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Evidence-Based Guidelines for Cardiovascular Disease Prevention in Women
American Heart Association
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In the wake of the reports of the Women's Health Initiative and the Heart and Estrogen/Progestin Replacement Study (HERS), which unexpectedly showed that combination hormone therapy was associated with adverse CVD effects, there is a heightened need to critically review and document strategies to prevent CVD in women. The following is a summary of the American Heart Associates recommendations for prevention of cardiovascular disease in women. The level of confidence of the recommendation is noted by a designation described below. For instance, the recommendation for encouraging women not to smoke is denoted as Class I, Level B $_{GI=1}$ which means: Class I -- Intervention is useful and effective; Level B -- Limited evidence from single randomized trial or other nonrandomized studies; GI -- Very likely that results generalize to women.

The key to evidenced based medicine, that is, medical treatment which has scientific support is randomized, controlled studies. Next week we will discuss the article entitled *Unhealthy Science: Do We Really Know What Makes Us Healthy?*, which appeared in the September 16, 2007 *New York Times Magazine*. While absorbing the below information may appear to be tedious, it will give women and those who care for women sound guidelines for recommending preventing health initiatives and treatment plans for women.

Spectrum of CVD Risk in Women

The following will help women categorize themselves into high risk, intermediate risk, low risk and optimal risk for cardiovascular disease. For the results of your analysis of risk by the Framingham Global Risk, ask your doctor to calculate this for you. At SETMA, we can do that electronically in a few seconds.

Risk Group	Framingham Global Risk (10-y Absolute CHD Risk)	Clinical Examples
High risk	>20%	• Established CHD • Cerebrovascular disease* •

		Peripheral arterial disease • Abdominal aortic aneurysm • Diabetes mellitus • Chronic kidney disease†
Intermediate risk	10% to 20%	• Subclinical CVD‡ (eg, coronary calcification) • Metabolic syndrome • Multiple risk factors§ • Markedly elevated levels of a single risk factor‖ • First-degree relative(s) with early-onset (age: <55 y in men and <65 y in women) atherosclerotic CVD
Lower risk	<10%	• May include women with multiple risk factors, metabolic syndrome, or 1 or no risk factors
Optimal risk	<10%	• Optimal levels of risk factors and heart-healthy lifestyle

CHD indicates coronary heart disease; CVD, cardiovascular disease.

*Cerebrovascular disease may not confer high risk for CHD if the affected vasculature is above the carotids. Carotid artery disease (symptomatic or asymptomatic with >50% stenosis) confers high risk.

†As chronic kidney disease deteriorates and progresses to end-stage kidney disease, the risk of CVD increases substantially.

‡Some patients with subclinical CVD will have >20% 10-year CHD risk and should be elevated to the high-risk category.

§Patients with multiple risk factors can fall into any of the 3 categories by Framingham scoring.

‖Most women with a single, severe risk factor will have a 10-year risk <10%.

Classification and Levels of Evidence

The validity of a heath initiative for women is categorized by the following. Class 1 Level A GI 1 is the highest validity classification for evidence.

	Strength of Recommendation
Classification	
Class I	Intervention is useful and effective
Class IIa	Weight of evidence/opinion is in favor of usefulness/efficacy
Class IIb	Usefulness/efficacy is less well established by evidence/opinion
Class III	Intervention is not useful/effective and may be harmful
Level of Evidence	
A	Sufficient evidence from multiple randomized trials
B	Limited evidence from single randomized trial or other

	nonrandomized studies
C	Based on expert opinion, case studies, or standard of care
Generalizability index	
1	Very likely that results generalize to women
2	Somewhat likely that results generalize to women
3	Unlikely that results generalize to women
0	Unable to project whether results generalize to women

Clinical Recommendations

The following table lists all the current treatment recommendations for either prevention of or treatment of cardiovascular disease risk in women and gives the classification and levels of evidence of each recommendation. The treatment recommendations discussed below are classified into:

- Lifestyle Interventions
- Major Risk Factors Interventions
- Preventive Drug Interventions
- Class III Interventions – this classification is for those recommendations which are labeled, "Intervention is not useful/effective and may be harmful."

Lifestyle interventions
Cigarette smoking
Consistently encourage women not to smoke and to avoid environmental tobacco. (Class I, Level B)$_{GI=1}$
Physical activity
Consistently encourage women to accumulate a minimum of 30 minutes of moderate-intensity physical activity (eg, brisk walking) on most, and preferably all, days of the week. (Class I, Level B)$_{GI=1}$
Cardiac rehabilitation
Women with a recent acute coronary syndrome or coronary intervention, new-onset or chronic angina should participate in a comprehensive risk-reduction regimen, such as cardiac rehabilitation or a physician-guided home- or community-based program. (Class I, Level B)$_{GI=2}$
Heart-healthy diet
Consistently encourage an overall healthy eating pattern that includes intake of a variety of fruits, vegetables, grains, low-fat or nonfat dairy products, fish, legumes, and sources of protein low in saturated fat (eg, poultry, lean meats, plant sources). Limit saturated fat intake to <10% of calories, limit cholesterol intake to <300 mg/d, and limit intake of trans fatty acids. (Class I, Level B)$_{GI=1}$

Weight maintenance/reduction

Consistently encourage weight maintenance/reduction 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. (Class I, Level B)$_{GI=1}$

Psychosocial factors

Women with CVD should be evaluated for depression and referred/treated when indicated. (Class IIa, Level B)$_{GI=2}$

Omega 3 fatty acids

As an adjunct to diet, omega 3 fatty-acid supplementation may be considered in high-risk* women. (Class IIb, Level B)$_{GI=2}$

Folic acid

As an adjunct to diet, folic acid supplementation may be considered in high-risk* women (except after revascularization procedure) if a higher-than-normal level of homocysteine has been detected. (Class IIb, Level B)$_{GI=2}$

Major risk factor interventions

Blood pressure—lifestyle

Encourage an optimal blood pressure of <120/80 mm Hg through lifestyle approaches. (Class I, Level B)$_{GI=1}$

Blood pressure—drugs

Pharmacotherapy is indicated when blood pressure is ≥140/90 mm Hg or an even lower blood pressure in the setting of blood pressure–related target-organ damage or diabetes. Thiazide diuretics should be part of the drug regimen for most patients unless contraindicated. (Class I, Level A)$_{GI=1}$

Lipid, lipoproteins

Optimal levels of lipids and lipoproteins in women are 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 and should be encouraged through lifestyle approaches. (Class I, Level B)$_{GI=1}$

Lipids—diet therapy

In high-risk women or when LDL-C is elevated, saturated fat intake should be reduced to <7% of calories, cholesterol to <200 mg/d, and trans fatty acid intake should be reduced. (Class I, Level B)$_{GI=1}$

Lipids—pharmacotherapy—high risk*

Initiate LDL-C–lowering therapy (preferably a statin) simultaneously with lifestyle therapy in high-risk women with LDL-C ≥100 mg/dL (Class I, Level A)$_{GI=1}$, and initiate statin therapy in high-risk women with an LDL-C <100 mg/dL unless contraindicated (Class 1, Level B)$_{GI=1}$.

Initiate niacin or fibrate therapy when HDL-C is low, or non–HDL-C elevated in high-risk women. (Class I, Level B)$_{GI=1}$

Lipids—pharmacotherapy—intermediate risk†

Initiate LDL-C–lowering therapy (preferably a statin) if LDL-C level is ≥130 mg/dL on lifestyle therapy (Class I, Level A), or niacin or fibrate therapy when HDL-C is low or non–HDL-C elevated after LDL-C goal is reached. (Class I, Level B)GI=1

Lipids—pharmacotherapy—lower risk‡

Consider LDL-C–lowering therapy in low-risk women with 0 or 1 risk factor when LDL-C level is 190 mg/dL or if multiple risk factors are present when LDL-C is 160 mg/dL (Class IIa, Level B) or niacin or fibrate therapy when HDL-C is low or non–HDL-C elevated after LDL-C goal is reached. (Class IIa, Level B)GI=1

Diabetes

Lifestyle and pharmacotherapy should be used to achieve near normal HbA_{1C} (<7%) in women with diabetes. (Class I, Level B)GI=1

Preventive drug interventions

Aspirin—high risk*

Aspirin therapy (75 to 162 mg), or clopidogrel if patient is intolerant to aspirin, should be used in high-risk women unless contraindicated. (Class I, Level A)GI=1

Aspirin—intermediate risk†

Consider aspirin therapy (75 to 162 mg) in intermediate-risk women as long as blood pressure is controlled and benefit is likely to outweigh risk of gastrointestinal side effects. (Class IIa, Level B)GI=2

ß-Blockers

ß-Blockers should be used indefinitely in all women who have had a myocardial infarction or who have chronic ischemic syndromes unless contraindicated. (Class I, Level A)GI=1

ACE inhibitors

ACE inhibitors should be used (unless contraindicated) in high-risk* women. (Class I, Level A)GI=1

ARBs

ARBs should be used in high-risk* women with clinical evidence of heart failure or an ejection fraction <40% who are intolerant to ACE inhibitors. (Class I, Level B)GI=1

Atrial fibrillation/stroke prevention

Warfarin—atrial fibrillation

Among women with chronic or paroxysmal atrial fibrillation, warfarin should be used to maintain the INR at 2.0 to 3.0 unless they are considered to be at low risk for stroke (<1%/y) or high risk of bleeding. (Class I, Level A)GI=1

Aspirin—atrial fibrillation

Aspirin (325 mg) should be used in women with chronic or paroxysmal atrial fibrillation with a contraindication to warfarin or at low risk for stroke (<1%/y). (Class I, Level A)GI=1

Class III interventions

Hormone therapy

Combined estrogen plus progestin hormone therapy should not be initiated to prevent CVD in postmenopausal women. (Class III, Level A)

Combined estrogen plus progestin hormone therapy should not be continued to prevent CVD in postmenopausal women. (Class III, Level C)

Other forms of menopausal hormone therapy (eg, unopposed estrogen) should not be initiated or continued to prevent CVD in postmenopausal women pending the results of ongoing trials. (Class III, Level C)

Antioxidant supplements

Antioxidant vitamin supplements should not be used to prevent CVD pending the results of ongoing trials. (Class III, Level A)GI=1

Aspirin—lower risk‡

Routine use of aspirin in lower-risk women is not recommended pending the results of ongoing trials. (Class III, Level B)GI=2

GI indicates generalizability index; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; ACE, angiotensin-converting enzyme; and ARB, angiotensin receptor blocker.

*High risk is defined as CHD or risk equivalent, or global risk >20%.

†Intermediate risk is defined as global risk 10% to 20%.

‡Lower risk is defined as global risk <10%.

§Dietary supplement niacin must not be used as a substitute for prescription niacin, and over-the-counter niacin should only be used if approved and monitored by a physician.

It is possible to take steps to improve and to preserve your health, but those steps must have sound scientific support. We don’t know as much as we would like to know but this is an accurate and up-to-date summary of our current state of knowledge of how to treat heart disease in women.