

# CHOLESTEROL: Do You Know Your Numbers?

Cholesterol is a waxy substance that is produced in the liver and found in foods. Your body needs cholesterol to function properly. Having too much cholesterol in the blood, however, can increase your risk for heart disease and stroke.

Cholesterol is a very important part of overall health. Cholesterol numbers can be affected by many different factors, including diet, weight, exercise and family history. To find out your numbers, you need to get a lipoprotein profile. This simple blood test measures:

- Total cholesterol
- LDL cholesterol
- HDL cholesterol
- Triglycerides

## Cholesterol is essential for many everyday bodily functions like:

- Nerve transmission
- Making the majority of the body's hormones
- Converting Vitamin D into a form the body can use
- Producing bile acids to properly digest fat

## How Does Cholesterol do These Jobs?

- Cholesterol is carried from the liver through the bloodstream to the areas that require it to function, such as the heart, intestines and brain.
  - Cholesterol travels in little packages called lipoproteins. When it is produced in the liver, it combines with a protein – lipoprotein – in order to be carried through the bloodstream.
  - Excess cholesterol is deposited on the walls of the arteries.
  - Years of cholesterol deposits can cause the artery walls to harden and narrow, paving the way for heart disease.



## You get cholesterol from two sources:

- **Your liver:** it produces all the cholesterol that your body needs to function properly.
- **The food you eat:** cholesterol from animal sources of food (e.g. meat, eggs), saturated fats from animal sources of food, and trans fats (like partially hydrogenated oils in packaged foods) can raise your blood cholesterol levels.

## The “Good” Cholesterol

- HDL, or high density lipoproteins
- Remember, “H” for “healthy”
- HDLs carry cholesterol from parts of the body back to the liver for removal
- HDLs pick up deposited LDLs from the arteries
- Too few HDLs in the body limit the ability to clean up LDL deposits

## The “Bad” Cholesterol

- LDL, or low density lipoproteins
- Think “L” for “lousy”
- LDLs carry cholesterol away from the liver
- Too much LDL cholesterol in the blood is correlated with an increase of heart disease
- If the LDL cholesterol is not being used by the body, the deposit builds up and can cause blockages

## What are the recommended levels:

The National Cholesterol Education Program recommends:

- Total Cholesterol = <200 mg/dL
- HDL Cholesterol = 40 - 100 mg/dL
- LDL Cholesterol = <100 mg/dL
- Triglycerides = <150 mg/dL

## What factors affect my cholesterol levels?

### Things you can't change

- Age – cholesterol levels increase in everyone until 60 – 65 years old
- Genetics – family history
- Disease
- Some medications/drugs
- Reduced estrogen – occurs in women after menopause

### Things you can change

- Weight
- Physical activity
- Diet
- Smoking

## So, what are Triglycerides?

Even though they are measured on the lipid profile, triglycerides are not cholesterol. They are actually free-flowing fatty acids in the bloodstream. Triglycerides are strictly from dietary intake of fat. High levels are usually found in individuals with other cholesterol issues that increase the risk of developing heart disease, e.g., low HDLs and/or high LDLs.



## What factors affect my triglycerides?

### ■ Things you can't change

- Genetics - Family History
- Disease
- Some medications/drugs

### ■ Things you can change

- Weight
- Physical activity
- Smoking
- Excess alcohol consumption
- Eating an unhealthy, highly refined carbohydrate diet

## How can I change my diet?

### ■ Watch what fats you eat

- Avoid all trans fat by staying away from fried foods and foods made with hydrogenated or partially hydrogenated oils
- Reduce saturated fat intake by eating fewer solid fats like fat on meats, butter, shortening
- Buy fat-free or low-fat dairy products
- Eat lean proteins like baked, skinless poultry and fish
- Choose liquid fats like olive oil, canola oil, grapeseed oil
- Include avocados, nuts and nut butters in your eating plan

### ■ Limit your intake of cholesterol

- Foods high in cholesterol include: liver, organ meats, egg yolks and full-fat dairy products
- The American Heart Association recommendations on cholesterol intake are:
  - Less than 300 mg/day for most
  - Less than 200 mg/day if you have diabetes or heart disease

### ■ Choose healthy carbohydrates

- Limit sugar and refined carbs like sodas, baked goods, sweets, refined breads and crackers
- Up your fiber intake to lower your LDLs – eat plenty of fruits, veggies and whole grains to do this
- Limit yourself to one glass of wine or alcohol per day

### ■ Get active by moving 30 minutes on most, if not all, days of the week.

### ■ Lose weight! Just a modest loss of 5-10 pounds will help improve cholesterol levels.

## Minor modifications can add up to better numbers!

	Recommendation	Reduction in LDL
Saturated Fat	<7-10% of calories	8-10%
Dietary Cholesterol	<200 mg/day	3-5%
Weight Reduction	10 lb loss	5-8%
Soluble Fiber	5-10 g/day	3-5%
Plant Sterols/Stanoles	2 g/day	5-15%
<b>Total Reduction</b>		<b>20-30%</b>

## Medications, Supplements and Cholesterol:

- Medication and supplements are needed by some people to manage their cholesterol
- Even if you're on one, continue with healthy eating and physical activity
- Your doctor will help decide what type of drug is best for your situation
- **Some common medications and supplements are:**
  - Bile acid sequestrants that bind with cholesterol-containing bile and get eliminated in the stool
  - Statins that lower LDL levels and help control cholesterol production in the body
  - Nicotinic acid (niacin) is a supplement that lowers total and LDL levels while raising HDL levels – don't take this unless your physician tells you that you can
  - Fibrates lower triglycerides and increase HDL levels

## On the Horizon

Some new tests are on the horizon to check your cholesterol-related risks:

- C-Reactive Protein checks for low-grade inflammation, which could be your immune system's response to atherosclerosis
- Apolipoprotein B checks a component that make-ups LDL cholesterol. Research shows that the smaller and more dense the particle, the more risk for heart disease

Think about how you can personally control your blood cholesterol and triglycerides. Maybe it's going for a walk every day, or maybe it's using small amounts of vegetable oil instead of a lot of animal fat or shortening in your cooking. Whatever you choose, it will be your first step to improving your health.

