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## Patient information: High cholesterol and lipids (hyperlipidemia) (Beyond the Basics)

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### INTRODUCTION

Hyperlipidemia refers to increased levels of lipids (fats) in the blood, including cholesterol and triglycerides. Although hyperlipidemia does not cause you to feel bad, it can significantly increase your risk of developing coronary heart disease, also called coronary artery disease or coronary disease. People with coronary disease develop thickened or hardened arteries in the heart muscle. This can cause chest pain, a heart attack, or both. Because of these risks, treatment is often recommended for people with hyperlipidemia.

This topic reviews the risk factors for coronary disease, the types of lipids, and when cholesterol testing should begin. The treatment of high cholesterol is discussed separately. (See "[Patient information: High cholesterol treatment options \(Beyond the Basics\)](#)".)

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### OTHER RISK FACTORS FOR CORONARY DISEASE

In addition to hyperlipidemia, there are a number of other factors that increase the risk of coronary disease and its complications.

The following are coronary disease-risk equivalents; people with these medical problems are thought to be at similar risk for complications of coronary disease as people with known coronary disease.

- Many patients with diabetes mellitus, type 1 and 2 (See "[Patient information: Diabetes mellitus type 1: Overview \(Beyond the Basics\)](#)" and "[Patient information: Diabetes mellitus type 2: Overview \(Beyond the Basics\)](#)".)
- Symptomatic carotid artery disease (eg, stroke or transient ischemia attack) (See "[Patient information: Transient ischemic attack \(Beyond the Basics\)](#)" and "[Patient information: Stroke symptoms and diagnosis \(Beyond the Basics\)](#)".)
- Peripheral artery disease (eg, claudication) (See "[Patient information: Peripheral artery disease and claudication \(Beyond the Basics\)](#)".)
- Abdominal aortic aneurysm (See "[Patient information: Abdominal aortic aneurysm \(Beyond the Basics\)](#)".)
- Kidney disease (See "[Patient information: Chronic kidney disease \(Beyond the Basics\)](#)".)

Other factors that increase the risk of coronary disease include:

- Cigarette smoking
- Hypertension (blood pressure  $\geq 140/90$  or use of blood pressure medication) (See "[Patient information: High blood pressure in adults \(Beyond the Basics\)](#)".)
- Family history of coronary disease at a young age in a first degree relative (parents and siblings).  
In males: first degree relatives under 55 years; in females: first degree relative under 65 years
- Gender: Men have a higher risk of coronary disease than women at every age
- Age: There is an increasing risk of coronary disease with increasing age

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## LIPID TYPES

The term lipids includes cholesterol and triglycerides. There are many different types of lipid (also called lipoproteins). Blood tests can measure the level of your lipoproteins. The standard lipid blood tests include a measurement of total cholesterol, LDL (low density lipoproteins) and HDL (high density lipoproteins), and triglycerides.

**Total cholesterol** — A high total cholesterol level can increase your risk of coronary disease. However, decisions about when to treat high cholesterol are usually based upon the level of LDL or HDL cholesterol, rather than the level of total cholesterol.

- A total cholesterol level of less than 200 mg/dL (5.17 mmol/L) is **normal**.
- A total cholesterol level of 200 to 239 mg/dL (5.17 to 6.18 mmol/L) is **borderline high**.
- A total cholesterol level greater than or equal to 240 mg/dL (6.21 mmol/L) is **high**.

The total cholesterol level can be measured any time of day. It is not necessary to fast (avoid eating for 12 hours) before testing.

**LDL cholesterol** — The low density lipoprotein (LDL) cholesterol (sometimes called "bad cholesterol") is a more accurate predictor of coronary disease than total cholesterol. Higher LDL cholesterol levels increase your risk of coronary disease.

Most healthcare providers prefer to measure LDL cholesterol after you have not eaten (fasted) for 12 to 14 hours. A test to measure LDL in people who have not fasted is also available, although the results may differ slightly.

You should know your LDL cholesterol level and your LDL goal. This goal depends upon several factors, including your history of coronary disease or coronary disease-risk equivalents and your 10-year risk score of developing coronary disease.

**Ten year risk of developing coronary disease** — The 10-year risk score is based on information from the Framingham Heart Study, a large study that has followed participants, as well as their children and grandchildren, for greater than 50 years. The 10-year risk can be calculated for women ([calculator 1](#)) and for men ([calculator 2](#)).

**Triglycerides** — High triglyceride levels are also associated with an increased risk of coronary disease. Triglyceride levels are divided as follows:

- Normal - less than 150 mg/dL (1.69 mmol/L)

