

The beginning of chronic disease is already present in the body but it may take 10, 20 or 30 years before it manifests. The majority of illnesses are subclinical, bubbling under the surface for many years, with very little evidence that they may cause a major catastrophe suddenly in later life.

This should not be difficult to understand. A motor vehicle does not suddenly break-down without an underlying cause. There is a slow build-up of stress in the engine, which may be difficult to identify until something gives way or the engine becomes more and more out of tune. At first there may be little to identify this subtle “problem”, but slowly various indications begin to appear. There may be difficulty in getting the engine started in the morning and the motor does not idle quite as smoothly as it used to. There may be clouds of exhaust fumes as it pulls away and there might just be an irritating squeak that won't go away. All these signals are usually observed by the driver, often before anyone else has noticed that something is amiss with the vehicle. Eventually everyone can see that something is seriously wrong with the car! The human body is no different. At first there may only be some tiredness, you are more prone to infections than usual and you suffer from the occasional head-ache. All the tests may be normal, but as the condition worsens, there will be increasing evidence of dysfunction.

All ill health starts as a dysfunction, a metabolic and molecular dysfunction. The system is out of tune, and functions are stressed and no longer flow easily. When the dysfunction reaches a critical point there will be increasing pressure on a particular organ system or tissues, and what is called illness or disease will appear. The disease is really the end point of a system that is malfunctioning. Somewhere along this route from health to dysfunction to breakdown it will be possible to pick up the clues that the system is no longer healthy. This holds true for cardiovascular stress – some of the signs are obvious to anyone whereas others will require various other tests that cardiologists (doctors who specialise in functions of the heart) will perform.

Risk factors: Weight measurement: obesity is a major risk factor, so it is important to know whether the person is overweight for their height. The incidence of gallstones, diabetes, colon cancer, heart disease, and stroke (men only) all increase with the degree of excess weight in both women and men.¹

Abdominal circumference: Waist size in centimetres or inches should not be greater than one half of your height in inches or centimetres. The greater the girth relative to the height, the greater the risk of cardiovascular disease. People with high waist circumference are

increasingly likely to have high blood pressure, high cholesterol and diabetes compared to those with a normal waist circumference.²

Blood sugar measurement: One in three children born today will develop Type 2 diabetes. The rate of diabetes is increasing exponentially, both in the developed and the developing world. Diabetes is associated with high blood pressure, obesity, high cholesterol, inflammation, oxidative stress and a whole range of other disorders requiring a more holistic approach than merely controlling the blood sugar. Blood sugar levels and haemoglobin levels (the red part of blood which carries oxygen) and a glucose tolerance test should be conducted if necessary to exclude the possibility of diabetes.

Lipid profile: Cholesterol level as a single measurement is not very helpful. Cholesterol is vital for health and is not something that needs to be abolished! In fact low levels of cholesterol may be even more problematic and is associated with depression, suicide and haemorrhagic stroke. There is no correlation between elevated cholesterol and cardiovascular disease above the age of 70. In the very high range and with a family history of high cholesterol there is a clear correlation between cholesterol level and cardiovascular events. So the level of cholesterol itself is not the problem, it is more relevant and accurate to observe the correlation between the different fractions of cholesterol and heart disease, which is why measuring HDL (High Density Lipoprotein) and LDL (Low Density Lipoprotein) is important. Also the total cholesterol/HDL ratio is significant.

Homocysteine levels: Lately, folic acid and vitamin B6 have been getting more attention in medical circles as they appear to offer greater protection from diseases affecting the cardiovascular system than previously thought. While most of the dietary emphasis on the prevention of heart disease in recent years has focussed on lowering cholesterol and fat intake in the diet, studies over the last three decades have indicated that even relative deficiencies of vitamins B6 and B12 and folic acid can lead to the build-up of a chemical called homocysteine. In high levels, homocysteine can be just as bad or worse than cholesterol, because this oddly name chemical can cause damage to the coronary arteries that supply the heart muscle with vital blood flow.

Diet: An assessment of the diet is crucial. A diet high in refined foods which include refined cereal grains, simple carbohydrates and trans-fats is an important risk factor. Vegetarian and Mediterranean diets have been shown to reverse the thickening of coronary arteries.

Gender: Coronary heart disease is markedly more common in men than women. The risk increases with age, although the increase is higher in women past menopause. The difference is probably due to the increasing amount of total risk factors in men compared with women.

Lack of physical exercise: No exercise is an important risk factor. Increasing levels of physical activity are associated with a decrease in cardiovascular disease. Exercise increases improvement in mood, blood pressure, plasma lipoprotein profiles and insulin sensitivity³.

Resting heart rate: An elevated heart rate is an indicator of cardiovascular disease, mainly in men. This may not be helpful for women. Below 64 beats per minute: healthy 64 – 69 beats per minute: mild risk 70 – 75 beats per minute: moderate risk 76 – 80 beats per minute: high risk Above 80 beats per minute: risk is 3 times that of normal

Basal body temperature: Many doctors of integrated medicine regard this as a more accurate indication of low thyroid function than the blood tests. Low thyroid activity (hypothyroidism) may contribute to an abnormal lipid profile. The temperature should be taken before getting out of bed in the morning. Hold the thermometer in the mouth or armpit for about 5 minutes. Normal temperature in the armpit is 36.7°C and the mouth 37°C.

Smoking: Any smoking over the last 20 years may have already compromised the vascular system and initiated changes leading to the thickening of coronary arteries.

Alcohol: Alcohol is a toxin and is not good for the liver, and whilst recent reports have shown that the phytonutrients in red wine may be good for your heart, this is not necessarily true for everyone. A study by Badway 4 found that moderate consumption of alcohol (30g per day) by social drinkers for 6 weeks increased their levels of homocysteine significantly. People who drink alcohol should have their homocysteine levels checked regularly.

Dental health: Chronic inflammation of the gums is also a known risk factor for cardiovascular disease.

C-reactive protein CRP: Several studies have shown a remarkable correlation between baseline Us-CRP and risk for heart attack or ischaemic stroke. CRP is the measure of inflammation in the body and the latter has been identified as an important link in the hardening of arteries (atherosclerosis). It is an independent risk factor and may be high when cholesterol is low. This

test is an important marker and should always be done either on its own or with the cholesterol profile test in any person being assessed for cardiovascular risk.

Conclusion: It is an assumption to say that high cholesterol is the cause of heart attack without taking all the other risk factors into account. It is equally untrue therefore that the priority is to reduce cholesterol levels, when a whole range of other risk factors are present. Lowering any one of these risk factors may be sufficient to counter the influence of high cholesterol and may be a better option than taking statins (the drugs used to lower cholesterol levels).

References 1. Field AE, et al. Impact of overweight on the risk of developing common chronic diseases during a 10 year period.

2. Janssen I, et al. Body Mass Index, waist circumference, and health risk: evidence in support of current National Institutes of Health guidelines.

3. Kraus L, et al. Exercise to reduce cardiovascular risk – How much is enough?

4. Badaway A. Moderate alcohol consumption as a cardiovascular risk factor: the role of homocysteine and the need to re-explain the 'French Paradox'.