



FIGURE 291e-5 The Cholesterol Treatment Trialists Collaboration meta-analyzed 27 randomized clinical trials evaluating statin therapy. They found profound decreases in both major vascular events and vascular death (not shown) proportional to the magnitude of low-density lipoprotein (LDL) cholesterol reduction achieved with statin treatment. This diagram shows the results of this meta-analysis for vascular death. (From *Lancet* 380:581, 2012.)

and Estrogen/Progestin Replacement Study (HERS), postmenopausal female survivors of acute MI were randomized to an estrogen/progestin combination or to placebo. This study showed no overall reduction in recurrent coronary events in the active treatment arm. Indeed, early in the 5-year course of this trial, a trend occurred toward an increase

TABLE 291e-3 HEART HEALTHY NUTRITION AND PHYSICAL ACTIVITY BEHAVIORS RECOMMENDED IN THE 2013 ACC/AHA GUIDELINE ON LIFESTYLE MANAGEMENT TO REDUCE CARDIOVASCULAR RISK

The adult population should be encouraged to practice heart healthy lifestyle behaviors, including:

- Consume a dietary pattern that emphasizes intake of vegetables, fruits, and whole grains; include low-fat dairy products, poultry, fish, legumes, nontropical vegetable oils, and nuts; and *limit* intake of sodium, sweets, sugar-sweetened beverages, and red meats.
- Adapt this dietary pattern to appropriate calorie requirements, personal and cultural food preferences, and nutrition therapy for other medical conditions (including diabetes mellitus).
- Achieve this pattern by following plans such as the DASH dietary pattern, the USDA Food Pattern, or the AHA Diet.
- Engage in 2 h and 30 min a week of moderate-intensity or 1 h and 15 min (75 min) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed in episodes of at least 10 min, preferably spread throughout the week.
- Achieve and maintain a healthy weight. Refer to the 2013 Obesity Expert Panel Report for recommendations on weight loss and maintenance.

Abbreviations: ACC/AHA, American College of Cardiology and American Heart Association; DASH, Dietary Approaches to Stop Hypertension; USDA, U.S. Department of Agriculture.

Source: Adapted from RH Eckel et al: 2013 AHA/ACC Guideline on Lifestyle Management to Reduce Cardiovascular Risk. *J Am Coll Cardiol* 2013; doi: 10.1016/j.jacc.2013.11.003.

in vascular events in the treated women. Extended follow-up of this cohort did not disclose an accrual of benefit in the treatment group. The Women's Health Initiative (WHI) study arm, using a similar estrogen plus progesterone regimen, was halted due to a small but significant hazard of cardiovascular events, stroke, and breast cancer. The estrogen without progestin arm of WHI (conducted in women without a uterus) was stopped early due to an increase in strokes, and failed to afford protection from MI or CHD death during observation over 7 years. The excess cardiovascular events in these trials may result from an increase in thromboembolism (Chap. 413). Physicians should work with women to provide information and help weigh the small but evident CHD risk of estrogen ± progestin versus the benefits for postmenopausal symptoms and osteoporosis, taking personal preferences into account. Post hoc analyses of observational studies suggest that estrogen therapy in women younger than or closer to menopause than the women enrolled in WHI might confer cardiovascular benefit. Thus, the timing in relation to menopause or the age at which estrogen therapy begins may influence its risk/benefit balance.

The lack of efficacy of estrogen therapy in cardiovascular risk reduction highlights the need for redoubled attention to known modifiable risk factors in women. Meta-analysis supports the efficacy of statins to reduce cardiovascular events in women in primary prevention, as well as in those who have already experienced a cardiovascular event.

Dysregulated Coagulation or Fibrinolysis Thrombosis ultimately causes the gravest complications of atherosclerosis. The propensity to form thrombi and/or lyse clots once they form influences the manifestations of atherosclerosis. Thrombosis provoked by atheroma rupture and subsequent healing may promote plaque growth. Certain individual characteristics can influence thrombosis or fibrinolysis and have received attention as potential coronary risk factors. For example,