

Coronary Artery Disease Clinical Recommendations for Women

LVEF indicates left ventricular ejection fraction; BMI, body mass index; EPA, eicosapentaenoic acid; DHA, Docosahexaenoic acid; CHD, coronary heart disease; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; CVD, cardiovascular disease; ACE, angiotensin-converting enzyme; and ARB, angiotensin receptor blocker; and MI, myocardial infarction.

Lifestyle Interventions

Lifestyle	Intervention
Smoking	Women should not smoke and should avoid environmental tobacco smoke. Provide counseling, nicotine replacement, and other pharmacotherapy as indicated in conjunction with a behavioral program or formal smoking cessation program (<i>Class I, Level B</i>).
Physical activity	Women should accumulate a minimum of 30 minutes of moderate-intensity physical activity (e.g., brisk walking) on most, and preferably all, days of the week (<i>Class I, Level B</i>). Women who need to lose weight or sustain weight loss should accumulate a minimum of 60-90 minutes of moderate-intensity physical activity (e.g., brisk walking) on most, and preferably all, days of the week (<i>Class I, Level C</i>).
Rehabilitation	A comprehensive risk-reduction regimen, such as cardiac rehabilitation or a physician-guided home- or community-based exercise training program. Should be recommended to women with a recent acute coronary intervention, new-onset or chronic angina, recent cerebrovascular event, peripheral arterial disease (<i>Class I, Level A</i>), or current/prior symptoms of heart failure and an LVEF <40% (<i>Class I, Level B</i>).
Dietary intake	Women should consume a diet rich in fruits and vegetables; choose whole-grain, high-fiber foods; consume fish, especially oily fish*, at least twice a week; limit intake of saturated fat to <10% of energy, and if possible to <7%, cholesterol to <300 mg/d, alcohol intake to no more than 1 drink per day,† and sodium intake to <2.3 g/d (approximately 1 tsp. Salt). Consumption of <i>trans</i> -fatty acids should be as low as possible (e.g., <1% of energy) (<i>Class I, Level B</i>).
Weight maintenance/reduction	Women should maintain or lose weight through an appropriate balance of physical activity, caloric intake, and formal behavioral programs when indicated to maintain/achieve a BMI between 18.5 and 24.9 kg/m ² and a waist circumference < 35 in. (<i>Class I, Level B</i>).
Omega-3 fatty acids	As an adjunct to diet, omega-3 fatty acids in capsule form (approximately 850 to 1000 mg of EPA and DHA) may be considered in women with CHD, and higher doses (2 to 4 g) may be used for treatment of women with high triglyceride levels (<i>Class IIb, Level B</i>).
Depression	Consider screening women with CHD for depression and refer/treat when indicated (<i>Class IIa, Level B</i>).

Major Risk Factor Interventions

Major Risk Factor	Intervention
Blood pressure—optimal level and lifestyle	Encourage an optimal blood pressure of <120/80 mm Hg through lifestyle approaches such as weight control, increased physical activity, alcohol moderation, sodium restriction, and increased consumption of fresh fruits, vegetables and low-fat dairy products (<i>Class I, Level B</i>).
Blood pressure—pharmacotherapy	Pharmacotherapy is indicated when blood pressure is ≥140/90 mm Hg or at an even lower pressure in the setting of chronic kidney disease or diabetes (≥130/80 mm Hg). Thiazide diuretics should be part of the drug regimen for most patients unless contraindicated or if there are compelling indications for other agents in specific vascular diseases. Initial treatment of high-risk women‡ should be with β-blockers and/or ACE inhibitors/ARBs, with addition of other drugs such as thiazides as needed to achieve goal blood pressure (<i>Class I, Level A</i>).

Major Risk Factor Interventions (Cont'd)

Major Risk Factor	Intervention
Lipids, lipoproteins—optimal levels and lifestyle	The following levels of lipids and lipoproteins in women should be encouraged through lifestyle approaches: LDL-C <100 mg/dL, HDL-C >50 mg/dL, triglycerides <150 mg/dL, and non-HDL-C (total cholesterol minus HDL cholesterol) <130 mg/dL (<i>Class I, Level B</i>). If a woman is at high risk [‡] or has hypercholesterolemia, intake of saturated fat should be <7% and cholesterol intake <200 mg/d (<i>Class I, Level B</i>).
Lipids—pharmacotherapy for LDL lowering, high-risk women	Utilize LDL-C-lowering drug therapy simultaneously with lifestyle therapy in women with CHD to achieve an LDL-C <100 mg/dL (<i>Class I, Level A</i>) and similarly in women with other atherosclerotic CVD or diabetes mellitus or 10-year absolute risk >20% (<i>Class I, Level B</i>). A reduction to <70 mg/dL is reasonable in very high-risk women [§] with CHD and may require an LDL-lowering drug combination (<i>Class IIa, Level B</i>).
Lipids-pharmacotherapy – for LDL lowering other at-risk women	Utilize LDL-C lowering therapy if LDL-C level is ≥ 130 mg/dL with lifestyle therapy and there are multiple risk factors and 10-year absolute risk 10% to 20% (<i>Class I, Level B</i>). Utilize LDL-C lowering therapy if LDL-C level is ≥ 160 mg/dL with lifestyle therapy and multiple risk factors even if 10-year absolute risk is < 10% (<i>Class I, Level B</i>). Utilize LDL-C lowering therapy if LDL-C level is ≥ 190 mg/dL regardless of the presence or absence of other risk factors or CVD on lifestyle therapy (<i>Class I, Level B</i>).
Lipids—pharmacotherapy for low HDL or elevated non-HDL, high-risk women	Utilize niacin [¶] or fibrate therapy when HDL-C is low or non-HDL-C is elevated in high-risk women [‡] after LDL-C goal is reached (<i>Class IIa, Level B</i>).
Lipids—pharmacotherapy for low HDL or elevated non-HDL, other at-risk women	Consider niacin [¶] or fibrate therapy when HDL-C is low or non-HDL-C is elevated after LDL-C goal is reached in women with multiple risk factors and 10-year absolute risk 10% to 20% (<i>Class IIb, Level B</i>).
Diabetes mellitus	Lifestyle and pharmacotherapy should be used as indicated in women with diabetes (<i>Class I, Level B</i>) to achieve an HbA1c <7% if this can be accomplished without significant hypoglycemia (<i>Class I, Level C</i>).
Preventive Drug Interventions	
Aspirin—high risk*	Aspirin therapy (75 to 325 mg); should be used in high risk [‡] women unless contraindicated (<i>Class I, Level A</i>). If a high-risk [‡] woman is intolerant of aspirin therapy, clopidogrel should be substituted (<i>Class I, Level B</i>).
Aspirin—other at-risk or healthy women	In women ≥65 years of age, consider aspirin therapy (81 mg daily or 100 mg every other day) if blood pressure is controlled and benefit for ischemic stroke and MI prevention is likely to outweigh risk of gastrointestinal bleeding and hemorrhagic stroke effects (<i>Class IIa, Level B</i>) and in women <65 years of age when benefit for ischemic stroke prevention is likely to outweigh adverse effects of therapy (<i>Class IIb, Level B</i>).
β-Blockers	β-Blockers should be used indefinitely in all women after MI, acute coronary syndrome, or left ventricular dysfunction with or without heart failure symptoms, unless contraindicated (<i>Class I, Level A</i>).
ACE inhibitors/ARBS	ACE inhibitors should be used (unless contraindicated) in women after MI and in those with clinical evidence of heart failure or an LVEF ≤40% or with diabetes mellitus. (<i>Class I, Level A</i>). In women after MI and in those with clinical evidence of heart failure or an LVEF ≤40% or with diabetes mellitus who are intolerant of ACE inhibitors, ARBS should be used instead (<i>Class I, Level B</i>).
Aldosterone blockade	Use aldosterone blockade after MI in women who do not have significant renal dysfunction or hyperkalemia who are already receiving therapeutic doses of an ACE inhibitor and β-blocker, and have LVEF ≤40% with symptomatic heart failure (<i>Class I, Level B</i>).

Class III interventions (Not useful/effective and may be harmful) for CVD or MI Prevention in Women

	Intervention
Hormone therapy	Hormone therapy and selective estrogen-receptor modulators (SERMs) should not be used for the primary or secondary prevention of CVD (<i>Class III, Level A</i>).
Antioxidant supplements	Antioxidant vitamin supplements (e.g., vitamins E, C, and beta carotene) should not be used for primary or secondary prevention of CVD (<i>Class III, Level A</i>).
Folic acid	Folic acid, with or without B6 and B12 supplementation, should not be used for the primary or secondary prevention of CVD (<i>Class III, Level A</i>).
Aspirin for MI in women <65 years of age	Routine use of aspirin in healthy women <65 years of age is not recommended to prevent MI (<i>Class III, Level B</i>).

This guideline is based upon recommendations of the AHA Scientific Statement Evidence-Based Guidelines for Cardiovascular Disease Prevention in Women

- * Pregnant and lactating women should avoid eating fish potentially high in methylmercury (e.g., shark, swordfish, king mackerel or tile fish) and should eat up to 12 oz./wk. of a variety of fish and shellfish low in mercury, and check the Environmental Protection Agency and the U.S. Food and Drug Administration's websites for updates and local advisories about safety of local catch.
- † A drink equivalent is equal to a 12-oz. bottle of beer, a 5-oz. glass of wine, or a 1.5-oz. shot of 80-proof spirit.
- ‡ Criteria for high risk include established CHD, cerebrovascular disease, peripheral arterial disease, abdominal aortic aneurysm, end-stage or chronic renal disease, diabetes mellitus, and 10-year Framingham risk >20%.
- § Criteria for very high risk include established CVD plus any of the following: multiple risk factors, severe and poorly controlled risk factors, diabetes mellitus.
- ™ Dietary supplement niacin should not be used as a substitute for prescription niacin.
- ‡ After percutaneous intervention with stent placement or coronary artery bypass grafting within previous year and in women with noncoronary forms of CVD, use current guidelines for aspirin and clopidogrel.

Full documentation is available at <http://circ.ahajournals.org/cgi/content/full/CIRCULATIONAHA.107.181546>.

Originally adopted April 2004. Rev. 02/22/06; 2/27/07, 3/25/09

Clinical Practice Guidelines are reviewed at least every two years. Websites of nationally recognized sources from which guidelines have been adopted are reviewed regularly for changes and/or updates.