



## The Cholesterol Debate

Cardiovascular disease has reached 'epidemic' proportions throughout the Western world and is now the number one cause of serious illness and premature death in the UK. This statistic is due in part to the fact that many sufferers do not experience any clinical symptoms in the early stages, and a significant number of apparently 'well' people are not even aware there is anything wrong until it is too late.

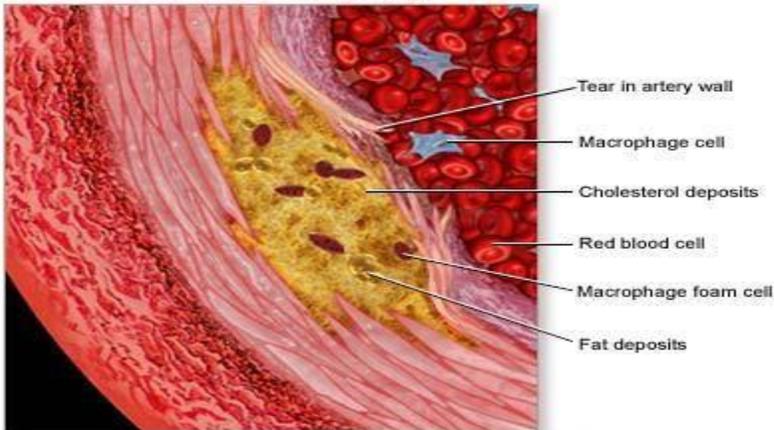
Although high blood cholesterol is often quoted as an important risk factor, up to eighty percent of patients with CVD have the same blood cholesterol levels as those who do not develop heart disease (Framingham Study). Therefore the results obtained from Framingham and other studies raise doubts about using cholesterol levels alone to identify those who may be at risk.

We all have cholesterol in our blood stream, so why isn't everyone at risk of CVD? There is no simple answer. We do know however, that cholesterol does not 'stick' directly to smooth walled healthy arteries as some in the medical profession used to believe. It is only when arteries become diseased or inflamed, and the body tries to repair the damage, that cholesterol is used in the latter stages to help 'patch up' the weakened area of the arterial wall. It is desirable therefore, to try and identify the early signs of CVD before plaque - a mixture of calcium, cholesterol, heavy metals and other substances - can build up within the cells of the lining of the arteries, which may eventually lead to a heart attack or stroke.

Latest figures show that Women are now twice as likely to die from heart disease as they are from cancer. However, not just the heart is at risk. Other major organs including the brain and kidneys can also be harmed if they do not receive an uninterrupted and adequate supply of nutrients and oxygen via the blood stream. If one or more of the main arteries in the body becomes diseased or clogged up, and the blood supply is restricted or cut off, then the consequences can be fatal. Doctors routinely take patients blood pressure and check for elevated levels of cholesterol. Neither of these tests can provide any direct or reliable evidence of arterial damage. The results - although useful - simply indicates a potential risk, nothing more.

## What is Arteriosclerosis?

Cut-section of artery



**Arteriosclerosis** is a term used to describe a thickening, hardening or loss of elasticity in arterial walls. **Atherosclerosis** is the most common form of arteriosclerosis and involves progressive degeneration of the inner lining of the arteries - especially where arteries bifurcate - and the build up of a fatty plaque that covers this arterial damage. If left untreated, the plaque grows and gradually restricts the flow of blood. When occlusion reaches close to 100 per cent, or when a floating embolus - undissolved matter - becomes lodged in a narrowed opening, the blood supply is suddenly cut off, resulting in a heart attack, stroke, or gangrene, depending on where the restriction occurs. Ischaemia refers to the gradually diminishing blood supply caused by the build-up of arterial plaque. As ischaemia progresses in coronary arteries, it can cause angina pectoris. As it progresses in the legs it can cause intermittent claudication. Diabetics are particularly prone to arterial damage and ischaemia, making them vulnerable to gangrene and retinopathy.



It is believed that the build up of plaque is initiated by free radical damage to the artery wall. Free radicals mutate the DNA of arterial cells, causing them to replicate themselves many times over. The proliferating cells form, in effect a mini-tumour in the artery wall. This tumour-like growth expands, stretching and tearing the inner lining of the artery. The blood lays down fibrin to patch the tears. Minerals and debris circulating in the blood become trapped in the patch. Because of opposing electromagnetic charges, the trapped minerals attract fats, including cholesterol. This cholesterol serves two purposes: (1) It gives the patch a slippery surface so that blood cells can glide past it, and (2) It acts as an antioxidant of last resort by donating electrons to neutralise free radicals, thus itself becoming oxidised in the process. Cholesterol is one of the last ingredients to form plaque, not the first. Contrary to popular myth, cholesterol does not directly cause heart disease.

Arteriosclerosis can remain undetected for many years. In fact nearly half of all people in the western world who die from cardiovascular related illnesses never experience any prior symptoms!

## Summary

Blood pressure and blood cholesterol tests cannot prove the existence or otherwise of cardiovascular disease. It is true there are people with relatively high levels of cholesterol that show no signs of CVD. Conversely, there are as many people with normal or low levels of cholesterol who do suffer from CVD. High blood pressure can be a consequence of arteriosclerosis, and it can also be a contributory factor. Hypertension on its own does not necessarily confirm the presence of any other cardiovascular related illness.

*Cardiocheck* is probably the most accurate, non-invasive diagnostic tool available that can establish not only the relative health of major arteries, but also monitor the effects of any ongoing therapy, treatment or dietary changes...

Most importantly, *Cardiocheck* enables the practitioner to conduct routine check-ups without the patient having to attend a hospital or specialist clinic. Expect to see *Cardiocheck* in doctor's surgeries, clinics, pharmacies, health spas and sports centres in the near future. Medical experts believe this method of testing arterial wellness could be instrumental in saving many lives in the years ahead, as well as helping to make a significant impact on the early diagnosis and management of cardiovascular disease.