





PID	XXXX
Name	Example Report
DOB	DD-Mmm-YYYY
Date	DD-Mmm-YYYY
Programme	Everywoman

# Personal Health Plan

Your Personal Health Plan is outlined below to guide you through your results, review, requirements and recommendations.

Health Status
Health Performance
Expert Advice - Next Steps
Consultation Summary - Next Steps
Your Results

Randox Health Scientists report upon your complete set of results and the information provided in your Physical Medical Lifestyle Questionnaire(PMLQ). Your personalised findings, recommendations and action plans are generated for you to follow and improve your results throughout the year.

If we can be of any further assistance, please contact your Personal Coordinator.

0079-RT (2), June 2020

# Health Status

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



# Health Performance

Your Randox Health Performance has been assigned within one of these four categories, Maintain, Prevent, Manage & Action



Weight loss and maintenance is unlikely to be achieved through diet alone. Therefore, we advise that you incorporate physical activity into your daily routine to aim for a healthier lifestyle.

### Exercise

There are many health benefits associated with physical activity including weight maintenance, ability to concentrate and perform everyday tasks, reducing risk of coronary heart disease, stroke and type 2 diabetes, improving mood and self-esteem and reducing symptoms of depression and anxiety.

Adults should aim to be active every day. Current guidelines recommend 150 minutes of moderate intensity physical activity per week, in bouts of 10 minutes or more. This can be achieved by exercising for 30 minutes, 5 days a week, through activities such as brisk walking, cycling, running or swimming. Alternatively, carrying out 75 minutes of a vigorous intensity activity, (e.g. football, rugby, skipping) throughout the week will provide similar benefits.

Strength exercises (at least 8-10 different exercises / 8-12 repetitions of each exercise) are also recommended at least twice a week to work the major muscle groups. This involves using your body weight or working against a resistance, e.g. exercising with weights.

Everyday activities can contribute to your weekly activity levels, for example taking the stairs, parking further from the door, cutting the grass, etc. It is recommended that each person should take at least 10,000 steps per day in order to be `active.' However, this should be built up gradually, by working out your average weekly steps and setting a target each week. You can use a pedometer to record the amount of steps you take.

Following your results from your Preventive Health Programme, please find enclosed your personalised nutrition guide to help you make adjustments to your diet and lifestyle.

# Choosing a Healthy, Balanced Diet

Current guidelines recommend a daily calorie intake of 2,500kcal for males and 2,000kcal for females (from all food and drinks). To start, we suggest you opt for a healthy, balanced diet by following the `Eatwell Guide'. This includes the five main food groups in the correct proportions:

- 1. Fruit and vegetables should make up just over a third of your overall diet. You should aim for at least 5 portions of a variety of fruit and vegetables each day. A portion is 80g or any of the following: 1 apple, 1 banana, 3 heaped tablespoons of vegetables, a dessert bowl of salad, 30g of dried fruit or a 150ml glass of fruit juice or smoothie. Fresh, frozen, dried and canned all count towards your total 5-a-day.
- 2. Potatoes, bread, rice and other starchy carbohydrates (e.g. wholegrain cereal, oats) should make up just over a third of your overall diet. You should opt for higher fibre, wholegrain versions of these foods, where possible.
- 3. Dairy and alternatives (i.e. soya) e.g. milk, cheese, yogurts. Some of these should be included in your diet each day. Try to choose lower fat, lower sugar options.
- 4. Beans, pulses, fish, eggs, meat and other proteins, including at least 2 portions (a portion is approximately 140g) of fish (1 oily) per week and reduce your intake of red and processed meat (e.g. sausages, bacon, cured meats and reformed meat products.
- 5. Oil and spreads, e.g. olive oil, butter, margarine. Try to limit the amount used and choose unsaturated varieties (e.g. vegetable oil, rapeseed oil and olive oil).

Reduce the frequency and portions of chocolate, crisps, cakes, buns etc. that you consume. Aim to drink 6-8 glasses of fluids each day. Good sources of fluids include plain drinking water, tea or coffee (be aware of the amount of caffeine you are consuming) and fruit juices. Try to limit the amount of fizzy drinks in your diet, as they contain large amounts of sugar. In addition, excessive alcohol consumption can cause dehydration.

\*These guidelines do not apply to infants under the age of 2 years, or to anyone with special dietary requirements / medical needs, who should seek advice from a dietitian.

# Cholesterol

There are two main types of cholesterol within our diet – LDL ('bad') and HDL ('good'). One of the main causes of raised cholesterol in the UK is a diet rich in saturated fat (LDL cholesterol), found primarily in full fat dairy foods, meat and meat products, biscuits, cakes and savoury snacks. UK guidelines recommend that the average man should consume no more than 30g of saturated fat per day and the average woman should consume no more than 20g of saturated fat per day. To help reduce total and LDL cholesterol levels, it is recommended that you should replace foods high in saturated fat with foods high in unsaturated fat. HDL ('good') cholesterol is found in unsaturated fat and is important to help remove LDL ('bad') cholesterol from the arteries. Examples of foods containing unsaturated fat include; oily fish (e.g. mackerel and salmon), nuts and seeds (e.g. almonds, sunflower seeds), avocados, vegetable oils and spreads (e.g. rapeseed or vegetable oil). Oats, oat bran, linseeds (e.g. flaxseeds), barley, fruit, vegetables and vegetable proteins (e.g. nuts, beans, and pulses) contain soluble fibre, which helps to soak up cholesterol. Try to include these foods regularly within your diet.

# Omega 3

Omega 3 is a family of fats that are useful for regulating 'bad cholesterol' and maintaining healthy joints, as well as having anti-inflammatory properties. Good sources of Omega 3 include oily fish, such as mackerel, salmon, sardines and fresh tuna. It is recommended that you should eat two portions of fish per week; however, in the UK there is no specific recommendation for how much Omega 3 we should consume. If you do not eat fish, other dietary sources of Omega 3 include nuts and seeds (e.g. walnuts and pumpkin seeds), vegetable oils (e.g. rapeseed and linseed oils), soya and soya products (e.g. beans, milk and tofu) and green leafy vegetables.

# Uric Acid

High uric acid increases your risk for developing kidney stones and/or gout. Uric acid is formed from the breakdown of purines, natural components found in specific foods; alcohol (particularly beer), kidney, liver and meat extracts. We therefore recommend that you limit the amount of purines in your diet, in an attempt to bring your uric acid level down.

### Sugar

Too much sugar in our diet can lead to poor dental health, weight gain and associated conditions, such as diabetes and heart disease. Foods high in sugar, such as sweets, chocolate, cakes and sugar-sweetened beverages tend to have a high calorie content and limited nutritional value. For example, one can of cola contains approximately 9 teaspoons of sugar and offers no other vitamins, minerals or nutrients. Sugar should contribute to no more than 5% of our total daily calorie intake. It is recommended that everyone over the age of 11 years should consume less than 30 grams or 7 cubes of sugar per day. In an effort to eliminate 'sugary' foods from our diet, we should read food labels carefully and look out for foods high in 'Carbohydrates (of which sugars)' or 'Sugar'. In addition, you can replace sugar-sweetened beverages with water or 'diet' alternatives; choose 'wholegrain' foods over 'white' foods e.g. bread and pasta; reduce the amount of sugar you add to food, tea and coffee; replace spreads, such as marmalade, jam and honey with low-fat cheese spreads or banana.

# Hydration

Our bodies are approximately two thirds water; therefore, it is important that you keep your body hydrated. Recommendations state that you should consume 2-2.5 litres of fluids per day and you may require more in hot climates or during/following intense exercise. Good sources of fluids include plain drinking water, tea or coffee (be aware of the amount of caffeine you are consuming) and fruit juices. Try to limit the amount of fizzy drinks in your diet, as they contain large amounts of sugar. In addition, excessive alcohol consumption can cause dehydration.

0084-RT (3), June 2020



PID	XXXX
Forename	Example
Surname	Report
Fasted For	XX hours and XX minutes
DOB	DD-Mmm-YYYY

# CONTENTS



Your Results of Interest	01
Personal Health Measurements	07
Full Blood Count	09
Iron Status	11
Heart Health	12
Diabetes Health	14
Metabolic Syndrome	15
Kidney Health	17
Urinalysis	19
Liver Health	21
Pancreatic Health	22
Digestive Health	23
Nutritional Health	24
Muscle & Joint Health	25
Bone Health	26
Allergy Evaluation	27
Infection & Inflammation	28
Thyroid Health	30



31



# 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.



# Personal Health Measurements

### Waist Circumference

Waist Circumference relates closely to body mass index (BMI) and is part of the waist to hip ratio measurement. Waist circumference is a measure of central or abdominal fat and provides additional information on disease risk and other long-term health problems. Increased weight around the abdomen can increase the risk of developing conditions such as type 2 diabetes, metabolic syndrome, coronary heart disease and high blood pressure.



# Waist / Hip Ratio

Waist / Hip Ratio is a measure of fat distribution and scientific research has demonstrated that people carrying more weight around their waist (apple shaped) have a greater risk of developing lifestyle related diseases such as heart disease and diabetes than people with excess fat around their hips (pear shaped).





### **Total Cholesterol**

Total Cholesterol refers to the measurement of all cholesterol circulating in the blood. Cholesterol is essential for various body functions such as the formation of bile acids, which facilitate digestion and absorption of nutrients, and production of hormones, which are vital for normal growth and development. Elevated total cholesterol levels are associated with increased risk of cardiovascular disease and stroke, as accumulation of cholesterol and fat can narrow blood vessels and impair blood flow. Low total cholesterol levels are associated with decreased risk of cardiovascular disease; however, low total cholesterol may also be associated with other problems, such as malnutrition, malabsorption disorders (conditions that affect the ability of the intestine to absorb nutrients) and liver disease.



### LDL Cholesterol

LDL Cholesterol describes cholesterol that is bound to low-density lipoprotein (LDL). Lipoproteins are responsible for transporting cholesterol in the blood. LDL cholesterol deposits excess cholesterol in the walls of blood vessels, which can narrow blood vessels or lead to blockage of blood flow to organs such as the heart and brain (a process known as atherosclerosis). Increased LDL cholesterol levels are associated with increased risk of atherosclerosis, cardiovascular disease, stroke and liver disease.



### Apolipoprotein A-I

Apolipoprotein A-I is the main protein component of HDL cholesterol ('good' cholesterol). Apolipoprotein A-I (apo A-I) and HDL cholesterol transport cholesterol to the liver where it is processed and subsequently removed from the body. For this reason, a higher apo A-I level is desirable and deficiency is associated with increased risk of developing cardiovascular disease. Low apo A-I levels may be associated with uncontrolled diabetes, kidney or liver disease, obesity, smoking, high triglyceride levels or certain medications (e.g. beta-blockers). Increased levels of apo A-I may not be clinically significant but can be associated with familial hyperalphalipoproteinaemia (a rare genetic disorder), alcohol consumption, physical exercise, pregnancy, weight loss and certain prescribed drugs (such as oestrogens, oral contraceptives and statins).



## Apolipoprotein B

Apolipoprotein B is the main protein component of LDL cholesterol ('bad' cholesterol). Apolipoprotein B (apo B) and LDL cholesterol transport and deposit cholesterol in blood vessels thereby increasing risk of cardiovascular disease. For this reason, a lower apo B level is desirable and too much is associated with greater risk of developing cardiovascular disease. Males tend to have more apo B than females and levels may increase with age. Elevated apo B may be observed in individuals with diabetes, hypothyroidism (an underactive thyroid gland), nephrotic syndrome (a type of kidney disease) and in those who are prescribed certain medications (e.g. beta-blockers) or are pregnant. Decreased apo B levels may be associated with hyperthyroidism (an overactive thyroid gland), malnutrition, weight loss and various medications (e.g. oestrogens, statins and thyroxine).



## Apolipoprotein CII

Apolipoprotein CII is a protein found in various lipoprotein and large fat particles. Apolipoprotein CII (apo CII) is responsible for activation of lipoprotein lipase, an enzyme that is crucial for processing of fat from digested food. Low apo CII levels are associated with apolipoprotein CII deficiency, a rare inherited condition in which fat particles accumulate in the blood. However, too much apo CII, which inhibits lipoprotein lipase activity, also contributes to fat accumulation. Elevated apo CII levels may be associated with coronary heart disease, such as angina or heart attack, or with familial lipoprotein lipase deficiency, a rare genetic disorder.



### **Apolipoprotein CIII**

Apolipoprotein CIII is a protein made by the liver and found on the surface of various lipoprotein particles (particles containing both fat and protein). Increased apolipoprotein CIII (apo CIII) levels inhibit the activity of lipoprotein lipase (an enzyme that is crucial for processing of fat) and can lead to high triglyceride levels. Apo CIII may promote atherosclerosis (accumulation of cholesterol and fatty material in blood vessel walls) and consequently increase risk of cardiovascular disease. Equally, apo CIII deficiency may be associated with increased risk of cardiovascular disease.



### Lipoprotein (a)

Lipoprotein (a) is similar to low-density lipoprotein (LDL) as it contains apolipoprotein B, which is the main protein component of LDL ('bad') cholesterol. In addition, it also contains apolipoprotein (a). Apolipoprotein (a) may promote accumulation of LDL particles within blood vessel walls, which can cause arteries to narrow and harden, and may contribute to blood clot formation, which could potentially block blood vessels and increase the risk of a heart attack or stroke. Increased lipoprotein(a) levels are associated with increased risk of cardiovascular disease. Other conditions that may contribute to elevated lipoprotein (a) include oestrogen depletion (e.g. menopause), severe hypothyroidism (an underactive thyroid gland), uncontrolled diabetes and chronic kidney disease. Lipoprotein (a) is genetically determined and levels tend to remain constant throughout life. Unlike other lipoproteins, diet, exercise, lifestyle modification and most medications used to lower cholesterol levels have no effect on lipoprotein (a) levels.

>300

High

<300 Optimal



# **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).





# Metabolic Syndrome

### Waist Circumference

Waist Circumference relates closely to body mass index (BMI) and is part of the waist to hip ratio measurement. Waist circumference is a measure of central or abdominal fat and provides additional information on disease risk. The international Diabetes Federation states that individuals who have central obesity (defined as waist circumference greater than or equal to either 94 cm or 90 cm for males (depending on ethnicity) and greater than or equal to 80 cm for females) are at risk of metabolic syndrome.



#### 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).





# **Kidney Health**

#### Uric Acid

Uric Acid is a waste product formed from the breakdown of purines (the building blocks of DNA). The kidneys are responsible for excretion of 75% of the uric acid produced by the body. Accumulation of uric acid, which may be due to increased production or impaired removal by the kidneys, can cause crystals to form in the joints, leading to a type of arthritis called gout. In addition to gout, elevated uric acid levels may be associated with kidney disease, hypothyroidism (an underactive thyroid gland), alcohol consumption or a high protein diet. Decreased uric acid levels may be associated with coeliac disease (gluten sensitivity), Wilson's disease (a rare hereditary disorder in which the body accumulates copper) or Fanconi syndrome (a disorder of the kidneys).





# Urinalysis

# Red Blood Cells (Urine)

Red Blood Cells (Urine) in urine can be associated with kidney and urinary tract diseases or infection, menstrual bleeding, blood clotting disorders, chronic diseases (e.g. diabetes, high blood pressure), strenuous exercise and use of certain medications.



# White Blood Cells (Urine)

White Blood Cells (Urine) are an essential part of the immune system, which help to protect the body against infection. Normally, urine is sterile and contains no WBCs. The presence of WBCs in a urine sample may suggest a urinary tract infection such as cystitis (bladder infection) or pyelonephritis (kidney infection).





#### **Pancreatic Amylase**

Pancreatic Amylase is an enzyme, generated by the pancreas, which aids the digestion of carbohydrates from the diet. Elevated pancreatic amylase levels are associated with acute (short-lived) or chronic (long-lasting) pancreatitis (inflammation of the pancreas), pancreatic cancer, mumps infection and peptic ulcers. Decreased amylase levels may be associated with kidney disease, liver disease, pancreatic cancer or permanent damage to the amylase-producing cells of the pancreas resulting from chronic pancreatitis.





# **Muscle & Joint Health**

#### Uric Acid

Uric Acid is a waste product formed from the breakdown of purines (the building blocks of DNA). The kidneys are responsible for excretion of 75% of the uric acid produced by the body. Accumulation of uric acid, which may be due to increased production or impaired removal by the kidneys, can cause crystals to form in the joints, leading to a type of arthritis called gout. In addition to gout, elevated uric acid levels may be associated with kidney disease, hypothyroidism (an underactive thyroid gland), alcohol consumption or a high protein diet. Decreased uric acid levels may be associated with coeliac disease (gluten sensitivity), Wilson's disease (a rare hereditary disorder in which the body accumulates copper) or Fanconi syndrome (a disorder of the kidneys).





# Personal Health Measurements

Measurements include pulse, blood pressure, waist circumference and calculation of body mass index (BMI). Various lifestyle and hereditary factors can influence these parameters, which are useful in the overall assessment of an individual's risk of developing conditions such as cardiovascular disease or diabetes. The measurement of oxygen saturation by pulse oximetry is also included. A low blood oxygen level, or hypoxaemia, may be associated with airway obstruction, which occurs in conditions such as asthma, emphysema and chronic obstructive pulmonary disease.



#### **Blood Pressure**

Blood Pressure is a measurement of the force applied to the walls of the arteries as the heart pumps blood through the body. Systolic blood pressure refers to the pressure of blood as your heart contracts. Diastolic blood pressure refers to the pressure of blood as your heart rests between beats. High blood pressure is a significant risk factor for the development of heart disease, stroke, kidney disease and metabolic syndrome. Dehydration, bleeding, inflammation, infection, heart disease, pregnancy and various medications can cause low blood pressure. Physically fit individuals may have low blood pressure and in some individuals, blood pressure is naturally low.





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.







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.





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.



0.91 - 1.5 Moderate Risk >1.5 High Risk





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').





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.







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.





### Potassium







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.



White Blood Cells	(Urine)			500
Negative	0 - 25	26 - 100	101 - 500	Leuk/µl
Optimal	+1	+2	+3	

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.



23



# 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.





The process of digestion occurs in the gastrointestinal tract, which encompasses the stomach and intestine. The stomach is responsible for the storage and breakdown of ingested food. Food and fluids enter the stomach via the oesophagus and mix with stomach acids and digestive enzymes to begin the process of digestion. Partially digested food then enters the intestine where digestion continues and absorption of nutrients occurs. A protective layer of mucus coats the lining of the stomach to prevent damage by digestive acids and enzymes. Anti-inflammatory drug use (such as aspirin) and infection with H. pylori bacteria can disrupt this protective layer and lead to gastritis (inflammation of the stomach) and stomach ulcers. Damage to the intestine impairs the ability of the body to digest food and absorb nutrients. Coeliac disease is an autoimmune disorder in which the body's immune system reacts to gluten in the diet causing inflammation of the intestine. Anti-tissue Transglutaminase (Anti-tTG) Antibody is a sensitive marker for coeliac disease; however, testing is only appropriate in individuals who continue to consume gluten. The Digestive Health panel contains markers that are useful for the evaluation of health issues such as heartburn, acid reflux and coeliac disease.



# 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.



30 - 49.9 Insufficiency 50 - 125 Sufficiency >125 Toxicity



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.





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.





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).

Immunoglobulin E (IgE)		979
≤100 Optimal	>100 High	kU/I
	C C	



# **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.



Antistreptolysin O (ASO)		176.6
≤200 Optimal	>200 High	IU/ml



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.





A hormone is a chemical substance that is produced in response to certain changes in the physiological processes that occur in the body. They carry information between cells allowing metabolism, growth, reproduction and mood alteration. In this panel, hormones that regulate the reproductive cycle are measured. These tests can be helpful in the evaluation of infertility, menstrual disorders or to assess if a woman is menopausal. Interpretation of the test results for females requires knowledge of the menstrual history, namely the first day of the last menstrual period (LMP), the length of cycle and the duration of menstruation. Other important factors include whether the woman is menopausal or post-menopausal, the previous obstetric history (e.g. if pregnant), current medication (such as infertility treatments, hormone replacement therapy (HRT) or contraception), and previous surgical history (such as hysterectomy).

#### Oestradiol

#### Your Result: 127.1 pmol/l

Luteinising Hormone

Your Result: 9.17 IU/I

Prolactin

Your Result: 311 mIU/I

Follicle Stimulating Hormone Your Result: 45.91 IU/I

3.5 - 12.5 Follicular Phase

25.8 - 134.8 Post Menopausal

4.7 - 21.5 Midcycle

1.7 - 7.7 Luteal Phase

73 - 1285 Follicular Phase
550 - 2753 Midcycle
110 - 1652 Luteal Phase
<74 Post Menopausal</li>

2.4 - 12.6 Follicular Phase

7.7 - 58.5 Post Menopausal

14.0 - 95.6 Midcycle

<102 Low

>496 High

102 - 496 Optimal

1.0 - 11.4 Luteal Phase

#### Progesterone

#### Your Result: 0.77 nmol/l

0.5 - 2.2 Follicular Phase
6.4 - 79.5 Luteal Phase
23.0 - 139.9 Pregnancy 1st Trimester
62.0 - 262.4 Pregnancy 2nd Trimester
206.7 - 728.2 Pregnancy 3rd Trimester
0.27 - 1.68 Post-Menopausal

#### Testosterone

# Your Result: <0.69 nmol/l

<2.5 Ovulating <1.5 Post Menopausal

# Sex Hormone Binding Globulin Your Result: 36.80 nmol/l

18 - 144 Adult Females

# Free Androgen Index Your Result: <1.9

≤8.5 Normal Cycling

- ≤3.4 Oral contraceptives ≤6.6 Post Menopausal, untreated

34

# 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
Personal Health Measurements			
Height	1.565	m	N/A
Weight	57.6	kg	N/A
Body Mass Index (BMI)	23.5	kg/m²	18.5 - 24.9 Optimal
Waist Circumference	81.3	cm	<81 Optimal 81 - 89 Moderate risk >89 High risk
Hip circumference	88.9	cm	N/A
Waist / Hip Ratio	0.914		<0.80 Low risk 0.80 - 0.85 Moderate risk >0.85 High risk
Pulse	69	BPM	60 - 100 Optimal
Systolic Blood pressure	123	mmHg	120 - 129.9 Normal
Diastolic Blood pressure	76	mmHg	60 - 79.9 Optimal
Oxygen Saturation	97	%	95 - 100 Optimal
Full Blood Count			
Haemoglobin	149	g/l	115 - 165 Optimal
Haematocrit	0.431	I/I	0.37 - 0.47 Optimal
Mean Cell Haemoglobin (MCH)	29.7	pg	27.0 - 32.0 Optimal
Mean Cell Haemoglobin Concentration (MCHC)	346	g/l	320 - 360 Optimal
Red Blood Cell Mean Cell Volume (MCV)	86.0	fl	76 - 100 Optimal
Red Blood Cell Count	5.01	10 <sup>12</sup> /l	3.8 - 5.8 Optimal
Basophil Count	0.02	10 <sup>9</sup> /l	0.01 - 0.1 Optimal

Eosinophil Count	0.07	10 <sup>9</sup> /l	0.04 - 0.4 Optimal
Lymphocyte Count	1.55	10 <sup>9</sup> /l	1.0 - 3.5 Optimal
Monocyte Count	0.49	10 <sup>9</sup> /l	0.2 - 0.8 Optimal
Neutrophil Count	2.85	10 <sup>9</sup> /l	2 - 7.5 Optimal
White Blood Cell Count	4.98	10 <sup>9</sup> /l	4.0 - 10.0 Optimal
Platelet Count	264	10 <sup>9</sup> /l	150 - 450 Optimal
Iron Status			
Iron	22.3	µmol/l	7 - 26 Optimal
Ferritin	62	µg/l	10 - 120 Optimal
Total Iron Binding Capacity (TIBC)	62.9	µmol/l	44.8 - 80.6 Optimal
Transferrin	2.61	g/l	2.0 - 3.8 Optimal
Transferrin Saturation	35.5	%	15 - 50 Optimal
Heart Health			
Total Cholesterol	7.19	mmol/l	<5 Desirable ≥5 High
LDL Cholesterol	4.95	mmol/l	<3 Desirable ≥3 High
HDL Cholesterol	1.91	mmol/l	≥1.55 Desirable
Total Cholesterol / HDL Cholesterol Ratio	3.76		<5 Desirable
Triglycerides	1.51	mmol/l	<2.3 Desirable
Apolipoprotein A-I	207.8	mg/dl	<120 Low 120 - 176 Optimal >176 High
Apolipoprotein B	130	mg/dl	<63 Low 63 - 114 Optimal
			>114 High

Apolipoprotein CII	5.31	mg/dl	<1.6 Low 1.6 - 4.2 Optimal >4.2 High
Apolipoprotein CIII	11.42	mg/dl	<5.5 Low 5.5 - 9.5 Optimal >9.5 High
Small LDL Cholesterol	41.01	mg/dl	≤64.4 Optimal
Lipoprotein (a)	674.8	mg/l	<300 Optimal ≥300 High
High Sensitivity C-Reactive Protein (hs-CRP)	0.74	mg/l	<1.0 Low risk
Cardiovascular Risk Score	9.8	%	<10 Desirable
12% for same age and gender			
Heart-type Fatty Acid Binding Protein (H-FABP)	6.02	ng/ml	≤9.1 Optimal
Diabetes Health			
Glucose	6.39	mmol/l	<4.0 Low 4.0 - 5.59 Optimal 5.6 - 6.99 Pre-diabetic
			≥7.0 High
HbA1c	36.6	mmol/mo	≥7.0 Fligh ol <42 Optimal
HbA1c Insulin	36.6 104.0	mmol/mo pmol/l	≥7.0 High ol <42 Optimal 17.8 - 173.0 Optimal
HbA1c Insulin Metabolic Syndrome	36.6 104.0	mmol/mo pmol/l	≥7.0 Fign ol <42 Optimal 17.8 - 173.0 Optimal
HbA1c Insulin Metabolic Syndrome Height	36.6 104.0 1.565	mmol/mo pmol/l m	≥7.0 High ol <42 Optimal 17.8 - 173.0 Optimal N/A
HbA1c Insulin <mark>Metabolic Syndrome</mark> Height Weight	36.6 104.0 1.565 57.6	mmol/mo pmol/l m kg	≥7.0 High ol <42 Optimal 17.8 - 173.0 Optimal N/A N/A
HbA1c Insulin <mark>Metabolic Syndrome</mark> Height Weight Body Mass Index (BMI)	36.6 104.0 1.565 57.6 23.5	mmol/mo pmol/l m kg kg/m²	≥7.0 Fign ol <42 Optimal 17.8 - 173.0 Optimal N/A N/A ≤30 Optimal
HbA1c Insulin Metabolic Syndrome Height Weight Body Mass Index (BMI) Waist Circumference	36.6 104.0 1.565 57.6 23.5 81.3	mmol/mo pmol/l m kg kg/m² cm	<ul> <li>≥7.0 High</li> <li>&gt;42 Optimal</li> <li>17.8 - 173.0 Optimal</li> <li>N/A</li> <li>N/A</li> <li>≤30 Optimal</li> <li>≥80 Optimal</li> <li>&gt;80 Risk</li> </ul>
HbA1c Insulin Metabolic Syndrome Height Weight Body Mass Index (BMI) Waist Circumference Systolic Blood pressure	36.6 104.0 1.565 57.6 23.5 81.3 123	mmol/mo pmol/l m kg kg/m² cm mmHg	<ul> <li>≥7.0 High</li> <li>&gt;42 Optimal</li> <li>17.8 - 173.0 Optimal</li> <li>N/A</li> <li>N/A</li> <li>≤30 Optimal</li> <li>≤80 Optimal</li> <li>&gt;80 Risk</li> <li>&lt;130 Optimal</li> </ul>
HbA1c Insulin Metabolic Syndrome Height Weight Body Mass Index (BMI) Waist Circumference Systolic Blood pressure Diastolic Blood pressure	36.6 104.0 1.565 57.6 23.5 81.3 123 76	mmol/mo pmol/l m kg kg/m² cm cm mmHg mmHg	<ul> <li>≥7.0 Fign</li> <li>&gt;42 Optimal</li> <li>17.8 - 173.0 Optimal</li> <li>N/A</li> <li>N/A</li> <li>≤30 Optimal</li> <li>≤80 Optimal</li> <li>&gt;80 Risk</li> <li>&lt;130 Optimal</li> <li>&lt;85 Optimal</li> </ul>

HDL Cholesterol	1.91	mmol/l	≥1.29 Optimal
Triglycerides	1.51	mmol/l	<1.7 Optimal
HbA1c	36.6	mmol/mol	<42 Optimal
Insulin	104.0	pmol/l	17.8 - 173.0 Optimal
C-peptide	3.0	ng/ml	1.1 - 4.4 Optimal
Leptin	13.92	µg/l	≤15.39 Optimal
Adiponectin	13.51	µg/ml	3.3 - 24.9 Optimal
Resistin	6.21	ng/ml	2.85 - 11.60 Optimal
High Sensitivity C-Reactive Protein (hs-CRP)	0.74	mg/l	<1.0 Low risk
Kidney Health			
Creatinine	64.1	µmol/l	44 - 80 Optimal
Estimated Glomerular Filtration Rate (eGFR)	86.5	ml/min/1. 73m²	≥60 Satisfactory
Cystatin C	0.75	m a /l	0.57 1.05 Optimal
		mg/i	0.57 - 1.05 Optimai
Calcium (adjusted)	2.35	mmol/l	2.20 - 2.60 Optimal
Calcium (adjusted) Chloride	2.35 102	mmol/l mmol/l	2.20 - 2.60 Optimal 95 - 108 Optimal
Calcium (adjusted) Chloride Magnesium	2.35 102 0.92	mg/l mmol/l mmol/l mmol/l	<ul> <li>0.37 - 1.03 Optimal</li> <li>2.20 - 2.60 Optimal</li> <li>95 - 108 Optimal</li> <li>0.7 - 1.1 Optimal</li> </ul>
Calcium (adjusted) Chloride Magnesium Phosphate	2.35 102 0.92 1.109	mmol/l mmol/l mmol/l mmol/l	<ul> <li>0.37 - 1.03 Optimal</li> <li>2.20 - 2.60 Optimal</li> <li>95 - 108 Optimal</li> <li>0.7 - 1.1 Optimal</li> <li>0.80 - 1.50 Optimal</li> </ul>
Calcium (adjusted) Chloride Magnesium Phosphate Potassium	2.35 102 0.92 1.109 4.46	mmol/l mmol/l mmol/l mmol/l mmol/l	<ul> <li>2.20 - 2.60 Optimal</li> <li>95 - 108 Optimal</li> <li>0.7 - 1.1 Optimal</li> <li>0.80 - 1.50 Optimal</li> <li>3.5 - 5.3 Optimal</li> </ul>
Calcium (adjusted) Chloride Magnesium Phosphate Potassium Sodium	2.35 102 0.92 1.109 4.46 142.3	mmol/l mmol/l mmol/l mmol/l mmol/l mmol/l	<ul> <li>2.20 - 2.60 Optimal</li> <li>95 - 108 Optimal</li> <li>0.7 - 1.1 Optimal</li> <li>0.80 - 1.50 Optimal</li> <li>3.5 - 5.3 Optimal</li> <li>133 - 146 Optimal</li> </ul>
Calcium (adjusted) Chloride Magnesium Phosphate Potassium Sodium	2.35 102 0.92 1.109 4.46 142.3 5.16	mmol/l mmol/l mmol/l mmol/l mmol/l mmol/l	<ul> <li>2.20 - 2.60 Optimal</li> <li>95 - 108 Optimal</li> <li>0.7 - 1.1 Optimal</li> <li>0.80 - 1.50 Optimal</li> <li>3.5 - 5.3 Optimal</li> <li>133 - 146 Optimal</li> <li>2.5 - 7.8 Optimal</li> </ul>

Urinalysis			
Bilirubin (Urine)	Negative	mg/dl	Negative Optimal

Glucose (Urine)	Normal	mg/dl	Normal Optimal
Ketones (Urine)	Negative	mg/dl	Negative Optimal
Nitrite (Urine)	Negative	mg/dl	Negative Optimal
pH (Urine)	7.0	рН	5 - 7.5 Optimal
Protein (Urine)	Negative	mg/dl	Negative Optimal
Red Blood Cells (Urine)	10	RBC/µl	Negative Optimal 0 - 10 +1 11 - 25 +2 26 - 50 +3 51 - 250 +4
Urobilinogen (Urine)	Normal	mg/dl	Normal Optimal
White Blood Cells (Urine)	500	Leuk/µl	Negative Optimal 0 - 25 +1 26 - 100 +2 101 - 500 +3
Liver Health			
Alanine Aminotransferase (ALT)	23.7	U/I	<31 Normal
Alkaline Phosphatase (ALP)	39	U/I	30 - 120 Optimal
Aspartate Aminotransferase (AST)	25.9	U/I	<31 Normal
Gamma-Glutamyltransferase (GGT)	19.0	U/I	8 - 42 Optimal
Total Bilirubin	12.21	µmol/l	<21 Optimal
Albumin	44.4	g/l	35 - 50 Optimal
Ferritin	62	µg/l	10 - 120 Optimal
Pancreatic Health			
Pancreatic Amylase	<9	U/I	<13 Low 13 - 53 Optimal >53 High
Lipase	30.0	U/I	5.6 - 51.3 Optimal
Digestive Health			
H. pylori	0.53	U/ml	<0.9 Negative

Anti-Tissue Transglutaminase Antibodies (Coeliac Disease)	negative	na	Positive Negative
Nutritional Health			
Total Antioxidant Status (TAS)	1.83	mmol/l	≥1.3 Optimal
Albumin	44.4	g/l	35 - 50 Optimal
Calcium (adjusted)	2.35	mmol/l	2.20 - 2.60 Optimal
Magnesium	0.92	mmol/l	0.7 - 1.1 Optimal
Iron	22.3	µmol/l	7 - 26 Optimal
Folic acid	11.1	µg/l	3.80 - 26.80 Optimal
Vitamin B12	569	ng/l	197 - 771 Optimal
Vitamin D	87	nmol/l	50 - 125 Sufficiency
Muscle & Joint Health			
Creatine Kinase	197	U/I	25 - 200 Optimal
Uric Acid	378.5	µmol/l	<140 Low 140 - 360 Optimal >360 High
Rheumatoid Factor (RF)	7.57	kU/l	<12.5 Optimal
Bone Health			
Alkaline Phosphatase (ALP)	39	U/I	30 - 120 Optimal
Calcium (adjusted)	2.35	mmol/l	2.20 - 2.60 Optimal
Phosphate	1.109	mmol/l	0.80 - 1.50 Optimal
Vitamin D	87	nmol/l	50 - 125 Sufficiency
Allergy Evaluation			
Immunoglobulin E (IgE)	97.9	kU/l	≤100 Optimal
Infection & Inflammation			
C-Reactive Protein (CRP)	0.7	mg/l	≤5 Optimal
Rheumatoid Factor (RF)	7.57	kU/l	<12.5 Optimal

Albumin	44.4	g/l	35 - 50 Optimal
Complement Component 3 (C3)	1.205	g/l	0.9 - 1.7 Optimal
Complement Component 4 (C4)	0.370	g/l	0.18 - 0.49 Optimal
Ferritin	62	µg/l	10 - 120 Optimal
Immunoglobulin A (IgA)	1.20	g/l	0.9 - 4.5 Optimal
Immunoglobulin G (IgG)	9.69	g/l	8 - 18 Optimal
Antistreptolysin O (ASO)	176.6	IU/ml	≤200 Optimal
Thyroid Health			
Thyroid Health Thyroid Stimulating Hormone (TSH)	3.51	mIU/I	0.35 - 5.5 Normal
Thyroid Health Thyroid Stimulating Hormone (TSH) Free Thyroxine (FT4)	3.51 16.97	mIU/I pmol/l	0.35 - 5.5 Normal 11.5 - 22.7 Normal
Thyroid Health Thyroid Stimulating Hormone (TSH) Free Thyroxine (FT4) Free Tri-iodothyronine (FT3)	3.51 16.97 4.52	mIU/I pmol/I pmol/I	0.35 - 5.5 Normal 11.5 - 22.7 Normal 3.1 - 6.8 Normal
Thyroid Health Thyroid Stimulating Hormone (TSH) Free Thyroxine (FT4) Free Tri-iodothyronine (FT3) Anti-Thyroglobulin Antibody (Anti- Tg)	3.51 16.97 4.52 <10.0	mIU/I pmol/I pmol/I IU/ml	0.35 - 5.5 Normal 11.5 - 22.7 Normal 3.1 - 6.8 Normal ≤115 Optimal

## Female Hormonal Health

Oestradiol

Your Result: 127.1 pmol/l

73 - 1285 Follicular Phase 550 - 2753 Midcycle 110 - 1652 Luteal Phase <74 Post Menopausal

# Luteinising Hormone

Your Result: 9.17 IU/I

#### 2.4 - 12.6 Follicular Phase 14.0 - 95.6 Midcycle 1.0 - 11.4 Luteal Phase 7.7 - 58.5 Post Menopausal

Follicle Stimulating Hormone Your Result: 45.91 IU/I

3.5 - 12.5 Follicular Phase 4.7 - 21.5 Midcycle 1.7 - 7.7 Luteal Phase 25.8 - 134.8 Post Menopausal

### Progesterone

### Your Result: 0.77 nmol/l

0.5 - 2.2 Follicular Phase
6.4 - 79.5 Luteal Phase
23.0 - 139.9 Pregnancy 1st Trimester
62.0 - 262.4 Pregnancy 2nd Trimester
206.7 - 728.2 Pregnancy 3rd Trimester
0.27 - 1.68 Post-Menopausal

#### Prolactin

### Your Result: 311 mIU/I

Testosterone

# Your Result: <0.69 nmol/l

<102 Low 102 - 496 Optimal >496 High <2.5 Ovulating <1.5 Post Menopausal

# Sex Hormone Binding Globulin Your Result: 36.80 nmol/l

18 - 144 Adult Females

# Free Androgen Index Your Result: <1.9

≤8.5 Normal Cycling≤3.4 Oral contraceptives≤6.6 Post Menopausal, untreate