

RANDOX











HEALTH

RANDOX

HEALTH

PID	
Forename	Tired All The Time
Surname	Example Report
Fasted For	XX hours and XX minutes
DOB	dd-Mmm-yyyy

CONTENTS

	Your Results of Interest	01
	Full Blood Count	05
	Iron Status	07
	Diabetes Health	08
	Kidney Health	09
	Nutritional Health	11
	Bone Health	12
	Infection & Inflammation	13
	Thyroid Health	14
	Results For Your Doctor	15



Your Results of Interest

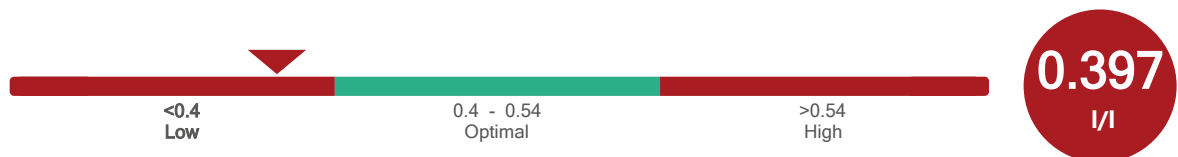
The results presented in this section are a summary of all the tests that are either positive or fall outside the reference ranges. What does this mean? A reference range is a term used to determine if your results are within what is considered to be the 'normal' range of the population. If your results are outside the range for a test, it does not automatically mean the result is abnormal. Depending on each person's individual medical history, current medications and ongoing conditions or diseases, the results must be interpreted in this context to fully understand what these results mean to you. Therefore, in this section those results that are either positive or fall outside the reference range are highlighted so that they can be reviewed by a GP / Consultant to understand the relevance to your health. These results will also appear again throughout the report alongside the other results for that profile.



Full Blood Count

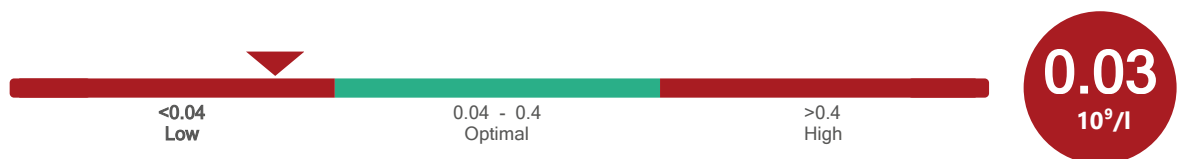
Haematocrit

Haematocrit is the percentage of total blood volume occupied by red blood cells (RBCs). It is an indirect measurement of the RBC count. Abnormal values indicate the same conditions as abnormal RBC and haemoglobin values i.e. decreased levels may indicate anaemia whilst increased levels can indicate erythrocytosis (too many RBCs).



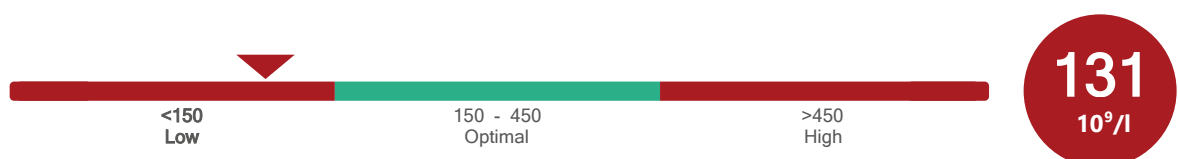
Eosinophil Count

Eosinophil Count refers to the number of eosinophils per volume of blood. Eosinophils are white blood cells that are involved in allergic reactions and in resisting infection. A high eosinophil count may be due to asthma, eczema, hay fever, parasitic infections, autoimmune disease (conditions caused by the generation of an immune response against the body's own tissues), leukaemia and certain medications. A low eosinophil count may be associated with excess production of adrenal hormones (e.g. Cushing's syndrome), alcohol intoxication and stress.



Platelet Count

Platelet Count is a measure of the number of platelets per unit volume of blood. Platelet numbers above or below normal can result in abnormal blood clotting or excessive bleeding. A low platelet count can be caused by viral infections, autoimmune disorders, anaemia, leukaemia or drug use (e.g. aspirin, heparin and some antibiotics). Very occasionally, platelets can clump together within a sample and produce an artificially low platelet count. A high platelet count can occur in iron-deficiency anaemia, myeloproliferative disorders (disorders in which the bone marrow produces too many blood cells), various cancers, and inflammatory conditions such as rheumatoid arthritis and inflammatory bowel disease.

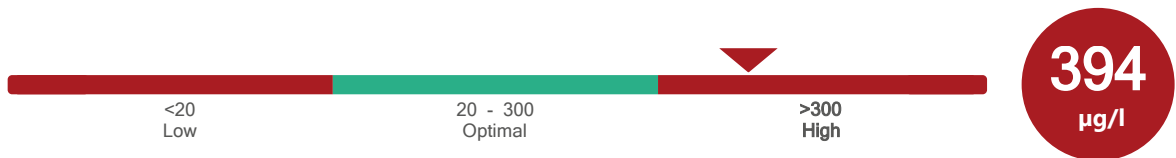




Iron Status

Ferritin

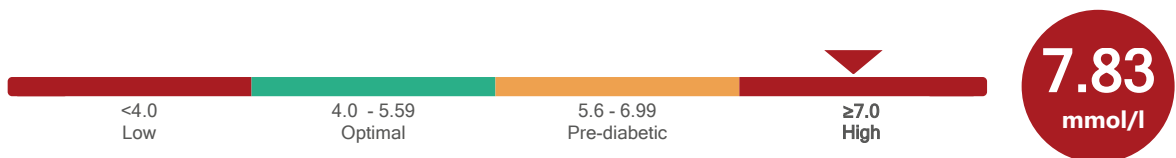
Ferritin is a major iron-storage protein and provides a good indication of available iron stores. Increased ferritin levels can be associated with disorders of excessive iron storage (e.g. haemochromatosis), iron poisoning, recent blood transfusions, megaloblastic anaemia (anaemia due to vitamin B12 or folic acid deficiency) or haemolytic anaemia (anaemia caused by premature destruction of red blood cells). However, ferritin is an acute phase protein, which can non-specifically increase with acute inflammatory disease, infection, liver disease or cancer, regardless of iron stores, due to leakage of ferritin from damaged organs (especially the liver, spleen and bone marrow). Decreased ferritin levels may be associated with iron-deficiency anaemia and very low protein levels.



Diabetes Health

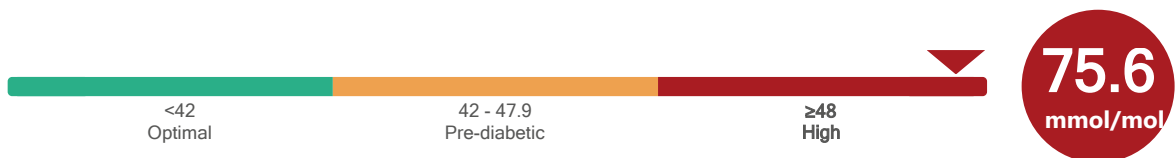
Glucose

Glucose is a simple sugar that provides energy for the body. An increased fasting glucose level is characteristic of diabetes. Increased levels can occur following a meal and can be associated with hyperthyroidism (an overactive thyroid gland), pancreatitis (inflammation of the pancreas), chronic kidney failure, and rare conditions such as acromegaly (excess production of growth hormone) and Cushing's syndrome (excess production of adrenal hormones). Various medications such as steroids and diuretics can also increase glucose levels. Decreased levels may be associated with starvation, hypothyroidism (an underactive thyroid gland), extensive liver disease, insulin overdose, and rare conditions such as insulinoma (a tumour of the pancreas), hypopituitarism (an underactive pituitary gland) and Addison's disease (a disorder of the adrenal glands).



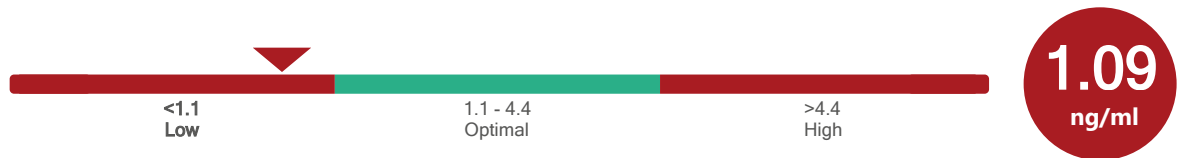
HbA1c

HbA1c is a substance formed when haemoglobin in red blood cells (RBCs) combines with glucose in the blood. The HbA1c level does not change quickly as RBCs live for 2-3 months. This test can therefore provide an accurate long-term index of the average glucose level in the blood. Increased HbA1c levels can be associated with diabetes mellitus, gestational diabetes (diabetes that develops during pregnancy), acute stress response, corticosteroid therapy, and other rare non-diabetic conditions including acromegaly (excess production of growth hormone) and Cushing's syndrome (excess production of adrenal hormones).



C-peptide

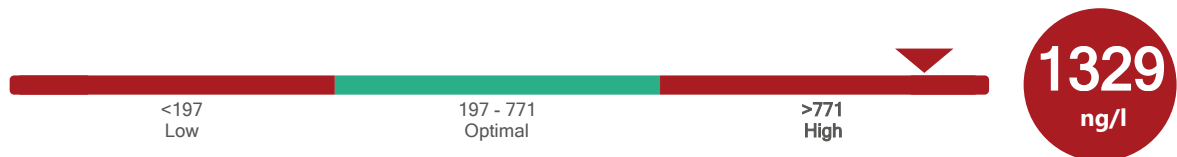
C-peptide is released from the pancreas to the bloodstream during production of insulin. C-peptide is a useful marker of insulin production and may aid the evaluation of individuals with hypoglycaemia (low blood sugar) or metabolic syndrome (a set of risk factors for diabetes and cardiovascular disease occurring simultaneously). Elevated C-peptide levels may be associated with insulin resistance (a key feature of type 2 diabetes), pregnancy, low potassium levels, kidney failure and rare conditions such as Cushing's syndrome (overactive adrenal glands) and insulinoma (an insulin-producing tumour of the pancreas).



Nutritional Health

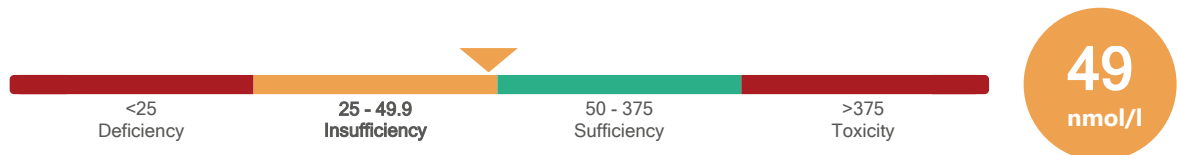
Vitamin B12

Vitamin B12 along with folic acid is important for the normal development of red blood cells (RBCs). Vitamin B12 is also vital for the normal functioning of nerves. Decreased vitamin B12 levels are associated with megaloblastic anaemia (anaemia due to vitamin B12 or folic acid deficiency) and pernicious anaemia (anaemia due to impaired absorption of vitamin B12 by the intestine). Low vitamin B12 levels may be due to decreased dietary intake, malabsorption disorders (conditions that affect the ability of the intestine to absorb nutrients), gastritis (inflammation of the stomach) or liver disorders that affect vitamin B12 storage. Liver injury, myeloproliferative disorders (a group of conditions in which blood cells grow abnormally) and vitamin C, vitamin A or oestrogen supplementation may cause vitamin B12 levels to rise.



Vitamin D

Vitamin D regulates calcium and phosphate levels in the blood and is important for good health, growth and strong bones. Low vitamin D levels are commonly due to inadequate sunlight exposure or dietary intake but may occur with malabsorption disorders (conditions that affect the ability of the intestine to absorb nutrients, e.g. Crohn's disease), liver disease or kidney disorders. Low vitamin D levels can increase the risk of bone disorders such as osteoporosis (weakening of the bones) and osteomalacia (softening of the bones), and may increase the risk of certain cancers, immune diseases and cardiovascular disease. Increased vitamin D levels may be associated with excessive supplementation, hyperparathyroidism (increased production of parathyroid hormone) or sarcoidosis (a rare disease in which areas of the body are inflamed). High levels of vitamin D can cause calcium levels in the blood to rise, which can be damaging to the body.

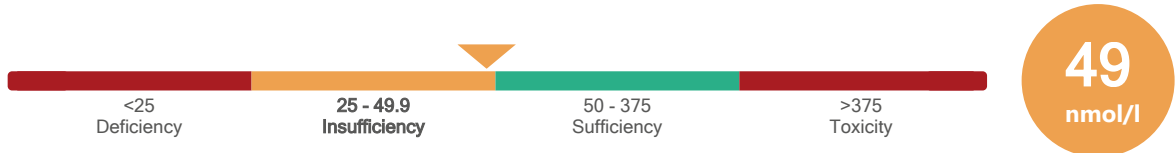




Bone Health

Vitamin D

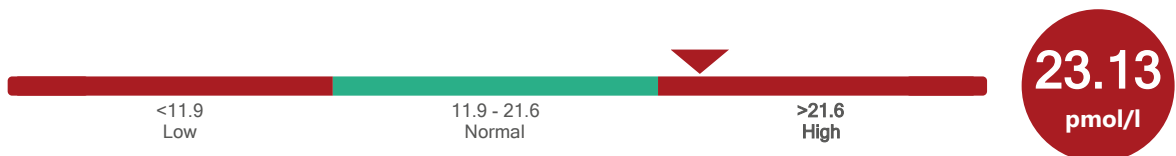
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Thyroid Health

Free Thyroxine (FT4)

Free Thyroxine (FT4) is a hormone produced by the thyroid gland that is involved in regulation of the body's metabolism. Free thyroxine is a measure of the amount of active thyroxine circulating in the bloodstream and helps evaluate thyroid function. Elevated FT4 levels are associated with hyperthyroidism (an overactive thyroid gland), whilst decreased FT4 levels are associated with hypothyroidism (an underactive thyroid gland).





Full Blood Count

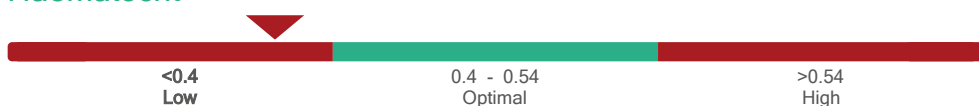
This panel provides information about the type and number of cells in the blood, including red blood cells, white blood cells and platelets. Red blood cells contain haemoglobin, a protein that carries oxygen from the lungs to all the tissues of the body and carbon dioxide back to the lungs. White blood cells form part of the immune system and help to defend the body against infection from foreign substances such as bacteria, fungi and viruses. The major types of white blood cells are neutrophils, lymphocytes, monocytes, eosinophils and basophils, with each having their own role in protecting the body from infection. Platelets are important for blood clotting. Their sticky surface enables them, along with other substances, to help wounds heal by forming clots to stop bleeding. The Full Blood Count is useful for evaluating general health status and as a screening tool for a variety of conditions, such as anaemia, infection, inflammation and other blood disorders.

Haemoglobin



132
g/l

Haematocrit



0.397
l/l

Mean Cell Haemoglobin (MCH)



27.1
pg

Mean Cell Haemoglobin Concentration (MCHC)



332
g/l

Red Blood Cell Mean Cell Volume (MCV)



81.5
fl

Red Blood Cell Count



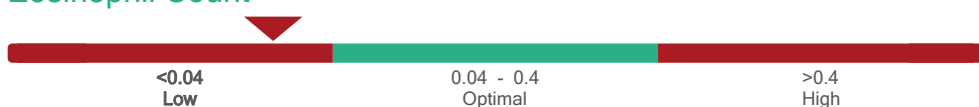
4.87
 $10^{12}/l$

Basophil Count



0.06
 $10^9/l$

Eosinophil Count



0.03
 $10^9/l$

Lymphocyte Count



1.51
10⁹/l

Monocyte Count



0.30
10⁹/l

Neutrophil Count



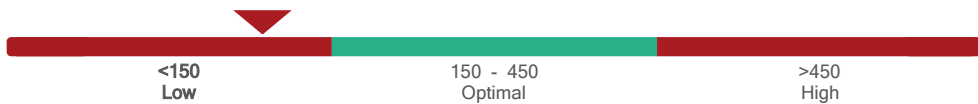
2.24
10⁹/l

White Blood Cell Count



4.14
10⁹/l

Platelet Count



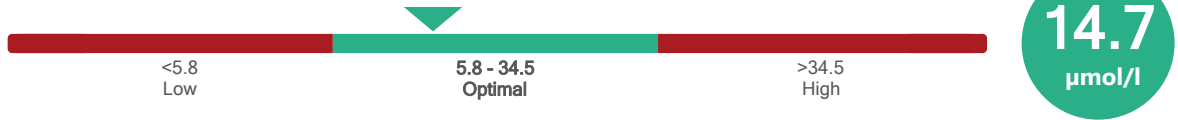
131
10⁹/l



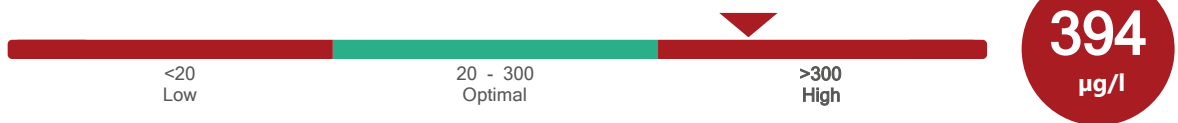
Iron Status

Iron is essential for red blood cell formation. Most of the body's iron, approximately 70%, is present in red blood cells, where its primary role is to carry oxygen from the lungs to all the tissues of the body. Additionally, iron facilitates energy production and release from cells and participates in the functioning of the immune and central nervous systems. Iron Status is useful for evaluating conditions such as iron-deficiency, which can cause anaemia, and iron overload, which can cause organ damage, particularly to the liver.

Iron



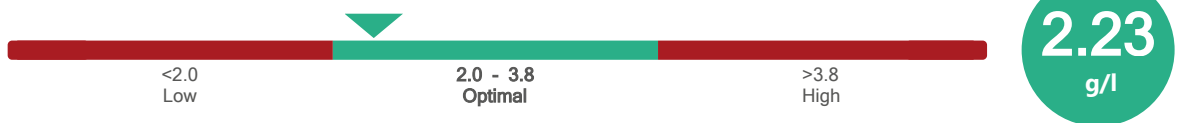
Ferritin



Total Iron Binding Capacity (TIBC)



Transferrin



Transferrin Saturation

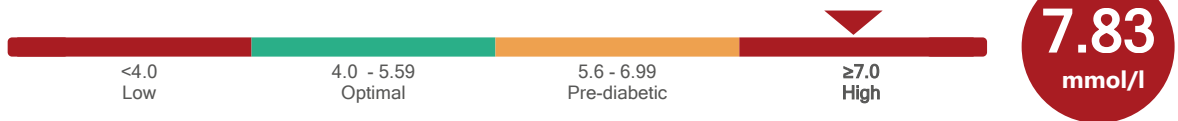




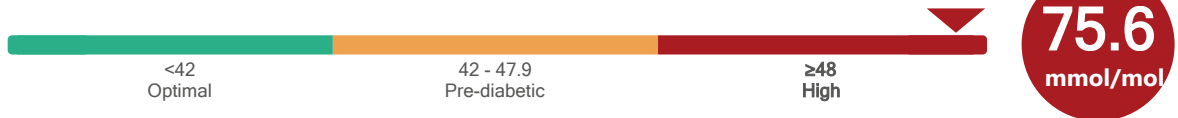
Diabetes Health

Diabetes mellitus is a chronic condition that is characterised by a high blood glucose level. Normally, insulin (a hormone produced by the pancreas) regulates blood glucose levels. Type 1 diabetes is a condition in which the insulin producing cells of the pancreas are destroyed resulting in very little or no insulin production. Type 2 diabetes is a condition in which the pancreas continues to produce insulin but blood sugar levels remain high due to an insufficient amount of insulin or insulin resistance. Although glucose provides an essential fuel for the body, long-term high levels of glucose are destructive, causing damage to blood vessels, nerves and organs. This damage can increase the risk of developing high blood pressure, heart disease, kidney disease and loss of vision. The Diabetes Health panel includes measurement of glucose and HbA1c levels in the blood, which is useful for the diagnosis and monitoring of diabetes. Higher than normal levels can be associated with a greater risk of developing diabetes in the future ('high risk' or 'pre-diabetes').

Glucose



HbA1c



Insulin



C-peptide





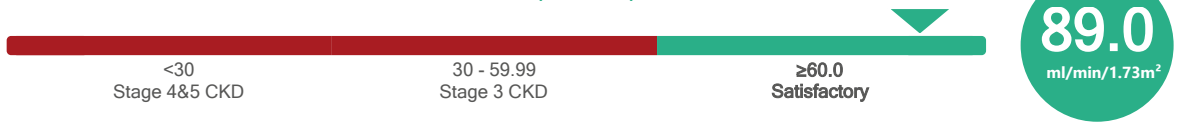
Kidney Health

The kidneys are responsible for the production of urine and regulation of water and salt levels in the blood. The kidneys filter blood to remove waste products, water and salts. The fluid containing these waste products travels through kidney tubules where re-absorption of water and salts takes place. This absorption process is crucial to the maintenance of fluid balance in the body, which is also important for blood pressure regulation. Many conditions can impair the filtering ability of the kidney or lead to destruction of kidney tissue, including urinary tract obstruction, glomerulonephritis and acute kidney injury. Kidney Health helps evaluate the filtering ability of the kidneys and can indicate how well the kidneys are functioning.

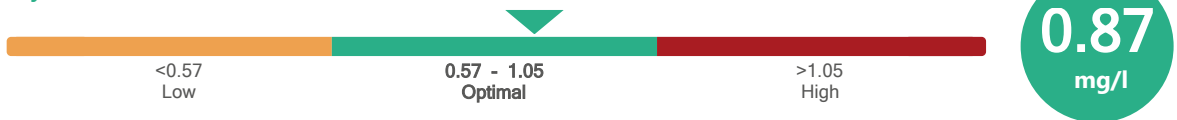
Creatinine



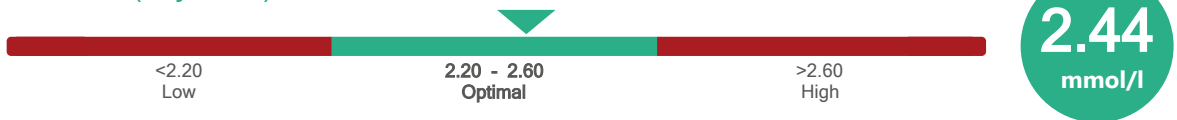
Estimated Glomerular Filtration Rate (eGFR)



Cystatin C



Calcium (adjusted)



Chloride



Magnesium



Phosphate



Potassium



Sodium



137.3
mmol/l

Urea



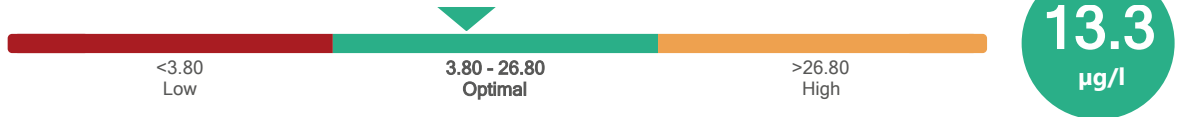
5.13
mmol/l



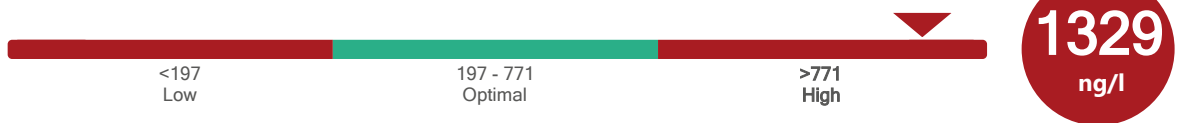
Nutritional Health

Nutrition is the supply of materials (in the form of food), which are necessary to allow the body to function normally. Vitamins and minerals support normal growth, and help organs and cells to function. Therefore, good nutrition is vital for health and wellbeing. A poor diet or malabsorption disorders (conditions caused by an impaired ability to digest and/or absorb nutrients from food) may lead to nutritional deficiency. The Nutritional Health panel evaluates the levels of various nutrients and can help identify whether an individual's nutritional status is adequate.

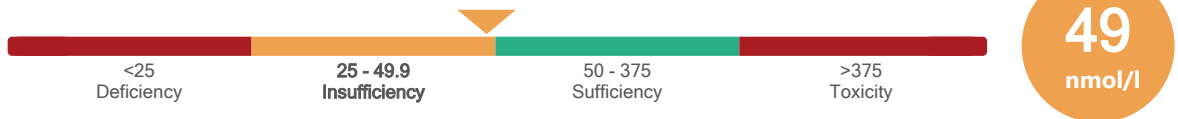
Folic acid



Vitamin B12



Vitamin D





Bone Health

Bones provide structural support for the body and offer protection to delicate organs and tissues (e.g. the ribs protect the heart and lungs and the skull protects the brain). Bones are subject to a continuous remodelling process where old bone tissue is replaced with new tissue. For bones to remain strong and healthy, various factors are required, including calcium and vitamin D. Osteoporosis is a condition in which bones lose density and become weak. Risk factors for osteoporosis include oestrogen deficiency (post-menopause), vitamin D deficiency, calcium deficiency and an inactive lifestyle. Bone Health helps evaluate the levels of these important bone-strength factors, which can be useful for identifying individuals at risk of future bone-related health problems.

Alkaline Phosphatase (ALP)



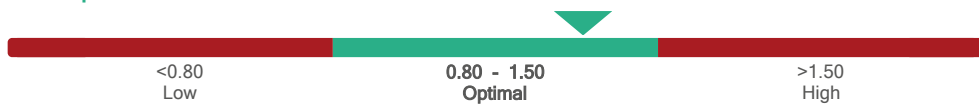
49
U/I

Calcium (adjusted)



2.44
mmol/l

Phosphate



1.340
mmol/l

Vitamin D



49
nmol/l



Infection & Inflammation

Inflammation is the body's natural response to infection, irritation or injury and is characterised by pain, swelling, warmth and redness of the affected area. Inflammation is a protective mechanism that occurs in an attempt to remove the cause of the injury or irritation and to initiate healing and repair. The Infection & Inflammation panel can indicate the presence of infection or inflammation in the body.

C-Reactive Protein (CRP)

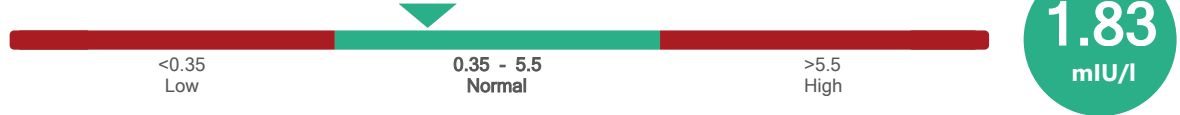




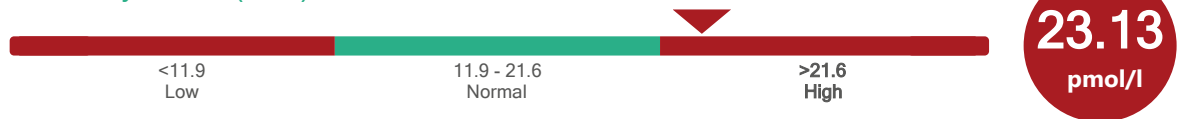
Thyroid Health

The thyroid gland plays an important role in controlling the body's metabolism by producing hormones. The thyroid hormones help the body to use energy, stay warm and keep the heart, brain, muscle and other organs functioning properly. Thyroid Health consists of tests that can be used to help diagnose an 'underactive thyroid' (hypothyroidism) or an 'overactive thyroid' (hyperthyroidism), or to monitor the treatment of these conditions.

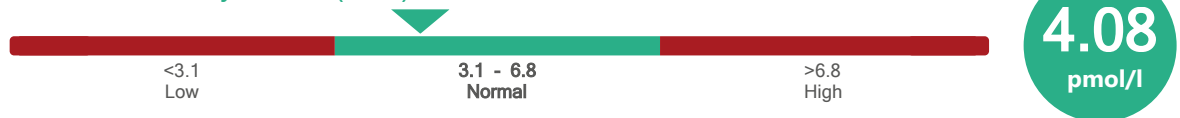
Thyroid Stimulating Hormone (TSH)



Free Thyroxine (FT4)



Free Tri-iodothyronine (FT3)



Anti-Thyroglobulin Antibody (Anti-Tg)



Anti-Thyroid Peroxidase Antibody (Anti-TPO)



Results for your Doctor

This section contains all your test results. Your doctor may prefer to see your test results in this format. The results that are either positive or fall outside the reference range are highlighted in red.

Test	Result	Units	Reference Range
Full Blood Count			
Haemoglobin	132	g/l	130 - 180 Optimal
Haematocrit	0.397	l/l	<0.4 Low 0.4 - 0.54 Optimal >0.54 High
Mean Cell Haemoglobin (MCH)	27.1	pg	27.0 - 32.0 Optimal
Mean Cell Haemoglobin Concentration (MCHC)	332	g/l	320 - 360 Optimal
Red Blood Cell Mean Cell Volume (MCV)	81.5	fl	76 - 100 Optimal
Red Blood Cell Count	4.87	10 ¹² /l	4.5 - 6.5 Optimal
Basophil Count	0.06	10 ⁹ /l	0.01 - 0.1 Optimal
Eosinophil Count	0.03	10 ⁹ /l	<0.04 Low 0.04 - 0.4 Optimal >0.4 High
Lymphocyte Count	1.51	10 ⁹ /l	1.0 - 3.5 Optimal
Monocyte Count	0.30	10 ⁹ /l	0.2 - 0.8 Optimal
Neutrophil Count	2.24	10 ⁹ /l	2 - 7.5 Optimal
White Blood Cell Count	4.14	10 ⁹ /l	4.0 - 10.0 Optimal
Platelet Count	131	10 ⁹ /l	<150 Low 150 - 450 Optimal >450 High
Iron Status			
Iron	14.7	µmol/l	5.8 - 34.5 Optimal
Ferritin	394	µg/l	<20 Low 20 - 300 Optimal >300 High
Total Iron Binding Capacity (TIBC)	54.3	µmol/l	44.8 - 80.6 Optimal

Test	Result	Units	Reference Range
Transferrin	2.23	g/l	2.0 - 3.8 Optimal
Transferrin Saturation	27.1	%	20 - 50 Optimal
Diabetes Health			
Glucose	7.83	mmol/l	<4.0 Low 4.0 - 5.59 Optimal 5.6 - 6.99 Pre-diabetic ≥7.0 High
HbA1c	75.6	mmol/mol	<42 Optimal 42 - 47.9 Pre-diabetic ≥48 High
Insulin	20.3	pmol/l	17.8 - 173.0 Optimal
C-peptide	1.09	ng/ml	<1.1 Low 1.1 - 4.4 Optimal >4.4 High
Kidney Health			
Creatinine	95.8	μmol/l	53 - 97 Optimal
Estimated Glomerular Filtration Rate (eGFR)	89.0	ml/min/1.73m ²	≥60.0 Satisfactory
Cystatin C	0.87	mg/l	0.57 - 1.05 Optimal
Calcium (adjusted)	2.44	mmol/l	2.20 - 2.60 Optimal
Chloride	100	mmol/l	95 - 108 Optimal
Magnesium	0.70	mmol/l	0.7 - 1.1 Optimal
Phosphate	1.340	mmol/l	0.80 - 1.50 Optimal
Potassium	4.10	mmol/l	3.5 - 5.3 Optimal
Sodium	137.3	mmol/l	133 - 146 Optimal
Urea	5.13	mmol/l	2.5 - 7.8 Optimal
Nutritional Health			
Folic acid	13.3	μg/l	3.80 - 26.80 Optimal
Vitamin B12	1329	ng/l	<197 Low 197 - 771 Optimal >771 High

Test	Result	Units	Reference Range
Vitamin D	49	nmol/l	<25 Deficiency 25 - 49.9 Insufficiency 50 - 375 Sufficiency >375 Toxicity
Bone Health			
Alkaline Phosphatase (ALP)	49	U/l	30 - 120 Optimal
Calcium (adjusted)	2.44	mmol/l	2.20 - 2.60 Optimal
Phosphate	1.340	mmol/l	0.80 - 1.50 Optimal
Vitamin D	49	nmol/l	<25 Deficiency 25 - 49.9 Insufficiency 50 - 375 Sufficiency >375 Toxicity
Infection & Inflammation			
C-Reactive Protein (CRP)	0.55	mg/l	≤5 Optimal
Thyroid Health			
Thyroid Stimulating Hormone (TSH)	1.83	mIU/l	0.35 - 5.5 Normal
Free Thyroxine (FT4)	23.13	pmol/l	<11.9 Low 11.9 - 21.6 Normal >21.6 High
Free Tri-iodothyronine (FT3)	4.08	pmol/l	3.1 - 6.8 Normal
Anti-Thyroglobulin Antibody (Anti-Tg)	14.1	IU/ml	≤115 Optimal
Anti-Thyroid Peroxidase Antibody (Anti-TPO)	<9.00	kU/l	≤34 Optimal