

# CHOLESTEROL: What You Need to Know

## OBJECTIVES:

- What is cholesterol?
- How does cholesterol cause heart disease?
- What do cholesterol numbers mean?
- How do you lower your risk for heart disease?

### 1) Why is cholesterol important?

Cholesterol is a fat-like substance produced in the liver but also found in the bloodstream and all of your body's cells. Our body uses cholesterol to form cell membranes and hormones. Cholesterol plays a vital role in the body but too much can cause damage to the healthy functioning of blood vessels. Your blood cholesterol level has a lot to do with your chances of getting heart disease.

### 2) How does cholesterol cause heart disease?

**heart disease?** When there is too much 'bad' cholesterol in your blood, it can enter the blood vessel wall and deposit cholesterol. Over time this build-up causes "hardening of the arteries" so that arteries become narrowed and blood flow to the heart is slowed down or blocked. This form of heart disease is called atherosclerosis and it occurs in the arteries that supply nutrients to the heart tissue. When blood flow is restricted by hardening, chest pain (called 'angina') can result. If the blood supply to a portion of the heart is completely cut off by a blockage, the result is a heart attack or myocardial infarction.

### 3) What do your cholesterol numbers mean?

Cholesterol and other fats cannot dissolve in the blood. They have to be carried by transport lipoproteins. Low-density lipoproteins (LDL) is sometimes called the 'bad' cholesterol because when levels are high in the blood, the risk of heart disease is increased. High-density lipoproteins (HDL) are known as the 'good' cholesterol. It carries cholesterol away from your arteries. It is best to have a blood test called a "lipoprotein profile" to find out your cholesterol numbers. This blood test is done after a 9 to 12 hour fast and gives information about your:

#### Total cholesterol

- **LDL (bad) cholesterol** – causes damage to arteries resulting in blockages
- **HDL (good) cholesterol** – helps keep arteries wide and healthy
- **Triglycerides** – another form of fat in your blood

Knowing your total cholesterol level will not be enough to know your risk of heart disease. It is more important to know how your LDL and HDL break down. HDL (good) cholesterol protects against heart disease, so for HDL, higher numbers are better. A level less than 40 mg/dL is low and considered a major risk factor. HDL levels of 60 mg/dL or more help to lower your risk for heart disease.

Triglycerides can also raise heart disease risk. Levels that are borderline high (150-199 mg/dL) or high (200 mg/dL or more) may need treatment.



### 4) Is lowering cholesterol enough

**to prevent heart disease?** Heart disease is not caused by a single factor although high LDL cholesterol levels are estimated to be a factor in almost half of all cases of heart disease. Heart disease risk factors include:

- **Family history of heart disease** – close relative dying of heart disease before age 65 years
- **Age** – man >45 years | women > 55 years
- **Diabetes** – risk increases by 2-3 times
- **Cigarette Smoking**
- **Diet / Weight**
- **Blood Pressure**
- **Lifestyle**

You may notice some of these risk factors you cannot control, but most of them you can. It is important to realize that an unhealthy lifestyle, even when you are young, can contribute to the build-up of fatty cholesterol plaques in your arteries – the beginning of coronary heart disease. Studies have shown that the build-up of this plaque in the arteries that supply the heart begins in late adolescence and early adulthood. Waiting until midlife to start thinking about and taking care of your heart reduces the benefits that can be obtained.

**What can you do?** In most cases, high blood cholesterol levels are the result of a poor diet. Diets high in saturated and trans fats and low in fiber increase blood cholesterol levels. Dietary cholesterol has now been shown to have a lesser effect on blood cholesterol than previously thought. Being overweight, physically inactive or smoking plays a role in increased blood cholesterol.

Developing a healthy lifestyle by being physically active, eating healthily, reducing stress, maintaining a healthy weight and quitting smoking are important to maintain good health now and prevent heart disease later in life.

**Treating High Cholesterol:** The main goal of cholesterol-lowering treatment is to lower your LDL level enough to reduce your risk of developing heart disease or having a heart attack. The higher your risk, the lower your LDL goal will be. We will calculate our LDL goal at the end of the session.

There are two main ways to lower your cholesterol:

- **Therapeutic Lifestyle Changes (TLC) -**

includes a cholesterol-lowering diet (*TLC diet*), physical activity and weight management.

- **Drug Treatment -** if cholesterol-lowering drugs are needed, they are used together with TLC treatment to help lower your LDL

The TLC diet is a low saturated and trans-fat diet high in fiber. Dietary cholesterol is encouraged to be less than 200 mg per day, but the relationship between dietary cholesterol and blood cholesterol has been shown to be less important. Weight loss is especially important for those with a high triglyceride level and/or low HDL levels with a large waist measurement (more than 40 inches for men; more than 35 inches for women). Regular physical activity (30 minutes on most, if not all, days) is recommended for everyone since it can help raise HDL and lower LDL.

There are three types of fats: (see table)

- **Saturated Fats** – Solid at room temperature, usually found in animal products; linked to heart disease

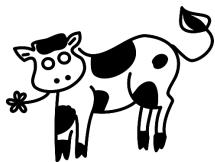
- **Unsaturated Fats** (poly & mono)-  
Liquid at room temperature, usually found in plant products; various health benefits

- **Trans fats** – Found in packaged, shelf-stable desserts and hydrogenated oils; linked to heart disease

## WHERE FATS COME FROM:

### Saturated Fats

#### Animal Sources



Butter, Lard, Bacon, Sausage  
Dairy products (*increased with fat %*)  
Cream, Sour cream,  
Meat (*increase with “marbling”*),  
Skin from chicken and turkey

#### Plant Sources



Coconut oil, Hydrogenated oils, Palm oils, Palm kernel oil

### Trans Fats



Processed foods (*boxed cakes, cookies, doughnuts, candy bars, pastries*),  
Fried foods, Hard margarines, Shortening,  
Partially hydrogenated oils

### Unsaturated Fats

#### Polyunsaturated



Safflower oil, Sunflower oil, Corn oil, Cotton seed oil, Sesame oil, Soybean oil, Walnuts, Pumpkin seeds, Fish, Fish oil

#### Monosaturated



Olives, Olive oil, Peanuts, Peanut oil, Canola oil, Sesame seeds, Almonds, Pecans, Avocado, Avocado oil

# TAKE ACTION

## Step 1 – Check the risk factors that affect LDL levels below.

\*obesity and physical inactivity are not counted in this list but need to be addressed for heart health

### MAJOR RISK FACTORS THAT AFFECT LDL GOAL

- Cigarette Smoking
- High blood pressure (>140/90 mmHg or on BP medication)
- Low HDL cholesterol (less than 40 mg/dL)
- Family history of heart disease (heart disease in a father or brother before age 55; mother or sister before age 65)
- Age (men 45 years or older; women 55 years or older)

**Step 2 – Determine your risk score percentage?** (You can go online and use the Framingham CHD Point Score to find your risk of having a heart disease in the next ten years, given as a percentage)

### Step 3 – Determine your risk category

You are in category:	If you have:
Highest Risk (I)	Heart disease, diabetes or a risk score > 20%
Next Highest Risk (II)	2 or more risk factors and risk score 10-20%
Moderate Risk( III)	2 or more risk factors and risk score of <10%
Low to Moderate Risk (IV)	0-1 risk factor

### IF YOU ARE IN...

**Highest risk:** Your LDL goal is less than 100 mg/dL. If your LDL is below 100, you should still follow a TLC diet to keep your LDL as low as possible. If your LDL is 130 or higher, you may need to start drug treatment along with a TLC diet.

**Next Highest Risk:** Your LDL goal is less than 130 mg/dL. If your LDL is 130 mg/dL or more after 3 months on a TLC diet, you may need drug treatment along with the TLC diet.

**Moderate Risk:** Your LDL goal is less than 130 mg/dL. If your LDL is 160 mg/dL or more after 3 months on a TLC diet, you may need drug treatment along with the TLC diet.

**Low-to-Moderate Risk:** Your LDL goal is less than 160 mg/dL. If your LDL is 160 mg/dL or more after 3 months on a TLC diet, you may need drug treatment along with the TLC diet to help lower your LDL, especially if your LDL is 190 mg/dL or more.

\*To reduce your risk for heart disease or keep it low, it is very important to control any risk factors you may have such as blood pressure and smoking.