February is heart month—a lovely time to take responsibility for your lasting wellness and to discover the essentials for a happy heart and functioning blood vessels.

As a leading cause of death, second only to cancer, heart disease is a definite challenge. Symptoms normally manifest after silent risk factors have smouldered beneath the surface for 10 to 20 years. This is primarily the case in men, although women catch up quickly with the hormonal changes at menopause. Sadly, once the symptoms appear they are often severe or fatal.

The role of cholesterol

Although there are several underlying causes of heart disease, high cholesterol is considered a significant contributing factor. Cholesterol is a fatty substance and the most abundant sterol in the body. It is an essential component of cell membranes and a precursor to bile salts, vitamin D, and many hormones, including progesterone, testosterone, and estrogen.

Technically, the liver, intestines, adrenal glands, and reproductive organs produce enough cholesterol to meet our needs. But we add more cholesterol through the foods we eat, specifically organ meats, egg yolks, dairy, and animal protein. Many of these foods contain large amounts of saturated fat, which can also lead to high blood cholesterol levels.

There are two types of cholesterol in the body—high-density lipoprotein (HDL) and low-density lipoprotein (LDL), and the balance of both affects our level of risk. But it seems the actual amount of cholesterol in the body may be less significant as a contributing factor to coronary artery disease (CAD) than the presence of oxidized cholesterol, created when cholesterol is exposed to oxygen. Oxidized cholesterol is a highly unstable, reactive, inflammatory compound that promotes cellular damage and arterial disease. Although cholesterol reduction is an important step for heart health protection, antioxidant intake and inflammation control to reduce oxidized cholesterol provides the platform for a successful attack on heart disease.

Cholesterol—the good

HDL has earned the nickname “good cholesterol.” It is produced in the liver and sent out to remove cholesterol from the blood. The scavenged bad cholesterol is processed through the liver, excreted in the bile, and moves into the digestive tract for removal from the body. High levels of HDL in the blood may help to reduce the risk of CAD while low levels have been found to increase risk.

Women are often told not worry about higher LDL, triglyceride, or total cholesterol figures if their HDL is normal to high. This may provide a false sense of security and does not completely eliminate risk. Studies
Heart disease—it's not only about cholesterol

Most risk factors for heart disease are modifiable with early detection. Simply visit your doctor once a year to request the following tests in addition to your cholesterol panels. Remember—you can’t change what’s not recognized:

- fasting blood sugars
- ferritin
- lipoprotein a (LP[a])
- DHEA, free testosterone, estradiol
- uric acid
- fasting blood insulin
- homocysteine (along with folic acid and vitamin B₁₂)
- high sensitivity C-reactive protein
- hemoglobin A₁c

In addition, the Yakugaku Journal of Pharmaceutical Society of Japan article stated that cholesterol appears to have cancer-protective benefits arising from its influence on enzymes involved in cellular growth and development. This is similar to findings reported much earlier in The Lancet (March 1985) that also found an increased risk of cancer in those individuals with lowest cholesterol. So lower is not always better.

show that HDL must be greater than 1.7 to be protective.

**Cholesterol—the bad**

LDL is known as bad cholesterol, yet it isn’t entirely bad—we need it for cellular growth and repair. The term “bad” stems from the fact that excess LDL can deposit onto blood vessel walls and lead to thickening. When arteries become clogged, blood flow to the heart or other areas may become restricted, triggering a heart attack, stroke, or cardiovascular insufficiency problem. In most cases, high LDL means a higher risk for heart disease. Low LDL balanced with high HDL manages some of the risk of heart disease.

**Cholesterol—the not-so-ugly?**

The initial cause of cholesterol deposits on the arterial wall is believed to be the body’s natural attempt to repair inflammation. In this sense, cholesterol is a protective compound.

In November 2005, the Yakugaku Zasshi Journal of the Pharmaceutical Society of Japan reported that high total cholesterol was not positively associated with high CAD mortality rates among general populations over 40 years of age. Instead, CAD mortality rate was found to be related to eicosanoids, inflammatory compounds formed from an imbalanced intake of omega-6 over omega-3 polyunsaturated fats. These compounds lead to the production of blood clotting mediators and alter cellular communication and gene expression—the major risk factors for CAD, cancer, and diminished longevity.

**Normal blood values**

- Total cholesterol: 5.2 mmol/L or below is healthy.
- HDL: 1.2 mmol/L and above is healthy. Higher is better.
- LDL: 3.5 mmol/L or below is healthy. Lower is better.
Know your numbers
The increase in obesity over the past 25 years has resulted in greater incidence of high cholesterol, even in children and teenagers. If your child is overweight, a cholesterol test is a good precautionary measure. Adults should have cholesterol levels checked once per year, regardless of weight. When you have a fasting blood test for cholesterol, ensure all the blood lipid measurements are included: total cholesterol, HDL, LDL, and triglycerides. Tests should be repeated every three months to monitor treatment progress for cholesterol abnormalities.

Conquering cholesterol imbalance
Prescribed statin medications are associated with long-term risks and side effects, so opt for natural treatments. Regardless of the type of cholesterol imbalance, antioxidants such as vitamin C and mixed tocopherols are a must to prevent oxidation of LDL cholesterol. Keep garlic, onion, and turmeric intake high to tackle inflammation, and consider a liver and bowel detoxification since those areas are the primary sites of cholesterol production and elimination. Finally, beat depression and stress. A study reported by the American Heart Association (2005) found depressed men had higher levels of inflammatory markers associated with CAD than men who reported no symptoms of depression.

In essence, heart disease is not solely defined by cholesterol readings but by healthy cholesterol balance, and prevention of oxidized cholesterol certainly plays a major part in being heart smart.

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Raising HDL
Be physically active. The benefits of regular exercise include:
- decreased blood pressure
- decreased body fat
- decreased total and LDL cholesterol and higher HDL cholesterol
- increased tolerance to stress and depression that contribute to heart disease and high cholesterol

Maximize intake of deep sea cold water fish such as sardines, salmon, tuna, halibut, and mackerel. Include monounsaturated fat in your diet. Good sources are canola, olive, avocado, walnut, and almond oils.

Lowering LDL
Eat plant foods that are high in soluble fibre. Good sources include:
- ground flaxseeds—add 1 to 2 Tbsp (15 to 30 mL) to smoothies per day
- apples and pears
- oatmeal or oat bran (cooked)
- broccoli, collard greens, and/or carrots
- sweet potato
- cooked beans, barley, or split peas

Use an omega-3 fish oil supplement at a daily dose of 2 to 4 g.

Eat four or five small meals a day instead of two or three larger ones.

Limit intake of red meats, dairy products, and saturated fats while consuming lean protein sources.

Increase your intake of soy protein and genistein.

Consider additional supplements to lower cholesterol: policosanols, gugulipids, or beta-sitosterols.