/269 | adjusted/OR | 1.06 | 0.73, 1.55 |  |
|  |  |  |  |  | 25(0H)D | Quintile 5(70.9–163.7nmol/L) | 4.1 years | 142/292 | adjusted/OR | 1.28 | 0.88, 1.88 |  |
|  |  |  |  |  | 25(0H)D | Doubling Concentration | 4.1 years | 652/1404 | adjusted/OR | 1.17 | 0.93, 1.47 | 0.188 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Travis et al., 2009 | Y | Y | Y | Y |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Virtanen et al., 2011 | Prospective Cohort | 51–70 years | Current cancer; Current cardiovascular disease; those without information on stroke history; those without data on serum 25(OH)D | Kuopio Ischaemic Heart Disease Risk Factor (KIHD) Study | Government | Finland | 1136/1136/51.4 | 61.8 (6.2)/53.4–72.7 |  | Post menopausal; Other; 54–62% hypertension | Serum 25OHD: 43.7 ± 17.8 nmol/L |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Virtanen et al., 2011 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Education Years; Anthropometrics- BMI; Medical Conditions- Diabetes, Treated Hypertension; Smoking, Other Lifestyle Factors- Smoking; Other - Medication For Hyperlipidemia | Primary-Mortality | 25(OH)D | Tertile 1: 8.9–34.0 nmol/L | 9.1 yrs | 39/379 | adjusted/HR | 2.06 | 1.12, 3.80 | 0.02 |
|  |  |  |  |  | 25(OH)D | Tertile 2: 34.1–50.8 nmol/L | 9.1 yrs | 31/378 | adjusted/HR | 1.68 | 0.92, 3.07 |  |
|  |  |  |  |  | 25(OH)D | Tertile 3: 50.9–112.8 nmol/L | 9.1 yrs | 17/379 | adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Virtanen et al., 2011 | Y | Y | N | Y |  |  |  | N | Y | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wagner et al., 2013 | RCT/CCT | Pregnant or lactating women; age 16 years or greater; confirmed singleton pregnancy of less than 16 weeks; intent to receive prenatal care throughout pregnancy | Other systemic bone disease (e.g., Paget’s); requirement for chronic diuretic or cardiac medication; active thyroid disease |  | Private Foundation | USA | 504/1008/100 | 27/18–41 | Non-Hispanic White=327; Hispanic=409; Non-Hispanic Black=255; Not reported=09 |  | 61.5 nmol/L |

| **Main Analyses (Dichotomous Outcomes)** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Wagner et al., 2013 | RCT/CCT | Not relevant | Demographics (Age, Sex, Race/Ethnicity)- Race | Primary- | D3 | 2000 IU | NR | 9/201 | unadjusted/RR | 0.55 | 0.22, 1.34 | 0.43 |
|  |  |  |  |  | D3 | 4000 IU | NR | 4/193 | unadjusted/RR | 0.25 | 0.08, 0.80 | 0.05 |
|  |  |  |  |  |  | control | NR | 9/110 | unadjusted/RR | 1 | reference |  |

| **Main Analyses (Continuous Outcomes)** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Wagner et al., 2013 | RCT/CCT | Not relevant | Demographics (Age, Sex, Race/Ethnicity)- Race | Secondary-Neonatal Birth Weight | D3 2000 IU |  | 201 | ( ) | final=3382 (sd=759) | +149 (-21, 319) | 0.09 |
|  |  |  |  |  | D3 4000 IU |  | 193 | ( ) | final=3231 (sd=632) | -2 (-154, 150) | 0.98 |
|  |  |  |  |  | control |  | 110 | ( ) | final=3233 (sd=668) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Wagner et al., 2013 | RCT/CCT | N | Y | NA | N | Y | N | Y | Y | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wamberg et al., 2013 | RCT/CCT | 9–18 years; 19–50 years; Healthy; age 18–50 years; BMI>30; plasma 25(OH) vitamin D<50 nmol/L | Type 2 DM; fasting plasma glucose>7,; hypercalcemia; impaired renal function (plasma creatinine>130umol/L; impaired hepatic function (alanine aminotransferase >135U/L; history of sarcoidosis, nephrolithiasis, osteomalacia; alcohol or other substance abuse; recent major weight changes,(+/-3 kg) or body weight>125 kg; vitamin D treatment within prior 3 months |  | Unclear | Denmark | 52/43/73 | 41.2 (6.8)/18–50 |  | Overweight/obese | 34.6±10.3 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Wamberg et al., 2013 | RCT/CCT | Not relevant but arms were balanced with respect to sex, age, bod weight, BMI, blood pressure, fasting glucose, physical activity, dietary baseline vitamin D intake, and plasma 25(OH)D. | NR | Secondary-Systolic Blood Pressure | D 7000 IU cholecalciferol |  | 22 | 135 (sd=18) | final=129 (sd=13) | -2 (-11, 7) | 0.65 |
|  |  |  |  |  | placebo |  | 21 | 132 (sd=15) | final=131 (sd=16) |  | . |
|  |  |  |  | Secondary-Diastolic Blood Pressure | D 7000 IU cholecalciferol |  | 22 | 85 (sd=10) | final=84 (sd=11) | 0 (-7, 7) | 1 |
|  |  |  |  |  | placebo |  | 21 | 81 (sd=10) | final=84 (sd=11) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Wamberg et al., 2013 | RCT/CCT | Y | ND | Y | Y | Y | Y | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wang et al., 2013 | Prospective Cohort | 19–50 years; 51–70 years; Healthy; Male physicians; 40–84 years of age | Prior cancer; Current cancer; Current cardiovascular disease; Hypertension; chronic disease | Physicians’ Health Study (PHS) | Government | USA | 660/660/0 | 57.6 (7.6)/40–84 |  |  | Winter/spring: 55.9±22.5 Summer/fall: 77.4±26.2 |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Wang et al., 2013 | Prospective Cohort | Not relevant | Other Nutrients Or Dietary Factors- Multivitamin Use; Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Smoking, Other Lifestyle Factors- Smoking (Never, Past, Current), Alcohol Use, Vigorous Exercise; Other - History Of Hyperlipidemia | Primary-Hypertension | 25(OH)D | Q1: 13.0–57.8 | 15.3 yrs | 97/164 | adjusted/HR | 1 | Reference | 0.43 |
|  |  |  |  |  | 25(OH)D | Q2: 37.0–74.9 | 15.3 yrs | 97/164 | adjusted/HR | 0.94 | 0.69, 1.27 |  |
|  |  |  |  |  | 25(OH)D | Q3: 48.6–93.5 | 15.3 yrs | 79/167 | adjusted/HR | 0.67 | 0.50, 0.96 |  |
|  |  |  |  |  | 25(OH)D | Q4: 68.8–167.2 | 15.3 yrs | 94/165 | adjusted/HR | 0.82 | 0.60, 1.13 |  |
|  |  |  |  |  | 25(OH)D | <50 | 15.3 yrs | 73/136 | adjusted/HR | 1 | Reference | 0.32 |
|  |  |  |  |  | 25(OH)D | 50–74 | 15.3 yrs | 144/244 | adjusted/HR | 1.03 | 0.75, 1.42 |  |
|  |  |  |  |  | 25(OH)D | 75–99 | 15.3 yrs | 93/178 | adjusted/HR | 0.79 | 0.56, 1.11 |  |
|  |  |  |  |  | 25(OH)D | >=100 | 15.3 yrs | 57/102 | adjusted/HR | 0.94 | 0.62, 1.40 |  |
|  |  |  |  |  | 1,25(OH)D | Q1: 29.9–79.3 | 15.3 yrs | 87/162 | adjusted/HR | 1 | Reference | 0.16 |
|  |  |  |  |  | 1,25(OH)D | Q2: 68.0–88.2 | 15.3 yrs | 80/162 | adjusted/HR | 0.92 | 0.66, 1.27 |  |
|  |  |  |  |  | 1,25(OH)D | Q3: 80.8–101.8 | 15.3 yrs | 95/165 | adjusted/HR | 1.12 | 0.82, 1.54 |  |
|  |  |  |  |  | 1,25(OH)D | Q4: 94.0–177.6 | 15.3 yrs | 101/162 | adjusted/HR | 1.19 | 0.86, 1.63 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Wang et al., 2013 | Y | Y | Y | Y |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | NA | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Ward et al., 2010 | RCT/CCT | 9–18 years; Healthy; postmenarchal girls; attended an inner-city, multiethnic, all-girls school in Manchester UK | Pregnant; evidence of liver, kidney, or other disorders that may cause nonnutritional vitamin D deficiency or abnormal bone development; clinical signs of vitamin D deficiency |  | Government | UK; Manchester | 72/65/100 | 13.8 (0.7)/12–14 |  |  | total serum 25OHD placebo: 17.9 ± 7.4 nmol/l vit D group: 18.1 ± 8.0 nmol/l |

| **Main Analyses** | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** | |
| Ward et al., 2010 | RCT/CCT | NR | Anthropometrics- Follow-Up Height, Baseline And Follow-Up Weight | Secondary-Maximum Force | Vit D2 150,000 IU/ quarterly |  | 33 | 2.80 (SD=0.23) | change= -0.08 (SD=0.22) | -0.04 (-0.12, 0.04) | 0.32 |
|  | |  |  |  |  | Placebo |  | 32 | 2.71 (SD=0.32) | change= -0.04 (SD=0.04) |  | . | |
|  | |  |  |  | Secondary-Eslinger Fitness Index | Vit D2 150,000 IU/ quarterly |  | 33 | 89.44 (SD=14.41) | change= -4.31 (SD=9.32) | +0.17 (-3.8, 4.2) | 0.93 | |
|  | |  |  |  |  | Placebo |  | 32 | 85.41 (SD=15.57) | change= -4.48 (SD=6.68) |  | . | |
|  | |  |  |  | Secondary-Efficiency | Vit D2 150,000 IU/ quarterly |  | 33 | 87.76 (SD=13.00) | change= 2.72 (SD=8.57) | +1.10 (-0.91, 3.12) | 0.1 | |
|  | |  |  |  |  | Placebo |  | 32 | 84.36 (SD=14.31) | change= -0.56 (SD=7.42) |  | . | |
|  | |  |  |  | Secondary-Velocity | Vit D2 150,000 IU/ quarterly |  | 33 | 2.19 (SD=0.21) | change= 0.02 (SD=0.13) | +0.03 (-0.03, 0.09) | 0.28 | |
|  | |  |  |  |  | Placebo |  | 32 | 2.12 (SD=0.24) | change= -0.01 (SD=0.09) |  | . | |
|  | |  |  |  | Secondary-Jump Height | Vit D2 150,000 IU/ quarterly |  | 33 | 0.34 (SD=0.06) | change= 0.01 (SD=0.04) | +0.01 (-0.01, 0.03) | 0.32 | |
|  | |  |  |  |  | Placebo |  | 32 | 0.33 (SD=0.06) | change= 0.00 (SD=0.04) |  | . | |
|  | |  |  |  | Secondary-Maximum Power Relative To Body Weight | Vit D2 150,000 IU/ quarterly |  | 33 | 39.52 (SD=6.21) | change= -1.06 (SD=4.18) | +0.18 (-1.6, 2.0) | 0.84 | |
|  | |  |  |  |  | Placebo |  | 32 | 37.81 (SD=6.81) | change= -1.24 (SD=2.91) |  | . | |
|  | |  |  |  | Secondary-Spine Bone Mineral Content (BMC) | Vit D2 150,000 IU/ quarterly |  | 35 | 11.73 (SD= 1.99) | change= 0.52 (SD=0.39) | -0.05 (-0.24, 0.15) | 0.62 | |
|  | |  |  |  |  | Placebo |  | 33 | 11.97 (SD= 1.97) | change= 0.57 (SD=0.43) |  | . | |
|  | |  |  |  | Secondary-Tibia 66% Cortical Bone Mineral Content (Ct BMC) | Vit D2 150,000 IU/ quarterly |  | 33 | 268.38 (SD= 38.85) | change= 7.68 (SD=12.26) | -1.98 (-8.4, 4.4) | 0.54 | |
|  | |  |  |  |  | Placebo |  | 31 | 261.23 (SD= 38.06) | change= 9.66 (SD=13.38) |  | . | |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Ward et al., 2010 | RCT/CCT | Y | Y | ND | Y | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wei et al., 2012 | Prospective Cohort | Pregnant or lactating women; between 12 and 18 completed weeks of pregnancy on the basis of last menstrual period and confirmed by early ultrasound examination | women who had a history of medical complications including endocrine disease (e.g., thyroid disease), renal disease with altered renal function, epilepsy, any collagen vascular disease (e.g., systemic lupus erythematosus and scleroderma), active and chronic l; regularly consumed supplements 200 mg/day for vitamin C and/or 50 IU/day for vitamin E; took warfarin; women who had known fetal abnormalities (e.g., hydatidiform mole), or known fetal chromosomal or major malformations in the current pregnancy; women with repeated spontaneous abortion (women with a previous bleeding in the first trimester were included if the site documented a viable fetus at the time of recruitment; women who used an illicit drug during the current pregnancy | International Trial of Antioxidants in the Prevention of Pre-eclampsia (INTAPP) | Government | Canada | 697/697/100 | 30.3 (4.8)/NR | Non-Hispanic White=892; Not reported=118 | Other; 31.3% in high-risk group including chronic hypertension, prepregnancy diabetes, multiple pregnancy, or a history of pre-eclampsia | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Wei et al., 2012 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- Prepregnancy BMI; Medical Conditions- Risk Group (See Comments); Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking | Primary-Preeclampsia | 25(OH)D | per SD increase | 12–18 weeks gestation | 32/697 | adjusted/OR | 0.79 | 0.52, 1.20 | NR |
|  |  |  |  |  | 25(OH)D | <50 | 12–18 weeks gestation | 15/272 | adjusted/OR | 1.24 | 0.58, 2.67 | NR |
|  |  |  |  |  | 25(OH)D | >50 | 12–18 weeks gestation | 17/425 | adjusted/OR | 1 | Reference | NR |
|  |  |  |  |  | 25(OH)D | per SD increase | 24–26 weeks gestation | 28/604 | adjusted/OR | 0.68 | 0.44, 1.05 | NR |
|  |  |  |  |  | 25(OH)D | <50 | 24–26 weeks gestation | 19/236 | adjusted/OR | 3.24 | 1.37, 7.69 | NR |
|  |  |  |  |  | 25(OH)D | >50 | 24–26 weeks gestation | 9/368 | adjusted/OR | 1 | Reference | NR |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Wei et al., 2012 | Y | Y | N | N |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wei et al., 2013 | Prospective Cohort | Pregnant or lactating women; 12–18 weeks gestation | Current cardiovascular disease; use of warfarin; use of vitamin C or vitamin E prior to main intervention; collagen vascular disease; carrying a fetus with a known abnormality; endocrine disease; renal disease; epilepsy; use of an illicit drug during pregnancy; active or chronic liver disease; repeated spontaneous abortion | INTAPP | Government | Canada | 697/NR/100 | 28.68 (5.44)/NR | Non-Hispanic White=3400; Hispanic=3484; Non-Hispanic Black=134; Asian=135; Race\_other1=2337; Race\_other2=042 |  | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Wei et al., 2013 | Prospective Cohort | not relevant | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- Prepregnancy BMI; Sun Exposure- Season Of Blood Draw; Smoking, Other Lifestyle Factors- Smoking; Other - Preeclampsia Risk Status | Primary-Preeclampsia | 25(OH)D | <50 nmol/L | 24–26 weeks gestation | NR/NR | adjusted/OR | 2.97 | 1.23, 7.20 |  |
|  |  |  |  |  | 25(OH)D | >=50 nmol/L | 24–26 weeks gestation | NR/NR | adjusted/OR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Wei et al., 2013 | N | Y | Y | N |  |  |  |  |  | N |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Welsh et al., 2012 | Prospective Cohort | 19–50 years; 51–70 years; offspring of married couples in the Renfrew/Paisley cohort; aged 30–59 years; living locally | problematic addresses (addresses provided by parents or death certificate informants which, for reasons of completeness or accuracy, could not be located in a current postcode directory); died before study commenced | MIDSPAN Family Study | Private Foundation | UK; Renfrew and Paisley | 2081/1492/54% | 45.2 (6.2)/NR | Non-Hispanic White=100 | Vitamin d deficient/depleted; Other; vitamin D not deficient | serum 25OHD vitamin D not deficient group (=15 ng/ml): 22.9 ng/ml vitamin D deficient group (<15 ng/ml): 11.0 ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Welsh et al., 2012 | Prospective Cohort | NR | Other Nutrients Or Dietary Factors- Percent Fat From Diet, High And Low Fiber In Diet, Vitamin D Intake, Adjusted Calcium; Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Highest Educational Level, Social Class, Deprivation Category; Anthropometrics- BMI, Waist Circumference; Medical Conditions- Diabetes, Baseline Coronary Heart Disease; Sun Exposure- Season; Smoking, Other Lifestyle Factors- Smoking, Alcohol Intake, Low Baseline Physical Activity; Other - Systolic Blood Pressure, HDL And Total Cholesterol, Current Medication (Ace Inhibitors, Antihypertensives, Aspirin, Insulin, Oral Hypoglycemic, Spartans, Statins) | Primary-All-Cause Mortality | 25(OH)D | per 1 SD increase | 14.4 yrs | 70/1492 | adjusted/HR | 0.74 | 0.56, 0.99 |  |
|  |  |  |  |  | 25(OH)D | Deficient, <15 ng/ml | 14.4 yrs | NR/689 | adjusted/HR | 2.02 | 1.17, 3.51 |  |
|  |  |  |  |  | 25(OH)D | Not deficient =15 ng/ml | 14.4 yrs | NR/803 | adjusted/HR | 1 | reference |  |
|  |  |  |  | Primary-Cardiovascular Event | Dietary Vit D intake | per 1 SD increase in dietary Vit D intake-log scale | 14.4 yrs (median) | 293/1492 | Adjusted/HR | 0.94 | 0.83, 1.08 | NR |
|  |  |  |  |  | 25(OH)D | per 1 SD increase in 25(OH)D-log scale | 14.4 yrs (median) | 293/1492 | Adjusted/HR | 1.07 | 0.94, 1.23 | NR |
|  |  |  |  |  | 25(OH)D | <15ng/ml | 14.4 yrs (median) | 293/1492 | Adjusted/HR | 1 | 0.77, 1.31 | NR |
|  |  |  |  |  | 25(OH)D | >=15 ng/ml | 14.4 yrs (median) |  | Adjusted/HR | 1 | Reference |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Welsh et al., 2012 | Y | Y | N | N |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Witham et al., 2013 | RCT/CCT | 9–18 years; 19–50 years; 51–70 years; age 18 or over; serum 25(OH)D<75; female; South Asian origin | any except fish oil; symptomatic; estimated GFR<40; Liver function tests more than 3-fold upper limit of normal; adjusted serum calcium>2.60 or <2.15 mmol/L; History of renal calculi; sarcoidosis or metastatic malignancy; childbearing age and not using birth control |  | University | UK | 50/50/100 | 39.4 (11.8)/NR | Race\_other1=100 |  | <50 nmol/L |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Witham et al., 2013 | RCT/CCT | Not relevant | Other Nutrients Or Dietary Factors- Baseline 25(Oh)d; Anthropometrics- BMI; Other - Flow Mediated Dilation, PTH, Total Cholesterol | Secondary-Systolic Blood Pressure | D3 100,000 units |  | 25 | 119 (sd=15) | change=2.0 (sd=7.9) | +3.0 (-1.9, 8.0) | . |
|  |  |  |  |  | D3 placebo |  | 25 | 122 (sd=19) | change=-1.0 (sd=9.1) |  | . |
|  |  |  |  | Secondary-Diastolic Blood Pressure | D3 100,000 units |  | 25 | 78 (sd=11) | change=-0.1 (sd=5.7) | +0.6 (-2.5, 3.7) | . |
|  |  |  |  |  | D3 placebo |  | 25 | 78 (sd=13) | change=-0.7 (sd=5.2) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Witham et al., 2013 | RCT/CCT | Y | Y | NA | Y | ND | N | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wong et al., 2013 | Prospective Cohort | 51–70 years; 65 years and older | Not specified |  | Government | Australia;Perth | 4203/4203/0 | 76/70–88 |  | Not Reported | NR |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Wong et al., 2013 | Prospective Cohort | NR | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Medical Conditions- Cardiovascular Disease, Diabetes, Hypertension, Dyslipidemia, Charlson’s Comorbidity Index, Renal Function; Smoking, Other Lifestyle Factors- Smoking; Other - Season, Baseline Frailty Status | Primary-All-Cause Mortality | 25(OH)D | per 10nmol/L decrease in 25(OH)D | 6.7 yrs | 1144/4203 | adjusted/HR | 1.04 | 1.01, 1.07 |  |
|  |  |  |  |  | 25(OH)D | halving of 25(OH)D | 6.7 yrs |  | adjusted/HR | 1.21 | 1.08, 1.35 |  |
|  |  |  |  |  | 25(OH)D | Q1: 10–52.8 | 6.7 yrs |  | adjusted/HR | 1.2 | 1.02, 1.42 |  |
|  |  |  |  |  | 25(OH)D | Q2: 52.9–67.3 | 6.7 yrs |  | adjusted/HR | 1 | Reference |  |
|  |  |  |  |  | 25(OH)D | Q3: 67.4–81.6 | 6.7 yrs |  | adjusted/HR | 0.99 | 0.84, 1.17 |  |
|  |  |  |  |  | 25(OH)D | Q4: 81.7–238.4 | 6.7 yrs |  | adjusted/HR | 0.99 | 0.83, 1.17 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Wong et al., 2013 | Y | Y | N | N |  |  |  |  |  | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | N | NA | Y | N | N | B | ref 18: http://ije.oxfordjournals.org/content/38/1/48.full.pdf+html |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Wood et al., 2012 | RCT/CCT | Postmenopausal women; Caucasian | CVD; diabetes, asthma, malabsorption, hypertensive blood pressure measurements of at least 160 mm Hg systolic or 99 mm Hg diastolic; difficulty in swallowing tablets or capsules; medications or supplements known to affect any dependent variable; current smokers; abnormal blood biochemistry at screening |  | Government | UK; Aberdeen | 305/197/100 | 63.9 (2.3)/NR | Non-Hispanic White=100 | Post menopausal | Serum 25(OH)D placebo: 36.18 ± 17.1 nmol/l 400 IU D3 group: 32.74 ± 12.9 nmol/l 1000 IU D3 group: 32.41 ± 13.8 nmol/l |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Wood et al., 2012 | RCT/CCT | NR | Other Nutrients Or Dietary Factors- Serum Calcium (Adjusted For Albumin), Serum Total 25(OH)d, Plasma PTH; Anthropometrics- Baseline Measurements Of Weight; Smoking, Other Lifestyle Factors- Physical Activity Level; Other - Grip Strength, Weekly Sed, Serum Calcium Concentrations, Baseline Adipose Tissue Distribution | Secondary-DBP | D3 400 IU Vit D/day |  | 97 | 77.68 (sd=7.3) | change=-2.5 (-3.6, -1.4) | -0.4 (-1.9, 1.1) | . |
|  |  |  |  |  | D3 placebo |  | 100 | 77.7 (sd=7.8) | change=-2.1 (-3.1, -1.0) |  | . |
|  |  |  |  | Secondary-SBP | D3 400 IU Vit D/day |  | 96 | 128.16 (sd=13.8) | change=-2.2 (-3.3, -0.7) | +0.2 (-2.2, 2.6) | . |
|  |  |  |  |  | D3 placebo |  | 98 | 128.18 (sd=13.3) | change=-2.4 (-4.5, -0.2) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Wood et al., 2012 | RCT/CCT | Y | ND | Y | N | Y | Y | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Woodham et al., 2011 | Nested Case Control | Pregnant or lactating women; previously given blood for routine genetic multiple marker screening and subsequently delivered at the University of North Carolina-Chapel Hill between Jan 2004 and Nov 2008 | kidney disease, diabetes mellitus, known thrombophilias, any other significant preexisting chronic medical disease; multiple gestation; major congenital fetal anomalies; pregestational hypertension |  | Government | UK; Chapel Hill | 164/164/100 | median: 29/IQR: 25–33 | Non-Hispanic White=29; Hispanic=27; Non-Hispanic Black=39; Asian=5 | Not Reported | Serum 25(OH)D - median (IQR) controls: 107 (90–121) nmol/l cases: 75 (53–107) nmol/l |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Woodham et al., 2011 | Nested Case Control | race/ethnicity | Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- BMI; Sun Exposure- Season Of Blood Draw; Other - Gestational Age At Blood Draw, Sflt-1/Plgf Ratio [soluble Fms-Like Tyrosine Kinase-1, Placental Growth Factor] | Primary-Severe Preeclampsia | 25(OH)D | NR | NR | 41/164 | adjusted/OR | 0.95 | 0.94, 0.97 |  |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Woodham et al., 2011 | Y | Y | N | N |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Woolcott et al., 2010 | Nested Case Control | 51–70 years; age 45–75 years | Not specified | Multiethnic Cohort | Government | USA; Hawaii, Los Angeles | 633/663/35.9 (controls) | 69.2 (7.9)/NR | Non-Hispanic White=171; Non-Hispanic Black=187; Race\_other1=394; Race\_other2=88; Race\_other3=46 | Not Reported | Plasma 25(OH)D controls: 25.0 ± 9.9 ng/ml cases: 23.2 ± 10.1 ng/ml |

| **Main Analyses** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Vitamin D/ Calcium Measure** | **Exposure/ Intervention** | **Follow-up** | **N Event/ N Total** | **Crude or Adjusted/ Outcome Metric (e.g. OR,RR,HR,%)** | **Result** | **95% CI** | **P-val** |
| Woolcott et al., 2010 | Nested Case Control | sex, race/ethnicity, study area, data (±6 mo) and time (±2 h) between blood draw and case diagnosis, birth year (±1 y), hours fasting before blood draw (8 to <10 h, =10 h) | Demographics (Age, Sex, Race/Ethnicity)- Age, Sex, Race/Ethnicity; Anthropometrics- BMI; Other - Data And Time Of Blood Draw, Hours Fasting, Family History Of Colon Cancer, Intake Of Processed Red Meat | Primary-Colorectal Cancer | 25(0H)D | <16.8ng/mL | NR | 67/154 | adjusted/OR | 1 | reference |  |
|  |  |  |  |  | 25(0H)D | 16.8<22.2ng/mL | NR | 42/128 | adjusted/OR | 0.63 | 0.37, 1.08 |  |
|  |  |  |  |  | 25(0H)D | 22.2<26.3ng/mL | NR | 38/126 | adjusted/OR | 0.54 | 0.32, 0.93 |  |
|  |  |  |  |  | 25(0H)D | 26.3<32.8ng/mL | NR | 43/130 | adjusted/OR | 0.62 | 0.36, 1.07 |  |
|  |  |  |  |  | 25(0H)D | >=32.8ng/mL | NR | 39/125 | adjusted/OR | 0.6 | 0.33, 1.07 |  |
|  |  |  |  |  | 25(0H)D | Per doubling | NR | NR/663 | adjusted/OR | 0.68 | 0.51, 0.92 | 0.010 |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Eligibility Criteria Clear?** | **Sampling of Population Random or Consecutive?** | **Exposure Assessor Blinded to Outcome?** | **Outcome Assessor Blinded to Exposure Measurement?** | **Method Reported?** | **Food Composition Database or Suppl Composition Reported?** | **Internal Calibration?** | **One of the Prespecified Biomarkers Methods Used?** | **Time From Sample Collection to Sample Analysis Reported?** | **Level of Exposure in Comparative Categories Given? (Categorical Analyses Only)** |
| Woolcott et al., 2010 | Y | Y | Y | Y |  |  |  | Y | N | Y |

| **Quality of Cohort or Nested Case-Control Studies** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Adjusted or Matched for Any Confounders? (Besides Age and Sex)** | **Justification of Final Adjusted Model Selection?** | **Clear Definition of Outcome Including Time of Ascertainment?** | **Loss to Followup <20%?** | **Do the Authors Specify a Primary Outcome?** | **Prospective Collection of Data?** | **Analysis Was Planned When Cohort Was Formed?** | **Justification of Sample Size (Includes Sample Size Calculations)?** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Y | Y | Y | Y | Y | Y | N | N | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Zhu et al., 2008 | RCT/CCT | 9–18 years; age 10 years; girls | Not specified |  | Manufacturer | China; Beijing | 757/235/100 | 10.1 (0.3)/NR |  |  | Vit D intake Control group – 0.9 ± 0.6µg/d CaD milk – 0.9 ± 0.6µg/d |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Zhu et al., 2008 | RCT/CCT | NR | Other Nutrients Or Dietary Factors- Ca Intake, Vitamin D Intake; Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- Height, Weight; Other - Tanner Breast Stage, Tanner Pubic Hair Stage, Post-Menarche | Secondary-Midriff BMD size-corrected (sc) | D3 560 mg calcium + 5–8 µg Vit D/school day |  | 112 | 1585 (sd=332) | final=1803 (sd=446) | +43 (-79, 165) | . |
|  |  |  |  |  | D3 control (no supplementary milk and habitual diet) |  | 123 | 1584 (sd=337) | final=1760 (sd=499) |  | . |
|  |  |  |  | Secondary-Pelvis BMD sc | D3 560 mg calcium + 5–8 µg Vit D/school day |  | 112 | 46 (sd=4) | final=49 (sd=7) | 0 (-1.9, 1.9) | . |
|  |  |  |  |  | D3 control (no supplementary milk and habitual diet) |  | 123 | 47 (sd=5) | final=49 (sd=8) |  | . |
|  |  |  |  | Secondary-Total Body BMD sc | D3 560 mg calcium + 5–8 µg Vit D/school day |  | 112 | 93 (sd=5) | final=95 (sd=10) | +3 (0.3, 5.7) | . |
|  |  |  |  |  | D3 control (no supplementary milk and habitual diet) |  | 123 | 95 (sd=6) | final=92 (sd=11) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Zhu et al., 2008 | RCT/CCT | ND | ND | ND | Y | Y | ND | Y | ND | Y | B |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Zhu et al., 2010 | RCT/CCT | 51–70 years; age 70–90 years; plasma 25(OH)D concentration less than 24 ng/ml; history of at least one fall in the previous 12 months | current consumption of vitamin D or bone or mineral active agents apart from calcium; BMD Z-score at total hip site of less than -2.0; medical conditions or disorders that influence bone mineral metabolism; fracture in the past 6 months; Mini-Mental State Examination score less than 24 or the presence of significant neurological conditions likely to substantially impair balance or physical activity such as stroke; Parkinson’s disease |  | Manufacturer | Australia;Perth | 302/261/100 | 77.0 (4.8)/NR | Non-Hispanic White=970; Asian=30; Race\_other1=0 | Other; plasma 25(OH)D concentration less than 24 ng/mL | Serum 25(OH)D 17.7 ± 4.2 ng/ml |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Zhu et al., 2010 | RCT/CCT | NR | NR | Secondary-Timed Up And Go (TUAG) | Vit D2 + Calcium 1,000 mg/d calk +1,00 IU vit D2 |  | 129 | 11.0 (SD=5.3) | Final=8.1 (SD=3.9) | -0.9 (-2.2, 0.5) | 0.2 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calk |  | 132 | 10.8 (SD=4.6) | Final=9 (SD=7) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Ankle Dorsiflexion | Vit D2 + Calcium 1,000 mg/d calk +1,00 IU vit D2 |  | 129 | 11.6 (SD=4.4) | Final=10.9 (SD=3.7) | 0 (-0.9, 0.9) | 1 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calk |  | 132 | 11.8 (SD=4.2) | Final=10.9 (SD=4) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Knee Flexor | Vit D2 + Calcium 1,000 mg/d calcium +1,00 IU vit D2 |  | 129 | 11.8 (SD=3.6) | Final=12.9 (SD=3.5) | -0.1 (-1.0, 0.8) | 0.83 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calcium |  | 132 | 11.9 (SD=3.7) | Final=13 (SD=3.9) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Knee Extensor | Vit D2 + Calcium 1,000 mg/d calcium +1,00 IU vit D2 |  | 129 | 18.3 (SD=6.4) | Final=18 (SD=5) | -0.3 (-1.6, 1.0) | 0.65 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calcium |  | 132 | 18.8 (SD=7.3) | Final=18.3 (SD=5.5) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Hip Extensor | Vit D2 + Calcium 1,000 mg/d calcium +1,00 IU vit D2 |  | 129 | 14.6 (SD=5.7) | Final=17.2 (SD=5.2) | +0.3 (-1.1, 1.7) | 0.67 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calcium |  | 132 | 14.4 (SD=5.3) | Final=16.9 (SD=6.2) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Hip Abductor | Vit D2 + Calcium 1,000 mg/d calcium +1,00 IU vit D2 |  | 129 | 12.3 (SD=4.2) | Final=14.5 (SD=4.1) | +0.4 (-0.7, 1.5) | 0.48 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calcium |  | 132 | 12.2 (SD=5) | Final=14.1 (SD=4.9) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Hip Flexor | Vit D2 + Calcium 1,000 mg/d calcium +1,00 IU vit D2 |  | 129 | 14.5 (SD=5) | Final=15.4 (SD=4.2) | 0 (-1.1, 1.1) | 1 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calcium |  | 132 | 14.5 (SD=5.7) | Final=15.4 (SD=4.8) |  | . |
|  |  |  |  | Secondary-Lower Limb Muscle Strength: Hip Adductor | Vit D2 + Calcium 1,000 mg/d calcium +1,00 IU vit D2 |  | 129 | 14.4 (SD=4.7) | Final=16.4 (SD=4.2) | +0.1 (-1.1, 1.3) | 0.86 |
|  |  |  |  |  | Placebo + Calcium 1,000 mg/d calcium |  | 132 | 14.7 (SD=5) | Final=16.3 (SD=5.2) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Zhu et al., 2010 | RCT/CCT | Y | ND | Y | Y | Y | N | Y | Y | Y | A |  |

| **Eligibility Criteria and Baseline Characteristics** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Inclusion** | **Exclusion** | **Trial or Cohort Name** | **Funding** | **Location** | **N Enrolled/ N Analyzed/ Percent Female** | **Age Mean(SD)/ Age Range** | **Race/ Ethnicity** | **Health Status** | **Specific Nutrition Status** |
| Zhu et al., 2013 | RCT/CCT | 19–50 years; Healthy; absence of coronary heart disease, hypertension, diabetes, dyslipidemia; BMI =24 kg/m2 or more or BMI of 28; age 18–25 years; daily calcium intake <600 mg | Pregnant; use of calcium supplements or any medication that could affect body weight within 30 days of screening, no smoking; participating in any weight loss programs or in any other clinical trial; lactation |  | Government | China; Shanghai | 53/43/85.7% | 20.3 (0.8)/NR |  |  | Habitual Ca intake CaD group - 426.5 +/- 152.2 mg/d Control group - 392.1 +/- 141.1 mg/d |

| **Main Analyses** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Characteristics Matched on** | **Controlled Confounders** | **Primary or Secondary Outcome** | **Exposure Intervention** | **Follow-up** | **N Analyzed** | **Baseline Mean/ (CI/SE/SD)** | **Final or Delta/ (CI/SE/SD)** | **Net Difference/ (CI/SE/SD)** | **P-between Groups** |
| Zhu et al., 2013 | RCT/CCT | NR | Other Nutrients Or Dietary Factors- Initial Calcium Intake; Demographics (Age, Sex, Race/Ethnicity)- Age; Anthropometrics- Baseline Body Weight | Secondary-DBP | D3 (energy-restricted diet+600 mg calcium+125 IU Vit D)/day |  | 22 | 70.7 (sd=7.1) | final=64.2 (sd=4.7) | -1.2 (-4.6, 2.2) | . |
|  |  |  |  |  | D3 energy-restricted diet alone (control) |  | 21 | 70 (sd=7.8) | final=65.4 (sd=6.3) |  | . |
|  |  |  |  | Secondary-SBP | D3 (energy-restricted diet+600 mg calcium+125 IU Vit D)/day |  | 22 | 119.2 (sd=10.5) | final=109.6 (sd=9.9) | -2.3 (-8.6, 4.0) | . |
|  |  |  |  |  | D3 energy-restricted diet alone (control) |  | 21 | 123 (sd=10.5) | final=111.9 (sd=10.4) |  | . |

| **Quality of Interventional Studies** | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author,Year** | **Study Design** | **Appropriate Randomization Technique (Y/N/ND/NA)** | **Allocation Concealment (Y/N/ND/NA)** | **Appropriate Washout Period (Y/N/ND/NA)** | **Dropout Rate <20%** | **Blinded Outcome Assessment (Y/N/ND)** | **Intention to Treat Analysis (Y/N/ND)** | **Appropriate Statistical Analysis (Y/N)** | **Assessment for Confounding (Y/N/ND/NA)** | **Clear Reporting w/o Discrepancies (Y/N)** | **Overall Grade** | **Explanation for Grade (if Not A)** |
| Zhu et al., 2013 | RCT/CCT | Y | N | ND | Y | N | Y | Y | N | Y | B |  |