| **Study** | **Participants** | **Intervention(s)** | **IntakeStatus Ascertainment** | **Findings - Outcomes and Comparison** |
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| Nestel, 199317Location: NRSetting: CommunityDesign: Randomized, parallelNumber of Sites: multipleStudy Years: unclear | Study of: AdultsN: 66Participants:% Male: 54.5Mean Age/Range/Age at Baseline: Women: mean 65 (SD 3); Men: mean 66 (SD 5)Race: NRSystolic BP: Women: 120; Men: 129Diastolic BP: Women: 68; Men: 77Magnesium: NRCalcium: NROther Minerals: NRMean BMI: Women: 24; Men 25% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRInclusion: Normotensive men and women, aged 60-79, free of clinical cardiac, renal, hepatic and endocrine disorders. Not taking any drugs that might affect blood pressure. | Intervention Type(s):Intervention 1: Other: No added saltDescription: NRForm of Administration: Other: low salt dietDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRComparator: Other: Added SaltDescription: NRForm of Administration: Other: low salt diet + added saltDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRDuration: 2.5 monthsExposure to Follow Up Time: NR | Sodium measure: Single 24-hour urine analysis with validationBest sodium measure recorded: 6 times separated by 2 weeksSodium, Method of Validation: Compliance with urine collection assessed from the within-individual variation in 24-h creatinine excretion between visits, Single 24-hour urine analysis with validationSodium Status Intervention 1: Women: 77 mmol/day; Men: 106 mmol/dayBest potassium measure recorded: 6 times separated by 2 weeksPotassium, Method of Validation: Compliance with urine collection assessed from the within-individual variation in 24-h creatinine excretion between visitsPotassium Status Intervention 1: Women: 78 mmol/day; Men: 83 mmol/daHow was blood pressure measured? Subjects either had fasted overnight, or had not eating in the 2 hours prior to measurement. After sitting quietly, for 5 min, BP was taken using a Dinamao automated sphygmomanometer fitted with an appropriate arm cuff. After the first reading was discarded, 4 measures were taken and averaged. | Subgroup: WomenDiastolic BP-sittingFollow-Up Time: 6 weeksComparison: Intervention 1 vs ComparatorMD -5.00 (95% CI: -11.44 - 1.44)Systolic BP-sittingFollow-Up Time: 6 weeksComparison: Intervention 1 vs ComparatorMD -7.00 (95% CI: -16.73 - 2.73)Subgroup: MenDiastolic BP-sittingFollow-Up Time: 6 weeksComparison: Intervention 1 vs ComparatorMD 0.00 (95% CI: -4.95 - 4.95)Systolic BP-sittingFollow-Up Time: 6 weeksComparison: Intervention 1 vs ComparatorMD -3.00 (95% CI: -9.54 - 3.54) |
| Nowson, 200318Location: AustraliaSetting: CommunityDesign: Randomized Cross-over individualNumber of Sites: 1Crossover: Length of washout period: NR daysStudy Years: NR | Study of: AdultsN: 108Participants:% Male: 41Mean Age/Range/Age at Baseline: 47Race: NRSystolic BP: 126.4+/-18.6Diastolic BP: 79.2+/-11.9Magnesium: NRCalcium: NROther Minerals: sodium: 138.7+/-53.9; potassium: 78.6+/-23.7Mean 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: NRInclusion: Twin pairs 30 years or olderExclusion: 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 intakeDescription: Low sodium/high potassium diet to achieve 50 mmol sodium and 80 mmol potassiumForm of Administration: Dietary Modification: Low sodium, high potassium diet and placebo sodium pillsDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRComparator: Dietary/lifestyle counseling (single or multiple sessions, including dietary advice) to reduce sodium intakeDescription: 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 sodiumForm of Administration: Dietary Modification: Low sodium, high potassium diet Sodium supplementDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRDuration: 4 weeksExposure to Follow Up Time: 0 months | Sodium measure: Multiple 24-hour urine analysis with validationBest sodium measure recorded: 24-hour urine 3 times, 1 week apart during each 4-week phaseSodium, Method of Validation: creatinine, Multiple 24-hour urine analysis with validationSodium Status Intervention 1: 89.4+/-4.2 mmol/dBest potassium measure recorded: 24-hour urine 3 times, 1 week apart during each 4-week phasePotassium, Method of Validation: NRPotassium Status Intervention 1: 87.1+/-2.1 mmol/dHow was blood pressure measured? mercury sphygmomanometer (model ALPK2; Stethoscope and Sphygmomanometer Specialists, Melbourne, Australia) while seated | Subgroup: WomenHome measured BP, diastolicFollow-Up Time: 4 weeksComparison: Intervention 1 vs ComparatorMD -2.10 (95% CI: -7.98 - 3.78)Home measured BP, systolicFollow-Up Time: 4 weeksComparison: Intervention 1 vs ComparatorMD -2.40 (95% CI: -8.28 - 3.48) |
| Sacks, 200110Vollmer, 200111; Svetkey, 200412; Harsha, 200413; Akita, 200314Location: USSetting: CommunityDesign: Randomized Cross-over individualStudy Name:DASH-SodiumNumber of Sites: multipleCrossover: Length of washout period: <5 daysStudy Years: NR | Study of: AdultsN: 79Mean Age/Range/Age at Baseline: 49(10)Race: 56% black; 40% NH white; 5% Asian/otherSystolic BP: 135(10)Diastolic BP: 86(4)Magnesium: NRCalcium: NROther Minerals: NRMean 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: 0Mean Age/Range/Age at Baseline: 47+/-10Race: 57% black; 40% NH white; 3% Asian/otherSystolic BP: 134+/-10Diastolic BP: 86+/-5Magnesium: NRCalcium: NROther Minerals: NRMean 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: 0Comparator:% Male: NRMean Age/Range/Age at Baseline: NRRace: NRSystolic BP: NRDiastolic BP: NRMagnesium: NRCalcium: NROther Minerals: NRMean BMI: NR% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRInclusion: 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 HgExclusion: 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 quantifiedDescription: Control High Sodium: To replicate typical diet with high sodium contentForm of Administration: Dietary Modification: All foods provided, menu designed to achieve high sodium intakeDose: 150 mmol sodium/d in control dietNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRIntervention 2: Prescribed or synthetic diet (all food provided) with sodium quantifiedDescription: Control Intermediate Sodium: To replicate typical diet with intermediate sodium contentForm of Administration: Dietary Modification: All foods provided, menu designed to achieve intermediate sodium intakeDose: 100 mmol sodium/d in control dietNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRComparator: Prescribed or synthetic diet (all food provided) with sodium quantifiedDescription: Control Low Sodium: To replicate typical diet with low sodium contentForm of Administration: Dietary Modification: All foods provided, menu designed to achieve low sodium intakeDose: 50 mmol/dNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRIntervention 3: NRDescription: DASH High Sodium: To impose DASH diet with high sodium contentForm of Administration: Dietary Modification: All foods provided, menu designed to follow DASH with high sodium intakeDose: 150 mmol sodium/d in DASH dietNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRIntervention 4: Prescribed or synthetic diet (all food provided) with sodium quantifiedDescription: DASH intermediate Sodium: To impose DASH diet with intermediate sodium contentForm of Administration: Dietary Modification: All foods provided, menu designed to follow DASH with intermediate sodium intakeDose: 100 mmol/dNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRComparator: Prescribed or synthetic diet (all food provided) with sodium quantifiedDescription: DASH Low Sodium: To achieve DASH diet with low sodium contentForm of Administration: Dietary Modification: All foods provided, menu designed to follow DASH with low sodium intakeDose: 50 mmol/dNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRDuration: 4 periods of 30 days each, including run-inExposure 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 measureBest 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 measureSodium Status Intervention 1: 141+/-55 mmol/dSodium Status Intervention 2: 106+/-44 mmol/dSodium Status Comparator: 64+/-37mmol/dSodium Status Intervention 3: 144+/-58 mmol/dSodium Status Intervention 4: 107+/-52 mmol/dPotassium measure: Single 24-hour urine analysis without validationBest 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 mealsPotassium 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/dHow 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: MaleDiastolic BPFollow-Up Time: 30 daysComparison: Intervention 3 vs Intervention 5MD -1.60 (95% CI: -2.70 - -0.50)Comparison: Intervention 1 vs ComparatorMD -3.20 (95% CI: -4.30 - -2.20)Systolic BPFollow-Up Time: 30 daysComparison: Intervention 3 vs Intervention 5MD -1.70 (95% CI: -3.40 - 0.00)Comparison: Intervention 1 vs ComparatorMD -5.70 (95% CI: -7.30 - -4.10)Subgroup: FemaleDiastolic BPFollow-Up Time: 30 daysComparison: Intervention 3 vs Intervention 5MD -1.70 (95% CI: -2.60 - -0.80)Comparison: Intervention 1 vs ComparatorMD -3.70 (95% CI: -4.70 - -2.70)Systolic BPFollow-Up Time: 30 daysComparison: Intervention 3 vs Intervention 5MD -4.00 (95% CI: -5.40 - -2.50)Comparison: Intervention 1 vs ComparatorMD -7.50 (95% CI: -9.00 - -6.00) |
| Seals, 200119Location: NRSetting: CommunityDesign: Randomized, parallelNumber of Sites: multipleStudy Years: unclear | Study of: AdultsN: 39Intervention 1:% Male: 0Mean Age/Range/Age at Baseline: mean 65 (SD 10)Race: NRSystolic BP: NRDiastolic BP: NRMagnesium: NRCalcium: NROther Minerals: NRMean BMI: 28.1% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRComparator:% Male: 0Mean Age/Range/Age at Baseline: mean 62 (SD 9)Race: NRSystolic BP: NRDiastolic BP: NRMagnesium: NRCalcium: NROther Minerals: NRMean BMI: 28.1% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRInclusion: postmenopausal status (amenorrheic for at least two years and follicle stimulating hormone plasma concentrations .40 IU/l); >50 years of age, during sitting rest: SBP 130 to 159 mm Hg with diastolic BPDBP<=99 mm Hg. No antihypertensive medications taken in the last two months; and a body mass index (BMI) < 35Exclusion: Other chronic disease, on a low-sodium diet, performed regular exercise during the preceding two years, smoking | Intervention Type(s):Intervention 1: Prescribed or synthetic diet (all food provided) with sodium quantifiedDescription: Reduce sodium intake to <100 mmol/dayForm of Administration: Dietary Modification: low sodiumDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRComparator: Other: ExerciseDescription: Exercise arm, no diet changesForm of Administration: Other: Exercise armDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRDuration: 3 monthsExposure to Follow Up Time: NR | Sodium measure: Chemical analysis of diet with intervention/exposure adherence measure, Single 24-hour urinary analysis without reported quality control measureBest sodium measure recorded: 2 times, 3 months apartSodium Status Intervention 1: 86 mmol/dayHow was blood pressure measured? BP measured at rest in the upright seated position between 7 and 11 AM after an overnight fast. Recordings were obtained in triplicate in three separate sessions at least one week apart in order to establish the stable readings | Subgroup: WomenDiastolic BP-24H AMBFollow-Up Time: 13 weeksComparison: Intervention 1 vs ComparatorMD -2.11 (95% CI: -4.99 - 0.77)Systolic BP-24H AMBFollow-Up Time: 13 weeksComparison: Intervention 1 vs ComparatorMD -7.11 (95% CI: -11.82 - -2.40) |
| The Trials of Hypertension Prevention Collaborative Research Group, 199220; Erratum, 199221; Satterfield, 199122; Whelton, 199223; Whelton, 199724; He, 199925; Kumanyika, 199326; Whelton, 199427; Cook, 200728; Cook, 199829; Yamamoto, 199530; Cook, 201631Location: USSetting: CommunityDesign: Randomized, parallelStudy Name:The Trials of Hypertension Prevention, phase 1 (TOHP-1)Number of Sites: 10Study Years: 1987-1995 | Study of: AdultsN: 744Intervention 1:% Male: 70.9Mean Age/Range/Age at Baseline: mean 43.4 (SD 6.6)Race: 78Systolic BP: 124.8Diastolic BP: 83.7Magnesium: NRCalcium: NROther Minerals: NRMean BMI: weight, kg mean 82.7% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRIntervention 2:% Male: 69.7Mean Age/Range/Age at Baseline: mean 43.1 (SD 6.6)Race: 84Systolic BP: 122.6Diastolic BP: 81.1Magnesium: NRCalcium: NROther Minerals: NRMean BMI: weight, kg mean 83.6% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRIntervention 3:% Male: 74.7Mean Age/Range/Age at Baseline: mean 42.8 (SD 6.5)Race: white 88.8%Systolic BP: 120.7Diastolic BP: 80.8Magnesium: NRCalcium: NROther Minerals: NRMean BMI: weight, kg mean 81.6% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRComparator:% Male: 71.7Mean Age/Range/Age at Baseline: mean 42.6 (SD 6.5)Race: white 76.5%Systolic BP: 125.1Diastolic BP: 83.9Magnesium: NRCalcium: NROther Minerals: NRMean BMI: weight, kg mean 82.8% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRInclusion: Healthy adults, ages 30-54 with high normal DBP, not taking antihypertensive drugs for the prior 2 monthsExclusion: Clinical or lab evidence of cardiovascular or other disabling or life threatening diseases. Conditions that would contraindicate or require any of the interventions. Unwillingness or inability to comply with data collection or intervention procedures. | Intervention Type(s):Intervention 1: Dietary/lifestyle counseling (single or multiple sessions, including dietary advice) to reduce sodium intakeDescription: NRForm of Administration: Dietary Modification: Life-style interventions, provided by psychologists, nutritionists, or other experienced counselors, mostly group educational sessions, with some individual counselingDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRIntervention 2: Usual DietDescription: Participants asked not to change their usual dietForm of Administration: Other: placeboDose: PlaceboNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRIntervention 3: Use of potassium supplement to increase potassium levelsDescription: NRForm of Administration: NRDose: potassium chloride, 60 mmol/dayNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRComparator: Usual DietDescription: Participants asked not to change their usual dietForm of Administration: Usual dietDose: NRNa/K ratio: NRMagnesium: NRCalcium: NROther Minerals: NRDuration: Lifestyle intervention 18 months; Nutritional supplement 6 monthsExposure to Follow Up Time: NR | Sodium measure: Multiple 24-hour urine analysis with validation, 24-hour diet recallBest sodium measure recorded: 0, 3, 6, months, 12 and 18 months for lifestyle groupsSodium, Method of Validation: Multiple 24-hour urine analysis with validation, 24-hour "diet recall"Sodium Status Intervention 1: 99.4 mmol/24 hSodium Status Intervention 2: NRSodium Status Intervention 3: NRBest potassium measure recorded: 0, 3, 6, months, 12 and 18 months for lifestyle groupsPotassium Status Intervention 1: NR Potassium Status Intervention 2: Change from baseline -2.4 mmol/24 h Potassium Status Intervention 3: Change from baseline 37.4 mmol/24hHow was blood pressure measured? Collected at 0, 3, 6, months, 12 and 18 months for lifestyle groups. BP was measured with a Hawksley random-zero sphygmomanometer, after sitting at rest for 5 minutes . The average of three readings (first and fifth Korotkoffs sounds) were recorded at each visit. | Subgroup: WomenDiastolic BP-sittingFollow-Up Time: 6 monthsComparison: Intervention 1 vs ComparatorMD -1.63 (95% CI: -3.52 - 0.27)Systolic BP-sittingFollow-Up Time: 6 monthsComparison: Intervention 1 vs ComparatorMD -0.68 (95% CI: -3.20 - 1.84)Subgroup: MenDiastolic BP-sittingFollow-Up Time: 6 monthsComparison: Intervention 1 vs ComparatorMD -0.54 (95% CI: -1.56 - 0.48)Systolic BP-sittingFollow-Up Time: 6 monthsComparison: Intervention 1 vs ComparatorMD 0.07 (95% CI: -1.18 - 1.33) |
| Zhou, 201615; Zhou, 201316Location: ChinaSetting: CommunityDesign: Cluster RCT ParallelNumber of Sites: multipleStudy Years: unclear | Study of: Both adults and childrenN: 462Participants:% Male: NRMean Age/Range/Age at Baseline: NRRace: NRSystolic BP: NRDiastolic BP: NRMagnesium: NRCalcium: NROther Minerals: NRMean BMI: NR% with Hypertension: NR% with history of CVD: NR% with Type 2 diabetes: NR% with Kidney disease: NR% with history of Kidney stones: NRInclusion: Families were at least one member was a hypertension patient; the participant had an estimated daily sodium intake of \_260 mmol per day; Individuals were at least 18 years of age and had no significant renal impairment or other indication for a potassium-sparing medication.Exclusion: Moving | Intervention Type(s):Duration: NRExposure to Follow Up Time: NR |  | Subgroup: MaleDiastolic BP-sittingFollow-Up Time: 36 monthsComparison: Intervention 1 vs ComparatorMD -1.93 (95% CI: -2.03 - -1.83)Systolic BP-sittingFollow-Up Time: 36 monthsComparison: Intervention 1 vs ComparatorMD -6.48 (95% CI: -11.74 - -1.22)Subgroup: FemaleDiastolic BP-sittingFollow-Up Time: 36 monthsComparison: Intervention 1 vs ComparatorMD -3.83 (95% CI: -3.92 - -3.74)Systolic BP-sittingFollow-Up Time: 36 monthsComparison: Intervention 1 vs ComparatorMD -3.94 (95% CI: -6.85 - -1.03) |