



The Science of Health, Nutrition and Fitness

An Introduction to Cholesterol

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In our present society; most adults are aware of the term 'cholesterol' and they have some basic idea of the fact that it is related to cardiovascular health. In this small article we will look at what cholesterol is and determine some basic strategies for lowering the body's cholesterol levels.

Cholesterol is a wax like fatty substance produced naturally in the body by the liver and small intestine; and is also introduced to the body through nutritional intake. It comes in two distinct formats which are known as 'bad cholesterol' and 'good cholesterol'. Bad cholesterol or Low Density Lipoproteins (LDL) makes up the majority of the bodies cholesterol. Although LDL cholesterol is an important essential fat that is vital to body cells, it is also the cholesterol that builds up as plaque on blood vessel walls causing conditions such as atherosclerosis. Good cholesterol or High Density Lipoproteins (HDL) are considered to mediate some positive health benefits to the cardiovascular system. It is believed HDL cholesterol removes LDL cholesterol from the blood by transporting it to the liver and 'recycling' it. HDL cholesterol also repairs damage to blood vessel walls within the endothelium; thus diminishing incidence of atherosclerosis.



High cholesterol (hypercholesterolemia) is a real phenomenon in western societies due to the lifestyles and dietary habits of such civilisations. The following is a non-exhaustive list of negative health conditions related to high cholesterol levels (>5 mmol/L in healthy adults and >4 mmol/L in high risk adults):

- **Atherosclerosis** – Arteries become clogged by plaque build-up and cellular inflammation.
- **Heart Attack** – Plaque breaks away from blood vessel and blocks vessels leading to the heart.
- **Stroke** - Plaque breaks away from blood vessel and blocks vessels feeding areas of the brain.
- **Transient Ischaemic Attack (TIA)** – Temporary disruption of blood supply to the brain.
- **Peripheral Arterial Disease (PAD)** – Fatty deposit in vessels restrict blood supply to lower limbs.

So what can an individual do to lower their cholesterol levels and reduce the possibility of negative health aspects as outlined above, occurring? Below are some strategies that could help in the fight against cholesterol:

- **Diet** – Eat a diet that has reduced saturated fats. Avoid foods such as red meats and dairy produce.
- **Consume Super Foods** – Eat plentiful amount of cholesterol lowering foods such as; fruits and vegetables, soya foods, nuts, oats and barley. Garlic may also be very beneficial but studies are conflicting on this foodstuff.

- **Exercise** – Aerobic exercise stimulates the production of enzymes that remove LDL from the blood; it also increases the size of the protein particles carrying cholesterol making them less dangerous in transport; and reduces bodyweight which can be a contributory factor to cholesterol increases.
- **Relax** – Studies have illustrated that stress can lead to short and long term cholesterol increases. So find some quiet time to relieve those stress symptoms.
- **Supplementation** – Fish oil products rich in Omega 3's, Niacin (Vitamin B Complex) and Coenzyme Q10 are all widely believed to have cholesterol lowering properties.
- **Medications** – As a last resort and especially where cholesterol levels are genetically determined; medications such as statins (reduce the formation of cholesterol by the liver) might be prescribed by your doctor. However, as with all drugs statins do have some side effects and so lifestyle changes should be the first strategy used to control cholesterol levels.

In further articles we will look at dietary strategies and superfoods and we will also analyse the use of medications such as statins and determine their effectiveness as an anti-cholesterol drug.