

## CHOLESTEROL

Controlling your cholesterol levels is an important step toward a healthy life.

### WHAT CAN YOU DO?

- *Alter your diet and lower your fat intake to 20% to 30% of your daily intake of calories. Following Canada's Food Guide is a good place to start.*
- *Avoid trans fats. This type of fat is found in processed foods, bought baked goods and many fast foods. Trans fats tend to lower HDL and raise LDL.*
- *Reduce your intake of saturated fat by eating more fish and less red meat and high-fat dairy products. Also eat more vegetables and fruit.*
- *If you smoke, stop. Smoking increases LDL levels in the blood. Avoid second-hand smoke too.*
- *Get physically active and lose weight. Do at least 30 minutes of exercise at least five times weekly. This alone can improve cholesterol levels.*
- *Try cooking your food differently. Use steaming, broiling and baking rather than frying.*
- *Increase your intake of soluble fibre like oatmeal, which can reduce cholesterol levels a little.*
- *Try to control stress in your life. Exercise, relaxation techniques like yoga and meditation can be helpful.*

### WHAT IS CHOLESTEROL?

Cholesterol is one of the fats (lipids) in your blood. Your body needs cholesterol to help make the cells in your body. It's also important in the manufacturing of vitamin D and hormones. There are two main types of cholesterol: Low Density Lipoprotein (LDL) is also labelled the "bad" cholesterol ("bad" because it is implicated in plaque build-up in the arteries).

The second type is High Density Lipoprotein (HDL) called the "good" cholesterol because it helps to carry LDL away from the artery walls. There is a third type of blood cholesterol called Very Low-Density Lipoprotein (VLDL). This type of cholesterol is also bad and contains a large amount of triglycerides. By lowering your triglycerides, you also lower your VLDL.

Triglycerides are not cholesterol. They are fat molecules in the blood derived from fatty foods and carbohydrates. High triglycerides are usually associated with excess weight, drinking too much alcohol and poorly controlled diabetes.

We need some cholesterol for our bodies to work efficiently. The problems come from having too much of it and this can lead to heart disease and stroke.

Heart disease is still the leading cause of death in Canada and represents a major cost to our healthcare system. By controlling cholesterol levels, there will be less narrowing of the major blood vessels due to cholesterol build-up. This in turn will reduce the chances of a blood clot occurring in one of those major blood vessels and causing a stroke. There are steps you can take to keep your blood vessels healthy.

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## METABOLIC SYNDROME

No discussion of cholesterol would be complete without mentioning metabolic syndrome. It is a group of conditions that are often seen together and if a person has three or more of these conditions, it indicates an increased risk of developing diabetes and heart disease. The conditions include:

1. Increased waist circumference (over 40 inches in men and over 35 inches in women)
2. Excess body weight
3. High levels of bad LDL and triglycerides and low levels of HDL
4. High blood pressure
5. high sugar levels which can indicate insulin resistance or Type II diabetes
6. Increased age and
7. A family history of diabetes.

Each of these conditions alone can increase a person's risk of developing heart disease, stroke and diabetes. But the more of these risk factors a person has, the greater is the chance of becoming diabetic or having a heart attack or stroke. A telltale sign of possible metabolic syndrome is a large gut with excess belly fat. Those with excess belly fat are more prone to diseases like diabetes, high blood pressure, sleep apnea, high cholesterol and of course metabolic syndrome.

### TREATMENT OF METABOLIC SYNDROME

includes lifestyle changes of losing weight, eating better and trimming that belly, reducing your cholesterol levels, taking ASA to reduce the risk of heart disease as well as a diabetic medication if blood sugars are too high. Also if blood pressure is high, medication will be given to lower it.

It is important to create an exercising habit of at least 30 minutes a day at least five days per week. If you aren't used to exercising, start slowly with your doctor's consent. Even going for a brisk walk three times weekly is helpful and will lower heart attack risks and help your cholesterol levels.

## CHOLESTEROL TESTING AND TREATMENT

To check your cholesterol, the lab will take a morning blood sample after you have fasted for about 12 hours. If the results are abnormal, the doctor will usually recommend lifestyle changes first. If that doesn't produce results in a few months, medication will be prescribed. Here are the target numbers that doctors aim for to control your cholesterol:

- Total Cholesterol: less than 5.2 (expressed as mmol/l)
- HDL: Higher than 1.0
- LDL: Less than 2.5 (recently, even lower levels of LDL are being sought)
- Triglycerides: Less than 1.7
- Total Cholesterol/HDL ratio: less than 4.5

### MEDICATIONS USED TO LOWER CHOLESTEROL

**STATINS:** Prior to 1976, the only ways to treat high cholesterol was by dietary changes plus a few drugs like niacin, cholestyramine (Questran®) and a class of drugs called fibrates. In 1976, the first of a new class of cholesterol-lowering drugs came on the market. This class was called the "statins" and the first one released was lovastatin (Mevacor®). Its unique method of action involves inhibiting a special enzyme the body uses to make cholesterol in the liver. Examples of newer, more common statin drugs include atorvastatin (Lipitor®), pravastatin (Pravachol®) and simvastatin (Zocor®).

Statins were well accepted because they needed only one dose daily. They are also well tolerated with minimal serious side effects, which can include raised liver enzymes and skeletal muscle pain. Lab tests can pick up any liver enzyme abnormality while the muscle pain is easily diagnosed. The statin drugs usually work best when taken in the evening. Grapefruit juice does interact with some statin drugs causing an increase in blood levels of the drug. This is quite pronounced with lovastatin and to a lesser degree with simvastatin and atorvastatin.

What about niacin? Niacin is a vitamin (B-3) but when used for lowering cholesterol it acts like a drug. It lowers total cholesterol, raises HDL, and lowers LDL and triglycerides. It is also inexpensive (compared to statins). Doses can be as high as 4500 mg per day divided among three doses per day. However, due to side effects of intense flushing and itching, the multiple daily doses required and the difficulty in beginning therapy (doses are started small and increased gradually over a couple of weeks), niacin isn't used too much any more.

### SUMMARY

*Having healthy cholesterol levels is an important component of good health. With a healthy lifestyle of a low-fat diet, regular exercise and normal body weight, you can help yourself avoid heart problems and diabetes. Our Medicine Centre pharmacists will be happy to answer any questions you may have about cholesterol or any other health concern.*