| **Study** | **Participants** | **Intervention(s)** | **Intake Status Ascertainment** | **Findings - Outcomes and Comparison** |
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| Zhou, 200998  Location: China  Setting: Community  Design: Randomized, parallel  Number of Sites: 10  Study Years: 2003-2004 | Study of: Adults N: 248  Intervention 1: % Male: 43.5 Mean Age/Range/Age at Baseline: mean 67.5 (SD 5.2) Race: NR Systolic BP: 159.7 Diastolic BP: 83.3 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 25.2 % with Hypertension: 100 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Comparator 1: NR % Male: 42.2 Mean Age/Range/Age at Baseline: mean 65.7 (SD 6.3) Race: NR Systolic BP: 157.7 Diastolic BP: 82.7 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 24.9 % with Hypertension: 100 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Intervention 2: % Male: 49.1 Mean Age/Range/Age at Baseline: mean 68.1 (SD 8.3) Race: NR Systolic BP: 125 Diastolic BP: 74.3 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 23.9 % with Hypertension: 0 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Comparator 2: NR % Male: 44.6 Mean Age/Range/Age at Baseline: mean 65.4 (SD 4.5) Race: NR Systolic BP: 123.8 Diastolic BP: 74.5 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 23.7 % with Hypertension: 0 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: Ages 50–80, with normal BP or mild to moderate hypertension. No more than one meal outside the home per week, not currently taking potassium-sparing drugs, willingness to undertake long-term use of CISalt. Serum potassium <5.5mmol/l and net elevation of serum potassium <1.0mmol/l at the end of the run-in period Exclusion: Heart attack or stroke within the last 6 months, current angina pectoris, congestive heart failure, diabetes mellitus, serious mental or physical illness, secondary hypertension, malignancy, use of potassium-sparing diuretics, impairment of renal function. | Intervention Type(s): Intervention 1: Other: Low sodium salt-Hypertensives Description: Total of 3 kg a month of study salt (lower sodium) was given to each participant’s family to cover all cooking and other uses Form of Administration: Salt substitute Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator 1: Other: Normal salt - Hypertensives Description: Total of 3 kg a month of normal salt was given to each participant’s family to cover all cooking and other uses Form of Administration: Regular Salt Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Intervention 2: Other: Low sodium salt-Normotensives Description: Total of 3 kg a month of study salt (lower sodium) was given to each participant’s family to cover all cooking and other uses Form of Administration: Salt substitute Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator 2: Other: Normal salt - Normotensives Description: Total of 3 kg a month of normal salt was given to each participant’s family to cover all cooking and other uses. Form of Administration: Other: Regular salt Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Duration: 6 months Exposure to Follow Up Time: NR | Sodium measure: Single 24-hour urinary analysis without reported quality control measure Best sodium measure recorded: 2 times, 6 months apart Sodium Status Intervention 1: 162 mmol/24 h Sodium Status Comparator 1: 233 mmol/24 h Sodium Status Intervention 2: 162 mmol/24 h Sodium Status Comparator 2: 231 mmol/24 h Potassium measure: Single 24-hour urine analysis without validation Best potassium measure recorded: 2 times, 6 months apart  Potassium Status Intervention 1: 34.2 mmol/24 h Potassium Status Comparator 1: 27.0 mmol/24 h Potassium Status Intervention 2: 33.1 mmol/24 h Potassium Status Comparator 2: 23.0 mmol/24 h  How was blood pressure measured? BP was measured by two experienced physicians. SBP was taken as the point of appearance (phase 1) of Korotkoff sounds and DBP was measured as the point of disappearance (phase 5). | Subgroup: Normotensive Diastolic BP-NS Follow-Up Time: 6 months Comparison: Intervention 2 vs Comparator 2 MD -4.80 (95% CI: -7.05 - -2.55) Systolic BP-NS Follow-Up Time: 6 months Comparison: Intervention 2 vs Comparator 2 MD -5.80 (95% CI: -8.66 - -2.94) |
| Zhou, 200998  Location: China  Setting: Community  Design: Randomized, parallel  Number of Sites: 10  Study Years: 2003-2004 | Study of: Adults N: 248  Intervention 1: % Male: 43.5 Mean Age/Range/Age at Baseline: mean 67.5 (SD 5.2) Race: NR Systolic BP: 159.7 Diastolic BP: 83.3 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 25.2 % with Hypertension: 100 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Comparator 1: NR % Male: 42.2 Mean Age/Range/Age at Baseline: mean 65.7 (SD 6.3) Race: NR Systolic BP: 157.7 Diastolic BP: 82.7 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 24.9 % with Hypertension: 100 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Intervention 2: % Male: 49.1 Mean Age/Range/Age at Baseline: mean 68.1 (SD 8.3) Race: NR Systolic BP: 125 Diastolic BP: 74.3 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 23.9 % with Hypertension: 0 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Comparator 2: NR % Male: 44.6 Mean Age/Range/Age at Baseline: mean 65.4 (SD 4.5) Race: NR Systolic BP: 123.8 Diastolic BP: 74.5 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 23.7 % with Hypertension: 0 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: Ages 50–80, with normal BP or mild to moderate hypertension. No more than one meal outside the home per week, not currently taking potassium-sparing drugs, willingness to undertake long-term use of CISalt. Serum potassium <5.5mmol/l and net elevation of serum potassium <1.0mmol/l at the end of the run-in period Exclusion: Heart attack or stroke within the last 6 months, current angina pectoris, congestive heart failure, diabetes mellitus, serious mental or physical illness, secondary hypertension, malignancy, use of potassium-sparing diuretics, impairment of renal function. | Intervention Type(s): Intervention 1: Other: Low sodium salt-Hypertensives Description: Total of 3 kg a month of study salt (lower sodium) was given to each participant’s family to cover all cooking and other uses Form of Administration: Salt substitute Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator 1: Other: Normal salt - Hypertensives Description: Total of 3 kg a month of normal salt was given to each participant’s family to cover all cooking and other uses Form of Administration: Regular Salt Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Intervention 2: Other: Low sodium salt-Normotensives Description: Total of 3 kg a month of study salt (lower sodium) was given to each participant’s family to cover all cooking and other uses Form of Administration: Salt substitute Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator 2: Other: Normal salt - Normotensives Description: Total of 3 kg a month of normal salt was given to each participant’s family to cover all cooking and other uses. Form of Administration: Other: Regular salt Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Duration: 6 months Exposure to Follow Up Time: NR | Sodium measure: Single 24-hour urinary analysis without reported quality control measure Best sodium measure recorded: 2 times, 6 months apart Sodium Status Intervention 1: 162 mmol/24 h Sodium Status Comparator 1: 233 mmol/24 h Sodium Status Intervention 2: 162 mmol/24 h Sodium Status Comparator 2: 231 mmol/24 h Potassium measure: Single 24-hour urine analysis without validation Best potassium measure recorded: 2 times, 6 months apart  Potassium Status Intervention 1: 34.2 mmol/24 h Potassium Status Comparator 1: 27.0 mmol/24 h Potassium Status Intervention 2: 33.1 mmol/24 h Potassium Status Comparator 2: 23.0 mmol/24 h  How was blood pressure measured? BP was measured by two experienced physicians. SBP was taken as the point of appearance (phase 1) of Korotkoff sounds and DBP was measured as the point of disappearance (phase 5). | Subgroup: Normotensive Diastolic BP-NS Follow-Up Time: 6 months Comparison: Intervention 2 vs Comparator 2 MD -4.80 (95% CI: -7.05 - -2.55) Systolic BP-NS Follow-Up Time: 6 months Comparison: Intervention 2 vs Comparator 2 MD -5.80 (95% CI: -8.66 - -2.94) |
| Matthesen, 2012102  Location: Denmark  Setting:  Design: Randomized Cross-over individual  Number of Sites:  Crossover: Length of washout period: 14 days  Study Years: unclear | Study of: NR N: 21  Participants: % Male: 43 Mean Age/Range/Age at Baseline: mean 26 (range: 18-40) Race: 100 Systolic BP: 116 Diastolic BP: 71 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 23 % with Hypertension: NR % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: Ages 18-40 years; BMI 18.5- 30 kg/m 2 Exclusion: Arterial hypertension; history of or clinical signs of disease in the heart, lungs, liver, brain or endocrine organs; current medical treatment; malignancies; substance or alcohol abuse; smoking; pregnancy; breast-feeding; no contraceptive treatment for fertile aged women ; clinically significant abnormalities in the blood screening with respect to haemoglobin, white cell count, platelet count, sodium, potassium, creatinine, alanine and aspartate aminotransferase, albumin, cholesterol and glucose. Clinically significant abnormal screening of the urine with respect to albumin and glucose; abnormal electrocardiogram; intercurrent diseases; blood donation less than one month before the trial; unwillingness to participate in the trial; issues with establishing IV access or urine collection. | Intervention Type(s):  Intervention 1: Use of potassium supplement to increase potassium levels Description: Participants were given a standardized diet Form of Administration: Oral potassium supplement Dose: 50 mmol potassium twice daily Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator: Placebo Description: Participants were given a standardized diet Form of Administration: Placebo Dose: Placebo Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Duration: 1 month Exposure to Follow Up Time: NR | Sodium measure: More than one 24-hour urinary analysis without reported quality control measure Best sodium measure recorded: twice separated by 28 days Sodium Status Intervention 1: 199 mmol/24 h Potassium measure: More than one 24-hour urinary analysis without reported quality control measure\_1 Best potassium measure recorded: twice separated by 28 days Potassium Status Intervention 1: 168 mmol/24 h  How was blood pressure measured? Ambulatory blood pressure taken using Kiwex TM-2430. In the day, pulse and blood pressure were measured every 15 min. During the night, pulse and blood pressure were measured in 30 min intervals | Subgroup: Normotensive 24 h ambulatory- diastolic Follow-Up Time: 28 days Comparison: Intervention 1 vs Comparator MD 1.00 (95% CI: -1.80 - 3.80) 24 h ambulatory- systolic Follow-Up Time: 28 days Comparison: Intervention 1 vs Comparator MD 0.00 (95% CI: -3.42 - 3.42) Aldosterone Follow-Up Time: 28 days Comparison: Intervention 1 vs Comparator MD 60.00 (95% CI: -100.65 - 220.65) |
| Nowson, 200318  Location: Australia  Setting: Community  Design: Randomized Cross-over individual  Number of Sites: 1  Crossover: Length of washout period: NR days  Study Years: NR | Study of: Adults N: 108  Participants: % Male: 41 Mean Age/Range/Age at Baseline: 47 Race: NR Systolic BP: 126.4+/-18.6 Diastolic BP: 79.2+/-11.9 Magnesium: NR Calcium: NR Other Minerals: sodium: 138.7+/-53.9; potassium: 78.6+/-23.7 Mean BMI: 26.1+/-4.2 % with Hypertension: 15 % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: Twin pairs 30 years or older Exclusion: currently undergoing treatment for cancer or renal disease; requiring insulin treatment for diabetes | Intervention Type(s):  Intervention 1: Dietary/lifestyle counseling (single or multiple sessions, including dietary advice) to reduce sodium intake Description: Low sodium/high potassium diet to achieve 50 mmol sodium and 80 mmol potassium Form of Administration: Dietary Modification: Low sodium, high potassium diet and placebo sodium pills Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator: Dietary/lifestyle counseling (single or multiple sessions, including dietary advice) to reduce sodium intake Description: Low sodium/high potassium diet to achieve sodium mmol and 80 mmol potassium and sodium supplementation with slow sodium tablets to achieve 130 mmol/d sodium Form of Administration: Dietary Modification: Low sodium, high potassium diet Sodium supplement Dose: NR Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Duration: 4 weeks Exposure to Follow Up Time: 0 months | Sodium measure: Multiple 24-hour urine analysis with validation Best sodium measure recorded: 24-hour urine 3 times, 1 week apart during each 4-week phase Sodium, Method of Validation: creatinine, Multiple 24-hour urine analysis with validation Sodium Status Intervention 1: 89.4+/-4.2 mmol/d Best potassium measure recorded: 24-hour urine 3 times, 1 week apart during each 4-week phase Potassium, Method of Validation: NR Potassium Status Intervention 1: 87.1+/-2.1 mmol/d  How was blood pressure measured? mercury sphygmomanometer (model ALPK2; Stethoscope and Sphygmomanometer Specialists, Melbourne, Australia) while seated | Subgroup: Normotensive Home measured BP, diastolic Follow-Up Time: 4 weeks Comparison: Intervention 1 vs Comparator MD -0.90 (95% CI: -5.78 - 3.98) Home measured BP, systolic Follow-Up Time: 4 weeks Comparison: Intervention 1 vs Comparator MD -2.30 (95% CI: -2.81 - -1.79) |
| Sacks, 200110  Vollmer, 200111; Svetkey, 200412; Harsha, 200413; Akita, 200314  Location: US  Setting: Community  Design: Randomized Cross-over individual  Study Name: DASH-Sodium  Number of Sites: multiple  Crossover: Length of washout period: <5 days  Study Years: NR | Study of: Adults N: 79  Mean Age/Range/Age at Baseline: 49(10) Race: 56% black; 40% NH white; 5% Asian/other Systolic BP: 135(10) Diastolic BP: 86(4) Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 30(5) % with Hypertension: 41 % with history of CVD: 0 % with Type 2 diabetes: 0 % with Kidney disease: 0 % with history of Kidney stones: 0  Mean Age/Range/Age at Baseline: 47+/-10 Race: 57% black; 40% NH white; 3% Asian/other Systolic BP: 134+/-10 Diastolic BP: 86+/-5 Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: 29+/-5 % with Hypertension: 41 % with history of CVD: 0 % with Type 2 diabetes: 0 % with Kidney disease: 0 % with history of Kidney stones: 0  Comparator: % Male: NR Mean Age/Range/Age at Baseline: NR Race: NR Systolic BP: NR Diastolic BP: NR Magnesium: NR Calcium: NR Other Minerals: NR Mean BMI: NR % with Hypertension: NR % with history of CVD: NR % with Type 2 diabetes: NR % with Kidney disease: NR % with history of Kidney stones: NR  Inclusion: 22 years old or more, average systolic blood pressure 120 to 159 mm Hg (over 3 visits) and average diastolic blood pressure 80 to 95 mm Hg Exclusion: heart disease, renal insufficiency, poorly controlled hyperlipidemia or diabetes mellitus, diabetes requiring insulin, special dietary requirements, more than 14 alcoholic drinks per week, or use of antihypertensive drugs or other medications that would affect blood pressure or nutrient metabolism | Intervention Type:  Intervention 1: Prescribed or synthetic diet (all food provided) with sodium quantified Description: Control High Sodium: To replicate typical diet with high sodium content Form of Administration: Dietary Modification: All foods provided, menu designed to achieve high sodium intake Dose: 150 mmol sodium/d in control diet Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Intervention 2: Prescribed or synthetic diet (all food provided) with sodium quantified Description: Control Intermediate Sodium: To replicate typical diet with intermediate sodium content Form of Administration: Dietary Modification: All foods provided, menu designed to achieve intermediate sodium intake Dose: 100 mmol sodium/d in control diet Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Comparator: Prescribed or synthetic diet (all food provided) with sodium quantified Description: Control Low Sodium: To replicate typical diet with low sodium content Form of Administration: Dietary Modification: All foods provided, menu designed to achieve low sodium intake Dose: 50 mmol/d Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Intervention 3: NR Description: DASH High Sodium: To impose DASH diet with high sodium content Form of Administration: Dietary Modification: All foods provided, menu designed to follow DASH with high sodium intake Dose: 150 mmol sodium/d in DASH diet Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Intervention 4: Prescribed or synthetic diet (all food provided) with sodium quantified Description: DASH intermediate Sodium: To impose DASH diet with intermediate sodium content Form of Administration: Dietary Modification: All foods provided, menu designed to follow DASH with intermediate sodium intake Dose: 100 mmol/d Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR   Comparator: Prescribed or synthetic diet (all food provided) with sodium quantified Description: DASH Low Sodium: To achieve DASH diet with low sodium content Form of Administration: Dietary Modification: All foods provided, menu designed to follow DASH with low sodium intake Dose: 50 mmol/d Na/K ratio: NR Magnesium: NR Calcium: NR Other Minerals: NR  Duration: 4 periods of 30 days each, including run-in Exposure to Follow Up Time: 0 months | Sodium measure: Chemical analysis of diet with intervention/exposure adherence measure, Single 24-hour urinary analysis without reported quality control measure Best sodium measure recorded: Single 24-hour urine analysis without validation measured at least 4 times, 4 weeks apart; chemical analysis of diet; Food diaries completed daily without validation; Sodium, Method of Validation: NR, Chemical analysis of diet with intervention/exposure adherence measure Sodium Status Intervention 1: 141+/-55 mmol/d Sodium Status Intervention 2: 106+/-44 mmol/d Sodium Status Comparator: 64+/-37mmol/d Sodium Status Intervention 3: 144+/-58 mmol/d Sodium Status Intervention 4: 107+/-52 mmol/d Potassium measure: Single 24-hour urine analysis without validation Best potassium measure recorded: Single 24-hour urine analysis without validation measured at least 4 times, 4 weeks apart; chemical analysis of diet; Food diaries completed daily without validation; Potassium, Method of Validation: Adherence checks via food diaries, supervised meals Potassium Status Intervention 1: 40+/-14 mmol/d Potassium Status Intervention 2: 41+/-14 mmol/d Potassium Status Comparator: 42+/-14 mmol/d Potassium Status Intervention 3: 75+/-27 mmol/d Potassium Status Intervention 4: 81+/-31 mmol/d  How was blood pressure measured? Random-zero sphygmomanometers, seated, 3 times during screening, weekly during 1st 3 weeks of intervention periods, and 5 times during last 9 days of intervention periods | Subgroup: Normotensive Diastolic BP Follow-Up Time: 30 days Comparison: Intervention 3 vs Intervention 5 MD -1.10 (95% CI: -2.00 - -0.10) Comparison: Intervention 1 vs Comparator MD -2.80 (95% CI: -3.80 - -1.90) Systolic BP Follow-Up Time: 30 days Comparison: Intervention 3 vs Intervention 5 MD -1.70 (95% CI: -3.10 - -0.30) Comparison: Intervention 1 vs Comparator MD -5.60 (95% CI: -7.00 - -4.10) |