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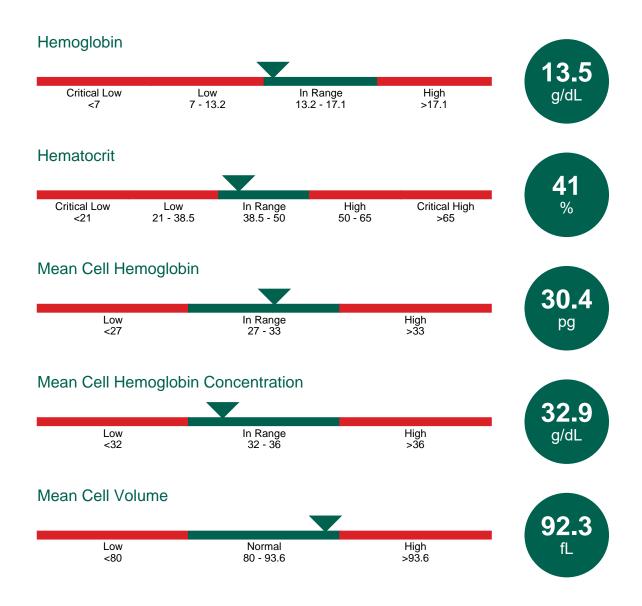
The results of all tests are exclusively for Research use Only (RUO) and not for Clinical diagnostic purposes.

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Complete Blood Count (CBC)

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 Complete 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.





Platelets





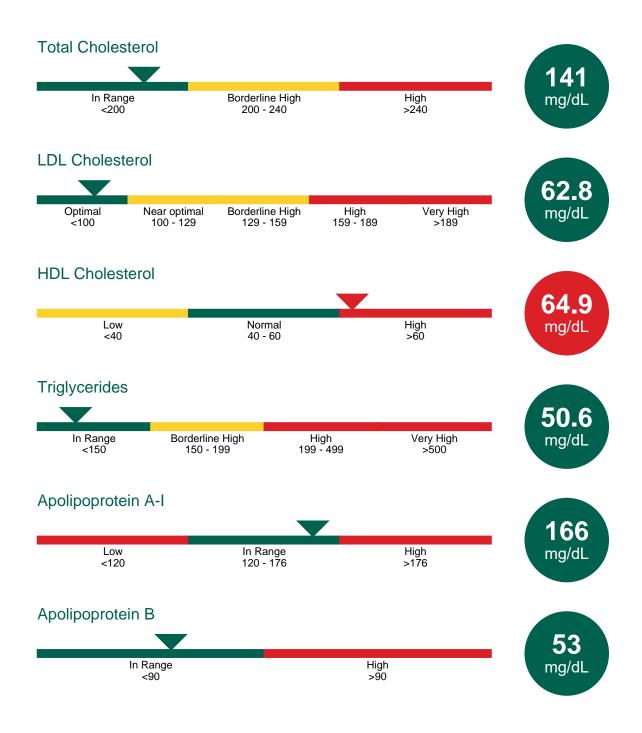
Iron Status

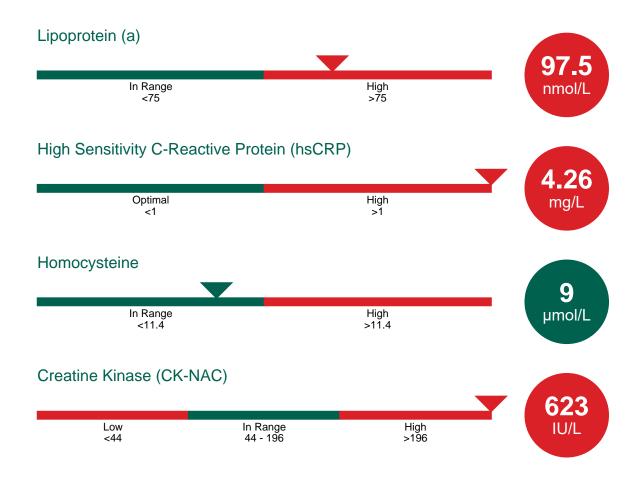
Iron is essential for red blood cell formation. Most of the body's iron, approximately 70%, is present in red blood cells, where its primary role is to carry oxygen from the lungs to all the tissues of the body. Additionally, iron facilitates energy production and release from cells and participates 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

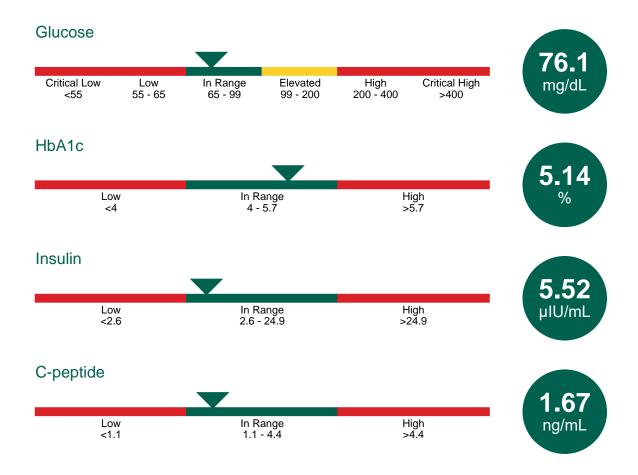
A major contributing factor to heart disease is the gradual accumulation of fat and cholesterol within blood vessel walls, a process known as atherosclerosis. Cholesterol is a fatty substance that is vital for the normal functioning of the body. However, too much cholesterol is damaging and the risk 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.





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').



Kidney Health

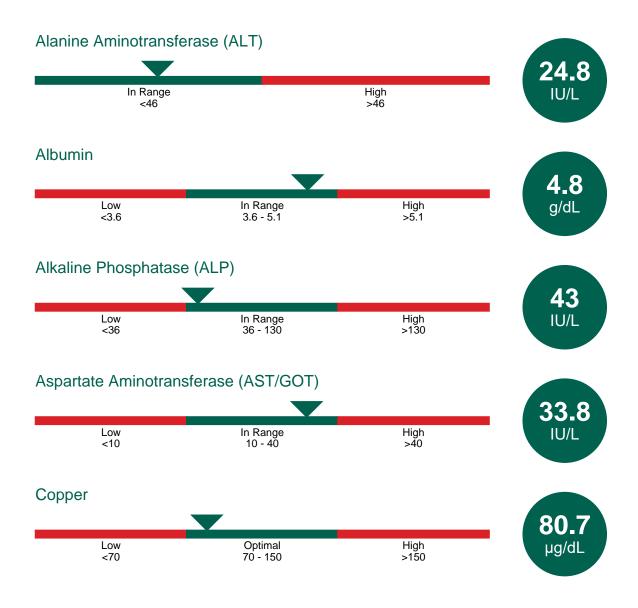
The kidneys are responsible for the production of urine and regulation of water and salt levels in the blood. The kidneys filter blood to remove waste products, water and salts. The fluid containing these waste products travels through kidney tubules where re-absorption of water and salts takes place. 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.

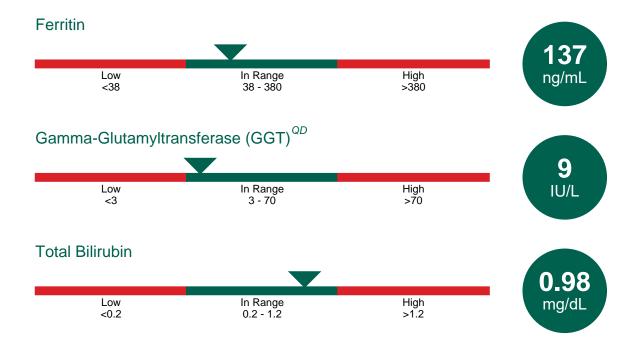




Liver Health

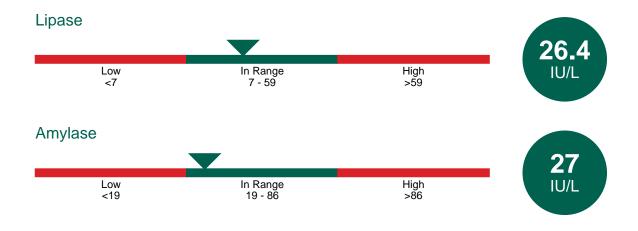
The liver is a vital organ that plays a major role in the regulation of metabolism. The liver performs many complex functions, which include processing of carbohydrates, proteins and fats, breakdown of harmful or toxic substances, decomposition of red blood cells, removal of waste products from the blood 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.





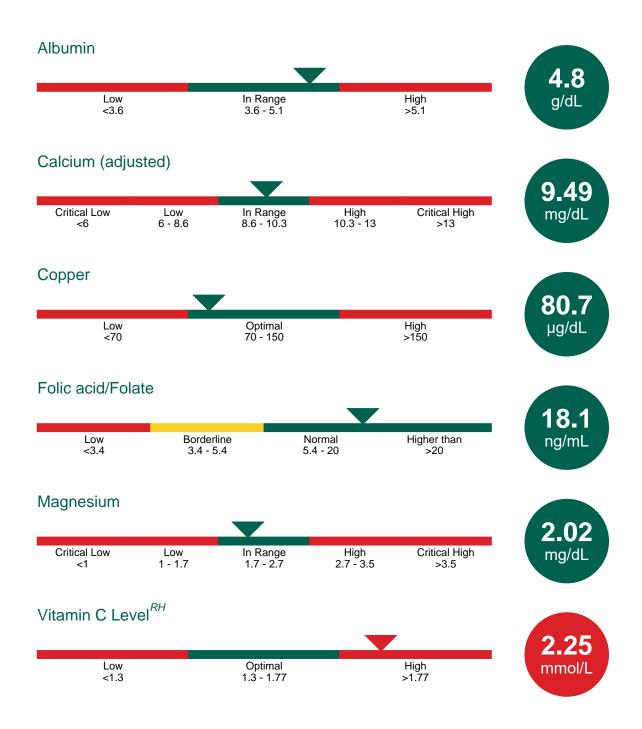
Pancreatic Health

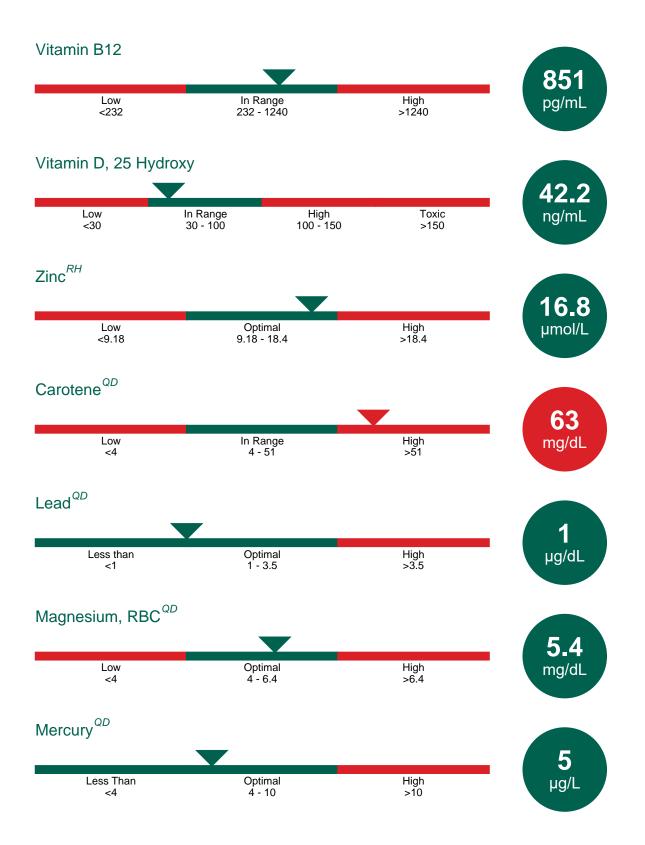
The pancreas is a gland that produces hormones, pancreatic juice and digestive enzymes. Digestive enzymes (e.g. amylase) pass from the pancreas into the small intestine where they contribute to digestion. These enzymes help to further breakdown carbohydrates, proteins and fats in chyme (the partially digested mass of food). Pancreatic Health is useful for evaluating pancreatitis (inflammation of the pancreas) and other disorders that can affect the function of the pancreas.

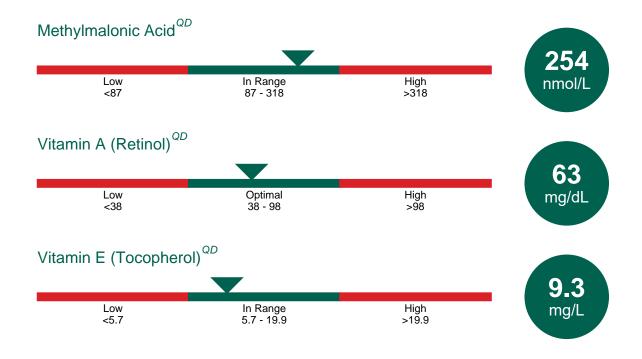


Nutritional Health

Nutrition is the supply of materials (in the form of blood), which are necessary to allow the body to function normally. Vitamins and minerals suppoer 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 form food) may lead to nutritional deficiency. The Nutritional Health panel evaluates the levels of various nutrients and can help identity whether an individuals's nutritional statis is adequate.

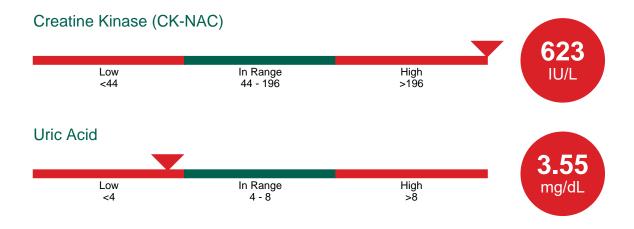






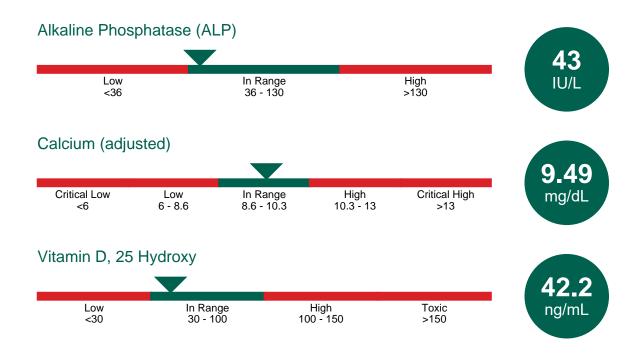
Muscle & Joint Health

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.



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 estrogen 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.



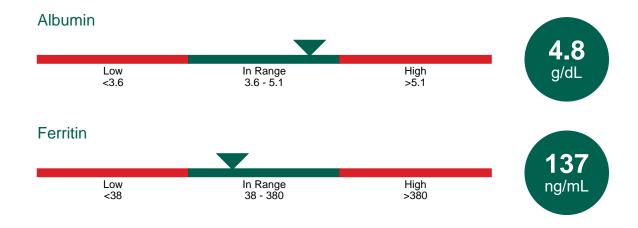
Allergy Evaluation

Allergies are increasingly common, with estimates suggesting that allergies will affect 25% of the population at some stage in life. An allergy is the immune system's response to a particular food or environmental substance (allergen). This response occurs in predisposed individuals and results in the production of a particular type of immune system protein (antibody) called immunoglobulin E (IgE). Subsequent exposure to the allergen generates IgE, which in turn causes the release of chemicals into the body. This chemical release causes the characteristic symptoms of allergies such as coughing, sneezing and itching. The Allergy Evaluation measures the total IgE level in the blood. However, generation of IgE is dependent on recent exposure to an allergen. The Allergy Evaluation may prove inconclusive in individuals who have limited their exposure to suspected allergens (e.g. removal of wheat from diet or avoidance of pets).



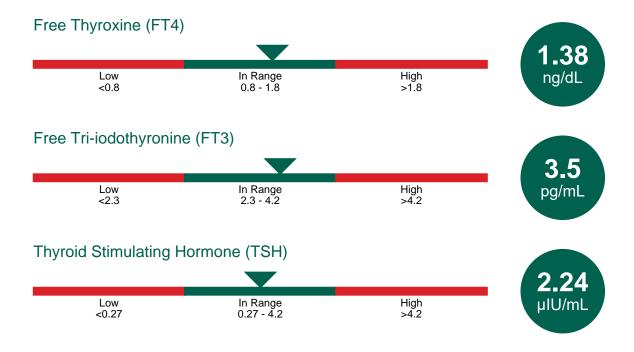
Infection & Inflammation

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.



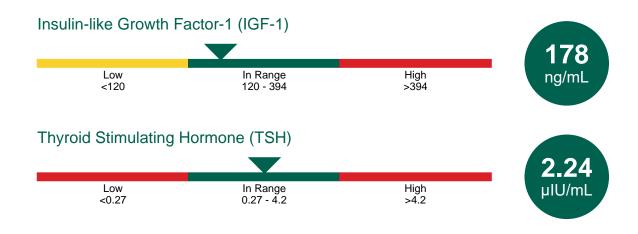
Thyroid Health

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.



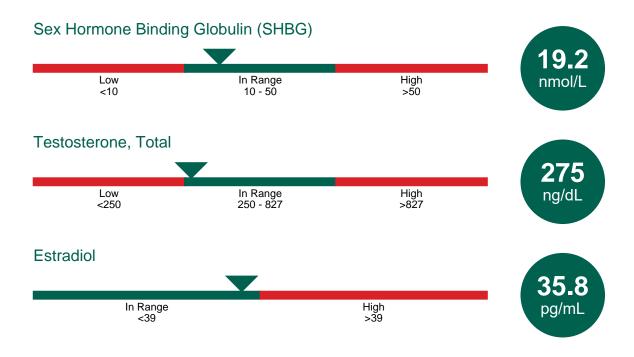
Pituitary & Adrenal Health

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.



Male 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. Male Hormonal Health includes measurement of testosterone, which is useful for the evaluation of testicular function.



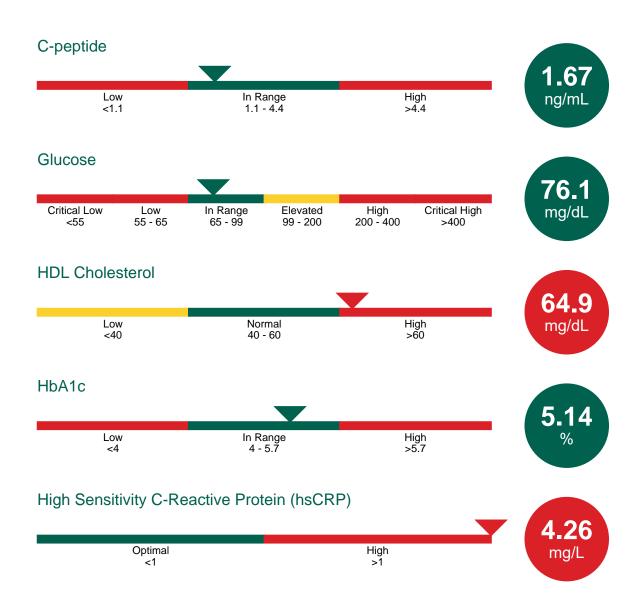
Prostate Health

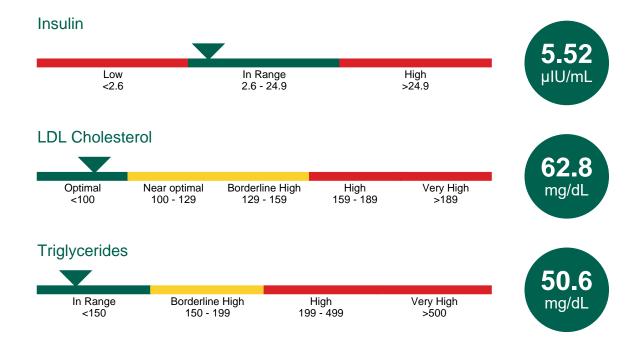
Prostate specific antigen (PSA) is a protein produced by cells of the prostate gland. Prostate specific antigen is detectable in the serum of almost all men and levels tend to increase with age and size of the prostate. Although PSA is highly specific for prostate disease, it is not specific for prostate cancer. Two forms of PSA are found in the blood; PSA that is 'free' and PSA that is 'bound' to protein. The combination of these two forms comprises the TotalPSA (TPSA). In most cases, this panel consists of the measurement of TPSA alone. However, if TPSA is elevated, Free PSA (FPSA) is also measured and the percentage of FPSA to TPSA is calculated. FPSA is only applicable when TPSA is elevated. It should be noted that in men under the age of 50, no specific reference range exists for TPSA and the ranges provided are for guidance only.



Metabolic Syndrome

Metabolic syndrome refers to a collection of risk factors occurring simultaneously that together increase the risk of developing cardiovascular disease, type 2 diabetes and stroke. The National Cholesterol Educational Program (NCEP) Adult Treatment Panel III (ATP III) has defined metabolic syndrome as the presence of three or more of the following five factors: central obesity (increased body mass index (BMI) or waist circumference), high blood pressure, high fasting blood glucose, low HDL cholesterol, and elevated triglycerides. Previous diagnosis of type-2 diabetes, treatment for high blood pressure, or specific treatments for low HDL cholesterol and high triglycerides also count as factors. The risk of future heart disease, stroke or diabetes increases with the number of risk factors acquired. The Metabolic Syndrome panel includes the measurement of the five factors mentioned above and is indicative of an individual's risk of future cardiovascular disease and type-2 diabetes.





Results for Doctor

Complete Blood Count (CBC)

Test	Qualitative	Quantitative	Unit	Optimal Range
Hemoglobin	In Range	13.5	g/dL	13.2 - 17.1
Hematocrit	In Range	41	%	38.5 - 50
Mean Cell Hemoglobin	In Range	30.4	pg	27 - 33
Mean Cell Hemoglobin Concentration	In Range	32.9	g/dL	32 - 36
Mean Cell Volume	Normal	92.3	fL	80 - 93.6
Red Blood Cells	In Range	4.44	10*6/uL	4.2 - 5.8
Basophils	In Range	0.04	10*3/uL	0 - 0.2
Eosinophils	In Range	0.07	10*3/uL	0.015 - 0.5
Lymphocytes	In Range	2.04	10*3/uL	0.85 - 3.9
Monocytes	In Range	0.53	10*3/uL	0.2 - 0.95
Neutrophils	In Range	2.13	10*3/uL	1.5 - 7.8
White Blood Cells	In Range	4.81	10*3/uL	3.8 - 10.8
Platelets	In Range	263	10*3/uL	140 - 400

Iron Status

Test	Qualitative	Quantitative	Unit	Optimal Range
Ferritin	In Range	137	ng/mL	38 - 380

Heart Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Total Cholesterol	In Range	141	mg/dL	<200
LDL Cholesterol	Optimal	62.8	mg/dL	<100
HDL Cholesterol	High	64.9	mg/dL	40 - 60
Triglycerides	In Range	50.6	mg/dL	<150
Apolipoprotein A-I	In Range	166	mg/dL	120 - 176
Apolipoprotein B	In Range	53	mg/dL	<90
Lipoprotein (a)	High	97.5	nmol/L	<75
High Sensitivity C-Reactive Protein (hsCRP)	High	4.26	mg/L	<1
Homocysteine	In Range	9	UMOL/L	<11.4
Creatine Kinase (CK-NAC)	High	623	U/I	44 - 196

Diabetes Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Glucose	In Range	76.1	mg/dL	65 - 99
Hba1c	In Range	5.14	%	4 - 5.7
Insulin	In Range	5.52	uU/ml	2.6 - 24.9
C-peptide	In Range	1.67	ng/mL	1.1 - 4.4

Kidney Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Albumin	In Range	4.8	g/dL	3.6 - 5.1
Calcium (adjusted)	In Range	9.49	mg/dL	8.6 - 10.3
Creatinine	In Range	0.99	mg/dL	0.6 - 1.24
Cystatin C	In Range	0.92	MG/L	0.52 - 1.23
Estimated Glomerular Filtration Rate (eGFR)	Optimal	105	mL/min/1.73m^2	>60
Magnesium	In Range	2.02	mg/dL	1.7 - 2.7
Potassium ^{CT}	In Range	4.55	mmol/L	3.5 - 5.1
Sodium ^{CT}	In Range	142	mmol/L	136 - 146
Urea (BUN)	In Range	20.5	mg/dL	10 - 50
Uric Acid	Low	3.55	mg/dL	4 - 8

Liver Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Alanine Aminotransferase (ALT)	In Range	24.8	U/L	<46
Albumin	In Range	4.8	g/dL	3.6 - 5.1
Alkaline Phosphatase (ALP)	In Range	43	U/L	36 - 130
Aspartate Aminotransferase (AST/GOT)	In Range	33.8	U/L	10 - 40
Copper	Optimal	80.7	μg/dL	70 - 150
Ferritin	In Range	137	ng/mL	38 - 380
GGT (QD) ^{QD}	In Range	9	U/L	3 - 70
Total Bilirubin	In Range	0.98	mg/dL	0.2 - 1.2

Pancreatic Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Lipase	In Range	26.4	U/L	7 - 59
Amylase	In Range	27	U/L	19 - 86

Nutritional Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Albumin	In Range	4.8	g/dL	3.6 - 5.1
Calcium (adjusted)	In Range	9.49	mg/dL	8.6 - 10.3
Copper	Optimal	80.7	μg/dL	70 - 150
Folic acid/Folate	Normal	18.1	ng/mL	5.4 - 20
Magnesium	In Range	2.02	mg/dL	1.7 - 2.7
*Vitamin C Level ^{RH}	High	2.25	mmol/L	1.3 - 1.77
Vitamin B12	In Range	851	pg/mL	232 - 1240
Vitamin D, 25 Hydroxy	In Range	42.2	ng/mL	30 - 100
*Zinc ^{RH}	Optimal	16.8	UMOL/L	9.18 - 18.4
Carotene (QD) ^{QD}	High	63	mg/dL	4 - 51
Lead (QD) ^{QD}	Less than	1	μg/dL	1 - 3.5
Magnesium, RBC (QD) ^{QD}	Optimal	5.4	mg/dL	4 - 6.4
Mercury (QD) ^{QD}	Optimal	5	μg/L	4 - 10
Methylmalonic Acid (QD) ^{QD}	In Range	254	nmol/L	87 - 318
Vitamin A (Retinol) (QD) ^{QD}	Optimal	63	mg/dL	38 - 98
Vitamin E (Tocopherol) (QD) ^{QD}	In Range	9.3	mg/L	5.7 - 19.9

Muscle & Joint Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Creatine Kinase (CK-NAC)	High	623	U/I	44 - 196
Uric Acid	Low	3.55	mg/dL	4 - 8

Bone Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Alkaline Phosphatase (ALP)	In Range	43	U/L	36 - 130
Calcium (adjusted)	In Range	9.49	mg/dL	8.6 - 10.3
Vitamin D, 25 Hydroxy	In Range	42.2	ng/mL	30 - 100

Allergy Evaluation

Test	Qualitative	Quantitative	Unit	Optimal Range
Immunoglobulin E (IgE)	In Range	50	IU/ML	<100

Infection & Inflammation

Test	Qualitative	Quantitative	Unit	Optimal Range
Albumin	In Range	4.8	g/dL	3.6 - 5.1
Ferritin	In Range	137	ng/mL	38 - 380

Thyroid Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Free Thyroxine (FT4)	In Range	1.38	ng/dL	0.8 - 1.8
Free Tri-iodothyronine (FT3)	In Range	3.5	pg/mL	2.3 - 4.2
Thyroid Stimulating Hormone (TSH)	In Range	2.24	uIU/mI	0.27 - 4.2

Pituitary & Adrenal Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Insulin-like Growth Factor-1 (IGF-1)	In Range	178	ng/mL	120 - 394
Thyroid Stimulating Hormone (TSH)	In Range	2.24	uIU/mI	0.27 - 4.2

Male Hormonal Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Sex Hormone Binding Globulin (SHBG)	In Range	19.2	nmol/L	10 - 50
Testosterone, Total	In Range	275	ng/dL	250 - 827
Estradiol	In Range	35.8	pg/mL	<39

Prostate Health

Test	Qualitative	Quantitative	Unit	Optimal Range
Total Prostate Specific Antigen (TPSA)	In Range	0.826	ng/mL	<4

Metabolic Syndrome

Test	Qualitative	Quantitative	Unit	Optimal Range
C-peptide	In Range	1.67	ng/mL	1.1 - 4.4
Glucose	In Range	76.1	mg/dL	65 - 99
HDL Cholesterol	High	64.9	mg/dL	40 - 60
Hba1c	In Range	5.14	%	4 - 5.7
High Sensitivity C-Reactive Protein (hsCRP)	High	4.26	mg/L	<1
Insulin	In Range	5.52	uU/ml	2.6 - 24.9
LDL Cholesterol	Optimal	62.8	mg/dL	<100
Triglycerides	In Range	50.6	mg/dL	<150

Performing Labs and Disclaimers

Performing Labs: These tests were performed by an external laboratory.

RH - RH - These tests were developed, and its performance characteristics determined, by Randox Health California Laboratories. It has not been cleared or approved by the US Food and Drug Administration (FDA). It was performed in a CLIA certified laboratory and is intended for clinical purposes.

QD - QD - Quest Diagnostics, 8401 Fallbrook Avenue, West Hills, CA 91304. Lab Director: Tab Toochinda, MD, CLIA: 05D0642827

CT - C-Ton Laboratory : Laboratory License: CLF 4861 CLIA Number / Medicare: 05D0699248 MD: Donald Simpson, License No. : G44436

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