Table 4-A-IV-2. Overview Table: Body Weight Status

Citation, Quality Rating, Study Design, Location, Duration, Study / Cohort	Sample Size Age Gender	Dietary Pattern Overview	Results: Body Weight, Body Mass Index, Waist Circumference, Percent Body Fat, Incidence of Overweight/Obesity
Howard et al, 2006 **Positive** **Randomized Controlled Trial** **United States** **7.5 years** **Women's Health Initiative (WHI) Dietary Modification (DM) Trial**	N=46,808 62.3 years 100% Female (post-menopausal)	**Low-fat Dietary Pattern** *Dietary goals:* 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 reduction.	**Body Weight** • Intervention group lost weight in the first year (mean of 2.2kg, P<0.001) and maintained lower weight than control women during an average 7.5 years of follow-up (difference at one year was 1.9kg, P<0.001; at 7.5 years was 0.4kg, P=0.01). • No tendency toward weight gain was observed in intervention group women overall or when stratified by age, ethnicity or BMI. • Weight loss was greatest among women in either group who decreased their percentage of energy from fat (P_{trend}<0.001 in both groups in models adjusting for baseline energy intake). A similar but lesser trend was observed with increases in vegetable and fruit servings (P_{trend}=0.005 and 0.02 for intervention and control, respectively, in models adjusting for baseline energy intake), and an NS trend toward weight loss occurred with increasing intake of fiber. **BMI:** Increases occurred in both groups, but were less in the intervention group. *Change in BMI, kg/m^2:* Intervention was 0.03 (3.2); Control = 0.3 (3.1); P<0.001 **WC:** Slight increases occurred in both groups, but less in the intervention group. *Change in WC, cm:* Intervention was 1.6 (8.6); Control = 1.9 (8.8); P=0.04

Source: Nutrition Evidence Library. *A series of systematic reviews on the relationship between dietary patterns and health outcomes.* Alexandria, VA: U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, March 2014.

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Carty et al, 2011 **Positive** **Randomized Controlled Trial** **United States** **Six years** **Women's Health Initiative (WHI) Dietary Modification (DM) Trial**	N=3,053 62 years 100% Female (post-menopausal)	**Low-fat Dietary Pattern** *Dietary goals:* 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 reduction.	**Percent Body Fat (%BF)** Overall, the intervention was associated with reductions in %BF (-0.8%; 95% CI: -1.0 to -0.6%), fat mass (-1.1kg; 95% CI: -1.3 to -0.8 kg) and lean mass (-0.17kg; 95% CI: -0.28 to -0.06 kg) during follow-up (all P-values<0.003) • *Baseline to Year 1:* %BF decreased in both groups, but the intervention group lost significantly more (P<0.001). • *Baseline to Year 3:* Women in the intervention group lost %BF; women in the control group gained %BF. The difference was modest (<1%), but significant (P<0.0001). • *Baseline to Year 6:* %BF increased in both groups; women in the intervention group gained slightly less, but their change from baseline was no longer significantly different from the change observed by the control group (P=0.057). Fat mass changes from baseline followed patterns similar to those for %BF; the largest differences were observed during the first year of follow-up, with women in the intervention group losing 1.72kg (0.12kg) more than women in the control group. Lean mass decreased in both groups during follow-up, with women in the intervention group losing significantly more in Year 1 (P=0.004) and Year 3 (P=0.038), but not in Year 6 (P=0.076). Changes in total %BF and fat mass associated with the intervention significantly varied by self-reported race and ethnicity (P<0.01 for both groups) and treated diabetes status (P<0.01 and P=0.04, respectively). *Significant decreases in* %BF *and fat mass were observed in:* (1) White women but not in Black or Hispanic women, and (2) women without treated diabetes, but not in women with treated diabetes.

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Blumenthal et al, 2010 **Positive** **Randomized Controlled Trial** **United States** **Four months** **ENCORE Study**	N=140 52 years 67% Female	**Dietary Approaches to Stop Hypertension (DASH) Pattern** *Dietary goals were modeled after the original DASH feeding studies and included:* Increase intake of fruits and vegetables (nine to 12 servings per day) and low-fat dairy products (two to three servings per day); reduce intake of saturated fat (≤7% of energy) and total fat (≤25% energy); daily intake of ≤100mEq of dietary sodium; and daily intake of ≤1 oz of alcohol (two drinks) for men and ½ oz (one drink) for women. *Study included two arms with the DASH pattern:* Isocaloric (DASH-A) and caloric restriction of 500kcal per day (DASH-DM).	**Body Weight** • At follow-up, the mean weight for the DASH-WM group was significantly lower (84.5kg) compared to DASH-A (92.9kg; P<0.001) and to controls (94.1kg; P<0.001). • *Weight change:* −8.7kg in DASH-WM, −0.3kg in DASH-A and +0.9kg in controls. **Percent Body Fat** • DASH-WM group had significantly lower percentage body fat (33.1%) and trunk fat (13.6kg) compared to DASH-A (36.2%; 16.6kg) and controls (36.9%; 17.1kg) (all P<0.001). • DASH-WM had lower lean body mass (54.3kg) compared to the DASH-A (56.8kg) and controls (56.5kg) (all P<0.001). • DASH-A did not differ significantly from controls on any body composition measure.
Esposito et al, 2004 **Positive** **Randomized Controlled Trial** **Italy** **Two years**	N=164 43.9 years 45% Female	**Mediterranean Dietary Pattern** *Dietary goals:* Totals of 50% to 60% CHO, 15% to 20% protein, <30% total fat, <10% saturated fat, <300mg cholesterol; at least 250g to 300g of fruits (one cup to 1.3 cups[1]), 125g to 150g of vegetables (0.5 cups to 0.65 cups), 25g to 50g of walnuts (1.75 Tbsp. to 3.5 Tbsp.), and 400g of whole grains (14 oz; including legumes) daily, and increase olive oil consumption.	**Body Weight:** Body weight decreased more in intervention group [−4.0kg (1.1kg)] than in the control group [−1.2kg (0.6kg)] (P<0.001). **BMI :** BMI decreased more in intervention group [-1.2kg/m^2 (0.3kg/m^2)] than in the control group [-0.4 kg/m^2 (0.4kg/m^2)] (P=0.01). **WC:** WC decreased more in intervention group [-2cm (0.5 cm)] than in the control group [0cm (0.01 cm)] (P=0.01).

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Pachucki et al, 2011 **Positive** **Prospective Cohort Study** **United States** **10 years** **Offspring Cohort of the Framingham Heart Study**	N=2,437 54 years 53% Female	**Empirically Derived Dietary Patterns** Seven empirically derived dietary patterns were created in this study using factor and cluster analyses and cross-classified with the Dietary Guidelines Adherence Index (DGAI) score (score range was 1 to 20; listed below from most to least healthy). • *Healthier:* 11.95 (1.94) • *Offsetting:* 9.67 (2.28) • *Caffeine-avoidant:* DGAI=9.41 (2.41) • *Light:* DGAI=8.36 (1.89) • *Alcohol and snacks:* DGAI=8.31 (2.24) *Sweets:* DGAI=8.03 (2.27) • *Meat and soda:* DGAI=7.29 (2.11)	**Body Weight** • No group lost weight. • Healthful trajectory gained 0.56kg (2.37kg); no change trajectory gained 0.67kg (2.4kg); mixed trajectory gained 0.75kg (2.22kg). • Unhealthy trajectory gained 1.03kg (2.39kg). **BMI:** Unhealthy trajectory was associated with 0.42kg/m^2 increase in BMI (CI: 0.1 to 0.7). **Incidence of Overweight/Obesity:** Those with unhealthful trajectory were 1.79 times more likely to be overweight (RRR; 95% CI: 1.1 to 2.8) and 2.4 times more likely to be obese (RR; 95% CI: 1.3 to 4.4).
Romaguera et al, 2011 **Positive** **Prospective Cohort Study** **Italy, United Kingdom, Netherlands, Germany, Denmark** **5.5 years** **European Prospective Investigation into Cancer and Nutrition (EPIC) Study; DiOGenes (Diet, Obesity and Genes) Project**	N=48,631 ≤60 years 60% Female	**Generally Healthy Pattern** A summary dietary pattern score was constructed for this study, which included food groups/items significantly associated with the outcome of interest (ΔWC_{BMI}). Six food groups/ items were included in the score: fruit, dairy, white bread, processed meat, margarine and soft drinks. Participants within the first, second, and third sex-specific tertile of fruit and dairy consumption were given zero, one and two points, respectively; participants within the first, second and third sex-specific tertile of white bread, processed meat, margarine and soft drinks were given two one and zero points, respectively. *Overall score range:* Zero to 12 points. A higher score represented a diet rich in fruit and dairy and low in white bread, processed meat, margarine and soft drinks.	**WC** *Those in the first quartile of the score—indicating a more favorable dietary pattern—showed a ΔWC_{BMI} of:* -0.05 (95% CI: -0.03 to -0.07), -0.07cm (95% CI: -0.05 to -0.09), and -0.11 (95% CI: -0.09 to -0.14) per year compared to those in second, third and fourth quartiles, respectively.

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Rosell et al, 2006 **Positive** **Prospective Cohort Study** **United Kingdom** **5.3 years** **European Prospective Investigation into Cancer and Nutrition (EPIC) Study; DiOGenes (Diet, Obesity and Genes) P roject**	N=21,966 20 years to 69 years 76% Female	**Vegetarian Patterns** Participants were asked four questions at baseline and follow-up and categorized into dietary pattern groups based on responses *(Yes / No*): • *Do you eat any meat (including bacon, ham, poultry, game, meat pies, sausages)?* • *Do you eat any fish?* • *Do you eat any eggs?* • *Do you eat any dairy products (including milk, cheese, butter, yogurt)?* Meat-eater (subjects ate meat at baseline and follow-up), fish-eater (subjects did not eat meat, but ate fish), vegetarian (did not eat meat/ fish, but ate eggs and dairy products), vegan (did not eat any food of animal origin), reverted (subjects who during follow-up had changed their diet in one or more steps in the direction of vegan> vegetarian>fish-eater>meat-eater), or converted (subjects who changed their diet in one or more steps in the opposite direction).	**Body Weight** • Annual weight gain of 0.39kg (0.88kg) in men; 0.40kg (0.89kg) in women. • Compared with meat-eaters, mean annual weight gain was lower in vegans (0.28kg in men and 0.30kg in women, P<0.05 for both sexes) and fish-eaters (0.34 kg, women only, P<0.001). • The lowest mean annual weight gains were seen in men and women classified as converted (0.24kg in men and 0.30kg in women, P<0.001 for both sexes), in whom the mean annual weight gain was 40% and 29% smaller, respectively, compared with the mean annual weight gain in meat-eaters. • The highest weight gains were seen in men and women classified as reverted, but these values were NS different from the mean weight gains in meat-eaters. **BMI:** Mean age-adjusted annual increases in BMI in meat-eaters, fish-eaters, vegetarians and vegans were 0.12kg/m^2, 0.12kg/m^2, 0.12kg/m^2 and 0.10kg/m^2 in men (P for heterogeneity=0.556), and 0.15kg/m^2, 0.12kg/m^2, 0.15kg/m^2 and 0.12kg/m^2 in women (P for heterogeneity=0.017), respectively.

[1] The volumes listed are approximations and will depend on the actual food consumed.

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