

Eat Away Cholesterol

By Allison Tannis, BSc, MSc

Did you know that you the amount of cholesterol you eat does not determine your blood cholesterol levels? There is an enzyme in the liver, called HMG Co-A reductase, that produces cholesterol – an important component of cell walls. In fact, cholesterol is a vital fat in our body. Yet, at high levels this vital fat can be fatal.

So, what can we eat to reduce our blood cholesterol levels? Luckily, it is all the foods we need to eat to support our intestinal health and boost our immune system.

1) Fibre – a key ingredient in every good diet. Fibre is like a sponge in the intestine. It is able to trap cholesterol in its mesh and prevent it from being absorbed by the body. Some fibres are more effective than others. For example pectin, psyllium and oat bran are more effective than barley and legumes at lowering cholesterol, despite both containing fibre. (*Curr Opin Lipidol. 1995 Feb;6(1):14-9.*) Therefore, reach for whole grain breads and pastas, fruits, vegetables and nuts.

2) Good Fats – Omega-3 and Omega-6 fatty acids have been shown in scientific studies to help reduce cholesterol levels, and triglycerides – another fat culprit of the heart.

Cholesterol is a word that is almost scarier than the boogie monster. It's seen as the number one risk factor for heart disease - the biggest killer in North America. We cringe at the sound it. We run and hide from it. Since we can't see it, we like to pretend its not there- out of sight, out of mind.

Cholesterol is a problem. Not because it is directly the cause of heart disease, but that a high level of bad cholesterol is a signal that a person's diet, and body is not healthy. And, where there is bad cholesterol, there may also be other heart disease risk factors (e.g. high levels of C-reactive protein, high levels of homocysteine, and a deficiency in essential fatty acid levels).

Over the past few years science has discovered many food products that are useful in the fight against bad cholesterol and other markers of heart disease. By reviewing the science we can create a list of must have supplements in our formula for cholesterol.

Formula for Cholesterol:

Essential Fatty Acids:

The association between fish oil and low risk of heart disease is well known. However, fish oil is not known as a cholesterol lowering agent. In fact, it is the omega-6 fatty acid, linolenic acid that is the major dietary fatty acid regulating bad cholesterol, or LDL cholesterol. However, the fact that epidemiological and clinical studies have established that the n-6 fatty acid, linoleic acid, and the n-3 fatty acids, linolenic acid , eicosapentaenoic acid , and docosahexaenoic acid, collectively protect against coronary heart disease makes all omega fatty acids important to heart health, and key to the cholesterol formula. (*Annu Rev Nutr. 2004;24:597-615*)

Vitamin B:

Homocysteine, a fat found in the body that is thought to be a major player in the formation of atherosclerosis and heart disease, can accumulate in the body if there is a deficiency of the B vitamins. Be sure to include folate, vitamin B12 and vitamin B6 in your diet through supplements or food (e.g. fortified cereals, nuts, beans, meat, poultry, fish, and some fruits and vegetables). Just over a third of the cases of heart disease and stroke are not explained by the Framingham risk factors (age, sex, smoking, blood pressure, cholesterol and diabetes). (*Stroke 1999;120:211-5*)

Hyperhomocysteinemia is more common than first thought – about 20% of Canadians suffer from it. Homocystein may be as bad as cholesterol in noting heart disease risk and should be part of our formula for cholesterol to ensure a healthy heart. (*Clin Investig Med, 1996;19:171-8*)

Fruits and Vegetables:

Fruits and vegetables are packed with compounds that may help prevent heart disease. The mechanism by which fruits and vegetables reduce the risk of heart disease is unclear. It is likely multiple ways. Fibre, folate and potassium are likely players in the prevention of heart disease, as antioxidants are likely too. Regardless of how fruits and vegetables reduce the risk of heart disease, large population studies show convincing associations between high fruit and vegetable consumption and low rates of heart disease. (*Comp Biochem Physiol A Mol Integr Physiol. 2003 Sep;136(1):141-51.*)

Green Tea - A study of 240 subjects on a low fat diet with mild to moderately high levels of cholesterol, received a 375mg theaflavin-rich green tea extract supplement for 12 weeks. The results were significantly lower LDL levels (i.e. 11% drop in LDL levels for the supplement group, and no drop in the placebo group). (*Maron, DJ. Archives of Internal Medicine, 2003;163:1448-53*)

Phytosterols -Plants contain a compound that works similar to statins, a pharmaceutical prescribed to patients with high cholesterol to inhibit the action of the enzyme, HMG-CoA reductase, which produces cholesterol in the liver. Statins are a concern as they can elevate liver enzyme production which is harmful. They can also cause muscle aching, nausea and gastrointestinal discomfort. It has long been known by scientists that plant sterols, known as phytosterols are useful in lowering cholesterol. (*Lees AM, Mok HYI, Lee RS, et al. Plant sterols as cholesterol-lowering agents: clinical trials in patients with hypercholesterolemia and studies of sterol balance. Atherosclerosis 1977;28:325–38.*)

Red Rice Yeast - used in China for centuries, red rice yeast extract works similar to statins as it inhibits the action of the HMG-CoA reductase enzyme in the liver, thereby being an effective way to reduce cholesterol levels. (*Heber D, Yip I, Ashley JM, Elashoff DA, Go VLW. Cholesterol-lowering effects of a proprietary Chinese red-yeast-rice dietary supplement. Am J Clin Nutr. 1999;69:231-236.*)

Soy - Substituting soy protein for other sources of protein is a cholesterol healthy move as it will greatly reduce the amount of dietary cholesterol consumed. However, science has shown that there is more to soy consumption and lowering bad cholesterol levels than just a switch of foods on your plate. A meta-analysis of 8 clinical trials on humans, found that soy isoflavones, present in soy protein, is effective at lowering serum levels of LDL-cholesterol. (*J Nutr. 2004 Sep;134(9):2395-400*)

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