

# A FUNCTIONAL APPROACH TO HEART HEALTH



## ABOUT THE AUTHOR

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As a therapist, I am dedicated to helping you take control of your own health. I firmly believe in supporting the body's natural ability to heal through the use of natural remedies, acupuncture, biofeedback, nutrition and lifestyle. As it is essential that you feel in control of your treatment process, I approach your healthcare in a sensitive and holistic manner. With more than 24 000 successful treatments under my belt, I have vast experience in treating a wide variety of health issues.



**CHARMAINE SHEPHERD**

I believe that each individual's health issues are caused by a unique set of factors, and that the key to a successful outcome is correctly identifying, understanding and addressing those factors. Most people that come to me for help have complex, chronic problems involving autoimmunity, chronic inflammation, persistent fatigue, digestive issues, difficulty overcoming chronic infection, reactivity to foods or factors in their environment, or other complex issues.





When you think of cardiovascular disease (CVD), you are likely to only think of your heart, but the truth is that this silent disease can affect your brain and many other systems throughout your body. It is responsible for almost 50% of all deaths in the UK and increases your risk for heart attack, sudden death, and stroke, to name just a few.

Heart and circulatory diseases cause nearly 30% of all deaths in Scotland, or around 17,000 deaths each year - that's almost 50 people per day or 1,400 per month.

CVD is often a silent killer. Many of the people it strikes never see it coming until it's too late to prevent. It is not uncommon for the first symptom to be a fatal heart attack, yet CVD is largely preventable if detected early.

Despite CVD being so common and preventable, very little is done in our healthcare system to address the situation. The only "preventative" test usually run by doctors is cholesterol which is an utterly inadequate predictor of CVD.

# IS CHOLESTEROL THE REAL VILLAIN?

Cholesterol has been villainised throughout the years as being the cause of CVD. Yet, as cholesterol levels are being pushed lower and lower with the use of statins, we find that mortality from CVD has not reduced. Ironically, low cholesterol has been implicated in strokes.

You see, cholesterol is the crucial building block of both your stress and sex hormones. An increase in cholesterol is the body's way of adapting to its environment. If the body is inflamed or stressed, the body will naturally increase cholesterol. So, rather than drive down cholesterol, dealing with the underlying drivers is more effective.

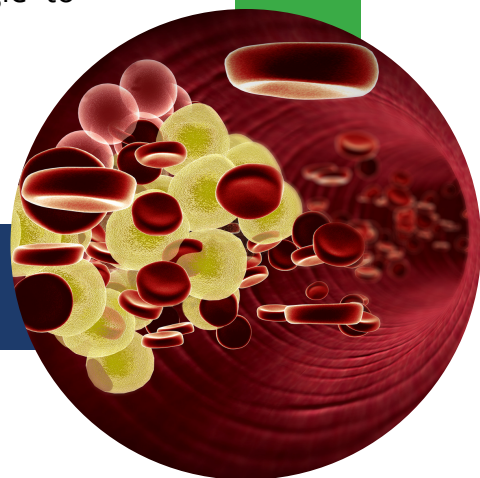
Statistics show that 40% of people with heart attacks had a cholesterol level below 5 (below 5.0 is considered optimal).

Cholesterol-lowering medications do bring cholesterol down but do not prevent heart attacks.

Stress, inflammation and dysregulated blood sugar levels can drive increased demand for cholesterol. Dealing with these factors has a greater impact than purely driving cholesterol down.

Statins are thought to reduce the risk of mortality by only 30%. That means 70% of people on statins are still at risk of having an event.

So, we know that driving cholesterol down is not the only factor at play. If you look at the statin side effects, including body pains, liver damage, and gut and brain complaints, many people struggle to remain on the medication long-term.



Moreover, statins increase the risk of postmenopausal women developing diabetes, which ironically increases the risk for cardiovascular disease.

Consider also that the brain is primarily made up of fat; nearly 70% of the brain is made of fats, so not a surprise that low cholesterol often leads to strokes, cognitive decline and mood changes.

Medications for blood pressure and cholesterol do not treat the underlying issues; they make your results look better on paper while the disease process progresses under the surface.

Cardiovascular disease needs to be looked at in a much more complex way.

There is never a straightforward factor at play. Often, you will find a combination of bad cholesterol, inflammation, blood pressure and metabolic syndrome at play. In fact, inflammatory markers are better predictors of cardiovascular disease than cholesterol.

The formula for developing CVD looks something like this:

Genetics + Environmental factors + lifestyle choices = metabolic changes that leads to CVD

In other words, even if you have CVD in your family (genetics), it takes a combination of environmental and lifestyle factors to trigger the metabolic changes in the body that will lead to disease. Now, throw in some inflammation, and you set up a perfect storm.





# THE ROLE OF CHOLESTEROL

## CHOLESTEROL IS NECESSARY FOR YOUR SURVIVAL.

Your brain and nerves are structurally made up of cholesterol.

Your body uses cholesterol to make your stress and sex hormones (It is for this reason that men on statins will usually have to take a drug for erectile dysfunction further down the line).

Every cell in your body is supported by a cholesterol-rich membrane. Without this membrane, your cells couldn't signal or communicate.



## SIZE DOES MATTER

Most cholesterol tests measure only four values; total cholesterol, HDL, LDL and triglycerides. Very little attention is given to the size of the particle – which is the real risk factor. The particle size of the LDL molecule is much more important.

For example, three people have an LDL number of 2.8 mmol/L. Without measuring particle size, each would be perceived as having the same risk value. However, differentiating particle sizes of the LDL could mean a vastly different risk for each of these individuals.

The smaller the particles are, the more havoc they wreak in the blood vessel. The reason for this is that smaller molecules are capable of getting stuck between cells, causing a build-up of the plaque process that blocks arteries.

One particularly damaging particle is known as lipoprotein (a). This harmful particle promotes clotting and inflammation much more readily than other LDL particles because it oxidises, or damages, quicker. There are no prescription medications that reduce Lp(a), although there is good evidence for natural agents including Niacin and L-carnitine. Lpa should be included in a thorough cardiovascular panel.

## HOMOCYSTEINE - A CRITICAL PROCESS TO MONITOR CVD

There is a complex process of methylation that happens in all body systems, but there is one methylation process that is of vital importance in healthy heart function, homocysteine.

Homocysteine is measured in the blood and, when raised, puts the person at higher risk of not only CVD but also cognitive decline. Raised homocysteine levels have several negative effects on blood vessels by triggering plaque formation, hardening of arteries and increasing the risk of clotting.

Increased levels of homocysteine have been shown to almost double the risk of a cardiovascular event. Homocysteine is in most cases reduced by increasing vitamins B6 and B12.

## INSULIN:

Insulin is the catalyst for CVD in so many of the cases that we see and yet is very rarely tested. An increase in the hormone insulin can drive up blood pressure and cholesterol as well as trigger clotting and markedly worsen the outcomes of CVD. For people with high insulin, lifestyle changes can be extremely powerful in reducing the metabolic drivers of CVD.



## ORAL HEALTH:

The link between gum disease and CVD has been known for decades. People with gum disease (periodontal disease) have three times the risk of having a heart attack, stroke, or other serious cardiovascular events.

Gum disease begins when the sticky, bacteria-laden plaque builds up around teeth. These microbes trigger an inflammatory response that enters the bloodstream of the oral cavity, increasing risk.



# UNDERSTANDING LABORATORY TESTS THAT HELP ASSESS HEART DISEASE RISK

The chart below provides a description of the markers associated with cardiovascular disease. From a Functional Medicine point of view, we aim to have many of these within a narrow optimal range, as opposed to a "normal" range.

MARKER	SIGNIFICANCE
<b>FASTING GLUCOSE AND FASTING INSULIN BLOOD SUGAR</b>	High insulin increases blood pressure, cholesterol, and causes inflammation which can increase clotting risks.
<b>HEMOGLOBIN A1C (HBA1C)</b>	<p>HbA1C is a marker of average blood glucose levels over a 3 month period. Elevations are indicative of diabetes, which is a significant risk factor for heart disease. Elevated HbA1C levels are also representative of advanced glycation end products (AGEs).</p> <p>AGEs are harmful compounds that are formed when protein or fat combine with sugar in the bloodstream, resulting in inflammation and tissue damage. Think caramelisation!</p>
<b>CHOLESTEROL</b>	Cholesterol can be raised by stress and high levels of inflammation or insulin. Certain genetic factors can drive this up but is still manageable by reducing all the other risk factors.
<b>TRIGLYCERIDES</b>	Usually the first sign of insulin resistance. Quick to respond to treatment and can therefore be a marker to gauge the success of any intervention.
<b>HDL CHOLESTEROL</b>	This "good" cholesterol takes cholesterol from the inside of blood vessels to the liver to be broken down.

<b>VLDL CHOLESTEROL</b>	This is considered the bad boy of cholesterol, mainly because it has the highest number of triglycerides packed onto it for transport. By lowering triglycerides, this number can also be lowered.
<b>LDL CHOLESTEROL</b>	LDL takes leftover cholesterol from the liver and sticks it to blood vessels walls that have been damaged by inflammation. The smaller the molecule, the easier it sticks in between cell walls.
<b>TOTAL CHOLESTEROL/HDL RATIO</b>	The higher the ratio of cholesterol to HDL, the higher the risk of a CVD event such as a heart attack or stroke.
<b>HOMOCYSTEINE</b>	A much more sensitive marker than cholesterol in determining the risk of CVD. Homocysteine is influenced by nutrient deficiencies and inflammation.
<b>C-REACTIVE PROTEIN</b>	This is a sensitive marker for inflammation that occurs in the body.
<b>APOLIPOPROTEIN A-1</b>	Apo A-1 represents the "good" cholesterol and is a better predictor than HDL cholesterol and triglycerides for coronary artery disease.
<b>APOLIPOPROTEIN B</b>	Apo B represents the "bad" cholesterol, so the lower the levels, the better. Apo B is the main component of the "bad" lipoproteins, including VLDL, IDL, LDL and Lp(a).
<b>SMALL DENSE LIPOPROTEIN (SDLDL)</b>	SdLDL transports cholesterol and triglycerides throughout the body. Smaller particles are more likely to get "stuck" in the artery wall, thus triggering a build-up of plaque.

<b>LIPOPROTEIN (A)</b>	Elevated Lp(a) is an inherited marker for vascular disease. Lp(a) is very resistant to treatment and it is important to aggressively treat all associated atherogenic lipoprotein abnormalities.
<b>OXIDIZED LDL</b>	Oxidized LDL is LDL cholesterol (the “bad” cholesterol) that has been modified by oxidation, becoming rusty. Oxidized LDL triggers inflammation which leads to the formation of plaque in the arteries, also known as atherosclerosis.
<b>LP-PLA2</b>	Lp-PLA2 activity is a marker that is critical in the formation of rupture-prone plaque in arteries. The greater the Lp-PLA2 activity, the greater the risk of fatal and non-fatal coronary heart disease (CHD) events.
<b>OMEGA-3 INDEX</b>	The Omega-3 Index determines how your body handles inflammation on a cellular level. Dietary fat becomes chemical messengers and parts of cell walls that dictate how a cell responds to stimuli, triggering either a pro-or anti-inflammatory response.
<b>TESTOSTERONE</b>	Testosterone is important to monitor when any interventions are used to reduce cholesterol, as the result is often a waning testosterone level.
<b>FOLATE AND B12</b>	If homocysteine levels are raised, monitoring these vitamin markers are essential in reducing risk.
<b>FERRITIN</b>	Ferritin is an iron protein complex and a sensitive marker of inflammation.
<b>THYROID HORMONES</b>	Low thyroid hormones are linked to rising cholesterol as well as the overall risk of CVD.
<b>VITAMIN D</b>	Low levels of vitamin D have been strongly associated with an increased risk of CVD and should be checked yearly.

<b>HEAVY METALS</b>	Heavy metal exposure (such as cadmium, lead and mercury) are extremely toxic and can mount inflammatory responses within blood vessels.
<b>MAGNESIUM</b>	Magnesium is a critical nutrient for regulating blood pressure, insulin levels and arterial pliability. Deficiencies of this common mineral can wreak havoc on cardiovascular health.
<b>POTASSIUM</b>	Low potassium levels increase calcium which can raise blood pressure. Getting the right potassium and sodium balance can support heart health.
<b>GGT</b>	GGT is a measure of oxidative stress, if in the higher quartile, think about cardiometabolic syndrome.
<b>PATHOGENS</b>	Certain microbes have been linked to increasing cardiovascular risk. The most well known being oral pathogens, but many others have been linked to CVD. Finding and eliminating these can be an important part of the strategy.

# WHY ISN'T MY DOCTOR TESTING THIS?

The role of a traditional doctor is similar to that of a fire fighter. The fire fighter puts out fires without having the time or knowledge to investigate what has caused the fire to address underlying concerns. Doctors have very little time in their consultation slots and don't have access to many of the more sophisticated testing.

You do need the fire fighter to put out the fire but what you also need is to rebuild your home and put in precautions to make sure it does not burn down again. CVD is often the result of a chronic lifestyle disorder that fuels the flames in the body.

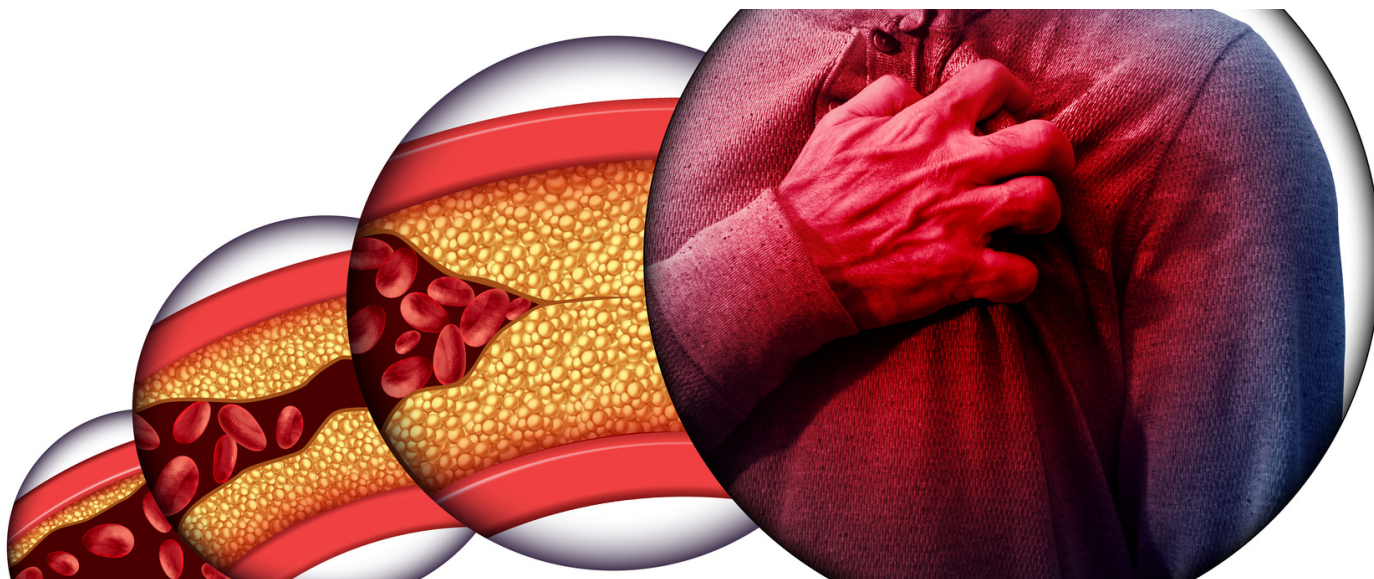


Most doctors are not trained to address lifestyle disorders, they are trained to diagnose and put out fires. Unfortunately, as there are often no warning signs of CVD, it takes an assertive strategy to prevent issues.

Many of the tools used by a large majority of doctors are outdated by as long as 15 years behind the current clinical research.

The current model of simply measuring a cholesterol profile and prescribing drugs to lower total cholesterol without any other type of investigation or intervention is not effective to address the complexity of cardiovascular disease. There is no doubt that thorough investigation which can identify the exact reasons for developing CVD, is a more targeted and successful approach. In nearly all cases, lifestyle choices, proper nutrition and targeted supplements or herbal medicine can reverse the major risk factors for cardiovascular disease.





## WHAT IS THE FUNCTIONAL MEDICINE APPROACH TO CVD?

Imagine a plant that is wilting. To get that plant back to health, we need to think about why it may be wilting. To thrive, plants have some basic requirements including sufficient water, nutrients, the right environment, sunlight and love! It may also have infection. So, we could just paint the leaves a green colour and say “that looks so much better”, but underneath we haven’t addressed any of the root causes. In essence, we create a temporary fix that looks good at first glance. The alternative is to fully investigate what is causing distress for the plant and resolve the contributing issues.

In the same way, we can look at symptoms, and simply treat those with pharmaceuticals that will, for instance, lower cholesterol. Or we can figure out why the disease has developed and work backwards to find the best long-term strategy.

Conventional medicine is best suited to dealing with emergency care, and if you are having a cardiovascular incident, you want to be in the care of your allopathic doctor. In terms of prevention, our medical systems are not geared up for finding the root causes.

## WHAT IS A CARDIOSCOPY?

We have put together the most comprehensive panels of testing to determine your risk for developing CVD. Even if you already have CVD, the information from these panels can help us understand what is driving the condition. Based on a very thorough health history and extensive testing, we can then work out the best strategy to optimise all the values.

# WHAT IS INCLUDED IN A CARDIOSCOPY?

## Standard Cardioscopy £1850

- Extensive gut testing for drivers of inflammation plus microbes such as H.Pylori
- Oral microbiome testing to investigate known triggers for CVD inflammation
- In-depth cardiometabolic testing
- Blood pressure monitoring
- Oxygen saturation
- Blood pressure
- Pulse monitoring
- Physical examination
- Personalised nutritional consultation
- 2-hour consultation with health history, laboratory findings and recommendations
- 4 coaching sessions to help you implement the plan

## Advanced Cardioscopy £2450

Includes the standard cardioscopy plus a full blood count, hormone levels, inflammation, fatty acids, iron status, kidney function, electrolytes, liver function, thyroid, vitamins and minerals.

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## **START TODAY!**

**LET'S WORK TOGETHER TO SEE HOW I CAN HELP. I WELCOME CLIENTS FROM EVERY RACE, CREED, COLOUR, ETHNICITY, NATIONAL ORIGIN, RELIGION, SEXUAL ORIENTATION AND GENDER EXPRESSION. I PROVIDE A SAFE AND EMPATHIC SPACE FOR ANYONE WHO IS COMMITTED TO WORKING WITH ME TO IMPROVE THEIR HEALTH.**

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