Well Woman Health Check

Biomarker Profiles:

(3 Biomarkers)

Hormones govern every activity of your body, from growth and metabolism to reproduction and your sleep cycle. Even a small imbalance in your hormone levels can have a significant impact on your health, affecting your mood and energy levels as well as fertility and libido. Hormones are known as chemical messengers which are manufactured in your glands and released into your bloodstream. They instruct your body in everything it does – regulating appetite, growth, mood and reproduction. Generally they keep the body functioning and in balance. Hormone disorders are common and can often be put right through hormone replacement therapy or lifestyle changes. Hormone levels fluctuate throughout the day and also, for women, through the reproductive cycle.

1 - Luteinising Hormone (LH) is produced by the pituitary gland and is important for male and female fertility. In women it governs the menstrual cycle, peaking before ovulation. In men it stimulates the production of testosterone.

2 - Follicle Stimulating Hormone (FSH) is produced in the pituitary gland and is important for women in the production of eggs by the ovaries and for men for men in the production of sperm. In the first half of the menstrual cycle in women, FSH stimulates the enlargement of follicles within the ovaries. Each of these follicles will help to increase oestradiol levels. One follicle will become dominant and will be released by the ovary (ovulation), after which follicle stimulating hormone levels drop during the second half of the menstrual cycle. In men, FSH acts on the seminiferous tubules of the testicles where they stimulate immature sperm cells to develop into mature sperm.

3 - Oestradiol is a female steroid hormone, produced in the ovaries of women and to a much lesser extent in the testes of men. It is the strongest of three oestrogens and is responsible for the female reproductive system as well as the growth of breast tissue and bone thickness. In pre-menopausal women, oestradiol levels vary throughout the monthly cycle, peaking at ovulation. In women, oestradiol levels decline with age, culminating with the menopause when the ovaries stop producing eggs. Low oestradiol can cause many symptoms associated with the menopause, including hot flushes, night sweats and mood swings. Low oestradiol can also cause osteoporosis.

Proteins (3 Biomarkers)

Proteins are vital to the functioning of cells and tissues as well as for building muscle. Proteins in the blood are measured to help diagnose liver or kidney disease as well as other conditions. Proteins also carry other molecules around the blood (e.g. hormones) so are often measured to help calculate how much of a particular hormone is bound to protein or free and therefore available to your cells. Raised proteins are often caused by dehydration but can also indicate other conditions. Low proteins can indicate severe malnutrition or malabsorption.

1 - Globulin is an umbrella term for a set of different proteins that the immune system and the liver produce. Certain globulins bind with haemoglobin while others transport metals, such as iron, in the blood. Additionally, there is a certain type of globulin known as an immunoglobulin, (another name for an antibody) which helps to fight infection in the body.

2 - Albumin is a protein which is made mainly in the liver. It helps to exert the osmotic pressure which holds water within the blood. It also helps carry nutrients and medications and other substances through the blood and is important for tissue growth and healing. Albumin also carries hormones around the body, therefore measuring the amount of albumin in the blood can help us calculate how much hormone is available to your tissues.

3 - Total Protein represents the sum of the proteins albumin and globulin in your blood. Albumin and globulin have a range of functions including keeping blood within vessels, transporting nutrients and fighting infection. Abnormal levels can indicate malnutrition as well as a liver or kidney disorder.

Liver Health (4 Biomarkers)

Your liver is one of your body's most important organs and has many functions including breaking down food and converting it to energy, getting rid of waste and toxins and manufacturing and regulating some hormones. Your liver can become inflamed and progressively damaged through excessive food intake, alcohol consumption and viral hepatitis. Your liver has amazing powers of regeneration, but once inflammation has led to scarring (cirrhosis) then liver disease is irreversible. Blood tests measure the level of different enzymes which, if raised, can indicate that your liver is inflamed.

1 - Bilirubin is a product of the breakdown of haemoglobin from red blood cells. It is removed from the body via the liver, stored and concentrated in the gallbladder and secreted into the bowel. It is removed from your body through urine and faeces. Bilirubin causes the yellowish colour you sometimes see in bruises, due to red blood cells breaking down underneath the skin.

2 - Alanine transferase (ALT) is an enzyme which is produced by the liver and can indicate liver damage caused by alcohol, drugs or viruses (hepatitis).

3 - Gamma GT, also known as gamma-glutamyl transferase (GGT), is a liver enzyme which is raised in liver and bile duct diseases. It is used in conjunction with ALP to distinguish between bone or liver disease. Gamma GT is also used to diagnose alcohol abuse as it is raised in 75% of long term drinkers.

4 - Alkaline phosphatase (ALP) is an enzyme found mainly in the liver and bones. Measuring it can indicate whether people have any ongoing liver, gallbladder or bone diseases.

Cholesterol Status (6 Biomarkers)

Cholesterol is a fatty substance found in the blood that plays an essential role in how the cells in the body work. However, too much cholesterol in the blood can have a serious effect on your health as it increases your risk of having a heart attack or stroke. There are many factors which raise the risk of cardiovascular

disease and we are learning more all the time about the complex biological processes which lead to a heart attack. High levels of cholesterol have long been known to increase your risk but, even then, it is not that simple – there are different types of cholesterol and some are more dangerous than others. Cholesterol is manufactured in the liver and also comes from the food we eat. Diet, family history, obesity and lack of exercise can all adversely impact cholesterol levels.

1 - LDL cholesterol (low density lipoprotein) is a molecule made of lipids and proteins which transports cholesterol, triglycerides and other fats to various tissues throughout the body. Too much LDL cholesterol, commonly called 'bad cholesterol', can cause fatty deposits to accumulate inside artery walls, potentially leading to atherosclerosis and heart disease. You can make dramatic changes to your cholesterol levels through diet and training. And just like with the diabetes checks, if you can improve your levels you can hopefully prevent getting serious, possibly even fatal conditions down the line. You can use HDL and LDL (and non-HDL) results as markers and targets for improvement. Regular exercise will help get the LDL down and the HDL up, in particular cardio and resistance training exercises. A Mediterranean diet which is high in vegetables and oily fish, and low in meat and dairy, will also help to optimise cholesterol levels.

2 - The cholesterol/HDL ratio is calculated by dividing your total cholesterol value by your HDL cholesterol level. It is used as a measure of cardiovascular risk because it gives a good insight into the proportion of your total cholesterol which is "good" (i.e. high-density lipoprotein, HDL). Heart disease risk tools (such as QRisk) use the cholesterol/HDL ratio to calculate your risk of having a heart attack.

3 - Non-HDL cholesterol includes all the cholesterol molecules which are not HDL (or ‘good’ cholesterol). It therefore includes all the non-protective and potentially harmful cholesterol in your blood. As such, it is considered to be a better marker for cardiovascular risk than total cholesterol and LDL cholesterol. The recommended level of non-HDL cholesterol is below 4 mmol/L. You can make dramatic changes to your cholesterol levels through diet and training. And just like with the diabetes checks, if you can improve your levels you can hopefully prevent getting serious, possibly even fatal conditions down the line. You can use HDL and LDL (and non-HDL) results as markers and targets for improvement. Regular exercise will help get the LDL down and the HDL up, in particular cardio and resistance training exercises. A Mediterranean diet which is high in vegetables and oily fish, and low in meat and dairy, will also help to optimise cholesterol levels.

4 - HDL cholesterol, or High Density Lipoprotein is a molecule in the body which removes cholesterol from the bloodstream and transports it to the liver where it is broken down and removed from the body in bile. HDL cholesterol is commonly known as 'good cholesterol'. You can make dramatic changes to your cholesterol levels through diet and training. And just like with the diabetes checks, if you can improve your levels you can hopefully prevent getting serious, possibly even fatal conditions down the line. You can use HDL and LDL (and non-HDL) results as markers and targets for improvement. Regular exercise will help get the LDL down and the HDL up, in particular cardio and resistance training exercises. A Mediterranean diet which is high in vegetables and oily fish, and low in meat and dairy, will also help to optimise cholesterol levels.

5 - Cholesterol is an essential fat (lipid) in the body. Although it has a bad

reputation it has some important functions, including building cell membranes and producing a number of essential hormones. Cholesterol is manufactured in the liver and also comes from the food we eat. Total cholesterol is a measure of all the cholesterol in your blood, both good (HDL) and bad (LDL, VLDL and non HDL). Fats are the primary energy source for endurance events or when carbohydrate energy sources are low. In particular medium-chain fatty acids are heavily utilised. Cholesterol transports fatty acids around the body and by looking at the levels of the different types of cholesterol we can get an insight into your health and cardiovascular risk (i.e. the buildup of cholesterol in blood vessels leading to blood vessel narrowing, heart attack and stroke). The liver regulates cholesterol levels in the body; it both synthesizes it and removes it, it also synthesises various lipoproteins that transport cholesterol throughout the body – and it is these that we measure in the cholesterol test.

6 - Triglycerides are a type of fat (lipid) that circulate in the blood. They are carried in the bloodstream by lipoproteins called chylomicrons and VLDLs (very low density lipoproteins). After you eat, your body converts excess calories into triglycerides which are then transported to cells to be stored as fat. Your body then releases triglycerides when required for energy.

Kidney Health (3 Biomarkers)

Your kidneys are responsible for removing waste products and excess fluid from your blood. How well they are doing their job can be measured by examining the levels of waste product in the blood as well as levels of electrolytes which regulate fluid in the body. Kidney disease has few symptoms in the early stages so it is important to monitor kidney function, especially if you are a diabetic, have raised blood pressure or a close relative with the disease.

1 - Creatinine is a chemical waste molecule that is generated from normal muscle break down. Sportspeople can therefore have higher levels than the average person. Creatinine is cleared from the kidneys and so is also an accurate marker of kidney function, and may help in diagnosing kidney disease.

2 - Urea is a waste product produced by the body when it breaks down proteins in the liver. Once the urea is made, it is transported to the kidneys, which filter it out of the blood and remove it from the body in the form of urine. Measuring the levels of urea in the blood can therefore reflect how well both the liver and the kidneys, are functioning. It is important to note that even if one kidney is severely damaged but the other is functioning perfectly, results may still return as normal.

3 - The estimated glomerular filtration rate (eGFR) assesses how well the kidneys are working by estimating the amount of blood filtered through the kidneys. The glomeruli are tiny filters in the kidneys responsible for removing waste products. If these filters do not do their job properly, kidney function can be impaired. The eGFR calculation is an estimate of actual glomerular filtration rate, calculated using your age, gender, ethnicity, and serum creatinine levels.

Diabetes (1 Biomarker)

Type 2 diabetes is a metabolic disease which is becoming increasingly common across all ages. Up to one third of adults in the UK have prediabetes and are at risk of developing diabetes. It is caused by the interplay between lifestyle factors and our genes. Lack of exercise, making unhealthy diet choices and being

overweight all increase the likelihood of developing diabetes. It is important to identify diabetes early; if you have raised blood glucose and are at the stage described as prediabetic, then you can still bring blood glucose levels back down by making lifestyle changes. Once diabetes is diagnosed it is vitally important to manage your blood glucose levels carefully to avoid many of the devastating side-effects of the disease which can damage nerves, blood vessels, kidneys and eyes. Diabetes is a known risk factor for cardiovascular disease as well as some cancers and is a major cause of decreased life-expectancy.

1 - Haemoglobin A1c (HbA1c), also known as glycated haemoglobin, is a longer term measure of glucose levels in your blood than a simple blood glucose test. Glucose attaches itself to the haemoglobin in your red blood cells, and as your cells live for around 12-16 weeks, it gives us a good indication of the average level of sugar in your blood over a 3 month period.

Iron Status (4 Biomarkers)

Iron is an element that we require for several different bodily processes such as creating new red blood cells, carrying oxygen around the body and strengthening our immune system. Most of the iron in our bodies is found in haemoglobin, a protein in our red blood cells. A smaller proportion is stored in a protein called ferritin that is responsible for controlling the release of iron when levels are too low or high. Iron status tests measure the total amount of iron in the blood with a view to diagnosing anaemia or iron overload (haemochromatosis). They also test your body's ability to absorb iron as well as the amount of iron stored in your body.

1 - Iron is a vital component of oxygen transport, DNA synthesis and oxidative phosphorylation, which are fundamental processes for life, let alone sporting performance. About half of your body’s iron (about 2.1g) is found in red blood cells in the oxygen-transporting haemoglobin. About another gram is found in macrophages (white blood cells) and in the oxygen-transporting myoglobin of muscles. Excess iron is stored in the liver. If you are low on iron you will struggle to respire at the cellular level as well as you could and so you will feel more fatigued and get tired quicker. For athletes this will result in a reduced performance, impaired VO2 Max, reduced energy efficiency, inability to train maximally each day, greater maximum lactate and quicker exhaustion. You get your iron from two main sources: from your diet (about 5%) and from the breakdown and turnover of your red blood cells (about 95%). In your diet there are two main types of iron: Fe^{2+}, which is found in meat and dairy products, and Fe^{3+}, which is harder to absorb and found in plant based foods. Iron status tests look at several measures of iron, which together can paint a picture about your iron metabolism and what it means for you.

2 - Total iron-binding capacity (TIBC) is a measure of the ability of your body to efficiently carry iron through the blood.

3 - Transferrin is made in the liver and is the major protein in the blood which binds to iron and transports it round the body. This test measures how much this protein is 'saturated' by iron.

4 - Ferritin is a complex globular protein which stores iron in an inactive form. As your iron stores deplete, the ferritin releases its iron for use. If your ferritin depletes then you will run out of iron and if your iron runs out your ability to produce red blood cells in your bone marrow decreases. Ferritin therefore gives a good

measure of your iron stores. Ferritin is also an acute phase protein, so can increase during periods of infection, inflammation or trauma.

Thyroid Hormones (3 Biomarkers)

Your thyroid is a gland in the front of your neck which produces hormones which help to govern your metabolism. It is possible for your thyroid to under-produce or over-produce thyroid hormones, and both conditions can lead to debilitating symptoms. Typically an underactive thyroid leads to symptoms of lethargy, weight gain and dry skin and hair while an overactive thyroid leads to symptoms of feeling nervous and anxious, as well as weight loss. Once diagnosed, thyroid conditions can be treated but even then it is important to continue to monitor levels of thyroid hormones to ensure that your levels remain optimal.

1 - Thyroxine (T4) is one of two hormones produced by the thyroid gland. It works to speed up the rate of your metabolism. Most T4 is bound to carrier proteins in the blood, but it is only the free, or unbound T4 that is active in the body, which is measured in this test.

2 - Triiodothyronine (T3) is the more active of the two thyroid hormones produced by the thyroid gland. Most T3 is bound to protein in the blood. Free T3 measures the level of T3 that is free, or unbound to protein, and is available to regulate metabolism.

3 - The thyroid is a gland at the base of your neck responsible for a number of metabolic processes, including energy expenditure, cardiac function, muscle physiology and substrate turnover. Disturbances in your thyroid function can lead to excess hormone levels (overactive) or diminished levels (underactive), both of which can lead to a decrease in athletic performance. Thyroid Stimulating Hormone (TSH) is produced by the pituitary gland and stimulates the thyroid gland to produce the two thyroid hormones thyroxine (T4) and triiodothyronine (T3). Thyroid hormone production is part of a neuroendocrine cascade. It starts in the hypothalamus with the release of thyrotropin releasing hormone (TRH), which triggers the pituitary gland to produce thyroid stimulating hormone (TSH). This binds to cells in the thyroid gland to release the hormones T3 and T4 (thyroxine). T4 is also converted into T3 (the more active thyroid hormone) at peripheral tissues. It is these hormones which essentially control the metabolism around your body. All these levels are normally held in tight balance through negative feedback loops. Abnormal thyroid function can manifest by over-secretion or under-secreting the thyroid hormones. Very often there is an autoimmune component to these conditions and we can often see this by looking at your thyroid antibodies in more advanced thyroid tests.

Gout Risk (1 Biomarker)

Gout is a form of arthritis which occurs mostly in the joints of the fingers and toes, wrists and ankles. It is caused by excess uric acid accumulating and depositing crystals in the joints. The first attack often affects the big toe which becomes so inflamed and painful that a sufferer cannot bear anything to touch it. Gout can affect one or more joints at the same time. Treatments for gout include steroids, non steroidal anti-inflammatories and colchicine.

1 - Uric acid is a waste product produced from the breakdown of chemical compounds called purines. Purine occurs naturally in the body, but it is also found

in the food we eat - and in some foods more than others. In healthy individuals, uric acid is excreted by the kidneys in urine, however, if levels are too high to excrete, or if you have a problem metabolising purine, then uric acid can begin to accumulate and can be deposited as crystals in the bodily tissues. When this occurs in joints it causes the painful condition known as gout.

Clotting Status (2 Biomarkers)

Your clotting cells (platelets) are produced in the bone marrow and are important for controlling bleeding. Sometimes too few platelets are produced or are destroyed too quickly resulting in a condition known as thrombocytopenia. This can be caused by immune disorders, some medication, liver disease or chronic bleeding. A high platelet count is called thrombocytosis and can be caused by a variety of conditions including bone marrow disorders, infection and inflammation.

1 - MPV, or Mean Platelet Volume, is a measurement of the average size of your platelets. Platelets are fragmented cells within the blood that aid the process of clot formation. MPV provides an indication of platelet production in your bone marrow.

2 - Platelets or clotting cells are the smallest type of blood cell and are important in blood clotting. When bleeding occurs, the platelets swell, clump together and form a sticky plug (a clot) which helps stop the bleeding.

Red Blood Cells (6 Biomarkers)

Red blood cells are the most common type of blood cell and have the job of delivering oxygen to your tissues via your circulatory system. Red blood cells are continuously created in your bone marrow to replace cells which are lost through bleeding or cell ageing. Your red cell count should be stable, but certain conditions can cause too few or too many cells to be created, cells to die too quickly or to be misshapen. If you are not producing enough red blood cells it affects the amount of oxygen being delivered to your tissues, resulting in anaemia and its associated symptoms of fatigue and pale skin. Overproduction of red blood cells can cause headaches, blurred vision and an enlarged spleen.

1 - HCT (haematocrit) measures the amount of space (volume) within the blood that is taken up by red blood cells.

2 - Haemoglobin is a protein in red blood cells which carries oxygen around the body and gives the blood its red colour. This test measures the amount of haemoglobin in the blood and is a good measure of the blood's ability to carry oxygen around the body. Athletes and sports people tend to have a higher oxygen demand than the average person as they need to ensure a supply of oxygen to their muscles. It is normal to find haemoglobin levels at the higher end of the normal range in endurance and strength athletes.

3 - MCH (mean corpuscular haemoglobin) measures the average amount of haemoglobin contained in one of your red blood cells.

4 - MCHC (mean corpuscular haemoglobin concentration) is the average concentration of haemoglobin in your red blood cells. Haemoglobin is a molecule which allows red blood cells to transport oxygen around the body.

5 - MCV (mean corpuscular volume) reflects the average size of your red blood

cells. This is important to measure, as it can indicate how much oxygen your cells are likely to be transporting around the body.

6 - Red Blood Cell (RBC) Count analyses the number of red blood cells in the blood. Red blood cells carry oxygen from the lungs to the rest of the body, where it can be used to fuel energy processes such as movement and respiration. They also carry carbon dioxide produced from cells back to the lungs so that it can be exhaled.

White Blood Cells (6 Biomarkers)

Your white blood cells are the key to your body's immune or defence system. They fight infections and protect your body from foreign particles such as harmful germs and bacteria. White blood cells are formed from the stem cell of the bone marrow and have a lifespan of a few days. There are five major types of white blood cell and they all play a different role in protecting the body. The numbers of each one of these types of white blood cell give important information about your immune system as well as in the diagnosis of recent infection.

1 - White Blood Cell (WBC) Count measures the number of white blood cells in the blood. White blood cells are key to your body's immune system. They fight infections and protect your body from foreign invaders such as harmful germs and bacteria. Additionally, they produce many antibodies and memory cells to protect you from further infections with the same germ.

2 - Basophils are a type of white blood cell that protect your body from bacteria and parasites such as ticks. They also play a role in allergic reactions.

3 - Eosinophils are a type of white blood cell that are responsible for removing parasitic infections and regulating inflammation to mark an infected site. They also play a role in allergy and in asthma.

4 - Lymphocytes are a type of white blood cell which fight bacterial and viral infections. They are the subset of white blood cells involved in the more specific response to infections, which can identify and differentiate between different foreign organisms that enter the body. As well as fighting infection, they produce antibodies and memory cells to help to prevent future infections from the same germ. Lymphocytes include T cells, B cells and natural killer cells.

5 - Monocytes are a type of white blood cell that engulf and remove pathogens and dead or damaged cells from our blood. The heat and swelling of inflammation is in part caused by the activities of these cells.

6 - Neutrophils are a type of white blood cell that are responsible for helping your body fight infection. When neutrophils are low you can be more vulnerable to illness and infection.

Vitamins (3 Biomarkers)

Vitamins are essential nutrients that your body needs to function properly. You cannot make them yourself, so they need to come from the food you eat. Vitamins divide into two types: fat soluble and water soluble. Fat soluble vitamins, like vitamins A, D, E and K are found in oily foods, whether animal or plant-based. They are stored in the fatty tissue in your body as well as the liver, and therefore

you don't need to eat them daily. Most water based vitamins like vitamin C are not stored in the body, and therefore you need to eat foods which contain them more frequently. You should get all the vitamins you need from a balanced diet. Sometimes, however, dietary choices or health problems can lead us to be deficient in some vitamins.

1 - Vitamin D is vital for bone maintenance in conjunction with calcium. It also plays important roles in muscle function and protein synthesis. More recent research has highlighted other non-musculoskeletal benefits too, including immune modulation, protection against chronic diseases and increased athletic performance. It is essential for athletes to keep vitamin D levels healthy. Your skin can make vitamin D when it is exposed to sunlight. However, in the UK this is difficult, especially in winter. It is very common for people living in the UK to be low in vitamin D, even if they exercise outside.

2 - Vitamin B12 is important for production of red blood cells which carry oxygen around the body. B12 is also involved in metabolism and the nervous system and prolonged lack of vitamin B12 may cause nerve damage. Although Vitamin B12 is almost entirely found in animal-based foods, many vegetarian and vegan products, especially plant milks are now fortified with Vitamin B12.

3 - Folate is a B vitamin which acts as a coenzyme in the metabolism of amino acids. It is also vital for the synthesis of purines and pyrimidines which are essential for DNA synthesis and red cell formation. Folate is also especially important during the first trimester of pregnancy so if you are thinking of becoming pregnant it is important to make sure your folate levels are normal. For the athlete this vitamin (along with other B vitamins, such as vitamin B12) play an important role in performance by regulating energy metabolism by modulating the synthesis and breakdown of carbohydrate, fat, protein and other bioactive compounds.

Minerals (1 Biomarker)

Minerals are inorganic substances that your body needs for normal functioning. Minerals can be divided into two categories; minerals and trace elements. Both are as important as each other, but minerals are required in higher amounts than trace elements. Your body cannot make minerals, so minerals must come from the food you eat. Minerals are responsible or many bodily functions including the formation of strong bones and teeth, regulating the body's fluid balance, healthy nerve and muscle function as well as hormone production and blood pressure regulation. We should get most of the minerals we need through our diets. However, if you avoid certain food groups, eat a very restricted diet or have an absorption problem in the gut, you may find that you are deficient in some minerals.

1 - Magnesium is the fourth most abundant mineral and second most abundant intracellular divalent cation in the body. Approximately 50% is in bone, 50% is in your tissues and less than 1% is in the blood. It is required for more than 300 metabolic reactions and is vital for nerve conduction, muscle contraction, parathyroid function, energy storage, normal heart rhythm and DNA synthesis. Deficiency in magnesium can cause muscle weakness, muscle spasms, altered creatine kinase and an altered lactate response to exercise. Athletes are prone to low magnesium levels and should look to monitor their magnesium at regular intervals. You should ensure you have a magnesium rich meal. The use of supplements as a performance aid and to address deficiency has been looked into a lot over the years. The current research is still inconclusive and actually some

people who take magnesium supplements see their magnesium levels depleted quicker than normal. Therefore it appears, for now at least, that the best way to get the magnesium you need is through a magnesium rich diet.

Inflammation (1 Biomarker)

Inflammation occurs when your defence system is activated to rid your body of foreign invaders or irritants and to protect against tissue damage. Typical signs of inflammation include heat, redness, swelling and pain. Inflammation can be acute or chronic. Acute inflammation is often caused by infection or injury, and it flares up and disappears within days. Chronic inflammation is caused by longer-term conditions such as arthritis, inflammatory bowel disease or asthma. Inflammation causes levels of certain proteins in the blood to rise and these can be measured to assess the extent of inflammation as well as in some instances the cause.

1 - C-Reactive Protein (CRP) is an inflammation marker used to assess whether there is inflammation in the body - it does not identify where the inflammation is located. High Sensitivity CRP (CRP-hs) is a test which is used to detect low-level inflammation which is thought to damage blood vessels which can lead to a heart attack or stroke. When you have a serious injury you get a lot of inflammation around the site of injury. You can imagine the swelling around a twisted ankle. Any injury like this will cause your CRP-hs to rise. However, people who train often are also at risk of chronic low level inflammation, which can impact your performance negatively. We use CRP-hs in conjunction with CK and your full blood count (see liver and full blood count sections) to paint this picture. Inflammatory markers like CRP-hs offer the best insights if you are rested when you have the test, otherwise they might be elevated due to recent exercise.