| **Study** | **Participants** | **Exposure** | **Intake Status Ascertainment** | **Results** |
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| He, 1999163  Location: US  Setting: Community  Design: Prospective Cohort study  Study Name: NHANES I  . | Study of: Adults N: 2688  % Male: 38.9 Mean Age/Range/Age at Baseline: age reported by sodium quartile and weight status: non overweight q1 mean 46.2 (SD 15.4) years, non overweight q2 mean 48.3 (SD 15.8) years, non overweight q3 mean 49.3 (SD15.9) years, non overweight q4 mean 48.6 (SD 15.8) years; overweight q1 mean 50 (SD 14.9) years, overweight q2 mean 51.1 (SD 15) years, overweight q3 mean 52 (SD15) years, overweight q4 mean 51.3 (SD 14.8) years. Race: White race, % reported by sodium quartile and weight status: non overweight q1 mean 82.3, non overweight q2 mean 87.6, non overweight q3 mean 86.3, non overweight q4 mean 90.1; overweight q1 mean 73.5, overweight q2 mean 76.7, overweight q3 mean 77.4, overweight q4 mean 82.4. Systolic BP: Systolic blood pressure reported by sodium quartile and weight status: non overweight q1 mean 129.0 (SD 23.2), non overweight q2 mean 129.5 (SD 21.6), non overweight q3 mean 131.4 (SD 22.9), non overweight q4 mean 130.7 (SD 23.2); overweight q1 mean 141.7 (SD 24.1) years, overweight q2 mean 142.4 (SD 24.4), overweight q3 mean 144.8 (SD 25.2), overweight q4 mean 143.5 (SD 24.6). Diastolic BP: Diastolic blood pressure reported by sodium quartile and weight status: non overweight q1 mean 80.6 (SD 12.7), non overweight q2 mean 80.2 (SD 11.5), non overweight q3 mean 81.3 (SD 12.1), non overweight q4 mean 80.6 (SD 12.2); overweight q1 mean 89.0 (SD 12.9) years, overweight q2 mean 88.3 (SD 13.0), overweight q3 mean 89.1 (SD 13.4), overweight q4 mean 88.9 (SD 13.2). Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: BMI reported by sodium quartile and weight status: non overweight q1 mean 23.1 (SD 2.6), non overweight q2 mean 23.1 (SD 2.7), non overweight q3 mean 23.1 (SD 2.7), non overweight q4 mean 23.2 (SD 2.7); overweight q1 mean 32.0 (SD 4.4) years, overweight q2 mean 31.6 (SD 4.1), overweight q3 mean 32.0 (SD 4.7), overweight q4 mean 31.6 (SD 3.9). % with Hypertension: % with hypertension reported by sodium quartile and weight status: non overweight q1 mean 19.1, non overweight q2 mean 19.1, non overweight q3 mean 21.6, non overweight q4 mean 21.8; overweight q1 mean 42.2, overweight q2 mean 42.8, overweight q3 mean 43.8, overweight q4 mean 42.3. % with history of CVD: NR % with Type 2 diabetes: % with type 2 diabetes reported by sodium quartile and weight status: non overweight q1 mean 2.1, non overweight q2 mean 2.6, non overweight q3 mean 2.9, non overweight q4 mean 3.8; overweight q1 mean 4.2, overweight q2 mean 5.4, overweight q3 mean 5.6, overweight q4 mean 5.7. % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: NHANES I participants who were 25-74 years old during survey collection period 1971-1975 Exclusion: Exclude those who did not complete 24h dietary recall, who did not report sodium intake information, and those who self-reported history of heart attack, heart failure, or stroke at baseline, or taking medication for heart disease. Also excluded those who were taking a low-salt diet at baseline. | Exposure Type: Dietary Sodium intake Exposure Unit: 100 mmol/d  Exposure Type: Quartile of Sodium-to-Energy Ratio (100 mmol/7452 KJ) Exposure Unit: 100 mmol/7452 KJ  Exposure Type: Sodium-to-Energy Ratio (100 mmol/7452 KJ) Exposure Unit: 100 mmol/7452 KJ  Duration: NR Exposure to Follow Up Time: 113,467 person-years; an average of 19 years  Dose format: range Q1, Dose: 0.8-62.3 mmol/7452 kJ Q2, Dose: >62.3-84.0 mmol/7452 kJ Q3, Dose: >84-112.3 mmol/7452 kJ Q4, Dose: >112.3-467.9 mmol/7452 kJ per 100-mmol increase, Dose: NR for overall overweight | Sodium measure: 24-hour diet recall Best sodium measure recorded: single 24h dietary recall with 3-dimensional food-portion models CVD, CHD, stroke, kidney stones/disease Outcomes-Method of ascertainment: Hospital records, Interview with participant or proxy, Death certificate reports | All-cause mortality from all causes (ICD-9 codes 430-434.9, 436, or 437.0-437.1, 410-414, 436, 437.0-437.1, 402-404, or 428) (100 mmol/7452 KJ/Outcome): Average 19 years FU Q1 cases: 189, total: 713, person-years: 11920, per 100-mmol increase cases: NR, total: 2688, Q2 cases: 184, total: 647, person-years: 10644, Q3 cases: 205, total: 625, person-years: 10037, Q4 cases: 232, total: 703, person-years: 11188 Adjustment: Age, sex, race, systolic blood pressure, serum cholesterol level, body mass index, history of diabetes, diuretic use, physical activity, level of education, regular alcohol consumption, current cigarette smoking, and total energy intake Among those who are overweight, significant association between higher quartile of dietary sodium-to-energy ratio and increased risk of total mortality. Multivariate relative risk of CVD and total mortality associated with a 100-mmol increase in dietary sodium intake.  CHD incidence (ICD-9 codes 410-414) (100 mmol/7452 KJ/Outcome): Average 19 years FU Q1 cases: 169, total: 713, person-years: 11920, per 100-mmol increase cases: NR, total: 2688, Q2 cases: 160, total: 647, person-years: 10644, Q3 cases: 158, total: 625, person-years: 10037, Q4 cases: 160, total: 703, person-years: 11188 Adjustment: Age, sex, race, systolic blood pressure, serum cholesterol level, body mass index, history of diabetes, diuretic use, physical activity, level of education, regular alcohol consumption, current cigarette smoking, and total energy intake Multivariate relative risk of CVD and total mortality associated with a 100-mmol increase in dietary sodium intake. No significant association observed.  CHD mortality (ICD-9 codes 410-414) (100 mmol/7452 KJ/Outcome): Average 19 years FU Q1 cases: 52, total: 713, person-years: 11920, per 100-mmol increase cases: NR, total: 2688, Q2 cases: 46, total: 647, person-years: 10644, Q3 cases: 55, total: 625, person-years: 10037, Q4 cases: 61, total: 703, person-years: 11188 Adjustment: Age, sex, race, systolic blood pressure, serum cholesterol level, body mass index, history of diabetes, diuretic use, physical activity, level of education, regular alcohol consumption, current cigarette smoking, and total energy intake Among those who are overweight, significant association between higher quartile of dietary sodium-to-energy ratio and increased risk of CHD mortality. Multivariate relative risk of CVD and total mortality associated with a 100-mmol increase in dietary sodium intake.  CVD mortality (ICD-9 codes 410-414, 430-434.9, 436, 437.0-437.1, 402-404, or 428) (100 mmol/7452 KJ/Outcome): Average 19 years FU Q1 cases: 74, total: 713, person-years: 11920, per 100-mmol increase cases: NR, total: 2688, Q2 cases: 70, total: 647, person-years: 10644, Q3 cases: 85, total: 625, person-years: 10037, Q4 cases: 100, total: 703, person-years: 11188 Adjustment: Age, sex, race, systolic blood pressure, serum cholesterol level, body mass index, history of diabetes, diuretic use, physical activity, level of education, regular alcohol consumption, current cigarette smoking, and total energy intake Among those who are overweight, significant association between higher quartile of dietary sodium-to-energy ratio and increased risk of CVD mortality. Multivariate relative risk of CVD and total mortality associated with a 100-mmol increase in dietary sodium intake.  Stroke incidence (ICD-9 codes 430-434.9, 436, or 437.0-437.1) (100 mmol/7452 KJ/Outcome): Average 19 years FU Q1 cases: 45, total: 713, person-years: 11920, per 100-mmol increase cases: NR, total: 2688, Q2 cases: 61, total: 647, person-years: 10644, Q3 cases: 75, total: 625, person-years: 10037, Q4 cases: 69, total: 703, person-years: 11188 Adjustment: Age, sex, race, systolic blood pressure, serum cholesterol level, body mass index, history of diabetes, diuretic use, physical activity, level of education, regular alcohol consumption, current cigarette smoking, and total energy intake Among those who are overweight, significant association between higher quartile of dietary sodium-to-energy ratio and increased risk of stroke. Multivariate relative risk of CVD and total mortality associated with a 100-mmol increase in dietary sodium intake.  Stroke mortality (ICD-9 codes 430-434.9, 436, or 437.0-437.1) (100 mmol/7452 KJ/Outcome): Average 19 years FU Q1 cases: 15, total: 713, person-years: 11920, per 100-mmol increase cases: NR, total: 2688, Q2 cases: 17, total: 647, person-years: 10644, Q3 cases: 24, total: 625, person-years: 10037, Q4 cases: 31, total: 703, person-years: 11188 Adjustment: Age, sex, race, systolic blood pressure, serum cholesterol level, body mass index, history of diabetes, diuretic use, physical activity, level of education, regular alcohol consumption, current cigarette smoking, and total energy intake Among those who are overweight, significant association between higher quartile of dietary sodium-to-energy ratio and increased risk of stroke mortality. Multivariate relative risk of CVD and total mortality associated with a 100-mmol increase in dietary sodium intake. |