



LEEUVENHOEK
HEALTH SCREENING

Men Health Screening
Personal Report

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Results for : Joe Bloggs
Package : Men – Basic
Screening date : 10 November 2018

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Report date: 13 November 2018

Your health screening report

Dear Mr Bloggs,

Following your screening as per the **Men - Basic** package on 10 November 2018, in this report you will find your test results organized by method of analysis:

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All test results are compared to standard reference ranges applicable to your age/ gender. This gives you an indication of how your results compare to normal healthy results. Test results that fall within the reference range are coloured green. Results outside the reference range are coloured amber or red, depending on how far they are outside the range (i.e. marginally or more). If so, results are commented on within the specific analysis section. Such comments include possible causes and recommended follow-up if applicable.

Please note that results have been carefully reviewed and evaluated by our registered medical scientist. Although highly competent, any interpretation of the examination results is based on the data contained in this report only. Your medical specialist or GP will have access to your medical history and may review any abnormal test results in that context, which may possibly result in a different interpretation.

If you have any questions in relation to your results or anything else, please do not hesitate to contact us and we'll gladly assist you. For e-mail please use aftercare@leeuwenhoek.ie.



By this means we would like to thank you for choosing Leeuwenhoek for your health screening. We hope you are pleased with our service and look forward to seeing you again.

Best regards,

Dr Laura Murillo MLS, BSc (U.C.R. Hons Microbiology and Clinical Chemistry), PhD (VU Amst, Immunogenetics)
Managing Director (Irish registered Medical Scientist)

A quality note...

At Leeuwenhoek, you're in good hands. We value our customers highly and understand that you expect a high-quality competent service providing the most reliable test results with a meaningful interpretation. We, therefore, work hard to continuously improve our quality management system in strict compliance with the international standard ISO 15189:2012 (Medical laboratories – Requirements for quality and competence).

We proudly set ourselves the ambitious goal to become the first ISO 15189:2012 accredited Irish owned private lab in Ireland. The accreditation process which leads to this accreditation can only commence after a certain time period in order to show a history of continued compliance. Leeuwenhoek started services in 2017 and as such is in the process of accumulating exactly that evidence of compliance to ISO 15189:2012. This means your samples were handled and processed by competent personnel, adhering to controlled procedures. And also, that all tests are performed using quality controls and calibrators through validated test methods. For tests currently not available in-house, we only outsource to ISO 15189 accredited reference laboratories.

Additional to the standard, we comply with applicable national and international regulations such as the European General Data Protection Regulation (GDPR) and the Irish Health and Social Care Professionals Act 2005.

Our dedicated workers are Garda vetted and have a vast experience in clinical laboratory settings. Myself, I worked in quality roles for over 20 years both in hospitals and with medical device manufacturers. I successfully led a clinical laboratory to become the first to be accredited to ISO 15189 in The Netherlands. I'm committed to achieving Leeuwenhoek's goal in doing just the same.

Now you can be assured that your test results are reliable with a valuable interpretation and that all together you've put your trust in a competent health screening provider.

Kind regards,

Walter Verbruggen
Quality Manager



Personal information

Name: Joe Bloggs

Age: 63

Date of birth: 31 December 1954

Gender: M

Address: Co. Clare

E-mail: joebloggs@joebloggs.com

Phone: 083-1234567

Customer number: C101XXX

Report revision: 01

Fasting: Yes

Multi-vitamins/ dietary supplements: Yes

*Multivitamin last taken on previous day
in the morning*

Vitamin D intake: Yes

Medications intake: No

Smoking: No

Additional information: None

Urinalysis

Specimen #: 02

Sample: Second morning urine

Collected: 10.00, 10 Nov '18

Received: 10.00, 10 Nov '18

Test	Result	Reference	
Macroscopic examination¹			
Volume	30 mL		
Colour	YELLOW/ ORANGE	YELLOW	
Appearance	CLOUDY	CLEAR	
Semi-quantitative tests²			
Specific Gravity	1.015	1.001 – 1.035	g/mL
pH	6.5	5.0 – 8.0	
Leukocytes	NEGATIVE	NEGATIVE	
Nitrite	NEGATIVE	NEGATIVE	
Protein	NEGATIVE	NEGATIVE	
Glucose	NEGATIVE	NEGATIVE	
Ketones	NEGATIVE	NEGATIVE	
Uribilinogen	NEGATIVE	NEGATIVE	
Bilirubin	NEGATIVE	NEGATIVE	
Erythrocyte	NEGATIVE	NEGATIVE	
Microscopic examination¹			
Red blood cells	<1	≤5	HPF
White blood cells	1	≤5	HPF
Squamous Epithelial cells	<1	≤5	LPF
Non-squamous / Small round Epithelial cells	<1	≤5	LPF
Crystals	ABUNDANT CALCIUM OXALATE DIHYDRATE (CLUMPS SEEN)	FEW AMORPHOUS	HPF
Bacteria	NONE SEEN	NONE SEEN	HPF
Yeast	NONE SEEN	NONE SEEN	LPF
Cast	NONE SEEN	NONE SEEN	LPF
Mucus	TRACES	NEG. TO MODERATE	LPF
Other	NONE		

¹ European Urinalysis Guidelines. Scand J Clin Lab Invest Suppl. 2000; 231:1-86 & Lorenzo MS. Urinalysis and Body Fluids, 6th Edition. 2014. ISBN: 9780803639201.

² Method: COBAS Urisys 1100, Combur¹⁰ test UX & Compendium urinalysis: Urinalysis with test strips. Roche Diagnostics



What these tests can tell you:

- Urine analysis, or shortened "urinalysis", identifies and measures some of the by-products of normal and abnormal metabolism (digestion), cells, cell fragments, and bacteria in urine. Urinalysis is performed to help in the diagnosis of various diseases and conditions.

Your results:

- Your urine is dark yellow/ orange in colour which is found in concentrated urines, in dehydration and/ or in samples of individuals taking vitamin B complex.
- A cloudy urine suggests the presence of many particulates (small particles) in the urine. In your sample, this was caused by the presence of crystals.
- Your results show the abundant presence of *calcium oxalate dihydrate crystals*. Oxalic acid is taken in with foods such as tomatoes and asparagus, and ascorbic acid and is an intermediate metabolic product. Dissolved calcium oxalate crystallizes out at a urine acidity (pH) that is normal or slightly acid and as such, oxalate crystals are formed. Their finding has no diagnostic significance because oxalate and calcium are physiological elements of urine. However, if they are repeatedly found in fresh urine in larger amounts, other tests may be needed as these crystals may stick together and form a solid mass (a kidney stone).

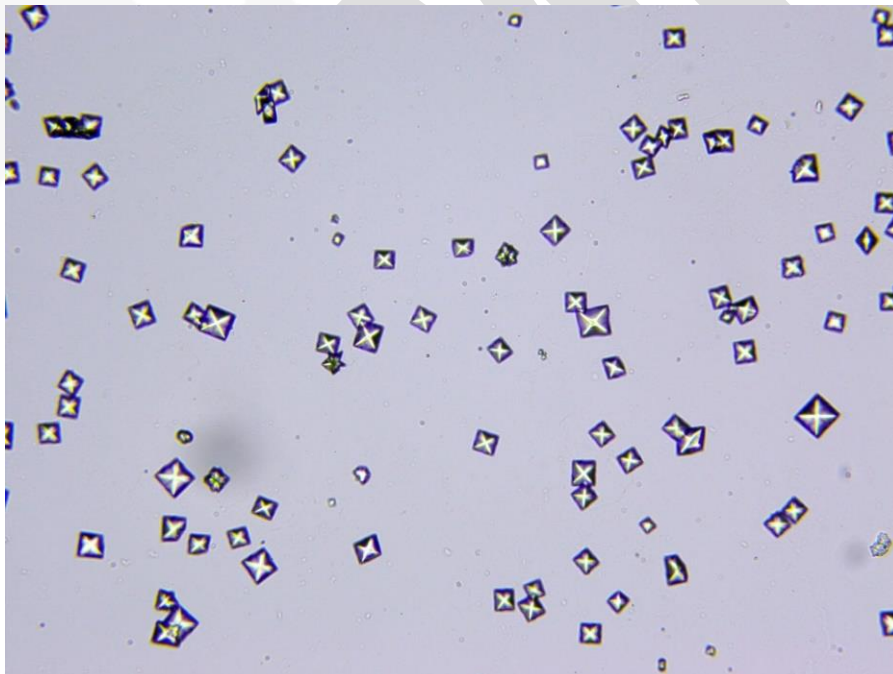


Image 1: Wet preparation of the urine sediment at low power in bright field microscopy showing abundant calcium oxalate dihydrate crystals (envelop-shaped)

Complete Blood Count

Specimen #: 01
Sample: Whole blood

Collected: 09.50, 10 Nov '18
Received: 09.50, 10 Nov '18

Complete Blood Count with Differential/ Platelets³

	Result	Reference value ⁴⁻⁵	
Haemoglobin	14.0	Male: 13.5 – 17.2	g/dL
Haematocrit	40.7	32.3 – 46.2	RATIO
Red Blood Cell Count	4.23	Male: 4.28 – 5.59	10 ¹² /L
Mean corpuscular volume (MCV)	96.2	83.1 – 99.1	fL
Mean Corpuscular Haemoglobin (MCH)	33.1	28.3 – 33.9	pg
Mean Corpuscular Haemoglobin Concentration (MCHC)	34.4	32.1 – 36.6	g/dL
Red Blood Cell Distribution Width (RDW)	14.9	11.5 – 14.5	%
White Blood Cell Count	4.8	3.88 – 10.49	10 ⁹ /L
• Neutrophils	2.1	1.56 – 6.52	10 ⁹ /L
	(44.3%)	(40 – 80)	%
of which Band neutrophils	0.1	0 – 0.7	10 ⁹ /L
	(1%)	(0 – 5)	%
• Lymphocytes	2.1	1.01– 3.13	10 ⁹ /L
	(42.9%)	(20 – 40)	%
of which Reactive lymphocytes	0.1		10 ⁹ /L
	(3%)		%
• Monocytes	0.5	0.23 – 0.88	10 ⁹ /L
	(11.1%)	(2 – 10)	%
• Eosinophils	0.1	0.05 – 0.51	10 ⁹ /L
	(1.5%)	(0 – 5)	%
• Basophils	<0.05	0.02– 0.15	10 ⁹ /L
	(0.2%)	(0 – 1)	%
Platelets	108	164 - 382	10 ⁹ /L
Red Cell Morphology	Anisocytosis (2+) with microcytosis	Normocytic	
	Normochromic	Normochromic	

³ Method: Abbott Cell Dyn Emerald 22

⁴ Irish health individuals study. Eurofins Ireland

⁵ McKenzie SB, Williams JL. *Clinical Laboratory Hematology*. Boston: Pearson, 2010. ISBN: 9780133076134

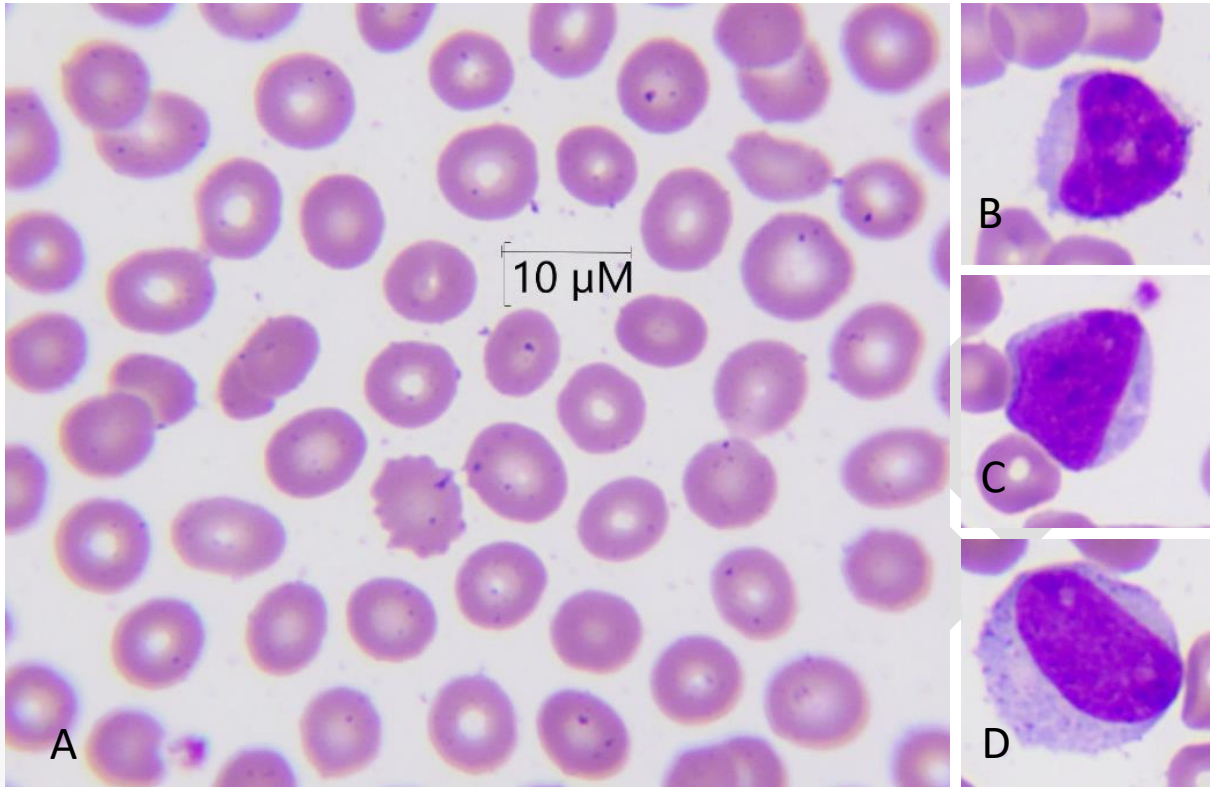


What these tests can tell you:

- Your blood is made up of different types of blood cells, including white blood cells, also known as leukocytes. White blood cells are an important part of your immune system, helping your body to fight off diseases and infections. Platelets are parts of the blood that helps the blood to clot.
- Haemoglobin is the iron-containing protein found in all red blood cells that enable RBCs to bind to oxygen in the lungs and carry it to tissues and organs throughout the body. This test is used along with haematocrit and the other red cell parameters.
- Red blood cell indices (MCV, MCH, MCHC) describe the size and haemoglobin concentration of red blood cells.

Your results:

- Your red blood cell counts and microscopic analysis present characteristic features of iron deficiency. The main findings showing this are:
 - A slightly low red blood cells count;
 - An increased red cell distribution width (RDW). RDW is a parameter that measures variation in red blood cell size. Elevated RDW indicates a greater difference in size. This variation in size is called *anisocytosis* when observed in the blood film under the microscope. Red blood cells that are smaller than their average size is referred to as *microcytosis*. When RDW is increased and accompanied by microcytosis, it is indicative of iron deficiency (see image 2).
- The slight increase in lymphocytes combined with the presence of some reactive lymphocytes is a typical finding in viral infection such as influenza, infectious mononucleosis, and adenovirus infections. Lymphocytes are an important part of the immune system. They help fight off diseases, so it's normal to see a temporary rise in the number of lymphocytes after an infection or after an illness. The presence of reactive lymphocytes (see image 2) can be associated to a viral illness. However, they can also be associated with a response to a drug, a hormonal change, autoimmunity, etc.
- An increased percentage of monocytes may be caused by:
 - a parasitic or viral infection;
 - a chronic infection (e.g., tuberculosis, fungal infection);
 - a chronic inflammatory disease;
 - a collagen vascular disease, (e.g., lupus, vasculitis, or rheumatoid arthritis).
- A decrease platelet count is referred as *thrombocytopenia*. Thrombocytopenia often occurs as a result of a separate disorder, such as a chronic disease or an immune system problem. It can also be a side effect of taking certain medications.



*Image 2: Blood film stained with Wright's stain, 100X showing:
A. numerous small red cells (microcytes). The diameter of a normal size red cell is 6 – 8 μm .
B-D. reactive lymphocytes.*

We recommended to repeat the blood counts in three to four weeks to confirm if the changes in white cells and platelets counts are due to a temporal effect, as this may require further investigation.



Glycaemia

Specimen #: 03
Sample: Plasma

Collected: 09.50, 10 Nov '18
Received: 09.50, 10 Nov '18

Test

Glucose⁷
(Chemistry- enzymatic UV,
Hexokinase)

Result Reference⁶

5.60 Fasting:
 ■ Recommended: 4.1 – 5.5 mmol/L
 ■ Prediabetes: 5.6 – 6.9
 ■ Diabetes if symptoms present: ≥ 7.00
 Postprandial⁸ (at least 90 minutes after meals): <7.8

What this test can tell you:

- Blood glucose determination is commonly used as an aid in the diagnosis and treatment of diabetes. Combined measurement of glucose and HbA1c is used to screen, diagnose or monitor glucose levels in blood, prediabetes and diabetes. Early detection of this condition may allow halting the progression and the development of serious complications.
- Diabetes UK and the American Diabetes Association recommend screening for diabetes and prediabetes starting at age 40. If you are overweight and have none of the recognised risk factors, screening shall take place every 3 years with consideration of more frequent testing depending on initial results and risk status:
 - Family history of diabetes (a parent or sibling with the disease)
 - Sedentary lifestyle
 - African, Hispanic, American, Asian, or Pacific Islander ancestry
 - History of blood glucose problems
 - History of gestational diabetes or a baby weighing over nine pounds
 - High blood pressure
 - Cholesterol problems
 - Polycystic ovary syndrome

⁶ NICE guideline(PH38), 2012, WHO. Definition, diagnosis and classification of diabetes mellitus and its complications. WHO/NCD/NCS/99.2 & ADA. Diabetes Care 2018, 41 (Sup 1): S13-27.

⁷ Method: Chemistry on Roche Cobas c 311 analyser

⁸ Diabetes Research and Clinical Practice 103 (2014) 256-68.

- History of vascular disease

Individuals that fall within the prediabetes range of a diabetes test (i.e., impaired glucose fasting and/or impaired glucose tolerance) should be monitored with a diabetes screening test each year.

Women who were diagnosed with GDM should be screened every 3 years

Your results:

- Your blood glucose result is borderline within the range of impaired fasting glycaemia also referred to as prediabetes.

Prediabetes is defined as having a higher than normal sugar level after a period of fasting but not high enough to be classified as diabetes.

- This prediabetes blood glucose level should be confirmed by repeating the fasting glucose test or with the Oral Glucose Tolerance Test which is the gold standard for the diagnosis for diabetes and prediabetes. The Oral Glucose Tolerance Test (OGTT) is the most effective way to find out more about an individual's glucose metabolism (test available at Leeuwenhoek).

Diabetes UK recommends screening of anyone in the age group of 40 to 75 years that is overweight and has one or more of the following risk factors:

- Family history of diabetes (a parent or sibling with the disease);
 - Sedentary lifestyle;
 - African-American, Hispanic-American, Native-American, Asian-American, or Pacific Islander ancestry;
 - History of blood glucose problems;
 - High blood pressure;
 - Cholesterol problems;
 - History of vascular disease.
- Individuals that fall within the prediabetes range of a diabetes test (i.e. impaired glucose fasting and/or impaired glucose tolerance) should be monitored with a diabetes screening test each year.

We recommend you to get further diabetes screening to confirm that your raised blood glucose level is because of prediabetes.



Comprehensive Metabolic Panel

Specimen #: 04

Collected: 09.50, 10 Nov '18

Sample: Serum

Received: 09.50, 10 Nov '18

Gout test

Uric Acid¹¹
(Chemistry- enzymatic spectrophotometry)

Result	Reference ⁹ ¹⁰
280.0	Male: $\mu\text{mol/L}$ 202.3 – 416.5

What this test can tell you:

- The uric acid blood test is used to help diagnose *gout*, a painful condition commonly affecting the joint of the big toe. Uric acid is the product of the breakdown of purines found in body tissues and in foods such as liver, dried beans, asparagus, and mushrooms. A high uric acid level occurs when the kidneys don't remove uric acid efficiently which can cause gout.

Your results:

- Your result is within the normal healthy range.

⁹ Roche's recommended range for the assay

¹⁰ Please note new units and change of the reference interval. From 09 Feb '18 uric acid results are reported in $\mu\text{mol/L}$ instead of mg/dL in line with national and international guidelines ($\mu\text{mol/L} = 59.5 \text{ mg/dL}$).

¹¹ Method: Chemistry on Roche Cobas c 311 analyser

Kidney function tests¹²

	Result	Reference ¹³	
Urea Nitrogen (Chemistry- kinetic/ photometric)	6.3	2.76 – 8.07	mmol/L
Creatinine (Chemistry- enzymatic spectrophotometry)	85	Male: 59 – 104	µmol/L
Urea/ Creatinine ratio (ratio calculation)	74	>100: Prerenal condition ¹⁴ 40 – 100: Normal range or post-renal condition <40: Renal condition	ratio
eGFR (estimated Glomerular Filtration Rate) formula:			
1. CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration)	83	Normal or high ¹⁵ : ≥ 90 Normal or mild decrease: 60-89	ml/min/1.73m ²
2. IDMS-traceable MDRD (isotope dilution mass spectrometry (IDMS) traceable Modification of Diet in Renal Disease (MDRD) Study equation) (Male; non-African American)	79	Mild/ moderate decrease: 30-59 Severe decrease: 15-29	
Electrolytes			
Sodium (Na) (Indirect ISE)	141	136 – 145	mmol/L
Potassium (K) (Indirect ISE)	4.14	3.5 – 5.1	mmol/L
Chloride (Cl) (Indirect ISE)	102.1	98 – 107	mmol/L
Calcium (Chemistry- spectrophotometry)	2.27	Adult (61 – 90 years): 2.20 – 2.55	mmol/L
Corrected Calcium (Formula calculation)	2.40	Adult (61 – 90 years): 2.20 – 2.55	mmol/L

What these tests can tell you:

- Kidney function tests are used to screen the functioning of the kidneys. It also helps to manage and follow kidney disease. These tests measure the levels of waste products like

¹² Method: Chemistry on Roche Cobas c 311 analyser

¹³ Roche's recommended range for the assay

¹⁴ Sepulveda J. 2013. <https://doi.org/10.1016/B978-0-12-415783-5.00008-6>

¹⁵ The National Institute for Health and Care Excellence (NICE). CG182, 2014



urea, and creatinine passed out in the urine, and electrolytes salts like sodium, potassium, chloride that help to keep the fluids and acid/base balance in the body.

- Creatinine comes from muscle tissue. When the kidneys are damaged, they have trouble removing creatinine from your blood. The calculation of eGFR (based on serum creatinine, your age, race, and sex) allows for a rapid assessment on how well your kidneys are working.

Your results:

- Your results are within the normal healthy ranges.

SAMPLE

Lipids Panel¹⁶

	Result	Reference ¹⁷	
Triglyceride (Chemistry- enzymatic spectrophotometry)	0.86	Fasting: Normal: <1.7 Borderline high: 1.7 – 2.3 High: 2.4 – 5.6	mmol/L
HDL Cholesterol (Chemistry- enzymatic spectrophotometry)	1.88	Male ¹⁸ : >1.00 Desirable >1.6	mmol/L
LDL Cholesterol (Chemistry- enzymatic spectrophotometry)	5.49	Optimal: <2.6 Above optimal: 2.6 – 3.3 Moderate: 3.4 – 4.0 High: 4.1 – 4.8	mmol/L
VLDL (remnant) Cholesterol (Friedewald equation)	0.39	Fasting: <0.77	mmol/L
Cholesterol, Total (Chemistry- enzymatic spectrophotometry)	7.08	Desirable: ≤5.0 Moderate high: 5.0 – 6.1 High: ≥6.2	mmol/L
Total Cholesterol/ HDL Cholesterol Ratio (Castelli index calculation) ¹⁹	3.77	Male: <4.5	ratio
Blood pressure ²⁰ Systolic/diastolic	118/75	Low: <90 or <60 Optimal: 90-120 and 60-80 Normal: 120-129 and/or 80-84 Prehypertension: 130-139 and/or 85-89 Grade 1 hypertension: 140-159 and/or 90-99 Grade 2 hypertension: 160-179 and/or 100-109 Grade 3 hypertension: ≥180 and/or ≥110	mm Hg
Height	1.84	m	
Weight incl. estimated 1kg clothing	83	kg	
Weight	82	kg	

¹⁶ Method: Chemistry on Roche Cobas c 311 analyser

¹⁷ ESC/EAS Guidelines European Heart Journal (2011) 32, 1769–1818 & Circulation. 2002;17;106(25):3143-421

¹⁸ European Heart Journal (2016) 37, 2315–2381 & Circulation. 2002;17;106(25):3143-421

¹⁹ Vasc Health Risk Management (2009) 5: 757–765.

²⁰ Eur Heart Journal 2016;37:2315–2381.



BMI (Body Mass Index) ²¹	24.2	Underweight: <18.5 Normal weight: 18.5 – 24.9 Overweight: 25 – 29.9 Obesity: ≥30	kg/m ²
10 years risk of a first fatal ²² cardiovascular disease (SCORE, see comment)	2	Low risk: <1 Moderate risk: 1 - 4 High risk: 5 - 9 Very high risk: ≥10	%

What these tests can tell you:

- The lipids profile looks at the levels of various types of fats in the blood which includes total cholesterol, HDL “good cholesterol”, LDL “bad cholesterol”, VLDL and triglycerides. The lipids profile shows how your body uses, changes and stores fats. The level of lipids in our blood varies depending on our diet, a disease process or our genetic make-up. This group of tests helps to assess the risk of atherosclerosis and of developing heart disease, stroke or related cardiovascular diseases.
- The ratio of Total Cholesterol/ HDL Cholesterol provides an estimate of the relative risk for heart disease. This ratio is a better predictor than your total cholesterol level or even your LDL level alone. A higher ratio suggests an increased risk of heart disease.
- Cardiovascular disease generally occurs due to a combination of several risk factors. The more risk factors you are impacted by, the greater the chance of having a heart attack or stroke.

The European guidelines on cardiovascular disease (CVD) prevention risk recommends the use of the Systematic Coronary Risk Evaluation (SCORE) for risk assessment in adults without symptoms and without evidence of CVD. SCORE does not include all modifiers of CVD risk which include obesity, physical inactivity and socioeconomic group, familial hypercholesterolemia, low HDL-cholesterol or Apolipoprotein A1 and increased triglycerides, homocysteine, apolipoprotein B, lipoprotein (a) levels or high-sensitivity C-reactive protein, which can result in a higher than indicated risk by SCORE.

- Note that the following factors may not be known at the time of your screening:
 - a family history of premature coronary artery disease;
 - your personal history of heart or kidney disease or previous heart attack, or diabetes.
 - abdominal obesity;
 - physical activity pattern;
 - triglycerides, hs-CRP and homocysteine levels (if excluded from this report).

If you are negatively impacted by any of these factors, your risk could be in a higher category than indicated below.

²¹ World Health Organisation, Europe: body mass index.

²² Eur Heart Journal 2016;37:2315–2381

- It is recommended to repeat the risk assessment at 5-year intervals if the absolute CVD risk is low and/or there are no significant changes in the major risk factors.
- According to 2013 ESH/ESC Guidelines for the management of arterial hypertension (European Heart Journal: 34; 2159–2219), decisions on management of the hypertensive patients depend on the initial level of total cardiovascular (CV) risk. Risk factors include age, male sex, smoking, dyslipidaemia, glucose intolerance, obesity and family history of premature CVD.

Your results:

- Your cholesterol and LDL (bad-cholesterol) levels are elevated. This increases your risk of cardiovascular disease (CVD). However, your HDL level is also elevated. High HDL-cholesterol helps you to reduce the risk for CVD.
Depending on the management of your cholesterol levels and their fluctuation over time, you may need to visit your doctor who may recommend medication. You can reduce your cholesterol levels with medication. However, lifestyle changes (as listed below) can help you to keep your cholesterol levels low and help the cholesterol-lowering effect:
 - ✓ Eat heart-healthy foods:
 - Choose leaner cuts of meat, low-fat dairy, and avoid monounsaturated and trans fats found in, for example, butter, cheese, cakes, biscuits palm oil, coconut oil. Avoid dietary cholesterol found in egg yolks, organ meats and shellfish. Reduce your sugar intake;
 - Eat foods rich in omega-3 fatty acids. Good sources are salmon, mackerel, herring, trout, sardines and nuts such as walnuts, almonds and ground flaxseeds;
 - Increase fiber-rich foods, especially soluble fiber. Excellent sources include oats, oat bran, barley, peas, yams, sweet potatoes and other potatoes, as well as legumes or beans. Vegetables rich in soluble fiber include carrots, Brussels sprouts, beets, okra, and eggplant. Fruit sources are berries, passion fruit, oranges, pears, apricots, nectarines, and apples;
 - ✓ Increase your physical activity (such as walking 30 minutes per day) and maintain a healthy weight;
 - ✓ Drink alcohol in moderation.
- Your 10-year risk of a first fatal CVD is at 2% moderate. This is mainly due to your age, and your raised cholesterol level. You should aim for a cholesterol level of 5 mmol/L or lower in order to decrease this risk.



Liver function tests²³

	Result	Reference ²⁴	
Protein Total (Chemistry- spectrophotometry)	66.6	64 – 83	g/L
Albumin (Chemistry- spectrophotometry: Bromocresol Purple)	33.7	Adult (60 - 90 years): 32 – 46	g/L
Globulin (Formula calculation)	32.9		g/L
Albumin/ Globulin Ratio ²⁵ (Formula calculation)	1.0	0.8 – 2.0	ratio
Bilirubin Total ²⁶ (Chemistry- spectrophotometry Diazo)	11.5	≤21	µmol/L
Alkaline Phosphatase (ALP) (Chemistry- spectrophotometry)	68	Male: 55 – 149	U/L
Aspartate aminotransferase (AST) (Chemistry- spectrophotometry)	21	Male: 0 – 40	U/L
Alanine aminotransferase (ALT) (UV absorbance)	21	Male: 0 – 41	U/L
AST/ALT (Formula calculation)	0.99		ratio

What these tests can tell you:

- Liver function tests are a group of blood tests that give information about how the liver is working. These measure certain proteins, enzymes and substances produced and stored in the liver.
- Serum total proteins and albumin is widely used to determine an individual nutritional status.

Your results:

- Your results are within the normal healthy ranges.

²³ Method: Chemistry on Roche Cobas c 311 analyser

²⁴ Roche's recommended range for the assay

²⁵ Methods Clin. Chem. 1953:1,88-97

²⁶ Irish health individuals study. Eurofins Ireland

**** END OF REPORT ****

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