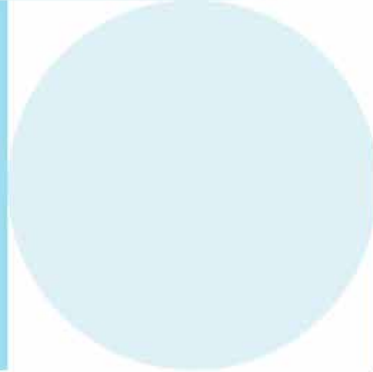
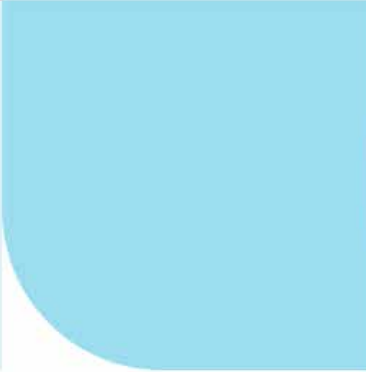
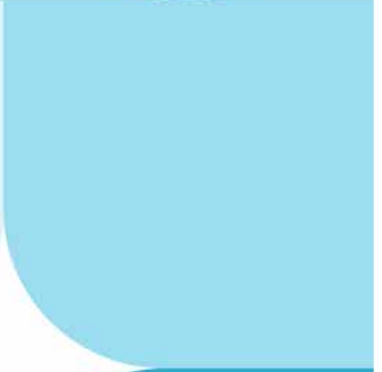
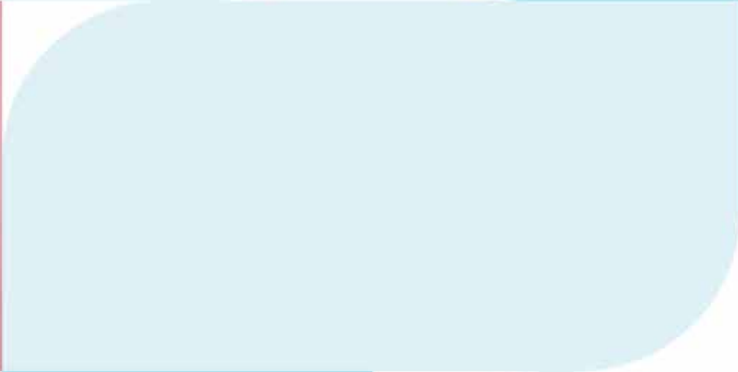




Test report



At-home test



Health Test Basic

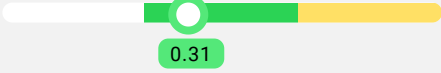
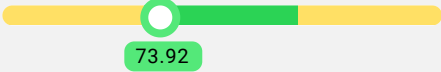
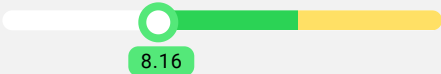
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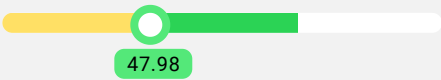
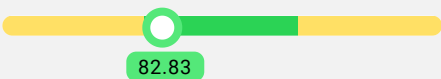
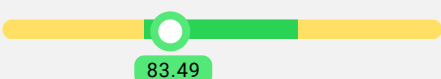
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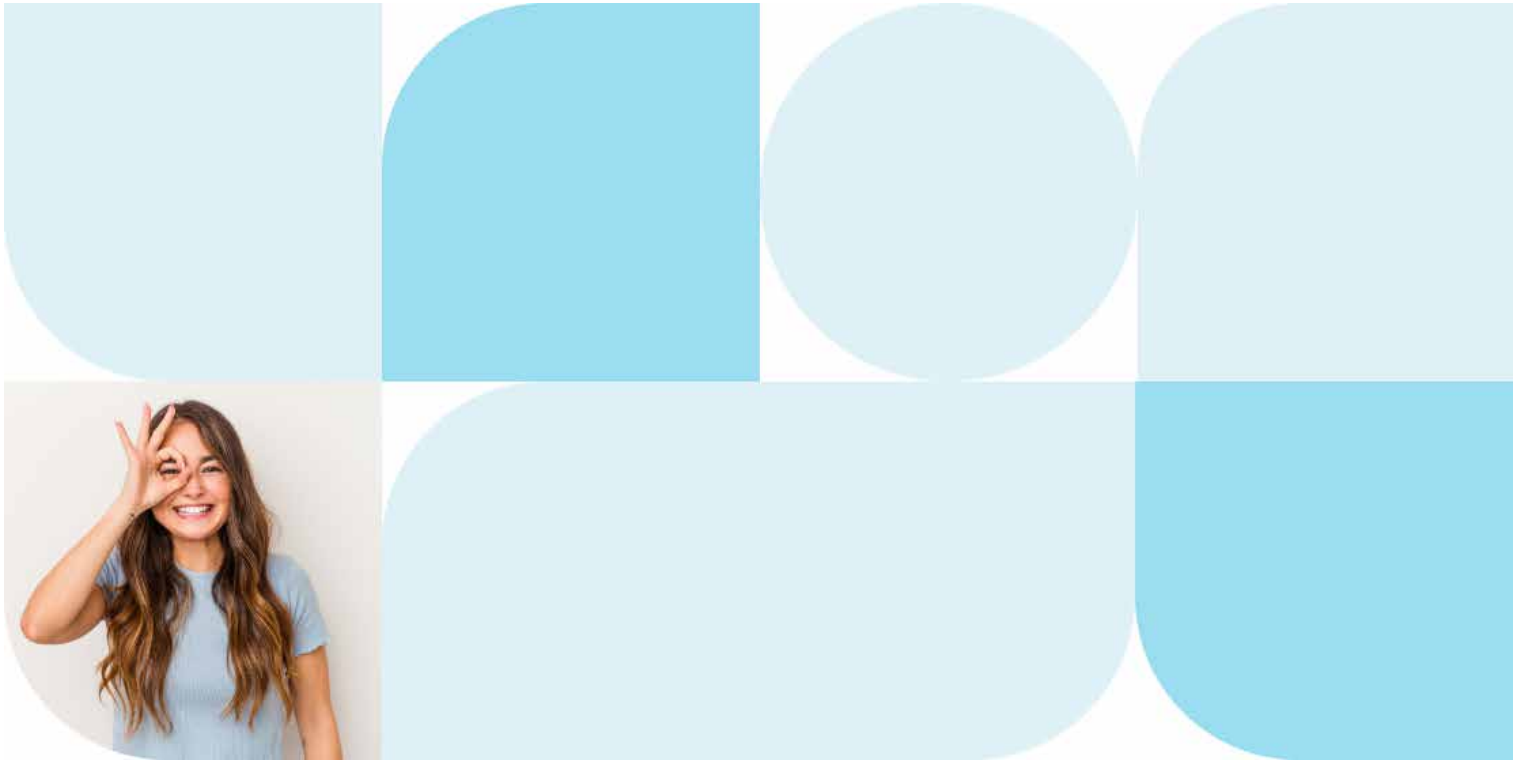
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Your test results

Health Test Basic

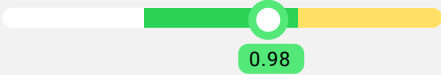
Name	Your value	Unit	Reference value	Scale
Amylase	 129.14	U/l	28 - 100	
AP/ALP	 176.58	U/l	40 - 129	
Cholesterol (total)	 130.68	mg/dl	< 200	
Creatinine	 0.98	mg/dl	< 1,17	
hs-CRP	 0.31	mg/l	< 1	
Copper	 107.10	µg/dl	68 - 169	
Ferritin	 73.92	µg/l	30 - 400	
Folate/Folic acid	 3.24	ng/ml	4,4 - 31,0	
GGT	 8.16	U/l	< 71	
GOT/AST	 12.28	U/l	< 50	
GPT/ALT	 25.91	U/l	< 50	

Name	Your value	Unit	Reference value	Scale
HDL-cholesterol	 47.98	mg/dl	> 45	
Urea	 2.53	mg/dl	3,4 - 7,0	
LDL-cholesterol	 70.25	mg/dl	< 160	
Q10	 0.61	mg/l	0,88 - 1,43	
Selenium	 82.83	µg/l	74 - 139	
Triglycerides	 125.22	mg/dl	50 -200	
TSH	 3.09	µIU/ml	0,27 - 4,2	
Vitamin B12	 345.58	pg/ml	193 - 982	
Vitamin D3 (25OH)	 83.49	nmol/l	62,5 - 170	
Vitamin E (alpha tocopherol)	 9.67	mg/l	5 - 20	



Explanation of your test results

Creatinine

Name	Your value	Unit	Reference value	Scale
Creatinine (Serum)	 0.98	mg/dl	< 1,17	

What is Creatinine?

Creatinine is a substance that is normally formed in the muscles and is excreted in the kidneys in the urine and used as a marker to analyze kidney function. Creatinine is formed when the body breaks down the muscular energy store (creatine phosphate). The value may vary from person to person because it is related to the body's muscle mass. Muscular people can have slightly higher values than others without it meaning that the kidney function is worse. The creatinine value can also temporarily increase if you have eaten a lot of meat, especially cooked meat, or taken creatine supplements.

Why is creatinine analyzed?

Like many other substances, creatinine is filtered from your blood in the kidneys and then excreted in the urine. If your kidneys are damaged and cannot work normally, the amount of creatinine in the blood increases. Therefore, creatinine is a marker used to analyze kidney function.

A creatinine blood test is done to see if the kidneys are functioning normally and whether taking dietary supplements and medications is causing kidney damage.

Today, there are also other blood tests that are used to assess kidney function (e.g. Cystatin C). However, creatinine is a marker that can be quickly analyzed and is, therefore, still often used as initial screening.

What does a high creatinine value mean?

An elevated creatinine value is a signal that the kidneys are not working as they should. However, this is not always the case, and there are a variety of reasons why this might be, including:

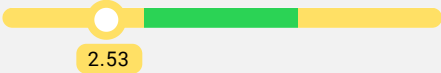
- Large amounts of muscle mass
- Dehydration
- Obstruction in the kidneys
- Blockage in the urinary tract (e.g. kidney stones or severe prostate enlargement)
- If you have eaten a lot of meat (especially cooked meat) before the test
- Certain medications
- Decreased blood supply (e.g. heart failure or narrowing of the blood vessels that bring blood to the kidneys)
- Dietary supplements containing creatine and hard working the day before the test

What does a low creatinine value mean?

A low creatinine value usually has little clinical significance. This can be due to a number of different reasons:

- Little muscle mass
- Hyperthyroidism (overactive thyroid gland)
- Early stages of diabetes-related kidney problems
- Pregnancy - due to the kidneys filtering the blood more efficiently

Urea

Name	Your value	Unit	Reference value	Scale
Urea	 2.53	mg/dl	3,4 - 7,0	 2.53

What is urea?

Urea is a nitrogen-rich waste product that is formed during the breakdown of proteins and amino acids in the liver. After urea is formed in the liver, it is removed from the body through the kidneys and urine.

Why analyze urea?

Urea is analyzed when you want to get an idea of the body's metabolism of proteins and amino acids. It can also be used to get an overview of the body's fluid balance. What is commonly known, however, urea is analyzed to evaluate the body's kidney function. In case of impaired kidney function, urea accumulates in the blood when the kidneys can no longer excrete it.

What does an elevated urea value mean?

An increased urea value can be seen with a high protein intake via the diet, but also the body then requires more proteins and amino acids to break down. In conditions with increased protein breakdown, such as febrile diseases, trauma, and prolonged bed rest, an increased urea value is seen. In the case of reduced excretion of urea via the kidneys, as in various types of kidney disease, decreased or no output and intake of drugs that are too difficult for the kidneys to excrete, increasing the urea levels in the blood.

What does a low urea value mean?

A low urea value can be seen with large urine production and in connection with certain disease states in the kidneys. This can also be seen in cases of reduced production, for example, a low protein intake via the diet or failure to keep function.

What other factors can affect the urea value?

Slightly deviating urea values can also appear in a normal variant. Therefore, a normal value includes 80% of healthy individuals, which means that 20% of healthy individuals end up outside the reference range without it being linked to disease. This is called a normal variant.

Amylase

Name	Your value	Unit	Reference value	Scale
Amylase	 129.14	U/l	28 - 100	

What is amylase?

Amylase is an enzyme produced in the digestive tract by two glands (salivary glands and the pancreas), but also in smaller amounts in some other organs. Amylase catalyzes the cleavage of polysaccharides such as starch and glycogen. The total activity of amylase in the blood is normally derived from about half from the salivary gland (salivary amylase) and half from the pancreas.

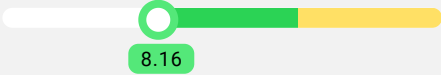
What does an elevated amylase value mean?

The level of salivary amylase can vary greatly without it having to be due to injury or disease. Specific determination of the amylase activity from the pancreas therefore, more reliably reflects an increased release into the bloodstream (e.g. in trauma or acute pancreatitis) or a reduced output (as in pancreatic insufficiency). As inflammation of the pancreas (pancreatitis), the level of pancreatic amylase in the blood rises sharply (usually >10 times the normal mean value).

What does a low amylase value mean?

Reduced activity of pancreatic amylase in the blood is seen in pancreatic insufficiency due to conditions such as chronic pancreatitis or cystic fibrosis.

GGT

Name	Your value	Unit	Reference value	Scale
GGT	 8.16	U/l	< 71	 8.16

What is GGT?

GGT is an enzyme that is mostly found in liver cells but also, to some extent, in the pancreas and kidneys and placenta. Its role is the detoxification of alcohol and other drugs or toxic substances in the liver.

Why analyze GGT?

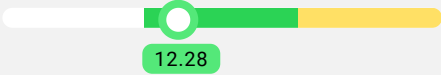
GGT is measured as part of a liver function test along with ALT, AST and ALP. ALT is used to detect early indications of a liver disorder. Some symptoms of liver damage include jaundice, nausea, vomiting, abdominal pain, itching and fatigue.

GGT can also be used with other markers to predict fatty liver disease. This is a condition where fat is stored in the liver due to an unhealthy diet and lifestyle. This can eventually lead to liver cirrhosis if it remains uncontrolled. It is also an indicator of liver damage due to overconsumption of alcohol. GGT levels usually take up to a month to normalize after alcohol consumption stops.

What do elevated GGT levels mean?

GGT levels may be increased in patients with liver diseases, including acute and chronic hepatitis, cirrhosis, alcohol-related liver disease, and biliary diseases. GGT can also increase when you have no symptoms due to medications such as antibiotics and antidepressants.

GOT/AST

Name	Your value	Unit	Reference value	Scale
GOT/AST	 12.28	U/l	< 50	

What is GOT/AST?

GOT/AST (aspartate aminotransferase) is an enzyme normally found in the pancreas, heart, liver, kidneys, muscles, and red blood cells. The level of GOT/AST in the blood is usually low under normal circumstances. When body tissues or an organ such as the heart or liver is diseased or damaged, additional GOT/AST is released into the bloodstream.

The amount of GOT/AST in the blood is directly related to the extent of tissue damage. After serious injuries, GOT/AST levels rise for several hours and remain elevated for around four days. The GOT/AST test is usually done at the same time as a test for alanine aminotransferase (ALT/AST). The ratio of ALT/AST and AST/AST can help determine if the liver or another organ has been damaged by alcohol consumption.

Why analyze GOT/AST?

The GOT/AST test is done to check the condition of the liver and whether it has been damaged. With the help of the test, it is possible to identify liver diseases, especially hepatitis and cirrhosis. Liver diseases can cause symptoms such as pain in the upper part of the abdomen, nausea, vomiting, and in the most severe cases even jaundice. The test can also check if the treatment of liver diseases has been successful. Other purposes may be to find out if jaundice was caused by a blood disease or liver disease or to keep track of the effects of alcohol or lowering drugs and other drugs that can damage the liver.

What does a high GOT/AST mean?

High values are seen in heart attacks, with a maximum value after two days. GOT/AST is also elevated in hepatitis, acute liver damage, liver enlargement, myopathy, and pulmonary embolism. The individual GOT/AST levels are related to muscle mass. Vigorous physical exertion produces an increase of 5-15 U/l at least. Each cent of gills with nitrogen gives an increase of up to 5 U/l at least.

GPT/ALT

Name	Your value	Unit	Reference value	Scale
GPT/ALT	 25.91	U/l	< 50	

What is GPT/ALT?

GPT/ALT (alanine aminotransferase) is an enzyme normally found in the pancreas, heart, liver, kidneys, muscles, and red blood cells. A GPT/ALT test measures the amount of this enzyme in the blood. GPT/ALT is found mostly in liver cells and in smaller amounts in the blood.

Unlike GPT/ALT, GPT/ALT is only found in the cytoplasm of liver cells, so the value can be lower in the case of liver damage than when sampling GPT/ALT alone. Viral hepatitis causes very high GPT/ALT values. The amount of GPT/ALT in the blood is halved in about 24 hours. A GPT/ALT test is usually done at the same time as one test for GPT/ALT. The ratio of GPT/ALT and GPT/ALT can help determine whether the liver or any other organ has been damaged and whether alcohol consumption has been a cause of the liver damage.

Why analyze GPT/ALT?

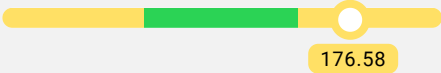
The GPT/ALT test checks the condition of the liver and whether it has been damaged. With the help of the test, it is possible to identify liver diseases, especially hepatitis and cirrhosis caused by alcohol, drugs, or viruses. Liver diseases can cause symptoms such as pain in the upper part of the abdomen, nausea, vomiting, and in more serious cases, jaundice. Other purposes may be to find out if jaundice was caused by a blood disorder or liver disease or to monitor the effects of alcohol, lowering drugs, and other drugs that can damage the liver.

What does a high GPT/ALT value mean?

High values are seen in acute and chronic hepatitis, liver damage, mononucleosis, and blockage of the bile ducts. The high values can also be seen in the following situations:

- After using many supplements and medicines
- Liver damage was result of disease
- Lead poisoning
- Rapid growth, especially in young children, can cause mildly elevated GPT/ALT levels

AP/ALP

Name	Your value	Unit	Reference value	Scale
AP/ALP	 176.58	U/I	40 - 129	

What is AP/ALP?

AP/ALP or alkaline phosphatase is the abbreviation for a set of enzymes found throughout the body, but in a large amount in the liver and bones.

Why analyze AP/ALP?

Since AP/ALP is mainly present in the liver and in the skeleton, it is primarily used for detection of diseases in these tissues. The AP/ALP value should always be assessed together with other liver markers.

What does an elevated AP/ALP value mean?

An elevated AP/ALP value can be seen in many different diseases and conditions. The most common are conditions that affect the liver and bile ducts, for example, obstructions in the bile ducts (especially gallstones that have gotten stuck), infections in the liver, fatty liver disease, drug side effects, rheumatic diseases, diabetes or gluten intolerance. Increased AP/ALP values can also be seen in connection with fractures that are healing. Diseases in other organs can also affect the AP/ALP value, but usually, it happens because these diseases secondarily affect the liver, the bile ducts or the skeleton.

What does a low AP/ALP value mean?

A low AP/ALP value is usually a normal variant, but a low value can also occur with magnesium and/or zinc deficiency or in cases of severe nutritional deficiency. In rare cases, a low AP/ALP value in combination with symptoms of repeated fractures may be a sign of a genetic disease.

What other factors can affect the AP/ALP value?

The AP/ALP value can sometimes rise for physiological reasons, which is benign. This is seen in children and young people as their bones grow and in the later stages of pregnancy. The AP/ALP value can also rise in connection with treatment with certain medications and in cases of an over-functioning thyroid gland (hyperthyroidism).

Cholesterol (total)

Name	Your value	Unit	Reference value	Scale
Cholesterol (total)	 130.68	mg/dl	< 200	

What is cholesterol?

Cholesterol is a lipid (a fat like substance) that occurs naturally in the body. The body uses cholesterol to build cells and produce hormones. A cholesterol test measures the amount of specific cholesterol in the blood. Cholesterol travels in the blood attached to a protein. The cholesterol-protein package is called a lipoprotein.

Why analyze cholesterol?

Too much cholesterol in the blood can lead to deposits in the blood vessels ("atherosclerosis"), which increases the risk of cardiovascular disease. A cholesterol test can detect these risks and make it possible to take preventative measures. More often, it is a poor diet and lifestyle that contribute to unhealthy cholesterol levels.

What does a high cholesterol value mean?

High cholesterol levels are seen in primary and secondary hypercholesterolemia. Primary hypercholesterolemia is due to genetic factors, of which the most common form is familial hypercholesterolemia (FH). FH is a genetic disease that disturbs the metabolism of cholesterol and makes it difficult for the body to handle fat properly. This leads to a greatly increased risk of cardiovascular disease – even at a relatively young age. For men who have FH, but are not treated for it, the average age is suffer a heart attack is around 45-55 years. For women with FH, the average age is around 55 years. Secondary hypercholesterolemia is seen in the case of an underactive thyroid gland (hypothyroidism), nephrotic syndrome, obstructive disease and diabetes.

What does a low cholesterol value mean?

Low cholesterol levels are often seen in people with an overactive thyroid (hyperthyroidism), malabsorption and congenital beta lipoprotein deficiency (familial hypobetalipoproteinemia).

Triglycerides

Name	Your value	Unit	Reference value	Scale
Triglycerides	 125.22	mg/dl	50 -200	

What are triglycerides?

Triglycerides are a type of fat that, together with cholesterol, make up the body's main types of fat. Triglycerides are used by the body as an energy source, while cholesterol is needed to build cells and produce hormones. We mainly get triglycerides through our diet, while cholesterol is also found in the diet but is mostly formed by the body itself. The amount of cholesterol that the body forms depends to some extent on the type of fat that we have eaten alongside genetic factors that affect cholesterol synthesis. In addition, it is also affected by the body's cholesterol levels and triglycerides by various hormones.

Cholesterol and triglyceride tests measure the total amount of fats (cholesterol and triglycerides) in the blood. Cholesterol is transported in the blood bound to a protein. This cholesterol-protein package is called a lipoprotein. With the help of lipoprotein analysis, it is possible to see the level of total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides in the blood.

Why analyze triglycerides?

A high triglyceride value, together with a high LDL cholesterol value, can increase the risk of cardiovascular disease compared to having only high LDL cholesterol.

What does a high triglyceride value mean?

It is uncommon to have obvious symptoms of high blood fats, but scientific studies have shown that the risk of developing atherosclerosis ("hardening of the arteries") and cardiovascular disease is noticeably elevated when total triglyceride levels are ≥ 1.7 mmol/L in the blood, even if the values still within the reference range. Highly elevated triglyceride levels (>10 mmol/L) can also increase the risk of inflammation of the pancreas, a condition that, under some circumstances, can be life-threatening. In the case of elevated values, it may be relevant to do more testing to determine to more detail the causes of the increased amount of fat in the blood.

Since triglycerides are something we get through our diet, their value can be affected by changes in what we eat and physical activity levels, which in turn can reduce the risk of developing these diseases. Some individuals, however, may have genetic variations that lead to high blood triglycerides despite a healthy diet and lifestyle.

High values can be genetically determined (familial hypertriglyceridemia). Secondary hypertriglyceridemia is seen in poorly controlled diabetes, hyperthyroidism, kidney problems, and liver diseases. High intake of carbohydrates (mainly refined sugar and starch), birth control pills, pregnancy, steroid hormones, diuretics, and beta-blockers can also give higher values. Elevated levels of triglycerides are not necessarily a risk factor for cardiovascular diseases but may still be relevant to address.

What does a low triglyceride value mean?

Low triglyceride levels are not in themselves indicative of health, but low values are considered to reduce the risk of cardiovascular disease. Taking some medications and Omega-3 supplements can also lower triglycerides. Low levels of triglycerides, however, can also be seen in malnutrition or in problems absorbing nutrients in the intestines, which in some cases may require further investigation.

What affects triglycerides?

The body's triglyceride levels increase sharply after a meal, especially if the meal contains a lot of fat. To be observed, values can therefore be measured in the event of measurement fasting prior to testing. To get a fair assessment of blood fat, the test should be taken after 10-12 hours of fasting (water and caffeine without milk or sugar are allowed).

Some drugs, such as corticosteroids and estrogen preparations, increase triglyceride levels. Triglycerides also become elevated in the hypothyroidism of the thyroid gland and certain kidney diseases.

LDL-cholesterol

Name	Your value	Unit	Reference value	Scale
LDL-cholesterol	 70.25	mg/dl	< 160	

What is LDL-cholesterol?

The abbreviation LDL stands for "low-density lipoprotein", that is, lipoprotein with low density (fatness). LDL-cholesterol transports fat and a small amount of protein from the liver to other parts of the body.

Why analyze LDL-cholesterol?

A normal level of LDL cholesterol in the blood is useful because cholesterol is then transported out to body parts that need this. But LDL cholesterol is often called "bad cholesterol" because an elevated level in the blood can lead to an increased risk of developing cardiovascular disease.

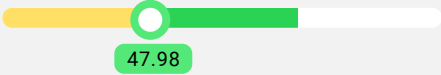
What does a high LDL-cholesterol value mean?

High LDL levels are seen in primary and secondary hypercholesterolemia. Primary hypercholesterolemia is due to genetic factors, of which the most common form is familial hypercholesterolemia (FH). Secondary hypercholesterolemia is seen in cases of an underactive thyroid gland (hypothyroidism), nephrotic syndrome, obstructive liver diseases, and diabetes.

What does a low LDL-cholesterol value mean?

Low cholesterol levels are often seen in people with an overactive thyroid (hyperthyroidism), malabsorption, and congenital beta lipoprotein deficiency (rare hereditary).

HDL-cholesterol

Name	Your value	Unit	Reference value	Scale
HDL-cholesterol	 47.98	mg/dl	> 45	 47.98

What is HDL-cholesterol?

The abbreviation HDL stands for "high-density lipoprotein", i.e. lipoprotein with high density (thickness). HDL consists mostly of protein with a small amount of cholesterol. HDL-cholesterol is considered "good" because it removes excess cholesterol from the vessels and carries it to the liver to be metabolized. Therefore HDL-cholesterol is often called the "good" cholesterol, but it's not quite that simple in reality.

High levels of cholesterol have been shown to be associated with the development of atherosclerosis ("hardening of the arteries") and cardiovascular diseases. When cholesterol levels in the blood increase (as cholesterol is not removed by HDL), they can be stored on the walls of the blood vessels. These deposits, also known as plaques, can build up and cause the blood vessel walls to become rigid, and can eventually narrow the openings in the blood vessels, slowing the flow of blood.

A higher level of blood HDL can reduce the risk of developing plaques by removing cholesterol from the blood and lowering the risk of heart attack or stroke.

Why analyze HDL-cholesterol?

HDL-cholesterol is usually analyzed along with other lipid tests, including total cholesterol, LDL-cholesterol and triglycerides, as part of a complete lipid profile during a health check. This is done to find unhealthy levels of lipids and to determine the risk of developing cardiovascular diseases.

HDL-cholesterol should be monitored regularly if previous test results have shown an increased risk of cardiovascular diseases, if an individual has had a heart attack, or if someone is undergoing treatment for high cholesterol. A few risk factors for poor cholesterol levels include:

- Smoking
- Age (men 45 years or older or women 55 years or older)
- Hypertension (blood pressure of 140/90 or higher or taking medication for high blood pressure)
- Family history of premature heart disease (heart disease in a close relative)
- Existing heart disease or previous heart attack
- Diabetes

HDL levels can also be monitored at regular intervals to monitor the effect of diet and lifestyle changes aimed at increasing one's HDL levels.

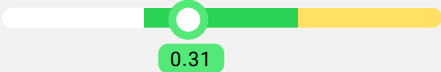
What does a high HDL-cholesterol value mean?

High values often mean a reduced risk of cardiovascular diseases from atherosclerosis, increased by estrogen treatment, or high physical activity. Moderate alcohol consumption also tends to increase HDL-cholesterol, but whether the net effect of alcohol consumption is positive is questionable.

What does a low HDL-cholesterol value mean?

Low values can be due to inflammatory processes, especially viral hepatitis. It can also be due to genetic factors or statin use therapy, which tends to reduce HDL cholesterol in the long term. HDL cholesterol <1.0 mmol/L (40 mg/dL) for men or <1.3 mmol/L (50 mg/dL) for women is recommended.

hs-CRP

Name	Your value	Unit	Reference value	Scale
hs-CRP	 0.31	mg/l	< 1	

What is hs-CRP?

Common CRP is best known as a test for infection, but also plays a role in the risk assessment for suffering from cardiovascular disease. CRP is short for C-reactive protein, which is a protein that is formed in and released from the liver in case of an infection (primarily bacterial infections), inflammation, or after various types of trauma such as a surgical procedure or other tissue damage. Common CRP measures the levels that occur in connection with infectious disease or tissue damage, while a high-sensitivity CRP (hs-CRP) measures the chronic low-grade inflammation that may be present in the body in otherwise healthy individuals.

Why analyze hs-CRP?

Research has shown that a chronic low-grade inflammation in the body can be a risk factor for cardiovascular diseases such as heart attack and stroke. Cardiovascular diseases usually arise due to plaque formation in the body's large blood vessels, so-called arteries. Despite the name, artery sclerosis is not related to the deposition of calcium in our blood vessels, but to the deposition of cholesterol and the accumulation of activated immune cells. This process is both caused and worsened by chronic low-grade inflammation in the body, which can be measured through high-sensitivity CRP in the blood.

What does an elevated high-sensitivity CRP value mean?

hs-CRP levels above 10 mg/L indicate an increased risk of cardiovascular diseases. However, levels >10 mg/L are usually indicative of an ongoing or recent infection, such as a cold. You should therefore avoid drawing conclusions about the risk of cardiovascular diseases at a high-sensitivity CRP value >10 mg/L. High-sensitivity CRP can also be elevated in rheumatic diseases or inflammatory bowel diseases, as well as in diabetes, obesity, and smoking.

What does a low high-sensitivity CRP value mean?

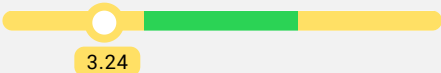
Low levels of high-sensitivity CRP <1 mg/L indicate a low risk of cardiovascular diseases, while levels between 1-3 mg/L indicate an average risk. However, note that there are several other different risk factors for cardiovascular diseases, such as heredity, high cholesterol, high blood pressure, diabetes, and smoking, which means that risk analysis is complicated, and it is not possible to draw significant conclusions from a single value.

Other factors that can affect the analysis value

High-sensitivity CRP is an extremely sensitive test, and the value can be affected by a number of different factors, among others as previously mentioned, such as a temporary infection. Therefore, it is important that you take the test when you feel healthy and without ongoing disease, infection, inflammation, or injury.

CRP levels measured with high-sensitivity CRP are higher in women who are on hormone therapy after menopause compared to women without hormone therapy. Assessment of the risk of future cardiovascular diseases based on high-sensitivity CRP in women with hormone therapy after menopause is unfortunately still an incompletely explored area.

Folate/Folic acid

Name	Your value	Unit	Reference value	Scale
Folate/Folic acid	 3.24	ng/ml	4,4 - 31,0	

What is folate/folic acid?

Folate or folic acid (synthetic folate), also known as vitamin B12, is an important factor for proper cell growth and is a prerequisite for the formation of red blood cells and for normal cell division.

Why analyze folate/folic acid?

Folate/folic acid is analyzed to determine a possible folate deficiency. The most common causes of folate deficiency are as follows:

- Celiac disease – dominant cause, often with symptoms of vitamin B12 and iron deficiency
- Pregnancy – increased need
- Hemolytic anemia – increased need
- Kidney failure

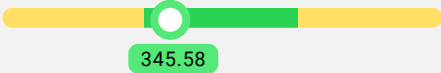
What does an elevated folate value mean?

Elevated folate values are seen in substitution therapy (folate/folic acid supplements) and can also be seen in vitamin B12 deficiency.

What does a low folate value mean?

Low folate values are seen in malnutrition, malabsorption (especially in celiac disease), pregnancy, hemolytic anemia, myeloproliferative conditions, chronic inflammation, epilepsy treatment with phenytoin, and barbiturates.

Vitamin B12

Name	Your value	Unit	Reference value	Scale
Vitamin B12	 345.58	pg/ml	193 - 982	

What is Vitamin B12?

Vitamin B12, also known as cobalamin, is one of eight B-vitamins. All B-vitamins help the body to convert the food we eat into energy. B-vitamins are also needed for healthy skin, hair, eyes, and normal liver function, as well as supporting the nervous system to function normally.

Why do we need Vitamin B12?

Vitamin B12 is particularly important vitamin for maintaining healthy nerve cells, and it helps with the production of DNA and RNA (genetic material). Vitamin B12 works closely with vitamin B9, also called folate or folic acid (a synthetic form of folate), to create red blood cells, and maintain a normal blood cell count.

The link between Vitamin B12 and folate

Vitamin B12 and folate work together to produce 5-methyltetrahydrofolate (5-MTHF). 5-MTHF is the body's universal methyl donor and plays an important role in the immune system, maintains cell membrane function, and helps to produce and break down hormones and neurotransmitters in the brain, such as dopamine, serotonin, and melatonin. To be looking either Vitamin B12 or folate can reduce levels of 5-MTHF in the body.

Vitamin B12, B9, and B9 (folate) also work together to maintain homocysteine within the normal range. High levels of homocysteine are associated with cardiovascular and neurological diseases. However, science has not been able to fully establish whether homocysteine is a cause or just a marker that indicates someone may have these diseases. More research is needed to determine this.

What symptoms can vitamin B12 deficiency cause?

It is unusual for young people to be deficient in Vitamin B12 (except for vegans or vegetarians), but it is not it is unusual for older people to have deficiencies. This may be because they have less stomach acid, which the body needs to absorb B12. Low levels of B12 can cause a range of symptoms, including:

- Fatigue
- Respiratory distress
- Skin flake
- Hair loss
- Numbness
- Tingling sensation in fingers and toes
- Severe deficiency of B12 causes nerve damage

Which risk groups exist for vitamin B12 deficiency?

The people most at risk for developing vitamin B12 deficiency include:

- Vegetarian and vegans who do not eat dairy products or eggs because vitamin B12 only occurs in animal products, except for microorganisms in fermented vegetables and other vegetables which cannot be relied upon as reliable sources
- People with problems absorbing nutrients due to Crohn's disease, pernicious disease, weight loss surgery, or certain medications
- People with aging disorders
- People with HIV
- People with diabetes

Folate/folic acid can mask vitamin B12 deficiency

Folate/folic acid (vitamin B9), especially when taken in high doses, can mask the symptoms of a vitamin B12 deficiency. The danger with this is that without symptoms, you can end up with a B12 deficiency and not know about it and can thus risk developing more serious consequences such as irreversible nerve damage.

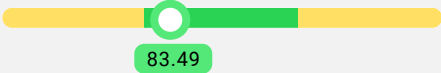
What does a high vitamin B12 value mean?

High values are seen with vitamin B12 therapy or supplementation. After an injection of depot preparations, very high values can be seen for a longer time. High values are also seen in myeloproliferative conditions, especially in chronic myeloid leukaemia, liver damage, and kidney failure.

What does a low vitamin B12 value mean?

Low values are seen in the case of a lack of intrinsic factor (pernicious anemia), malabsorption, certain intestinal, cerebral, and muscular diseases, and transcobalamin deficiency in vegetarians.

Vitamin D

Name	Your value	Unit	Reference value	Scale
Vitamin D	 83.49	nmol/l	62,5 - 170	

What is vitamin D?

Contrary to what the name suggests, Vitamin D is actually a steroid hormone. Vitamin D has a big impact on our health because it affects hundreds of genes in most of the body's cells. Vitamin D affects the body's ability to absorb calcium and phosphorus, which are necessary substances for normal bone structure and normal teeth development. Vitamin D also plays an important role in the normal functioning of the immune system.

When we are outdoors in the summer, we build up our stores of vitamin D, which the body then uses during the winter months. The body stores vitamin D for about three months (personal variation occurs), so it is not until three months after the sunny months of summer that we feel the effects of low vitamin D levels (depending on how much was stored during the summer months).

Why analyze vitamin D?

Vitamin D is an important component of the body's metabolism, and a lack of vitamin D plays a role in many diseases. The risk of infectious diseases, as well as winter and spring depression, multiple sclerosis, cancer, diabetes, cardiovascular disease, osteoporosis, general aches, and obesity, can increase with vitamin D deficiency.

How is vitamin D formed?

When we are out in the sun and exposed to UV radiation, the body produces vitamin D via cholesterol in the skin, which is then sent to the liver and kidneys, where it is converted into its active form.

In the summer, you don't need to be outside for long periods of time for your body to form enough vitamin D. A light-skinned person needs about 10-20 minutes of sun exposure a day, while dark-skinned and elderly people have a poorer ability to form vitamin D via the sun, which means that they may need to stay in the sun for longer.

In winter, the sun in our hemisphere is too weak for the production of vitamin D to be stimulated. For this reason, most people need supplements during this period.

How do you get vitamin D deficiency?

Vitamin D deficiency mainly occurs due to a reduced conversion of vitamin D in the skin, and it is common for the value to be below or on the bottom of the reference range during the winter months as the sun rays are not strong enough. Vitamin D deficiency can also be caused by a reduced parathyroid gland function (hypoparathyroidism), although this is an unusual disease.

What level of vitamin D should one have?

The body's level of vitamin D naturally varies throughout the year. During the winter months, the UV radiation is too weak for the body to produce vitamin D. Vitamin D is stored in the body during the summer months and then used during the winter. If you have been exposed to summer, the risk of vitamin D levels dropping to a deficient level is minimal.

- <20 nmol/L (<10 ng/mL) deficiency
- 20-50 nmol/L (10-25 ng/mL) insufficiency
- >50-75 nmol/L (25-38 ng/mL) sufficient
- >100-125 nmol/L (40-50 ng/mL) optimal level
- >150 nmol/L (>40 ng/mL) increases the risk of kidney stones
- >200 nmol/L (>50 ng/mL) potentially toxic

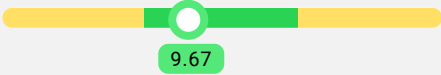
Can you overdose on vitamin D?

Large intakes (over 100 nmol/L, corresponding to 100 ng/mL) of vitamin D are toxic and can lead to high levels of calcium in the blood. Calcium can then deposit in the kidneys and other soft tissues and cause kidney failure. It is not possible to overdose on vitamin D solely through diet or direct sunlight, but if you take supplements that contain large amounts of vitamin D you can overdose – especially in the long term.

What does a high vitamin D value mean?

High vitamin D levels are seen in hyperparathyroidism (uncommon), with high intake of vitamin D (mainly via dietary supplements), sarcoidosis, other granulomatous diseases with increased vitamin concentration, and, in some cases, during pregnancy. This can lead to hypercalcaemia and metastatic soft tissue calcification. The half-life of vitamin D is considered to be 2-4 weeks (with individual variations), while the optimal half-life is considerably longer.

Vitamin E

Name	Your value	Unit	Reference value	Scale
Vitamin E	 9.67	mg/l	5 - 20	

What is vitamin E?

Vitamin E is a fat-soluble vitamin that occurs in several different forms, of which alpha-tocopherol is the most common form. The primary role of vitamin E in the body is to act as an antioxidant to protect the body's cells from free radicals that cause oxidative stress. Vitamin E also plays a role in the immune system and can prevent blood clots.

Why analyze vitamin E?

Vitamin E plays an important role as an antioxidant in the body and also contributes to normal immune function, and can reduce the risk of blood clots.

Can you overdose on vitamin E?

There are no known toxic effects of vitamin E from food, but high doses over 1,000 mg a day (equal to 1400 IU) can increase the risk of bleeding, especially for individuals who take blood-thinning medications such as Warfarin.

What does a high vitamin E value mean?

A high vitamin E value is usually only seen when vitamin E is supplemented.

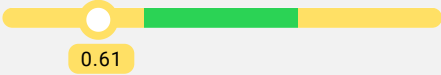
What does a low vitamin E value mean?

A low vitamin E value indicates a vitamin E deficiency. Symptoms of vitamin E deficiency are ataxia (disorders of the cerebellum causing visual impairment), peripheral neuropathy (disorders of peripheral nerves, usually in the hands and feet), muscle (impaired movement control) and impaired immune function.

Good sources of vitamin E are as follows:

- Wheat germ oil
- Pumpkin seed oil and pumpkin seed oil
- Sunflower seed oil and safflower seed oil
- Avocado and avocado oil
- Olive and olive oil

Q10

Name	Your value	Unit	Reference value	Scale
Q10	 0.61	mg/l	0,88 - 1,43	

What is Q10?

Q10 is a coenzyme and an antioxidant that is produced naturally in the body and contributes to cellular energy production. The body's Q10 levels decrease with age, and people over 30 generally have lower levels of Q10.

Why analyze Q10?

Q10 plays an important role in cellular energy production, and high/natural levels are associated with healthy aging.

Can you overdose on Q10?

It is unclear whether you can overdose on Q10, but studies on people with diabetes, cardiovascular disease, migraines, and neuromuscular diseases as well as for performance-enhancing purposes, have used up to 300-600 mg Q10 a day without noticeable side effects.

What does a high Q10 value mean?

A high Q10 value likely means Q10 supplementation. A high Q10 value can impact the effect of blood-thinning medications such as warfarin.

What does a low Q10 value mean?

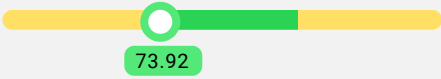
A low Q10 value is usually due to advancing age or long-term stress. A low Q10 value can also be seen in statin therapy.

Good sources of Q10 are as follows:

- **Oilfish** – herring, tuna, and salmon
- **Nuts and seeds**
- **Fish and seafood** – especially mackerel and sardines
- **Red meat**

However, it is doubtful whether Q10 from the diet will have any noticeable effect on the body's Q10 levels because it is usually only a matter of a few mg in comparison to dietary supplements that contain between 30-300 mg per dose.

Ferritin

Name	Your value	Unit	Reference value	Scale
Ferritin	 73.92	µg/l	30 - 400	

What is ferritin?

Ferritin is a protein in the body that binds iron. Most of the iron stored in the body is bound to ferritin. The amount of ferritin in the blood shows how much iron is stored in the body. Ferritin is therefore often referred to as the body's iron depot. The body's ferritin levels usually rise with increasing age.

Ferritin is mainly found in the liver, spleen, skeletal muscle, and bone marrow. Only a small amount of ferritin circulates in the blood. By testing your ferritin level, you get a better understanding of your iron level than if you only test iron.

Why analyze ferritin?

Ferritin is a marker that reflects the availability of iron in the body. Iron is not only one of hemoglobin's constituents that are necessary to transport oxygen to all parts of the body, but also a necessary part of the body's metabolism. Therefore, having excessively high or low iron levels can be harmful.

Symptoms of high or low ferritin levels

At high levels, the following symptoms may occur:

- Fatigue
- Joint pain
- Liver problems

At low levels, the following symptoms may occur:

- Fatigue
- Pallor
- Headache
- Shortness of breath or dizziness

What does it mean if you have an elevated ferritin value?

At abnormally high values, you may suffer from a condition called hemochromatosis. This means that the body stores too much iron. Hemochromatosis is a hereditary disease in which the body's ability to regulate iron absorption is impaired from a disturbance in the genetics. This causes an excessive amount of iron to be absorbed from the intestine, which then gradually accumulates in the body's various organs and tissues.

If this goes on for too long, it can cause irreparable damage to these organs. However, if you discover the disease at an early stage, it is possible to prevent these injuries. The disease is treated with regular phlebotomy, usually at frequent intervals to quickly reduce the amount of stored iron (ferritin), and every 3-4 months after that for maintenance purposes.

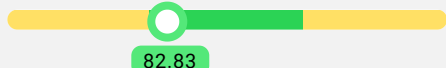
If you have greatly elevated values, it may mean that you have acute myeloid leukemia, liver metastasis, or transfused hemoglobin.

What does it mean if you have a low ferritin value

If you have a low ferritin value, it means that you suffer from iron deficiency. Iron is the main component in hemoglobin, and deficiency can eventually lead to a low hemoglobin value. This means that you risk impaired oxygen uptake and performance.

If you have a low ferritin value, you need to get it to normalize the hemoglobin level and to replenish the iron stores. This can be done either via dietary supplements or an intravenous iron replacement (only in severe iron deficiency anemia).

Selenium

Name	Your value	Unit	Reference value	Scale
Selenium	 82.83	µg/l	74 - 139	 82.83

Selenium is an important antioxidant and protects the body from oxidative stress, which can destroy cells and accelerate aging. Selenium is also important for the immune system and protects against certain heavy metals such as arsenic and mercury. However, selenium is toxic at too high an intake, and doses >1000 mg should be avoided in the long term.

Symptoms of selenium deficiency

- increased risk of cancer, cardiovascular disease, and heavy metal poisoning
- Keshan's disease in children
- infertility

Symptoms of high selenium levels

- gastrointestinal problems
- impaired growth of hair and nails

Copper

Name	Your value	Unit	Reference value	Scale
Copper	 107.10	µg/dl	68 - 169	

Copper is needed, among other things, for the cardiovascular system, bones, brain, nerves, connective tissues and thyroid gland. Copper is also needed to form one of the body's own antioxidants, superoxide dismutase (SOD). Copper and zinc work together and need to be in balance with each other. Elevated levels of copper are often linked with elevated levels of nitrogen.

Symptoms of copper deficiency

- Anemia
- Impaired immune function
- Impaired brain function
- Degeneration of the nervous system

Symptoms of high copper levels

- Depression, mood swings and learning difficulties
- Blood clots and PAD
- Impaired immune function

