

Cholesterol – What is it and why do we have it?

There are very few people who are not already aware of cholesterol. Most of you will have had conversations involving it, will have read articles about it, or may yourselves be on cholesterol-lowering medications. In spite of this, there appears to be a great lack of understanding about cholesterol, what it is and why so many people have high cholesterol. Cholesterol is often viewed as a useless substance that comes from certain foods, which accumulates in the blood and which causes an increased risk of heart disease. People are often told that the only way to control it is with medication or by removing cholesterol from their diets. I have had patients whose health professionals have told them that they'd be better off if they had no cholesterol at all! When it comes to cholesterol, there seems to be a wealth of misinformation, which is why I have chosen to write on this subject over the course of two or three articles.

Contrary to common belief, the majority of cholesterol in our blood does not come from food sources, although certainly some of it does. Most of it is made in our liver, intestines, adrenal glands and reproductive organs with the liver being the primary cholesterol-producing and processing organ. Our bodies manufacture cholesterol for good reason. It is used to maintain healthy brain tissue and the myelin sheaths which insulate our nerves. Without cholesterol as part of their insulation, our central nervous system and nerves could not carry messages through the body without interference. Every cell membrane in our body relies on cholesterol as part of the structure that makes it water-tight. Without cholesterol, our cells would not be able to maintain their normal shape and flexibility, and watery substances would pass into cells without any control. We need cholesterol to maintain the integrity of our gut lining and to produce bile which enables us to digest fats and proteins in the bowel. Cholesterol is essential to life.

Cholesterol is also the major precursor molecule for the making of Vitamin D and our steroid hormones which include the adrenal gland hormones cortisol, adrenaline, noradrenalin and aldosterone, as well as the sex hormones progesterone, the estrogens, testosterone and their derivatives. A shortage of cholesterol would mean a shortage in these vital hormones. The body steps up the production of cholesterol when there is increased demand for it so that the right level of building material can be provided for whichever job requires it. Once the cholesterol has been used it is broken down through the liver and is removed as a component of bile in the bowel motion. A certain portion of the cholesterol in the gut contents will be re-absorbed through the gut lining and will be recycled, but this does not in itself cause high cholesterol.

Since cholesterol is insoluble in blood, it is transported through the circulatory system in little packages called lipoproteins whose outward-facing surfaces are water soluble and inward-facing surfaces are fat soluble. The two lipoproteins most commonly referred to are low density lipoproteins (LDL) and high density lipoproteins (HDL). HDL is often referred to as the “good” cholesterol because it helps to clear LDL cholesterol from circulation and return it to the liver. LDL cholesterol is usually referred to as the “bad” cholesterol because it is the type of cholesterol most commonly found in plaques which can build up in the arteries. However, LDL does have its place because it is used to make vitamin D and all of our steroid hormones. Without it, we would not survive. The critical thing is having a good balance of the two and being able to get rid of the cholesterol efficiently through the bile so that it doesn't build up.

There is definitely a dietary link with elevated cholesterol and whether the ratio of LDL to HDL is healthy, but not necessarily the one that most people assume. Reducing saturated fat intake (eg: dairy, red meat, take away foods, luncheon sausage and poor quality meat products which tend to be high in fat) is important in terms of eating well, but it is actually having a diet loaded with refined flours, excessive starchy carbohydrates, sweeteners and sugar which is the main contributor to high blood cholesterol. Such a diet changes the blood sugar handling ability of the body which in turn changes the entire metabolism, which eventually affects the way fat is metabolised as well. People are often mystified when their efforts to avoid "high cholesterol" foods like eggs, meat and dairy products have little or no effect on lowering their cholesterol levels, and the reason is because the food information being given is incomplete.

It has been estimated that approximately 60% of the adult population over the age of 19 in Australia and New Zealand is either over weight or obese. This means they are carrying more than 25-30% body fat. In a vast proportion of these people, there will be upper abdominal fat storage which is a tell tale sign that insulin use in the body has been negatively affected by too much carbohydrate in the diet. To quote Dr. D Jones M.D, 1998; this change "can produce alterations in metabolic function ranging from hormonal imbalances, to hypertension, hyperlipidaemia and alterations in the inflammatory cascade". Put simply, the change in sugar handling increases the likelihood of high blood pressure, hormone imbalances, high cholesterol and triglycerides and makes the body more prone to inflammation.

Another doctor, Ray Peat PhD made an interesting observation which I have found to be correct in my own practice. "Since the 1930's, it has been clearly established that suppression of the thyroid raises serum cholesterol (while increasing mortality from infections, cancer, and heart disease), while restoring (thyroid function) brings cholesterol down to normal". This could be viewed as a little simplistic and is certainly not the only factor, but it is a good illustration of how intimate the relationship between metabolic function and cholesterol levels actually is. The major metabolic regulator of the body is the thyroid gland, and when I have treated people with a subclinical or overt thyroid problem, I have often seen an improvement in their cholesterol levels.

Unfortunately, high cholesterol is often treated as an isolated blood test result to be "got down to normal", and is not readily recognized as a warning sign of a much greater problem – that of a failing metabolism due to nutrient depletions, inadequate antioxidant levels, lack of exercise and a diet with too much refined carbohydrate in it. Drugs are too commonly used to lower the cholesterol without anything being done to address the metabolic issues which have led to the problem in the first place.

The second article will cover the dietary factors useful in lowering and controlling cholesterol.