2 SQUAREHEALTH ALWAYS THERE HEALTHCARE

Confidential

Health Assessment Report for Mr John Smith (DOB : XX/XX/XXXX)



IMPORTANT NOTICE:

Interpreting and acting on your results

In this report, your results are presented against the 'reference range', which is a range of results that are normally seen in the 'majority' of the normal population.

Frequently Asked Questions:

Q/If my results are outside the 'reference range', does that mean they are abnormal?

A/Not necessarily, although usually it does suggest that they are 'probably' abnormal. Your results must be interpreted in context of your age, medical history and any medications you may be taking. In this report, we highlight any results that are positive or outside the reference range so that they can be followed up by a doctor or a suitably qualified nurse.

Q/What action should I take?

A/You should not change any medication without first speaking to your treating doctor. Lifestyle changes may be appropriate but you should discuss this with a doctor or a suitably qualified nurse who can provide further help in ensuring any change is best suited to your individual situation and can suggest ways to ensure the changes are maintained.



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1. Protein Health

Proteins are vital to maintain good health and muscle growth. Antibodies are formed from proteins and are essential to fight certain infections. Most of the body's proteins are produced in the liver and are often measured as part of an assessment of your liver health. There are two main classes of protein:

Albumin : carries hormones, medicines and other molecules around the body. It also helps with tissue growth and healing.

Globulin : this group of proteins form antibodies that are used to fight infection and transport nutrients. Some are made by the liver and others by the immune system.

If the total protein level is low, it may be due to a liver or kidney problem. Also, it can be due to malnutrition or malabsorption from the gut. A high total protein level may be due to dehydration or a medical condition in which the body produces an excess of proteins. Low or high levels of total protein will need to be investigated.

Total Protein

Total Protein measures all of the proteins in the blood. The two main proteins in the blood are albumin and globulin. They are necessary to keep blood within blood vessels, transporting drugs and nutrients and fighting infection. Abnormal protein levels can be a sign of malnutrition or liver or kidney disease.



Albumin

Albumin is a protein made in the liver. It is vital to keep blood within blood vessels and transporting drugs, hormones and nutrients. It is also important for tissue growth and healing.



2. Kidney Health

The kidneys are responsible for the production of urine and regulation of water and salts. The fluid that contains these waste products travels through the kidneys where reabsorption of water and salts takes place. The absorption process is crucial for maintaining the body's fluid balance and the regulation of blood pressure. Kidney health assesses the filtering ability of the kidneys and how well they are functioning.

Sodium

Sodium is vital for sending electrical signals between cells and controlling the amount of fluid in the body. Most foods have sodium in them. The most common is sodium chloride, found in table salt. The body loses sodium in sweat and urine. A sodium blood test will measure your sodium level, too little or too much can cause problems.



Urea

Urea is a waste product produced by the breakdown of proteins by the liver. Once produced, urea is filtered from the blood by the kidneys and removed from the body in the urine. Measuring the urea levels in the blood can therefore show how well both the liver and the kidneys are functioning. Even if one of your kidneys is severely damaged but the other is functioning well, the urea level may still be in the normal range.



3. Bone Health

Bone provides structural support for the body and offers protection to delicate organs and tissues (e.g. skull protecting the brain and the rib cage protecting the lungs and heart). Bones are constantly remodeling themselves with old bone being replaced with new bone. For bones to remain strong and healthy, the body must have normal levels of calcium, phosphate, vitamin D and the enzyme alkaline phosphatase.

Calcium

Calcium is the most common mineral in the body. It is used to build and repair bones and teeth, helps nerves and muscles to function, blood to clot and is necessary for the heart to function properly. Calcium is key to bone strength and it is regulated by the parathyroid gland hormones and vitamin D.



Your calcium level can be impacted by the level of albumin (type of protein) in your blood and therefore the level needs to be adjusted to correct for this. This corrected result is shown as corrected or adjusted calcium and is used to assess your calcium level for health purposes.

Your bone test results are normal.

4. Cholesterol Status

Your cholesterol health is measured by taking a blood sample to determine the amount of the following:

- 1. 'Good' cholesterol called high-density lipoprotein (HDL), this should be above 1 mmol/L (men) and 1.2 mmol/L (women)
- 2. 'Bad' cholesterol known as low-density lipoprotein (LDL), and other non-HDL cholesterol. This should be below 4 mmol/L
- Total cholesterol. This is the total amount of cholesterol in your blood.
 Ideally it should be 5 mmol/L or less
- 4. Other fatty substances (triglycerides) in your blood

The Total Cholesterol / Good Cholesterol ratio:

The above results are used to calculate the ratio of your total cholesterol to your good cholesterol (HDL). This is a good predictor of heart risk. A ratio above 5 is considered high risk - the lower this figure, the better!

Triglycerides

Triglycerides are a combination of three fatty acids or fats (saturated fat, unsaturated fat or both) and glycerol, which is a form of glucose. Triglycerides are the main source of energy and are supplied in our diet but there is also a supply made in the body by the liver.

Foods containing triglycerides, such as meat, dairy produce, cooking oils and fats, are absorbed by the intestines and then packaged into particles called lipoproteins, (known as chylomicrons) which carry the triglycerides to tissues as an immediate source of energy or for storage to be used when they required.

Triglycerides made by the body in the liver are carried in a different type of lipoprotein known as VLDL (very low density lipoprotein).



Cholesterol

Cholesterol is a fatty substance found in the blood that is essential for the cells in the body to function properly. However, too much cholesterol in the blood can have a serious effect on health as it increases the 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 can lead to a heart attack. High levels of cholesterol are known to increase the 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.



Non-HDL-C

Non-HDL cholesterol includes all the cholesterol molecules which are not HDL (or 'good' cholesterol). It therefore includes all the 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.

HDL

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'.



LDL

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, also known as 'bad cholesterol', can lead to fatty deposits accumulating inside artery walls, potentially leading to atherosclerosis and heart disease.

You can make dramatic changes to your cholesterol levels through diet and exercise. Regular exercise, in particular cardio and resistance training, helps reduce LDL and increase HDL. A Mediterranean diet which is high in vegetables and oily fish, and low in meat and dairy, can also help to optimise cholesterol levels.



5. Liver Health

The liver is the largest internal organ in the body and is essential for metabolism (digesting food and getting rid of toxic substances from the body) and produces bile (which assists in the absorption of fat). Liver disease can be inherited (genetic) or caused by a variety of factors that damage the liver, such as viruses and alcohol use. Obesity is also associated with liver damage.

ALP

Alkaline phosphatase (ALP) is an enzyme found mainly in the liver and bones. It can help to identify people who may have liver, gallbladder or bone disease.



AST

Aspartate transferase (AST) is an enzyme made mainly in the liver and the heart. An injury to the heart or liver (as well as other body tissues) may cause AST to be released into the bloodstream. AST is a marker of liver inflammation which can indicate liver damage caused by excessive alcohol consumption, fatty liver disease, medications as well as certain viral infections.



ALT

Alanine transferase (ALT) is an enzyme produced by the liver and a raised level can indicate liver damage caused by alcohol, drugs or infection.



GGT

Gamma GT (Gamma Glutamyltransferase), is an enzyme produced by the liver. It is raised in conditions of the liver and bile duct. It can be used in conjunction with ALP to distinguish between bone and liver disease. Gamma GT is also used to diagnose long term alcohol abuse.



Total Bilirubin

Bilirubin is produced by the breakdown of haemoglobin (which carries oxygen around the body in red blood cells). It is removed from the body by the liver and then stored and concentrated in the gallbladder. It is secreted into the intestine (bowel) and removed from the body in urine and faeces.

You: 9 μmol/L	
0-21	>21
Normal	High
Your liver test results are normal.	

6. Gout risk

Gout is a type of arthritis caused by increased levels of a substance called uric acid in the blood. Uric acid is a waste product from the digestion of protein. If you produce too much uric acid or your kidneys don't filter enough out, it can build up and form crystals in and around joints. These crystals can cause the joints to become inflamed (red and swollen) and painful.

Uric Acid

Uric acid is a waste product. It is produced by the breakdown of chemicals known as purines. Purines occur naturally in the body but are also found in certain foods. Uric acid is removed from the body in urine. If the body has high levels of uric acid, it may be deposited as uric acid crystals in tissues. When this occurs in joints it causes the painful arthritic condition known as gout.



7. Diabetes risk

Diabetes is a chronic condition that causes a person's blood sugar level to become too high. The hormone insulin, produced by the pancreas, is responsible for controlling the amount of glucose in the blood. There are two main types of diabetes:

Type 1 – where the pancreas doesn't produce any insulin

Type 2 – where the pancreas does produce insulin but the body's cells are resistant to the action of insulin

HbA1C

HbA1c is also known as glycated haemoglobin. It represents the average blood glucose (sugar) levels for the last two to three months. HbA1c is formed when haemoglobin, a protein within red blood cells that carries oxygen around the body, attaches with glucose in the blood, to become 'glycated'.





NEXT STEPS:

We recommend that you arrange a video consultation with one of our GPs so they can talk you through your results, discuss those that are positive or outside of the normal reference range and guide you on any next steps to improve your health or seek further medical advice.