

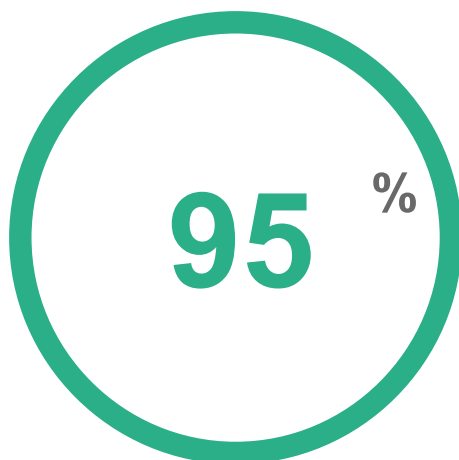
Order	Example Report
Name	FirstName LastName
Date of Birth	DD-Mmm-YYYY
Fasted For	XX hours and XX minutes
Date of Sample Collection	DD-Mmm-YYYY
Date of Report	DD-Mmm-YYYY
Programme	Sports Performance

CONTENTS

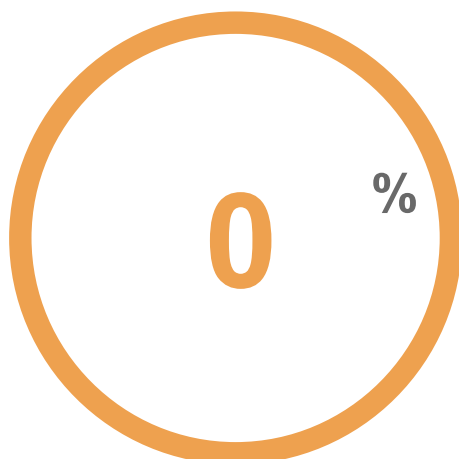
	Your Results of Interest	04
	Full Blood Count	06
	Iron Status	08
	Heart Health	09
	Diabetes Health	11
	Kidney Health	12
	Urinalysis	14
	Liver Health	16
	Nutritional Health	17
	Muscle & Joint Health	18
	Bone Health	19
	Infection & Inflammation	20
	Pituitary & Adrenal Health	21
	Thyroid Health	22
	Hormonal Health	23
	Results for your Doctor	24


Health Status

Track and improve your Health Status each time you visit Randox Health.



 Green - In Range



 Amber - In Between



 Red - Out of Range

Your Results of Interest

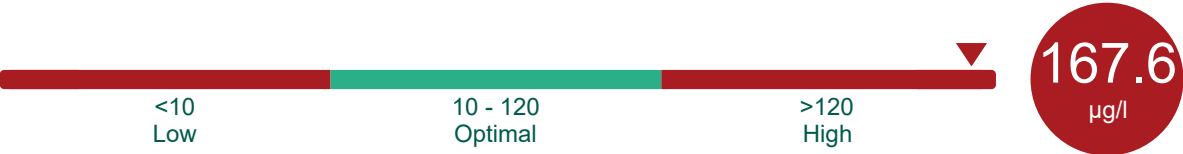
The results presented in this section are a summary of all the tests that are either positive or fall outside the reference ranges. What does this mean? A reference range is a term used to determine if your results are within what is considered to be the 'normal' range of the population. If your results 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.



Iron Status

Ferritin

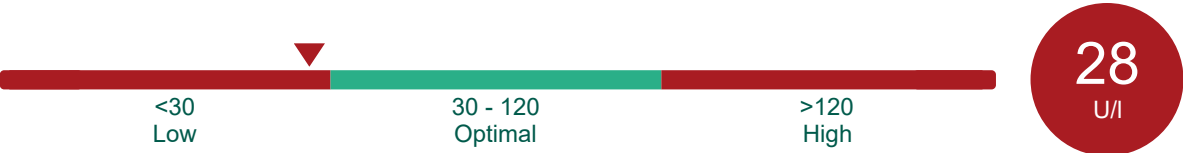
Ferritin is a major iron-storage protein and provides a good indication of available iron stores. Increased ferritin levels can be associated with disorders of excessive iron storage (e.g. haemochromatosis), iron poisoning, recent blood transfusions, megaloblastic anaemia (anaemia due to vitamin B12 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.



Liver Health

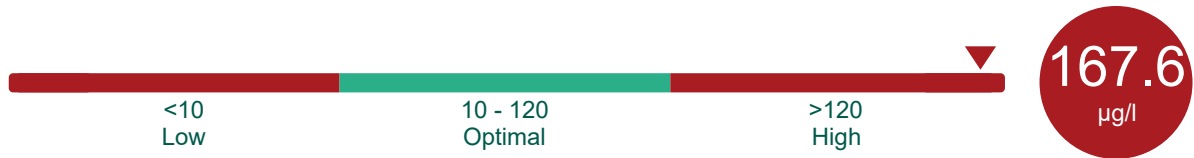
Alkaline Phosphatase (ALP)

Alkaline Phosphatase (ALP) is an enzyme found in many tissues, with particularly high amounts found in the liver, bile ducts and bone. Various conditions can increase the level of ALP in the blood. These conditions include liver disorders, such as cirrhosis (scarring of the liver), hepatitis (inflammation of the liver), liver cancer or bile duct obstruction. Rapid bone growth or bone disorders, e.g. healing fractures and osteomalacia (softening of the bones) and hyperparathyroidism (an overactive parathyroid gland) can also increase ALP levels. Decreased levels of ALP can be associated with malnutrition, vitamin B12 deficiency and vitamin C deficiency.



Ferritin

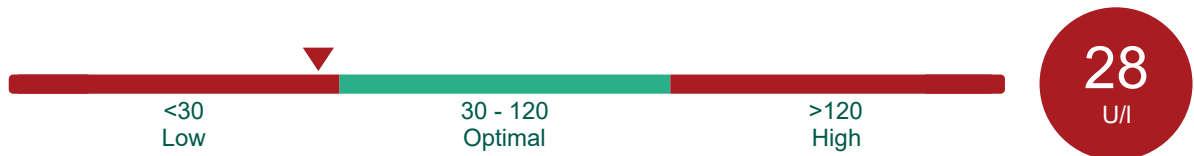
Ferritin is a major iron-storage protein and provides a good indication of available iron stores. Increased ferritin levels can be associated with disorders of excessive iron storage (e.g. haemochromatosis), iron poisoning, recent blood transfusions, megaloblastic anaemia (anaemia due to vitamin B12 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.



Bone Health

Alkaline Phosphatase (ALP)

Alkaline Phosphatase (ALP) is an enzyme found in many tissues, with particularly high amounts found in the liver, bile ducts and bone. Various conditions can increase the level of ALP in the blood. These conditions include liver disorders, such as cirrhosis (scarring of the liver), hepatitis (inflammation of the liver), liver cancer or bile duct obstruction. Rapid bone growth or bone disorders, e.g. healing fractures and osteomalacia (softening of the bones) and hyperparathyroidism (an overactive parathyroid gland) can also increase ALP levels. Decreased levels of ALP can be associated with malnutrition, vitamin B12 deficiency and vitamin C deficiency.





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



125
g/l

Haematocrit



39.1
%

Mean Cell Haemoglobin (MCH)



30.6
pg

Mean Cell Haemoglobin Concentration (MCHC)



320
g/l

Red Blood Cell Mean Cell Volume (MCV)



95.8
fl

Red Blood Cell Count



4.08
 $10^{12}/L$

Basophil Count



0.04
 $10^9/L$

Eosinophil Count



0.2
10⁹/L

Lymphocyte Count



1.95
10⁹/L

Monocyte Count



0.47
10⁹/L

Neutrophil Count



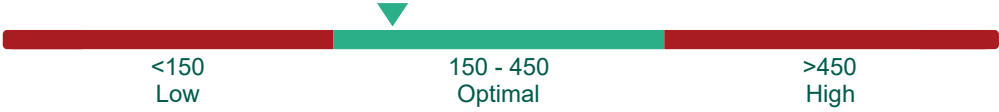
2.76
10⁹/L

White Blood Cell Count



5.42
10⁹/L

Platelet Count



203
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.





Heart Health

A major contributing factor to heart disease is the gradual accumulation of fat and cholesterol within blood vessel walls, a process known as atherosclerosis. Cholesterol is a fatty substance that is vital for the normal functioning of the body. However, too much cholesterol is damaging and the risk of developing heart disease is greater in individuals with high cholesterol levels. Heart Health helps assess an individual's risk of developing cardiovascular diseases such as heart disease and stroke.

Total Cholesterol



4.58
mmol/l

LDL Cholesterol



2.14
mmol/l

HDL Cholesterol



2.02
mmol/l

Total Cholesterol / HDL Cholesterol Ratio



2.27
-

Triglycerides



0.44
mmol/l

Apolipoprotein A-I



187.1
mg/dl

Apolipoprotein B



63
mg/dl

Apolipoprotein B / A-I Ratio



0.34
-

High Sensitivity C-Reactive Protein (hsCRP)



0.8
mg/l

Creatine Kinase-MB (CK-MB)



2.65
μg/l

Creatine Kinase



125
U/l

Myoglobin



41.2
μg/l



Diabetes Health

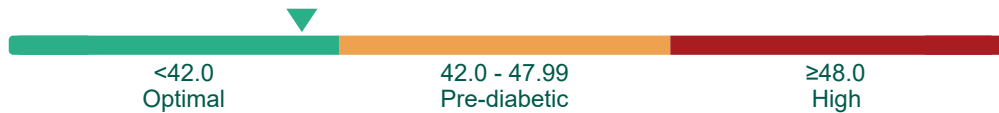
Diabetes mellitus is a chronic condition that is characterised by a high blood glucose level. Normally, insulin (a hormone produced by the pancreas) regulates blood glucose levels. Type 1 diabetes is a condition in which the insulin producing cells of the pancreas are destroyed resulting in very little 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



4.69
mmol/l

HbA1c



37.1
mmol/mol



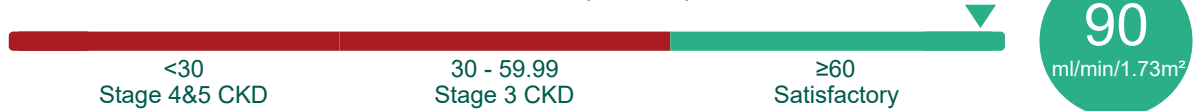
Kidney Health

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)



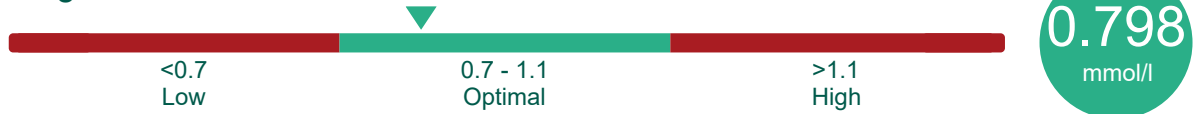
Calcium (adjusted)



Chloride



Magnesium



Phosphate



Potassium



Sodium



Urea



6.07
mmol/l

Uric Acid



210.7
μmol/l



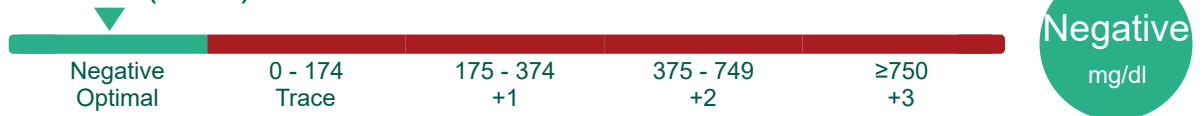
Urinalysis

Urinalysis is part of routine diagnostic and screening evaluations. It can reveal a significant amount of preliminary information about the kidneys and other metabolic processes. Urinalysis tests for substances that are normally not present or are present at low concentrations in the urine. In addition, pH measurement helps determine the acidity of urine and is indicative of acid-base balance in the body.

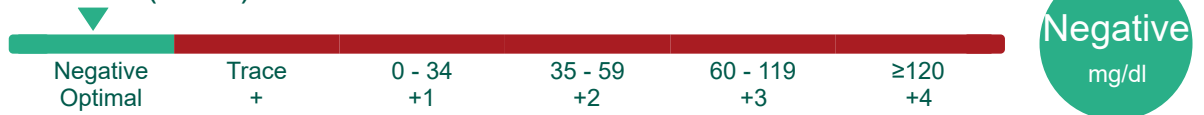
Bilirubin (Urine)



Glucose (Urine)



Ketones (Urine)



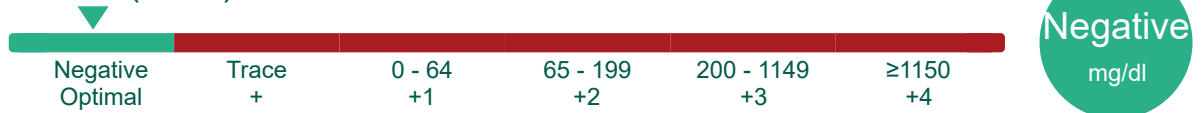
Nitrite (Urine)



pH (Urine)



Protein (Urine)



Red Blood Cells (Urine)



Urobilinogen (Urine)



White Blood Cells (Urine)



Negative
Leuk/ μ l



Liver Health

The liver is a vital organ that plays a major role in the regulation of metabolism. The liver performs many complex functions, which include processing of carbohydrates, proteins and fats, breakdown of harmful or toxic substances, decomposition of red blood cells, removal of waste products from the blood and the production and secretion of bile. Bile is a fluid, which aids in the digestion of fats. Once secreted from the liver, bile travels through a series of ducts to the small intestine or to the gallbladder for storage. Liver disease encompasses many conditions that can cause damage to the liver, such as cirrhosis (irreversible scarring of liver tissue), hepatitis (inflammation of the liver), fatty liver disease, gallbladder disease and bile duct obstruction. The Liver Health panel consists of tests that evaluate the function of the liver.

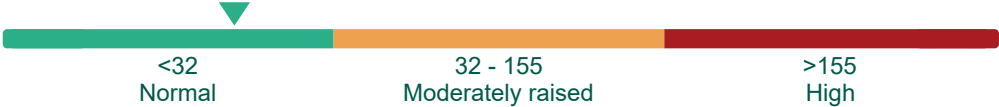
Alanine Aminotransferase (ALT)



Alkaline Phosphatase (ALP)



Aspartate Aminotransferase (AST)



Gamma-Glutamyltransferase (GGT)



Total Bilirubin



Albumin



Ferritin





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.

Total Antioxidant Status (TAS)



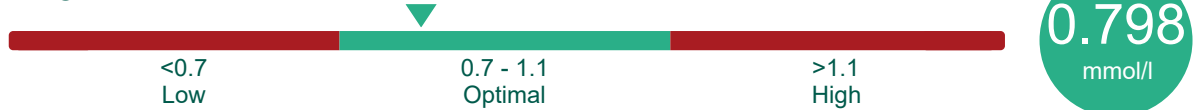
Albumin



Calcium (adjusted)



Magnesium



Iron



Folic acid



Vitamin B12



Vitamin D





Muscle & Joint Health

Muscles, which are composed of bundles of contractile fibres, are responsible for the movement of various parts of the body. When muscle fibres contract, movement occurs. Damage to muscles occurs in conditions such as myopathies (muscle disorders that cause muscle weakness) and myositis (inflammation of the skeletal muscles). In addition, muscle damage can arise from injury and excessive use of muscles during exercise. Joints form the connections between bones and permit movement and flexibility in various parts of the body. Arthritis is a condition characterised by inflammation, pain and stiffness of the joints and many types exist, including rheumatoid arthritis and gout. The Muscle & Joint Health panel includes markers associated with muscle damage and joint problems such as arthritis and gout.

Creatine Kinase



125
U/l

Creatine Kinase-MB (CK-MB)



2.65
µg/l

Myoglobin



41.2
µg/l

Uric Acid



210.7
µmol/l



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)



28
U/l

Calcium (adjusted)



2.33
mmol/l

Phosphate



0.99
mmol/l

Vitamin D



76
nmol/l



Infection & Inflammation

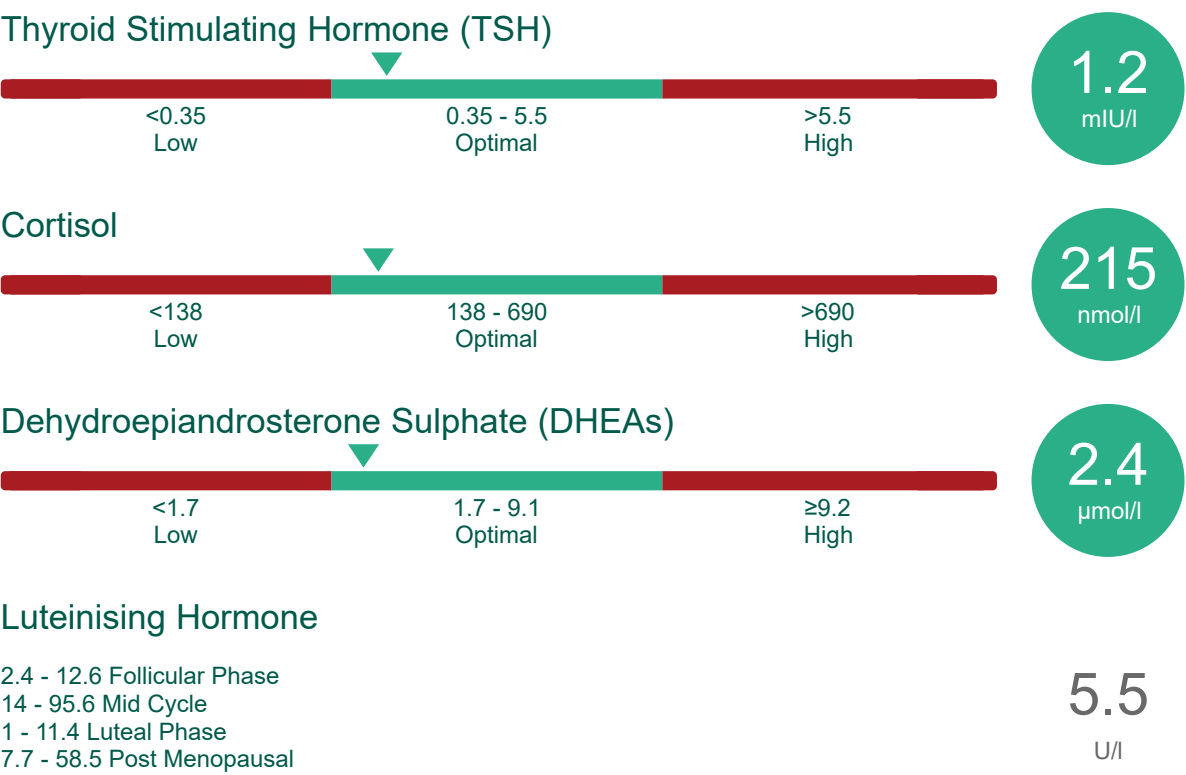
Inflammation is the body's natural response to infection, irritation or injury and is characterised by pain, swelling, warmth and redness of the affected area. Inflammation is a protective mechanism that occurs in an attempt to remove the cause of the injury or irritation and to initiate healing and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





Pituitary & Adrenal Health

The pituitary and adrenal glands are responsible for the production and release of hormones. Hormones are chemical messengers that travel through the bloodstream and enable communication between different tissues. The pituitary gland, located in the brain, regulates the hormone producing activity of other glands such as the adrenals, thyroid and ovaries, and helps to control various body processes, such as blood pressure, metabolism, growth, temperature and ovulation. The adrenal glands, located just above each kidney, produce hormones that help to regulate blood pressure and the body's response to stress. The Pituitary & Adrenal Health panel comprises the measurement of various hormones produced by each gland and can be useful for evaluating whether the pituitary or adrenal glands are overactive or underactive.





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)



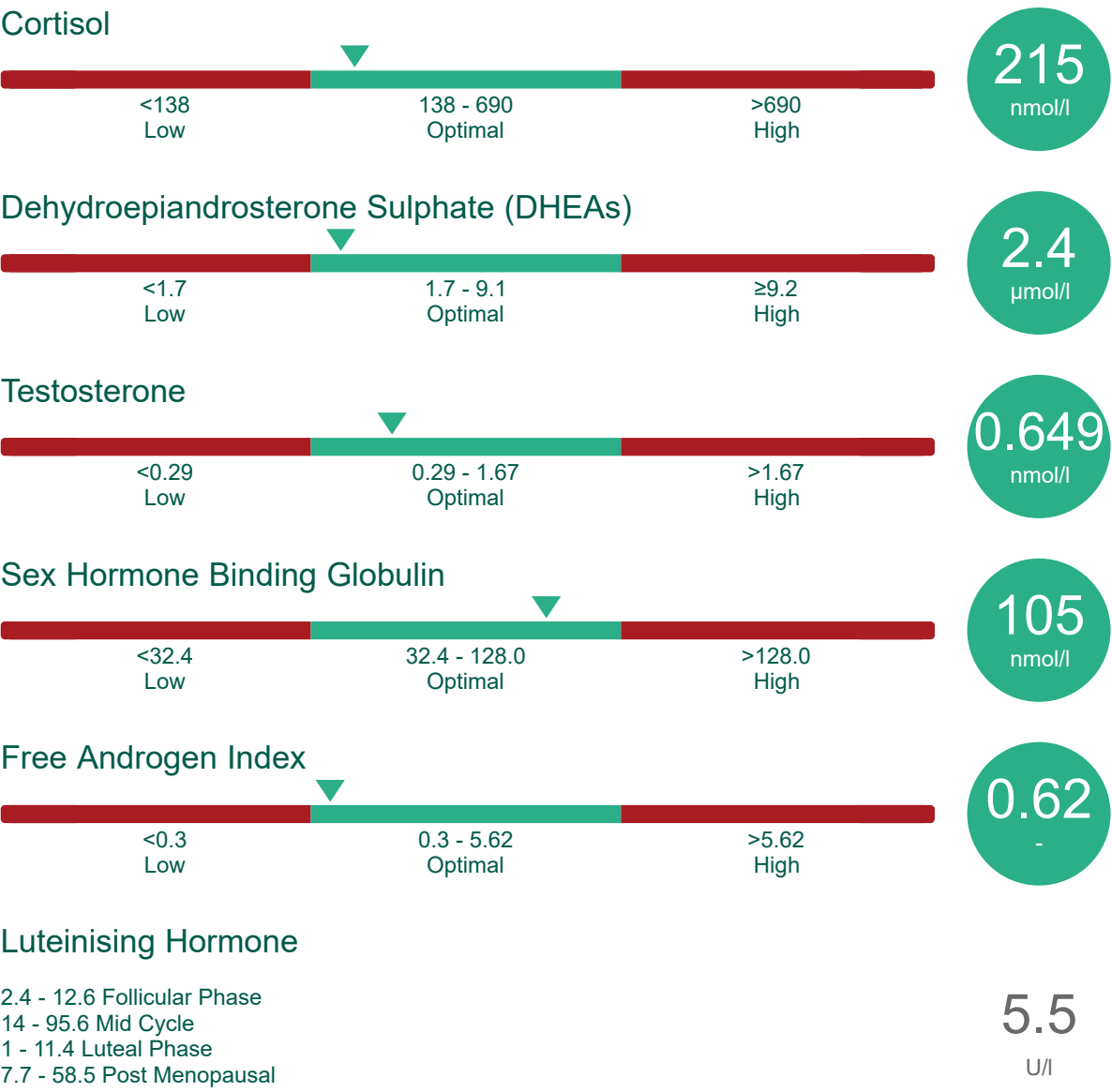
Free Tri-iodothyronine (FT3)





Hormonal Health

A hormone is a chemical substance that is produced in response to certain changes in the physiological processes that occur in the body. Hormones carry information between cells and help regulate metabolism, growth, reproduction and mood alteration.



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	125	g/l	115.0 - 165.0 Optimal
Haematocrit	39.1	%	37.0 - 47.0 Optimal
Mean Cell Haemoglobin (MCH)	30.6	pg	27.0 - 32.0 Optimal
Mean Cell Haemoglobin Concentration (MCHC)	320	g/l	320.0 - 360.0 Optimal
Red Blood Cell Mean Cell Volume (MCV)	95.8	fl	76.0 - 100.0 Optimal
Red Blood Cell Count	4.08	10 ¹² /L	3.8 - 5.8 Optimal
Basophil Count	0.04	10 ⁹ /L	0.01 - 0.1 Optimal
Eosinophil Count	0.2	10 ⁹ /L	0.04 - 0.4 Optimal
Lymphocyte Count	1.95	10 ⁹ /L	1.0 - 3.5 Optimal
Monocyte Count	0.47	10 ⁹ /L	0.2 - 0.8 Optimal
Neutrophil Count	2.76	10 ⁹ /L	2.0 - 7.5 Optimal
White Blood Cell Count	5.42	10 ⁹ /L	4.0 - 10.0 Optimal
Platelet Count	203	10 ⁹ /L	150 - 450 Optimal
Iron Status			
Iron	12.1	µmol/l	5.8 - 34.5 Optimal
Ferritin	167.6	µg/l	<10 Low 10 - 120 Optimal >120 High
Total Iron Binding Capacity (TIBC)	54.8	µmol/l	44.8 - 80.6 Optimal
Transferrin	2.23	g/l	2.0 - 3.8 Optimal
Transferrin Saturation	22.1	%	15.0 - 50.0 Optimal
Heart Health			
Total Cholesterol	4.58	mmol/l	<5.00 Desirable
LDL Cholesterol	2.14	mmol/l	<3.00 Desirable
HDL Cholesterol	2.02	mmol/l	≥1.55 Desirable
Total Cholesterol / HDL Cholesterol Ratio	2.27	-	<5.0 Desirable
Triglycerides	0.44	mmol/l	<2.3 Desirable

Test	Result	Units	Reference Range
Heart Health			
Apolipoprotein A-I	187.1	mg/dl	101.0 - 223.0 Optimal
Apolipoprotein B	63	mg/dl	53 - 182 Optimal
Apolipoprotein B / A-I Ratio	0.34	-	≤0.90 Optimal
High Sensitivity C-Reactive Protein (hsCRP)	0.8	mg/l	<1 Low Risk
Creatine Kinase-MB (CK-MB)	2.65	µg/l	<4.88 Optimal
Creatine Kinase	125	U/l	25 - 200 Optimal
Myoglobin	41.2	µg/l	<58.0 Optimal
Diabetes Health			
Glucose	4.69	mmol/l	4.00 - 5.59 Optimal
HbA1c	37.1	mmol/mol	<42.0 Optimal
Kidney Health			
Creatinine	73.7	µmol/l	49.0 - 90.0 Optimal
Estimated Glomerular Filtration Rate (eGFR)	90	ml/min/1.73m ²	≥60 Satisfactory
Calcium (adjusted)	2.33	mmol/l	2.2 - 2.6 Optimal
Chloride	99	mmol/l	95 - 108 Optimal
Magnesium	0.798	mmol/l	0.7 - 1.1 Optimal
Phosphate	0.99	mmol/l	0.8 - 1.5 Optimal
Potassium	4.4	mmol/l	3.5 - 5.3 Optimal
Sodium	142.7	mmol/l	133.0 - 146.0 Optimal
Urea	6.07	mmol/l	2.5 - 7.8 Optimal
Uric Acid	210.7	µmol/l	140.0 - 360.0 Optimal
Urinalysis			
Bilirubin (Urine)	Negative	mg/dl	Negative Optimal
Glucose (Urine)	Negative	mg/dl	Negative Optimal
Ketones (Urine)	Negative	mg/dl	Negative Optimal
Nitrite (Urine)	Negative	mg/dl	Negative Optimal
pH (Urine)	6	pH	5.0 - 7.5 Optimal
Protein (Urine)	Negative	mg/dl	Negative Optimal
Red Blood Cells (Urine)	Negative	RBC/µl	Negative Optimal
Urobilinogen (Urine)	0.2	mg/dl	≤0.4 Optimal

Test	Result	Units	Reference Range
Urinalysis			
White Blood Cells (Urine)	Negative	Leuk/μl	Negative Optimal
Liver Health			
Alanine Aminotransferase (ALT)	19.4	U/l	<31 Normal
Alkaline Phosphatase (ALP)	28	U/l	<30 Low 30 - 120 Optimal >120 High
Aspartate Aminotransferase (AST)	22.3	U/l	<32 Normal
Gamma-Glutamyltransferase (GGT)	20	U/l	8.0 - 42.0 Optimal
Total Bilirubin	7.13	μmol/l	<21.0 Optimal
Albumin	44	g/l	35.0 - 50.0 Optimal
Ferritin	167.6	μg/l	<10 Low 10 - 120 Optimal >120 High
Nutritional Health			
Total Antioxidant Status (TAS)	1.68	mmol/l	≥1.3 Optimal
Albumin	44	g/l	35.0 - 50.0 Optimal
Calcium (adjusted)	2.33	mmol/l	2.2 - 2.6 Optimal
Magnesium	0.798	mmol/l	0.7 - 1.1 Optimal
Iron	12.1	μmol/l	5.8 - 34.5 Optimal
Folic acid	6.5	μg/l	3.8 - 26.8 Optimal
Vitamin B12	542	ng/l	197 - 771 Optimal
Vitamin D	76	nmol/l	50 - 375 Sufficiency
Muscle & Joint Health			
Creatine Kinase	125	U/l	25 - 200 Optimal
Creatine Kinase-MB (CK-MB)	2.65	μg/l	<4.88 Optimal
Myoglobin	41.2	μg/l	<58.0 Optimal
Uric Acid	210.7	μmol/l	140.0 - 360.0 Optimal
Bone Health			
Alkaline Phosphatase (ALP)	28	U/l	<30 Low 30 - 120 Optimal >120 High
Calcium (adjusted)	2.33	mmol/l	2.2 - 2.6 Optimal
Phosphate	0.99	mmol/l	0.8 - 1.5 Optimal

Test	Result	Units	Reference Range
Bone Health			
Vitamin D	76	nmol/l	50 - 375 Sufficiency
Infection & Inflammation			
C-Reactive Protein (CRP)	0.8	mg/l	≤5.0 Optimal
Pituitary & Adrenal Health			
Thyroid Stimulating Hormone (TSH)	1.2	mIU/l	0.35 - 5.5 Optimal
Cortisol	215	nmol/l	138 - 690 Optimal
Luteinising Hormone	5.5	U/l	2.4 - 12.6 Follicular Phase 14 - 95.6 Mid Cycle 1 - 11.4 Luteal Phase 7.7 - 58.5 Post Menopausal
Dehydroepiandrosterone Sulphate (DHEAs)	2.4	μmol/l	1.7 - 9.1 Optimal
Thyroid Health			
Thyroid Stimulating Hormone (TSH)	1.2	mIU/l	0.35 - 5.5 Optimal
Free Thyroxine (FT4)	15.8	pmol/l	11.9 - 21.6 Optimal
Free Tri-iodothyronine (FT3)	3.57	pmol/l	3.1 - 6.8 Optimal
Hormonal Health			
Cortisol	215	nmol/l	138 - 690 Optimal
Dehydroepiandrosterone Sulphate (DHEAs)	2.4	μmol/l	1.7 - 9.1 Optimal
Luteinising Hormone	5.5	U/l	2.4 - 12.6 Follicular Phase 14 - 95.6 Mid Cycle 1 - 11.4 Luteal Phase 7.7 - 58.5 Post Menopausal
Testosterone	0.649	nmol/l	0.29 - 1.67 Optimal
Sex Hormone Binding Globulin	105	nmol/l	32.4 - 128.0 Optimal
Free Androgen Index	0.62	-	0.3 - 5.62 Optimal