The Hormone Foundation’s
Patient Guide on Metabolic Risk:
Primary Prevention of Cardiovascular Disease and Type 2 Diabetes

Why were the Clinical Guidelines written?
The number of patients at risk of developing cardiovascular disease (CVD) and type 2 diabetes mellitus (T2DM) has risen dramatically throughout the world. This patient guide is based on Clinical Guidelines offering recommendations to prevent CVD and T2DM in patients at metabolic risk. Metabolism is a complex chemical process that keeps the body’s cells healthy and working properly. Those at metabolic risk have several factors—high blood pressure, lipid abnormalities, high blood sugar, and excess body weight, particularly at the waistline—that cause them to be more likely to develop CVD or T2DM.

How were the Guidelines developed?
The Clinical Guidelines were developed after an extensive review of the best human research studies related to the therapy of metabolic risk. An expert panel of The Endocrine Society examined studies that were published in “peer-reviewed” medical journals (i.e., studies that were evaluated by other scientists). The panel rated the quality of the studies and gave the highest rating to randomized controlled studies. These are studies in which participants are assigned into treatment groups by chance (randomized) with one group receiving the treatment under investigation and another group receiving a placebo, or sugar pill. The results are then compared.

Once the panelists reached an agreement about their “recommendations” and “suggestions,” the Guidelines were reviewed by the general membership of The Endocrine Society and approved by several of the Society’s committees. The development of these Guidelines was not influenced by pharmaceutical or other business concerns.

Who is at metabolic risk?
Patients at metabolic risk can be identified with simple measurement and blood tests. A person who is at metabolic risk typically has three or more of the following signs:

- Large amount of abdominal fat—generally speaking, this means a waist measurement more than 40 inches in men and more than 35 inches in women
- High triglycerides (levels of fat in the blood)—150 mg/dL or higher, or currently taking medication to lower triglycerides
- Low levels of high-density lipoprotein (HDL or “good”) cholesterol—less than 40 mg/dL in men or less than 50 mg/dL in women, or currently taking medication to increase HDL
- High blood pressure—greater than or equal 130 mm Hg systolic, or greater than or equal 85 mm Hg diastolic, or taking blood pressure medication
- High blood glucose (blood sugar)—fasting glucose of greater than or equal 100 mg/dL, or currently taking medication to lower glucose levels

Focusing on these signs should not take attention away from other known CVD risk factors such as high levels of low-density lipoprotein (LDL or “bad”) cholesterol and family history.

Who should be tested for metabolic risk?
Many people who have the signs described above feel healthy and have no symptoms of ill health. Still, they are at risk of developing life-threatening diseases like CVD and T2DM in the future. Therefore, the Guidelines recommend that health care providers test for the main components of metabolic risk at routine visits at least every 3 years if you have at least one risk factor. If you have three or more signs, you need to be tested more often.

Blood tests and simple measurements can help determine if you are at metabolic risk.

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The Guidelines suggest testing if you have previously been diagnosed with prediabetes. Prediabetes is a condition in which the fasting blood sugar is higher than normal but not high enough for a diagnosis of diabetes, i.e., between 100 and 125 mg/dl. Because prediabetes can lead to diabetes, you should be tested for T2DM every 1 or 2 years.

For patients identified as having metabolic risk, the Guidelines recommend that physicians evaluate their 10-year risk for either coronary heart disease (CHD) or CVD. Doctors who decide to do this risk assessment will collect clinical information such as age, use of cigarettes, blood pressure, and blood lipid levels and enter the information into a formula; then specific treatment recommendations are based on whether you are at high (over 20%), moderately high (10–20%), or moderate (less than 10%) risk for having a major CVD event in the next 10 years (or sooner).

You and your doctor should be partners in your care. Discuss how to begin lifestyle modifications and what to expect from them.

What treatment is recommended to prevent atherosclerotic CVD?

Atherosclerosis is the underlying cause of CVD, especially stroke and CHD. Atherosclerotic CVD results when you have a build-up of cholesterol plaque in your arteries. LDL cholesterol is a major cause of the problem. For this reason, the Guidelines recommend therapy aimed at lowering LDL cholesterol in patients at metabolic risk to reduce risk for CVD. The intensity of the LDL cholesterol-lowering therapy should be adjusted according to your 10-year risk for CVD.

LDL cholesterol goals

- High-risk patients: less than 100 mg/dL
- Moderately high-risk patients: less than 130 mg/dL
- Moderate-risk patients: less than 130 mg/dL

Depending on your level of risk, several treatment options are available. If you are at moderate risk for CVD, lifestyle therapies (a meal plan and weight reduction) alone may lower LDL cholesterol enough to reduce your long-term risk. Suggested dietary changes to lower LDL include:
  - Reducing saturated fat to less than 7% of total calories
  - Reducing trans fats to less than 1% of total calories
  - Reducing dietary cholesterol to less than 200 mg/day
  - Eating more fresh fruits, vegetables, whole grains, and fiber
  - Reducing body weight by 7% to 10%

Increased physical activity is also recommended along with other lifestyle therapies because studies suggest it will reduce cardiovascular risk. Medications to lower LDL cholesterol may be added to lifestyle therapy for patients in the higher risk categories.

What can you do to help your treatment process?

You and your doctor should be partners in your care. Ask whether you are at metabolic risk of developing CVD or T2DM. If so, remember that weight loss and physical activity are the best ways to manage the clinical signs of metabolic risk. Follow your doctor’s advice for treatment and see him or her regularly for testing and monitoring of your condition. It is important to make needed changes before serious complications develop.

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