

**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
<p><b>Howard et al., 2006</b></p> <p>Positive</p> <p>Randomized Controlled Trial</p> <p>U.S.</p> <p>7.5 y</p> <p>Women's Health Initiative (WHI) Dietary Modification (DM) Trial</p>	<p>N = 46,808</p> <p>62.3 y</p> <p>100% Female (postmenopausal)</p>	<p><b>Low-fat dietary pattern</b></p> <p>Dietary goals: Reduce total dietary fat to 20% and increase intake of vegetables and fruit to 5 or more servings and grains (whole grains encouraged) to 6 or more servings daily; intervention did not encourage weight loss or caloric reduction.</p>	<p><b>Body Weight:</b></p> <p>Intervention group lost weight in the first year (mean of 2.2 kg, P&lt;0.001) and maintained lower weight than control women during an average 7.5 y of follow-up (difference at 1 y = 1.9 kg, P&lt;0.001 and at 7.5 y = 0.4 kg, P=0.01).</p> <p>No tendency toward weight gain was observed in intervention group women overall or when stratified by age, ethnicity, or body mass index.</p> <p>Weight loss was greatest among women in either group who decreased their percentage of energy from fat (P for trend &lt; 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 for trend = 0.005 and 0.02 for intervention and control, respectively, in models adjusting for baseline energy intake), and a nonsignificant trend toward weight loss occurred with increasing intake of fiber.</p> <p><b>BMI:</b></p> <p>Increases occurred in both groups, but were less in the intervention group. Change in BMI, kg/m<sup>2</sup>: Intervention = 0.03 (3.2) Control = 0.3 (3.1); P&lt;0.001</p> <p><b>WC:</b></p> <p>Slight increases occurred in both groups, but were less in the intervention group. Change in WC, cm: Intervention = 1.6 (8.6) Control = 1.9 (8.8); P=0.04</p>
<p><b>Carty et al., 2011</b></p> <p>Positive</p> <p>Randomized Controlled Trial</p> <p>U.S.</p> <p>6 y</p> <p>Women's Health Initiative (WHI) Dietary Modification (DM) Trial</p>	<p>N = 3,053</p> <p>62 y</p> <p>100% Female (postmenopausal)</p>	<p><b>Low-fat dietary pattern</b></p> <p>Dietary goals: Reduce total dietary fat to 20% and increase intake of vegetables and fruit to 5 or more servings and grains (whole grains encouraged) to 6 or more servings daily; intervention did not encourage weight loss or caloric reduction.</p>	<p><b>Percent Body Fat:</b></p> <p>Overall, the intervention was associated with reductions in % body fat (-0.8%; 95% CI = -1.0 to -0.6%), fat mass (-1.1 kg; 95% CI = -1.3 to -0.8 kg), and lean mass (-0.17 kg; 95% CI = -0.28 to -0.06 kg) during follow-up (all P-values &lt;0.003).</p> <p>Baseline to year 1: % body fat decreased in both groups, but the intervention group lost significantly more (P&lt;0.001).</p> <p>Baseline to year 3: Women in the intervention group lost % body fat; women in the control group gained % body fat. The difference was modest (&lt;1%) but significant (P&lt;0.0001).</p> <p>Baseline to year 6: % body fat increased in both groups; women in 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).</p>

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

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
			<p>Fat mass changes from baseline followed patterns similar to those for percentage body fat; the largest differences were observed during the first year of follow-up, with women in the intervention group losing 1.72 (0.12) kg more than women in the control group.</p> <p>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 3 (P=0.038), but not in year 6 (P=0.076).</p> <p>Changes in total % body fat and fat mass associated with the intervention significantly varied by self-reported race-ethnicity (P&lt;0.01 for both groups) and treated diabetes status (P&lt;0.01 and P=0.04, respectively). Significant decreases in % body fat 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.</p>
<p><b>Blumenthal et al., 2010</b></p> <p>Positive</p> <p>Randomized Controlled Trial</p> <p>U.S.</p> <p>4 mo</p> <p>ENCORE Study</p>	<p>N = 140</p> <p>52 y</p> <p>67% Female</p>	<p><b>Dietary Approaches to Stop Hypertension (DASH) pattern</b></p> <p>Dietary goals were modeled after the original DASH feeding studies and included: Increase intake of fruits and vegetables (9-12 serv/d) and low-fat dairy products (2-3 serv/d); reduce intake of saturated fat (<math>\leq 7\%</math> of energy) and total fat (<math>\leq 25\%</math> energy); daily intake of no more than 100 mEq of dietary sodium; and daily intake of 1 oz or less of alcohol (2 drinks) for men and ½ oz (1 drink) for women.</p> <p>Study included two arms with the DASH pattern: (1) isocaloric (DASH-A) and (2) caloric restriction of 500 kcal/d (DASH-DM).</p>	<p><b>Body Weight:</b></p> <p>At follow-up, the mean weight for the DASH-WM group was significantly lower (84.5 kg) compared to DASH-A (92.9 kg; P&lt;0.001) and to controls (94.1 kg; P&lt;0.001). The weight change was -8.7 kg in DASH-WM, -0.3 kg in DASH-A, and +0.9 kg in controls.</p> <p><b>Percent Body Fat:</b></p> <p>DASH-WM group had significantly lower % body fat (33.1%) and trunk fat (13.6 kg) compared to DASH-A (36.2%; 16.6 kg) and controls (36.9%; 17.1 kg) (all P-values &lt;0.001).</p> <p>DASH-WM had lower lean body mass (54.3 kg) compared to the DASH-A (56.8 kg) and controls (56.5 kg) (all P-values &lt;0.001).</p> <p>DASH-A did not differ significantly from controls on any body composition measure.</p>
<p><b>Esposito et al., 2004</b></p> <p>Positive</p> <p>Randomized Controlled Trial</p> <p>Italy</p> <p>2 y</p>	<p>N = 164</p> <p>43.9 y</p> <p>45% Female</p>	<p><b>Mediterranean dietary pattern</b></p> <p>Dietary goals: 50-60% carbohydrate, 15-20% protein, &lt;30% total fat, &lt;10% sat fat, &lt;300 mg cholesterol; at least 250 to 300 g of fruits (1 to 1.3 cups<sup>1</sup>), 125 to 150 g of vegetables (0.5 to 0.65 cups), 25 to 50 g of walnuts (1.75 to 3.5 Tbsp), and 400 g of whole grains (14 oz; including legumes) daily, and increase olive oil consumption.</p>	<p><b>Body Weight:</b></p> <p>Body weight decreased more in intervention group (-4.0 [1.1] kg) than in control group (-1.2 [0.6] kg) (P&lt;0.001).</p> <p><b>BMI:</b></p> <p>BMI decreased more in intervention group (-1.2 [0.3] kg/m<sup>2</sup>) than in control group (-0.4 [0.4] kg/m<sup>2</sup>) (P=0.01).</p> <p><b>WC:</b></p> <p>WC decreased more in intervention group (-2 [0.5] cm) than in control group (0 [0.01] cm) (P=0.01).</p>

<sup>1</sup> The volumes listed are approximations and will depend on the actual food consumed.

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

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
<p>Pachucki et al., 2011</p> <p>Positive</p> <p>Prospective Cohort Study</p> <p>U.S.</p> <p>10 y</p> <p>Offspring Cohort of the Framingham Heart study</p>	<p>N = 2,437</p> <p>54 y</p> <p>53% Female</p>	<p><b>Empirically derived dietary patterns</b></p> <p>7 empirically derived dietary patterns were created in this study using factor and cluster analyses and cross-classified with the Dietary Guidelines Adherence Index (DGA) score (score range was 1-20; listed below from most to least "healthy").</p> <p>'Healthier': 11.95 (1.94)</p> <p>'Offsetting': 9.67 (2.28)</p> <p>'Caffeine-avoidant': DGA=9.41 (2.41)</p> <p>'Light': DGA=8.36 (1.89)</p> <p>'Alcohol and snacks': DGA=8.31 (2.24)</p> <p>'Sweets': DGA=8.03 (2.27)</p> <p>'Meat and soda': DGA=7.29 (2.11)</p>	<p><b>Body Weight:</b></p> <p>No group lost weight.</p> <p>'Healthful' trajectory gained 0.56 (2.37) kg</p> <p>'No change' trajectory gained 0.67 (2.4) kg</p> <p>'Mixed' trajectory gained 0.75 (2.22) kg</p> <p>'Unhealthy' trajectory gained 1.03 (2.39) kg</p> <p><b>BMI:</b></p> <p>'Unhealthy' trajectory associated with 0.42 kg/m<sup>2</sup> increase in BMI (CI = 0.1 to 0.7).</p> <p><b>Incidence of Overweight/Obesity:</b></p> <p>Those with 'unhealthful' trajectory were 1.79 times more likely to be overweight (relative risk ratio; 95% CI = 1.1 to 2.8) and 2.4 times more likely to be obese (RR; 95% CI = 1.3 to 4.4).</p>
<p>Romaguera et al., 2011</p> <p>Positive</p> <p>Prospective Cohort Study</p> <p>Italy, U.K., Netherlands, Germany, Denmark</p> <p>5.5 y</p> <p>European Prospective Investigation into Cancer and Nutrition (EPIC) study; DiOGenes (Diet, Obesity and Genes) project</p>	<p>N = 48,631</p> <p>≤ 60 y</p> <p>60% Female</p>	<p><b>Generally healthy pattern</b></p> <p>A summary dietary pattern score was constructed for this study which included food groups/items significantly associated with the outcome of interest (<math>\Delta WC_{BMI}</math>). Six food groups/items were included in the score: fruit, dairy, white bread, processed meat, margarine, and soft drinks.</p> <p>Participants within the 1st, 2nd, and 3rd sex-specific tertile of fruit and dairy consumption were given 0, 1, and 2 points, respectively; participants within the 1st, 2nd, and 3rd sex-specific tertile of white bread, processed meat, margarine, and soft drinks were given 2, 1, and 0 points, respectively. The overall score range was 0-12 points.</p> <p>A higher score represented a diet rich in fruit and dairy and low in white bread, processed meat, margarine, and soft drinks.</p>	<p><b>WC:</b> Those in the first quartile of the score—indicating a more favorable dietary pattern—showed a <math>\Delta WC_{BMI}</math> of -0.05 (95% CI: -0.03 to -0.07), -0.07 (95% CI: -0.05 to -0.09), and -0.11 (95% CI: -0.09 to -0.14) cm/yr compared to those in second, third, and fourth quartiles, respectively.</p>

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

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
<p>Rosell et al., 2006</p> <p>Positive</p> <p>Prospective Cohort Study</p> <p>U.K.</p> <p>5.3 y</p> <p>European Prospective Investigation into Cancer and Nutrition (EPIC) study; DiOGenes (Diet, Obesity and Genes) project</p>	<p>N = 21,966</p> <p>20–69 y</p> <p>76% Female</p>	<p><b>Vegetarian patterns</b></p> <p>Participants were asked four questions at baseline and follow-up and categorized into dietary pattern groups based on their responses:</p> <ul style="list-style-type: none"> <li>• 'Do you eat any meat (incl bacon, ham, poultry, game, meat pies, sausages)? (Yes/No)'</li> <li>• 'Do you eat any fish? (Yes/No)'</li> <li>• 'Do you eat any eggs? (Yes/No)'</li> <li>• 'Do you eat any dairy products (including milk, cheese, butter, yogurt)? (Yes/No)'</li> </ul> <p>Meat-eater (subjects ate meat at baseline and follow-up), fish-eater (subjects did not eat meat but ate fish), vegetarian (subjects did not eat meat or fish but ate eggs and/or dairy products), vegan (subjects 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 vegan&gt;vegetarian&gt;fish-eater&gt;meat-eater), or converted (subjects who changed their diet in one or more steps in the opposite direction).</p>	<p><b>Body Weight:</b></p> <p>Annual weight gain = 0.39 (0.88) kg in men and 0.40 (0.89) kg in women.</p> <p>Compared with meat-eaters, mean annual weight gain was lower in vegans (0.28 kg in men and 0.30 kg in women, P&lt;0.05 for both sexes) and fish-eaters (0.34 kg, women only, P&lt;0.001).</p> <p>The lowest mean annual weight gains were seen in men and women classified as converted (0.24 kg in men and 0.30 kg in women, P&lt;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.</p> <p>The highest weight gains were seen in men and women classified as reverted, but these values were not significantly different from the mean weight gains in meat-eaters.</p> <p><b>BMI:</b></p> <p>Mean age-adjusted annual increases in BMI in meat-eaters, fish-eaters, vegetarians, and vegans were 0.12, 0.12, 0.12, and 0.10 kg/m<sup>2</sup> in men (P for heterogeneity = 0.556), and 0.15, 0.12, 0.15, and 0.12 kg/m<sup>2</sup> in women (P for heterogeneity = 0.017), respectively.</p>