



Table 4-B-IV-2 Overview Table: Cardiovascular Disease
Organized by dietary trial/dietary pattern

Citation Quality Rating Location	Study Design Duration Study / Cohort	Sample Size Age Gender Race / Ethnicity	Dietary Pattern Overview	Health Outcomes
DASH Trial				
Appel et al, 1997 Positive U.S.	Randomized controlled trial Eight weeks Dietary Approaches to Stop Hypertension (DASH) trial	Initial N=459 Final N=456 Mean: <i>DASH:</i> 44±10 years <i>FV diet:</i> 45±11 years <i>Control:</i> 44±11 years 49% Women 34% Non-minority 60% Black 6% Other minority	DASH Trial <i>Control diet:</i> Macronutrient profile and fiber content similar to typical American diet; potassium (K), magnesium (Mg) and calcium (Ca) levels were close to the 25th percentile of U.S. consumption. <i>Macronutrient distribution:</i> 50% CHO, 37% fat and 13% protein. <i>Fruits-and-vegetables (FV) diet:</i> Provided more fruits and vegetables (eight to 10 servings per day), and fewer snacks and sweets than the control diet; K and Mg were at levels close to the 75th percentile of U.S. consumption. <i>Macronutrient distribution:</i> 52% CHO, 37% fat and 11% protein. <i>Combination diet (DASH):</i> Rich in fruits and vegetables (eight to 10 servings per day), and low-fat dairy foods; there were reduced amounts of saturated fat, total fat and cholesterol; K, Mg, and Ca content was close to the 75th percentile of U.S. consumption, with high amounts of fiber and protein. <i>Macronutrient distribution:</i> 58% CHO, 27% fat and 15% protein. <i>Four calorie levels available:</i> Included 1,600kcal, 2,100kcal, 2,600kcal and 3,100kcal. A seven-day menu cycle with 21 meals was used. No more than three caffeinated or diet beverages and no more than two alcoholic beverages per day were allowed.	Combination vs. control diet: <ul style="list-style-type: none"> • SBP: -5.5mmHg (95% CI: -7.4 to -3.7; P<0.001) • DBP: -3.0mmHg (95% CI: -4.3 to -1.6; P<0.001) FV vs. control diet: <ul style="list-style-type: none"> • SBP: -2.8mmHg (95% CI: -4.7 to -0.9; P<0.001) • DBP: -1.1mmHg (95% CI: -2.4 to 0.3; P=0.07, NS) Combination vs. FV diet: <ul style="list-style-type: none"> • SBP: -2.7mmHg (95% CI: -4.6 to -0.9; P=0.001) • DBP: -1.9mmHg (95% CI: -3.3 to -0.6; P=0.002) BP results were achieved after two weeks on the combination and the FV diets, and sustained for six more weeks.
Conlin et al, 2000 Positive U.S.	Randomized controlled trial Eight weeks DASH trial	N=133 HTN participants <i>Attrition:</i> 6% control	DASH Trial As above	DASH vs. control diet: <ul style="list-style-type: none"> • SBP: -11.6mmHg (95% CI: -15.5 to -7.6; P<0.001) • DBP: -5.9mmHg (95% CI: -8.3 to -3.4; P<0.001) • HTN: RR=0.39 (95% CI: 0.23 to 0.65; P<0.001) FV vs. control diet:



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		4% FV 0% DASH Mean: 49.2±10.3 years 60% Women 65% Black		<ul style="list-style-type: none"> • SBP: -7.0mmHg (95% CI: -10.7 to -3.4; P<0.001) • DBP: -3.0mmHg (95% CI: -5.3 to -0.7; P<0.001) • HTN: RR=0.72 (95% CI: 0.52 to 0.97; P<0.001) <p>DASH diet produced significantly greater BP effects (P<0.05) than FV diet.</p> <p>70% subjects on DASH achieved normal BP after eight weeks, compared to 45% on FV and 23% on control diet.</p>
Moore et al, 1999 Positive U.S.	Randomized controlled trial Eight weeks DASH trial	Initial N=362 Final N=345 (5% attrition) Mean: 45.1±10.4 years 47% Women 62% Minority	DASH Trial As above	<p>DASH diet vs. control:</p> <ul style="list-style-type: none"> • SBP: -5.6 (95% CI: -7.5 to -3.7; P<0.05) • DBP: -2.4 (95% CI: -3.7 to -1.1; P<0.05) • 24-hour ASBP: -4.5 (95% CI: -6.2 to -2.8; P<0.05) • ADBP: -2.7 (95% CI: -4.0 to -1.4; P<0.05) <p>DASH diet: SBP and DBP fell significantly during 24 hours daytime and night in all participants combined.</p> <p>FV diet vs. control:</p> <ul style="list-style-type: none"> • SBP: -3.2 (95% CI: -5.1 to -1.4; P<0.05) • DBP: -0.8 (95% CI: -2.1 to 0.5; NS) • 24-hour ASBP: -3.1 (95% CI: -4.8 to -1.4; P<0.05) • ADBP: -2.0 (95% CI: -3.3 to -0.8; P<0.05) <p>Subgroup analysis: NS men vs. women, minorities vs. non-minorities, or younger vs. older.</p> <p>HTN subjects had greater SBP and DBP decrease than normotensives during day, night and 24-hour recordings (P<0.05).</p>
Obarzanek et al, 2001 Positive	Randomized controlled trial Eight weeks	Initial N=459 Final N=436 5% attrition	DASH Trial As above	<p>FV diet vs control:</p> <ul style="list-style-type: none"> • Total C: -3.75mg per dL (95% CI: -8.9 to 1.4; NS) • LDL-C: -1.9mg per dL (95% CI: -6.6 to 2.7; NS) • HDL-C: -0.2mg per dL (95% CI: -1.6 to 1.2; NS) • TG: -8.2mg per dL (95% CI: -16.5 to 0.2; NS)



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U.S.	DASH trial	Mean: 44.6±10.7 years 49% Women 60% Black 34% White 6% Other		<ul style="list-style-type: none"> • TC:HDL: -0.14 (95% CI: -0.29 to 0.02; NS) • LDL:HDL: -0.10 (95% CI: -0.23 to 0.04; NS) <p>Subgroup analysis:</p> <ul style="list-style-type: none"> • LDL:HDL: Decreased in men (P<0.05) • TC:HD: Decreased in both men and non-African Americans (P<0.05) • TG: Decreases in subjects with higher baseline TG (P<0.05)
Saneei et al, 2013 Positive Iran	Randomized controlled trial Six weeks DASH trial (modified)	Initial N=60 Final N=49 18% attrition 11 years to 18 years Mean: 14.2±1.7 years Post-pubescent adolescent girls 100% Girls 100% Iranian	<p>Modified DASH Trial</p> <p><i>Control diet (UDA/typical Iranian diet):</i></p> <ul style="list-style-type: none"> • CHO: 50% to 60% • Protein: 15% to 20% • Fat: <30% • Dietary fiber: 14g per day • SFA: 24g per day <p>Ca, dairy product, nut and legume contents of this diet were lower than the DASH diet.</p> <p>Dietician gave general oral advice and written information about healthy food choices based on the healthy MyPlate.</p> <p><i>DASH diet (modified for adolescents):</i></p> <ul style="list-style-type: none"> • CHO: 53% to 58%; • Protein: 15% to 18%; • Fat: 26% to 30% <p>High amounts of whole grains, fruits, vegetables and low-fat dairy products, as well as low amounts of saturated fats, cholesterol, refined grains, sweets and red meat. Ca, K, and Mg contents of the DASH diet were higher than UDA. Contained <2,400mg of Na per day. Diet was modified to conform to nutritional needs of adolescents. All diets were</p>	<p>DASH diet compared to UDA (control) diet:</p> <ul style="list-style-type: none"> • Change in SBP: P=0.13; NS • Change in DBP: P=0.01 <p>DASH diet compared to UDA (control) diet:</p> <ul style="list-style-type: none"> • TG: P=0.90; NS • Total cholesterol: P=0.31; NS • HDL-C: P=0.31; NS • LDL-C: P=0.32; NS



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			designed to maintain participants' weight.	
DASH-Sodium Trial				
Sacks et al, 2001 Positive U.S.	Randomized controlled trial 30-day DASH-Sodium trial	Initial N=412 Final N=390 <i>DASH diet:</i> 5% attrition <i>Control diet:</i> 6% attrition Intent to treat analysis Mean: <i>DASH:</i> 47±10 years <i>Control:</i> 49±10 years ~ 55% Women 56% Black 40% Non-Hispanic White 4% Asian	DASH-Sodium Trial <i>Control diet:</i> Typical American diet was a diet with potassium (K), magnesium (Mg), and calcium (Ca) at ~ 25th percentile of U.S. consumption, and macronutrient and fiber at average U.S. consumption. <i>DASH diet:</i> Combination diet, high in fruits and vegetables and low-fat dairy foods with reduced total fat, SFA and cholesterol; K, Mg, and Ca ~ 75th percentile of U.S. consumption; and high amounts of fiber and protein.	DASH vs. control diet: <ul style="list-style-type: none"> • <i>SBP, high sodium:</i> -5.9mmHg (95 % CI: -8.0 to -3.7; P<0.001) • <i>SBP, intermed. sodium:</i> -5.0mmHg (95 % CI: -7.6 to -2.5; P<0.001) • <i>SBP, low sodium:</i> -2.2mmHg (95 % CI: -4.4 to -0.1; P<0.05) • <i>DBP, high sodium:</i> -2.9mmHg (95 % CI: -4.3 to -1.5; P<0.001) • <i>DBP, intermed. sodium:</i> -2.5mmHg (95 % CI: -4.1 to -0.8; P<0.01) • <i>DBP, low sodium:</i> -1.0 mmHg (95 % CI: -2.5 to 0.4; NS) Control diet, comparing high to low sodium: <ul style="list-style-type: none"> • <i>SBP:</i> -6.7mmHg (95 % CI: -5.4 to -8.0; P<0.001) • <i>DBP:</i> -3.5mmHg (95 % CI: -2.6 to -4.3; P<0.001) DASH diet, comparing high to low sodium: <ul style="list-style-type: none"> • <i>SBP:</i> -3.0mmHg (95 % CI: -1.7 to -4.3; P<0.001) • <i>DBP:</i> -1.6mmHg (95 % CI: -0.8 to -2.5; P<0.001) Control diet/high sodium compared to DASH diet, low sodium: <ul style="list-style-type: none"> • <i>SBP:</i> -8.9mmHg (95 % CI: -6.7 to -11.1, P<0.001) • <i>DBP:</i> -4.5mmHg (95 % CI: -3.1 to -5.9, P<0.001) <p>Sodium effect was greater in HTN participants (P=0.01 control diet; P=0.003 DASH diet), in Blacks on control diet than other races (P=0.007), and in women on DASH than in men (P=0.04).</p> <p>The combination of the two dietary interventions lowered SBP more in participants with HTN than in those without HTN (P=0.004), and more in women than in men (P=0.02).</p>
Svetkey et al, 2004 Positive	Randomized controlled trial 30-days	Initial N=412 Final N=390 5% attrition	DASH-Sodium Trial As above	HTN subjects BP Control (30-day): <ul style="list-style-type: none"> • <i>Control:</i> 32% (NS), 51% (P <0.01) and 74% (P<0.01) at high, intermed and



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U.S.	DASH-Sodium trial	<p>Mean: ~ 50 years</p> <p>~ 60% Women</p> <p>60% Black ~ 37% Non-Hispanic White ~ 3% Other</p>		<p>low sodium</p> <ul style="list-style-type: none"> DASH: 63% (P<0.01), 65% (P<0.01) and 84% (P<0.01) DASH vs. Control diet: High sodium in DASH diet, increased BP control two times (95% CI: 1.4 to 2.9); at intermediate sodium, increased BP control two times (95% CI: 1.4 to 3.0); at low sodium, increased BP control 2.6 times (95% CI: 1.9 to 3.7) <p>Maximum BP control rate (84%) was achieved with the DASH-lower sodium diet.</p> <p>DASH vs. Control diet:</p> <ul style="list-style-type: none"> SBP: High sodium = -6.8mmHg (P<0.0001), intermed sodium = -6.2mmHg (P<0.0001) and low sodium = -3.0mmHg (P<0.05) <p>ISH subjects, comparing DASH to control diet:</p> <ul style="list-style-type: none"> SBP: High sodium = -4.4mmHg (P<0.0001), intermed sodium = -6.3mmHg (P<0.0001), and low sodium = -4.3mmHg (P<0.05) <p>High-normal BP subjects, DASH vs control diet:</p> <ul style="list-style-type: none"> SBP: High sodium = -4.5mmHg (P<0.0001), intermed sodium = -3.5mmHg (P<0.0001), and low sodium = -0.7mmHg (NS)
Omni Heart Trial				
<p>Appel et al, 2005</p> <p>Positive</p> <p>U.S.</p>	<p>Randomized controlled trial</p> <p>Six weeks</p> <p>OMNI-Heart (Optimal Macronutrient Intake Trial to Prevent Heart Disease)</p>	<p>Initial N=191 Final N=164</p> <p>14% attrition</p> <p>Mean: 53.6±10.9 years</p> <p>73% Women</p> <p>55% Black 40% White 5% Other</p>	<p>OmniHeart Trial with DASH</p> <p>Three healthful diets that model the principles of the DASH dietary pattern. Each study diet differed in the amount of CHO, protein and unsaturated fat while keeping the calorie levels the same. Each diet was reduced in saturated fat, cholesterol and sodium, and rich in fruits, vegetables, fiber, K and other minerals at recommended levels.</p> <ul style="list-style-type: none"> Carb diet (similar to DASH): CHO, 58%; Fat, 27% (6% SFA); Protein, 15% Protein diet: CHO, 48%; Fat, 27% (6% SFA); Protein, 25% 	<p>CHD risk, estimated using Framingham equation.</p> <p>Compared with baseline, 10-year CHD risk was lower for each diet:</p> <ul style="list-style-type: none"> 16.1% (Carb) 21.0% (Protein) 19.6% (Unsat Fat) <ul style="list-style-type: none"> Protein vs. Carb diet: Drop in 10-year CHD risk by 5.8% Unsat fat vs. Carb: Drop in 10-year CHD risk by 4.2% <p>Resting BP (post-treatment vs. pretreatment):</p> <ul style="list-style-type: none"> Carb: SBP=-8.2mmHg (95% CI: -9.6 to -6.8); DBP=-4.1mmHg (95% CI: -5.0 to -3.3)



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			<ul style="list-style-type: none"> Unsaturated Fat diet: CHO, 48%; Fat, 37% (21% MUFA, 10% PUFA); Protein, 15% 	<ul style="list-style-type: none"> Protein: SBP=-9.5mmHg (95% CI: -10.9 to - 8.2); DBP=-5.2mmHg (95% CI: -6.1 to - 4.4) Unsat Fat: SBP=-9.3mmHg (95% CI: -10.6 to -8.0); DBP=-4.8mmHg (95% CI: -5.6 to - 4.0) Protein vs. Carb diet: Lowered SBP (P=0.002) and DBP (P<0.001) in all participants Unsat Fat vs. Carb diet: Lowered SBP (P=0.005) and DBP (P=0.02) in all participants Protein vs. Carb diet: Lowered SBP (P=0.006) and DBP (P=0.008) in hypertensives Unsat Fat vs. Carb diet: Lowered SBP (P=0.02) and DBP (P=0.02) in hypertensives For the 32 hypertensives, 38% remained hypertensive on the Carb, 22% on the Protein, and 19% on the Unsat Fat diets Protein vs. Carb diet: Decreased Total-C (P<0.001), LDL-C (P=0.01), HDL-C (P=0.02) and TG (P<0.01) in all participants Unsat Fat vs. Carb diet: Increased HDL-C (P=0.03) in all participants Decreased total-C (P=0.04) and TG (P=0.02) in all participants Protein vs. Unsat fat diet: Decreased Total-C (P<0.001), HDL-C (P<0.001), and TG (P=0.03) in all participants
PREMIER Trial				
Lien et al, 2007 Positive U.S.	Randomized controlled trial Six months PREMIER (Lifestyle Interventions for Blood Pressure Control trial)	Initial N=810 Final N=796 1.7% attrition No metabolic syndrome Mean: 49.9±9.0 years 65% Women 39% Black	PREMIER Trial With DASH <i>Control group: Advice only</i> Both the EST and EST+DASH interventions included weight loss of 15 lb. (6.8kg) or more for those with a BMI ≥25; 180 minutes per week or more of moderate-intensity physical activity; 100mmol per day or less of dietary sodium; and 1 oz. per day or less of alcohol (men) or 0.5 oz. per day (women). EST+DASH followed DASH dietary pattern, consuming nine to 12 servings of fruits and vegetables and two to three servings of low-fat dairy products daily and limiting total and SAF to	MetSyn EST vs. Control: <ul style="list-style-type: none"> SBP: -1.58mmHg (95% CI: -3.78 to 0.63; P<0.05 MetSyn vs. no MetSyn) DBP: -0.9mmHg (95% CI: -2.54 to 0.55; NS) EST + DASH vs. Control: <ul style="list-style-type: none"> SBP: -3.01mmHg (95% CI: -5.26 to -0.76; P<0.025) DBP: -1.55mmHg (95% CI: -3.12 to 0.02; P<0.05) No MetSyn



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		<p><i>Metabolic syndrome</i></p> <p>Mean: 49.7±8.6 years</p> <p>58% Women</p> <p>30% Black</p>	25% or less and < 7% of total calories, respectively.	<p>EST vs. Control:</p> <ul style="list-style-type: none"> SBP: -5.80mmHg (95% CI: -8.04 to -3.56; P<0.025) (treatment groups, P<0.05 MetSyn vs. no MetSyn) DBP: -2.37mmHg (95% CI: -3.98 to -0.80; P<0.025) <p>EST + DASH vs. Control:</p> <ul style="list-style-type: none"> SBP: -4.97mmHg (95% CI: -7.15 to -2.80; P<0.025) DBP: -3.18mmHg (95% CI: -4.70 to -1.67; P<0.025) <p>MetSyn</p> <p>EST vs. Control:</p> <ul style="list-style-type: none"> Total-C: -7.98mg per dL (95% CI: -13.61 to -2.35; P<0.025) LDL-C: -4.63mg per dL (95% CI: -9.69 to 0.43; NS) HDL-C: 0.67mg per dL (95% CI: -0.82 to 2.16; NS) TG (LN): -0.16mg per dL (95% CI: -0.25 to -0.07; P<0.025) <p>EST + DASH vs. Control:</p> <ul style="list-style-type: none"> Total-C: -5.91mg per dL (95% CI: -11.67 to -0.15; P<0.05) LDL-C: -3.41mg per dL (95% CI: -8.63 to 1.82; NS) HDL-C: 0.09mg per dL (95% CI: -1.44 to 1.61; NS) TG (LN): -0.08mg per dL (95% CI: -0.17 to 0.02; NS) <p>No MetSyn</p> <p>EST vs. Control:</p> <ul style="list-style-type: none"> Total-C: -7.41mg per dL (95% CI: -13.06 to -1.76; P<0.025) LDL-C: -6.89mg per dL (95% CI: -11.84 to -1.95; P<0.025) HDL-C: 1.42mg per dL (95% CI: -0.07 to 2.92; NS) TG (LN): -0.10mg per dL (95% CI: -0.19 to -0.01; P<0.025) <p>EST + DASH vs. Control:</p>



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				<ul style="list-style-type: none"> Total-C: -7.06mg per dL (95% CI: -12.51 to -1.62; P<0.025) LDL-C: -5.13mg per dL (95% CI: -9.91 to -0.34; P<0.05) HDL-C: -0.63mg per dL (95% CI: -2.07 to 0.81; NS) TG (LN): -0.05mg per dL (95% CI: -0.14 to 0.04; NS)
ENCORE Trial				
Blumenthal et al, 2010	Randomized controlled trial	Initial N=144 Final N=140	ENCORE Trial With DASH	Clinic-measured BP (reduction, post-treatment vs. pre-treatment)
Positive	Four months	3% attrition	<i>Control diet (UC):</i> Participants maintained their usual diet and exercise habits; 34% E from fat, 15% from protein; K, Mg, Ca and fiber levels ~ 25th percentile of U.S. consumption.	DASH-WM: <ul style="list-style-type: none"> SBP: 16.1mmHg (95% CI: 13.0 to 19.2) DBP: 9.9mmHg (95% CI: 8.1 to 11.6)
U.S.	ENCORE (Exercise and Nutrition Interventions for Cardiovascular Health)	Mean: 52±10 years 67.4% Women 60% White 39% Black 1% Asian	<i>DASH diet:</i> Rich in fruits and vegetables (eight to 10 servings per day), and low-fat dairy foods; reduced amounts of saturated fat, total fat and cholesterol; K, Mg, Ca content at ~ 75th percentile of U.S. consumption, high amounts of fiber and protein; 27% E from fat, and 18% E from protein. Sodium content of 2,400mg per 2,000kcal. <i>DASH diet alone (DASH-A):</i> Subjects received instruction to meet DASH guidelines, were told not to exercise or attempt to lose weight; met weekly in a small group for coaching on diet. <i>DASH plus Weight Management (DASH-WM):</i> Subjects received instruction on the DASH diet with a 500kcal deficit, attended a weekly cognitive-behavioral weight loss intervention and participated in supervised exercise three times per week.	DASH-A: <ul style="list-style-type: none"> SBP: 11.2mmHg (95% CI: 8.1 to 14.3) DBP: 7.5mmHg (95% CI: 5.8 to 9.3) UC diet: <ul style="list-style-type: none"> SBP: 3.4mmHg (95% CI: 0.4 to 6.4) DBP: 3.8mmHg (95% CI: 2.2 to 5.5) <i>DASH-WM + DASH-A vs. UC:</i> Lowered SBP and DBP (P<0.001) <i>DASH-WM vs. DASH-A:</i> Lowered SBP (P<0.02) and DBP (P=0.048) ABP (reduction, post-treatment vs. pretreatment) DASH-WM: <ul style="list-style-type: none"> SBP: 10.2mmHg (95% CI: 6.8 to 13.6) DBP: 5.4mmHg (95% CI: 3.4 to 7.4) DASH-A: <ul style="list-style-type: none"> SBP: = 5.3mmHg (95% CI: 2.0 to 8.6) DBP: = 2.9mmHg (95% CI: 1.0 to 4.9) UC diet:



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				<ul style="list-style-type: none"> • SBP: .2mmHg (95% CI: -3.4 to 7.4) • DBP: 0.003mmHg (95% CI: -1.8 to 1.9) <p>DASH-WM + DASH-A vs UC: Lowered ASBP and ADBP (P<0.001)</p> <p>DASH-WM vs DASH-A: Lowered ASBP (P<0.01) and ADBP (P=0.03)</p> <p>HTN post-treatment: 38.8% UC group participants were hypertensive, compared with 12.2% in DASH-WM and 7 15.2% in DASH-A.</p>
Blumenthal, Babyak, Sherwood et al, 2010 Positive U.S.	Randomized controlled trial Four months ENCORE (Exercise and Nutrition Interventions for Cardiovascular Health)	Initial N=144 Final N=138 4% attrition Mean: 52±10 years 67% Women 60% White 39% Black 1% Asian	ENCORE Trial With DASH As above	<p>DASH-WM vs. DASH-A:</p> <ul style="list-style-type: none"> • Total-C: P=0.008 • LDL-C: P=0.054, NS • HDL-C: P=0.115, NS • TG: P<0.001 <p>DASH-WM vs. UC:</p> <ul style="list-style-type: none"> • Total-C: P<0.001 • LDL-C: P=0.005 • HDL-C: P=0.911; NS • TG: P<0.001 <p>DASH-A vs. UC:</p> <ul style="list-style-type: none"> • Total-C: P=0.364, NS • LDL-C: P=0.715, NS • HDL-C: P=0.047 • TG: P=0.900, NS
Vegetarian				
Burr and Butland, 1988 Neutral U.K.	Prospective cohort study 10 years to 12 years	N=10,896 More than 10 years of age at date of entry 60% Women	Vegetarian Pattern Participants were asked if they were vegetarian. ~ 43% of vegetarians identified themselves as lacto-ovo-vegetarians.	<p>Comparing vegetarians to non-vegetarians:</p> <p><i>Ischemic heart disease:</i></p> <ul style="list-style-type: none"> • Standardized Mortality (SMR) was 42.8 for vegetarians • Standardized Mortality (SMR) was 60.1 for non-vegetarians (P<0.01)



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	Cohort not identified	Not reported	Vegetarian pattern was not defined further, other than participants did not consume "meat" (also undefined).	Effect was seen in both men and women, but greater in men (significance not indicated). There was NS difference between vegetarians and non-vegetarians in cerebrovascular deaths.
Chang-Claude et al, 2005 Neutral Germany	Prospective cohort study 21 years German Vegetarian study	N=1,724 31% at 34 years or less 30% 54 years or less 29% 55 years or older 10% 75 years or older 55% Women Not reported	Vegetarian Pattern Vegan (no meat, fish, eggs, and dairy) and lacto-ovo-vegetarian (no meat and fish, but ate eggs and dairy). Non-vegetarian (occasionally or regularly ate meat and fish).	Comparing vegetarians to health conscious non-vegetarians: <ul style="list-style-type: none"> • Mortality from circulatory diseases: RR=0.83 (95% CI: 0.62 to 1.12; NS) • Mortality from ischemic heart disease: RR=0.70 (95% CI: 0.41 to 1.18; NS)
Crowe et al, 2013 Positive U.K.	Prospective cohort study 11.6 years European Prospective Investigation into Cancer and Nutrition (EPIC)-Oxford study	Initial N=57,446 Final N=44,561 (IHD analysis) Final N=1,546 (non-cases for blood lipids) Final N=1,519 (non-cases for BP) Non-vegetarian <i>Men:</i> 49±13.3 years <i>Women:</i> 46.3±13.2 years Vegetarian <i>Men:</i> 41.8±13.3 years <i>Women:</i> 38.4±12.7	Vegetarian Pattern FFQ used estimated the intake of 130 different food items over the past 12 months. Participants were asked if they ate any meat, fish, eggs or dairy products and were categorized for this analysis as vegetarians if they did not eat meat and fish.	IHD: 1,235 cases of IHD Angina pectoris (N=332; 27%), acute MI (N=261; 21%), chronic IHD (N=619; 50%) IHD, comparing vegetarians to non-vegetarians: <ul style="list-style-type: none"> • HR=0.68 (95% CI: 0.58 to 0.81); P<0.001 SBP, comparing vegetarians to non-vegetarians: <ul style="list-style-type: none"> • SBP: Decrease of -3.3mmHg (95% CI: 0.7 to 5.9) • DBP: NS Non-HDL cholesterol, comparing vegetarians to non-vegetarians: <ul style="list-style-type: none"> • Non-HDL-C: Decrease of 0.45mmol per L (95% CI: 0.30 to 0.60)



Table 4-B-IV-2 Overview Table: Cardiovascular Disease
Organized by dietary trial/dietary pattern

Citation Quality Rating Location	Study Design Duration Study / Cohort	Sample Size Age Gender Race / Ethnicity	Dietary Pattern Overview	Health Outcomes
		years 76.2% Women Not Reported		
Key et al, 1996 Neutral U.K.	Prospective cohort study 16.8 years Cohort not identified; includes Seventh Day Adventists	N=10,771 Mean: Men: 45.7±17.7 years Women: 45.9±18.3 years ~ 60% Women Not reported	Vegetarian Pattern Subjects were asked if they were vegetarian, but it was not described further. Dietary variables were dichotomized as vegetarian or non-vegetarian, or daily vs. less than daily intake of whole meal bread, bran cereals, nuts or dried fruit, fresh fruit and raw vegetable salads as individual components.	Comparing vegetarians to non-vegetarians: <ul style="list-style-type: none"> • Ischemic heart disease: Mortality ratio, 0.85 (95% CI: 0.68 to 1.06; NS) • Cerebrovascular disease: Mortality ratio, 0.96 (95% CI: 0.69 to 1.34; NS)
Key et al, 1999 Neutral U.S., U.K., Germany	Prospective cohort study 5.6 years to 18.4 years (mean age: 10.6 years) Five studies: Adventist Mortality, Health Food Shoppers, Adventist Health, Heidelberg, and Oxford Vegetarian	N=76,172 16 years to 89 years 60% Women Not reported	Vegetarian Pattern In the Health Food Shoppers Study, vegetarians were people who replied "yes" to the question "Are you a vegetarian?", whereas in the four other studies, vegetarians were defined as people who reported that they did not eat any meat or fish; all others were defined as non-vegetarians.	Comparing vegetarians to non-vegetarians: <ul style="list-style-type: none"> • Ischemic heart disease (IHD), death rate ratio: 0.76 (95% CI: 0.62 to 0.94; P < 0.01) • Cerebrovascular disease, death rate ratio: 0.93 (95% CI: 0.74 to 1.17; NS) • IHD for men, death rate ratio: 0.69 (95% CI: 0.56 to 0.84) • IHD for women, death rate ratio: 0.80 (95% CI: 0.67 to 0.95) • Cerebrovascular disease for men, death rate ratio: 0.77 (95% CI: 0.57 to 1.02; NS) • Cerebrovascular disease for women, death rate ratio: 0.98 (95% CI: 0.80 to 1.20; NS)
Orlich et al, 2013 Positive	Prospective cohort study Positive	Initial N=96,469 Final N=73,308 Mean:	Vegetarian Pattern Vegan: Eggs and dairy, fish and all other meats less than one time/month	Cause-specific mortality: 2,932 deaths among 73,308 participants: <ul style="list-style-type: none"> • Ischemic heart disease: N=372 • Cardiovascular disease: N=987



Table 4-B-IV-2 Overview Table: Cardiovascular Disease
Organized by dietary trial/dietary pattern

Citation Quality Rating Location	Study Design Duration Study / Cohort	Sample Size Age Gender Race / Ethnicity	Dietary Pattern Overview	Health Outcomes
U.S.	Adventist Health Study Two	<ul style="list-style-type: none"> <i>Vegan</i>: 57.9±13.6 years <i>Lacto-Ovo</i>: 57.5±13.9 years <i>Pesco</i>: 58.8±13.7 years <i>Semi</i>: 57.8±14.1 years <i>Non-vegetarian</i>: 55.9±13.1 years <p>~ 66% Women</p> <p><i>All</i>:</p> <ul style="list-style-type: none"> <i>Vegan</i>: 63.8% <i>Lacto-Ovo</i>: 64.9% <i>Pesco</i>: 68.0% <i>Semi</i>: 69.7% <i>Non-vegetarian</i>: 65.3% <p><i>Black</i>:</p> <ul style="list-style-type: none"> <i>Vegan</i>: 21.0% <i>Lacto-Ovo</i>: 13.6% <i>Pesco</i>: 39.1% <i>Semi</i>: 17.8% <i>Non-vegetarian</i>: 34.0% 	<p><i>Lacto-ovo</i>: Eggs and dairy one time per month or more, but fish and all other meats less than one time per month</p> <p><i>Pesco</i>: Fish one time per month or more, but all other meats less than one time per month</p> <p><i>Semi</i>: Non-fish meats one time per month or more and all meats combined (fish included) one time per month or more, but no more than one time per week</p> <p><i>Non-vegetarians</i>: Non-fish meats one time per month or more and all meats combined (fish included) more than one time per week</p>	<p>Comparing all vegetarians combined to non-vegetarians:</p> <p><i>IHD</i>:</p> <ul style="list-style-type: none"> <i>All</i>: HR=0.81 (95% CI: 0.64 to 1.02); NS <i>Men</i>: HR=0.71 (95% CI: 0.51 to 1.00) <i>Women</i>: HR = 0.88 (95% CI: 0.65 to 1.20); NS <p><i>CVD</i>:</p> <ul style="list-style-type: none"> <i>All</i>: HR=0.87 (95% CI: 0.75 to 1.01); NS <i>Men</i>: HR=0.71 (95% CI: 0.57 to 0.90) <i>Women</i>: HR=0.88 (95% CI: 0.65 to 1.20); NS <p>Comparing pesco-vegetarians to non-vegetarians:</p> <p><i>IHD</i>:</p> <ul style="list-style-type: none"> <i>All</i>: HR=0.65 (95% CI: 0.43 to 0.97) <i>Women</i>: HR=0.51 (95% CI: 0.26 to 0.99) <i>Men</i>: NS <p><i>CVD</i>:</p> <ul style="list-style-type: none"> <i>All</i>: NS <i>Men</i>: HR=0.66 (95% CI: 0.44 to 0.98) <i>Women</i>: NS <p>Comparing lacto-ovo vegetarians to non-vegetarians:</p> <p><i>CVD</i>:</p> <ul style="list-style-type: none"> <i>All</i>: NS <i>Men</i>: HR=0.77 (95% CI: 0.59 to 0.99) <i>Women</i>: NS <p>Comparing vegans to non-vegetarians:</p> <p><i>IHD</i>:</p>



Table 4-B-IV-2 Overview Table: Cardiovascular Disease
Organized by dietary trial/dietary pattern

Citation Quality Rating Location	Study Design Duration Study / Cohort	Sample Size Age Gender Race / Ethnicity	Dietary Pattern Overview	Health Outcomes
				<ul style="list-style-type: none"> All: NS Men: HR=0.45 (95% CI: 0.21 to 0.94) Women: NS <p>CVD:</p> <ul style="list-style-type: none"> All: NS Men: HR=0.58 (95% CI: 0.38 to 0.59) Women: NS <p>Comparing vegetarians to non-vegetarians:</p> <p>Stroke:</p> <ul style="list-style-type: none"> All: HR=1.10 (95% CI: 0.82 to 1.47); NS Men: HR=0.83 (95% CI: 0.52 to 1.31); NS Women: HR=1.27 (95% CI: 0.89 to 1.80); NS
Margetts et al, 1985 Neutral Australia	Randomized controlled trial 14 weeks Cohort not identified	Initial N=60 Final N=58 3% attrition Mean: 49.1±9.6 years 28% Women Not reported	Ovo-lacto Vegetarian Pattern <i>Dietary goals:</i> Avoid all meat fish, and poultry; eat only whole grain cereal when possible; double fruit intake; increase vegetable consumption; replace all butter, cooking fats and oils with only PUFA vegetable margarine/oils; maintain intake of cheese, eggs, salt and total calories at pre-study levels.	<p>OLV vs. usual control diet:</p> <ul style="list-style-type: none"> SPB: ~ -5mmHg (P<0.05) DBP: NS <p>Subjects with pre-study SBP higher than 160mm Hg:</p> <ul style="list-style-type: none"> SBP: -12.3mmHg (OLV diet) SBP: -8.5mmHg (control diet) <p>Subjects with pre-study SBP higher than 140mm Hg:</p> <ul style="list-style-type: none"> 30% SBP dropped lower than 140mm Hg (OLV diet) 8% SBP dropped lower than 140mm Hg (control diet)
WHI-DM Trial				
Howard et al, 2006 Positive U.S.	Randomized controlled trial 8.1 years (Three years for blood pressure and	Initial N=48,835 Final N=44,351 Intent to treat analysis 50 years to 69 years Mean age: 62 years	Low-fat Dietary Pattern <i>Dietary goals:</i> Reduce total dietary fat to 20% and increase intake of vegetables and fruit to five or more servings and grains (whole grains encouraged) to six or more servings daily; intervention did not encourage weight loss or caloric	<p>Intervention compared to control group:</p> <ul style="list-style-type: none"> CVD: HR=0.98 (95% CI: 0.92 to 1.5; NS) CHD: HR=0.97 (95% CI: 0.90 to 1.5; NS) <p>Intervention group that reached the lowest SFA* (<6.1%E) compared to control:</p>



Table 4-B-IV-2 Overview Table: Cardiovascular Disease
Organized by dietary trial/dietary pattern

Citation Quality Rating Location	Study Design Duration Study / Cohort	Sample Size Age Gender Race / Ethnicity	Dietary Pattern Overview	Health Outcomes
	blood lipids) Women's Health Initiative (WHI) Dietary Modification (DM) trial	100% Women (Post-menopausal) <i>White:</i> ~ 81% <i>Black:</i> ~ 11% <i>Hispanic:</i> ~ 4% <i>Other:</i> ~4%	reduction.	<ul style="list-style-type: none"> • <i>CHD:</i> HR=0.81 (95% CI: 0.69 to 0.96; $P_{\text{trend}} < 0.001$) <p>Intervention group that reached the lowest trans fat* (<1.1%E) compared to control:</p> <ul style="list-style-type: none"> • <i>CHD:</i> HR=0.81 (95% CI: 0.69 to 0.95; $P_{\text{trend}} < 0.001$) <p>Intervention group that reached highest intakes of vegetables and fruits* (6.5 or more servings per day) compared to control:</p> <ul style="list-style-type: none"> • <i>CHD:</i> HR=0.88 (95% CI: 0.76 to 1.03, $P_{\text{trend}} < 0.001$) <p>*Individuals stratified by quartiles of achieved levels of key nutrients at Year One.</p> <p>Intervention compared to control group:</p> <ul style="list-style-type: none"> • <i>Stroke:</i> HR=1.02 (95% CI: 0.90 to 1.15; NS) <p>Intervention vs. control group:</p> <ul style="list-style-type: none"> • <i>SBP:</i> Mean difference = -0.17mmHg (95% CI: -0.49 to 0.15; NS) • <i>DBP:</i> Mean difference = -0.31mmHg (95% CI: -0.50 to -0.13; $P < 0.001$) <p>Intervention vs. control group:</p> <ul style="list-style-type: none"> • <i>Total cholesterol:</i> Mean difference = -3.26mg per dL (95% CI: -6.53 to 0.00; $P < 0.05$) • <i>LDL-C:</i> Mean difference = -3.55mg per dL (95% CI: -6.58 to -0.52; $P < 0.05$) • <i>HDL-C:</i> Mean difference = 0.43mg per dL (95% CI: -1.42 to 0.57; NS) • <i>Total/HDL-C:</i> Mean difference = -0.04 (95% CI: -0.13 to -0.5; NS) • <i>TG:</i> Mean difference = 0.00mg per dL (95% CI: -0.03 to 0.04; NS)
NORDIET Trial				
Adamsson et al, 2011	Randomized controlled trial	Initial N=88 Final N=86	Nordic Pattern	ND vs. control diet:
Positive	Six weeks	2% attrition	<i>Dietary goals:</i> Consume Nordic Diet (ND) based on Nordic nutrition recommendations. ND rich in high-fiber plant foods from fruits, berries, vegetables, whole grains (oats and barley), rapeseed oil, nuts, fatty fish and low-fat dairy products, but low in salt, added sugars and saturated fats. Contains some	<ul style="list-style-type: none"> • <i>SBP:</i> -6.55±13.18mmHg ($P=0.008$); NS when adjusted for weight change over six weeks. • <i>DBP:</i> NS
Sweden	NORDIET (Nordic diet)	<i>Mean:</i> ~53 years		ND vs. control:
				<ul style="list-style-type: none"> • <i>Total-C:</i> -0.98±0.75mmol per L ($P < 0.0001$)



Table 4-B-IV-2 Overview Table: Cardiovascular Disease
Organized by dietary trial/dietary pattern

Citation Quality Rating Location	Study Design Duration Study / Cohort	Sample Size Age Gender Race / Ethnicity	Dietary Pattern Overview	Health Outcomes
		-63% Women Not reported	poultry, red meat, fish and low-fat milk. <i>Macronutrient distribution:</i> Totals of 27%, 52%, 19% and 2% of energy from fat, CHO, protein and alcohol, respectively.	<ul style="list-style-type: none"> • <i>LDL-C</i>: -0.98 ± 0.67 mmol per L ($P < 0.001$) • <i>HDL-C</i>: -0.08 ± 0.23 mmol per L ($P < 0.001$) • <i>LDL/HDL</i>: -0.42 ± -0.57 ($P = 0.003$) <p>Difference between groups in LDL-C ($P < 0.001$) and total-C, HDL-C and LDL/HDL (all $P < 0.05$) remained after adjusting for weight change.</p>