TEST

Lipid profile test

A lipid profile is a blood test that measures cholesterol and triglycerides.

WHAT IT MEASURES
Cholesterol and triglyceride fats carried in your blood

SAMPLE
Blood

FASTING NEEDED?
Sometimes, especially for high triglycerides or if specifically requested

HOW LONG IT TAKES
Usually under 10 minutes

RESULTS IN
Often 1-3 days; laboratory schedules differ

USED FOR
Screening, diagnosing lipid disorders, and monitoring treatment

MAIN LIMITATION
One result may not represent your usual lipid levels

Overview

A lipid profile is a group of blood tests that measures fats and fat-carrying particles in your blood. It is sometimes called a cholesterol test or lipid panel.

The profile usually includes total cholesterol, high-density lipoprotein cholesterol (HDL-C), and triglycerides. It also reports low-density lipoprotein cholesterol (LDL-C), which may be measured directly or estimated from the other results.

Cholesterol is needed to make cell membranes and hormones. Triglycerides store energy from food. Because these fats cannot travel freely in blood, they are carried in particles called lipoproteins.

The results help estimate your risk of heart attack and stroke. They can also help identify certain inherited lipid disorders and show whether lifestyle changes or cholesterol-lowering medicines are working.

Why the test is ordered

A lipid profile may be ordered as part of a routine assessment of cardiovascular risk. Cardiovascular means relating to the heart and blood vessels.

It may also be used to:

The test does not show whether an artery is narrowed or blocked. It is one part of a wider health assessment.

- Investigate a personal or family history of early heart disease
- Check for very high cholesterol that may run in families
- Assess risk alongside blood pressure, diabetes, smoking, and other factors
- Monitor cholesterol-lowering treatment
- Recheck high triglycerides
- Assess how another condition or medicine may be affecting blood fats

Who should have the test

Many adults have lipid testing during routine preventive care. How often it is needed is based on your age, previous results, overall cardiovascular risk, health conditions, medicines, and family history. There is no single testing schedule that suits everyone.

Testing may be especially relevant if you have diabetes, kidney disease, high blood pressure, known heart or blood vessel disease, or a close relative who developed cardiovascular disease at a young age.

Children and younger adults may be tested when there is a strong family history of early heart disease or very high cholesterol. Local screening recommendations differ, so the reason and timing should be explained when the test is arranged.

How to prepare

Many lipid profiles can be taken without fasting. Eating usually has little effect on total cholesterol and HDL-C, but it can raise triglycerides for several hours. This can also affect a calculated LDL-C result.

You may be asked to fast if previous triglycerides were high, a more precise triglyceride measurement is needed, or the laboratory has specific instructions. If fasting is required, you will usually be told how long to avoid food. Drink only plain water during that period unless instructed otherwise.

Tell the person arranging the test about your medicines and supplements. Continue prescribed medicines unless you have specifically been told not to take them.

Try not to make unusual changes to your diet before testing. A heavy meal, substantial alcohol intake, or strenuous exercise shortly before the test could make the result less representative of your usual level.

What happens during the test

A healthcare professional places a small needle into a vein, usually inside your elbow or on the back of your hand. A small amount of blood is collected into a tube.

You may feel a brief scratch or sting. The blood draw usually takes only a few minutes, although the full appointment may take longer for registration and preparation.

The sample is sent to a laboratory. Results may appear in your health record before someone has discussed them with you.

Understanding your results

Lipid results are usually reported in millimoles per litre (mmol/L) or milligrams per decilitre (mg/dL). Do not compare numbers that use different units.

A profile commonly includes:

Some reports include a total cholesterol-to-HDL ratio. This may contribute to a risk calculation, but it does not replace the individual results.

There is no universal "normal" result that applies to everyone. Ranges, treatment thresholds, and interpretation vary by laboratory, age, sex, pregnancy status, medicines, and clinical context. A target for someone with established cardiovascular disease may differ from a level considered acceptable during routine screening.

A high or low value does not diagnose a condition by itself. The result should be considered with your medical history and other risk factors.

- Total cholesterol: all cholesterol measured across the different particles
- LDL-C: cholesterol carried mainly in low-density lipoproteins; lower levels are generally preferred when cardiovascular risk is higher
- HDL-C: cholesterol carried in high-density lipoproteins; this adds information but should not be interpreted by itself

- Triglycerides: fats influenced by meals, alcohol, metabolism, and several health conditions
- Non-HDL cholesterol: total cholesterol minus HDL-C; it represents cholesterol in particles that can contribute to artery disease

What affects the results

A lipid profile is a snapshot. Several factors can change the numbers even when the laboratory measurement is correct.

Recent food mainly affects triglycerides. A high-fat or high-carbohydrate meal can raise them temporarily, which may also make calculated LDL-C less reliable.

Alcohol can raise triglycerides, particularly after substantial intake. Strenuous exercise may cause short-term changes, although regular activity can improve your usual lipid pattern over time.

An acute illness, infection, major injury, or recent heart attack can temporarily alter cholesterol and triglycerides. If the result does not fit your usual pattern, repeat testing after recovery may be more informative.

Pregnancy naturally changes lipid levels, especially later in pregnancy. Age, sex, recent weight change, diet, and hormonal changes can also affect results.

Thyroid disease, diabetes, liver disease, and reduced kidney function may change lipid levels. Medicines can do the same. Examples include cholesterol-lowering medicines, corticosteroids like prednisone or hydrocortisone , retinoids, oestrogen-containing treatments, some antipsychotics like olanzapine or risperidone , and some HIV medicines.

A recent transfusion is not usually a major issue for routine lipid testing, but mention it if a result is unexpected or the transfusion was recent.

Accuracy and limitations

Laboratory lipid measurements are generally reliable, but natural day-to-day variation means two samples from the same person may not be identical. A result close to a decision threshold may be repeated before long-term treatment decisions are made.

LDL-C is often calculated rather than directly measured. Some calculation methods become less dependable when triglycerides are very high. In that situation, the laboratory may not report calculated LDL-C, or another measurement such as direct LDL-C, non-HDL cholesterol, or apolipoprotein B may be more useful.

A lipid profile can miss cardiovascular risk. Someone may have results that appear satisfactory but still have important risks from smoking, high blood pressure, diabetes, family history, or an inherited lipoprotein such as lipoprotein(a).

It can also suggest more risk than is present if an isolated abnormal result was caused by a recent meal, illness, medicine, or temporary change. Repeating the test can help distinguish a persistent finding from a short-term change.

The test does not detect artery narrowing and cannot predict with certainty whether you will have a heart attack or stroke.

Risks and complications

The risks are limited to those of a routine blood draw. You may have a small bruise, brief soreness, or feel light-headed; serious complications are uncommon.

What happens next

If the results are suitable for your overall risk, follow-up is usually routine. The next test may be months or years away, based on why you were tested.

An unexpected result may be repeated, sometimes after fasting. Further checks may include blood pressure, blood glucose, thyroid, kidney, or liver tests. A strong family pattern or markedly raised cholesterol may lead to assessment for an inherited lipid disorder.

Lifestyle changes or medicines may be discussed according to your overall cardiovascular risk, not one number alone. If you already take treatment, the result may help show your response and whether you are taking the medicine consistently.

Very high triglycerides can require prompt clinical review because they may increase the risk of inflammation of the pancreas. If the laboratory or your healthcare service asks you to make urgent contact, do so the same day.

Seek emergency help for severe or persistent upper abdominal pain, especially with vomiting. Chest pain, severe breathlessness, sudden weakness, facial drooping, or difficulty speaking also require emergency assessment rather than waiting for a lipid result.

Common questions

Can I drink coffee before a lipid profile?

If you are not fasting, plain coffee may be allowed, but additions such as milk, cream, or sugar can affect triglycerides. If you were told to fast, drink only water unless your testing service gave different instructions.

Does the time of day matter?

Lipid levels can change slightly during the day, but timing is usually less important than whether you fasted and whether the conditions are similar to previous tests. Follow any appointment instructions provided.

Can I exercise before the test?

Normal daily activity is usually fine. Avoid unusually strenuous exercise shortly before testing if you want the result to reflect your typical level.

Should I take my medicines before the test?

Usually, yes. Do not stop a prescribed medicine unless specifically instructed. Tell the testing service what you take, including supplements.

What if I forgot to fast?

Tell the person taking the sample. The test may still be useful, but high triglycerides or an uncertain calculated LDL-C result may need a fasting repeat.

Can I have the test when I am ill?

It can be done, but an acute illness may temporarily change lipid levels. If the test is routine rather than urgent, it may be more useful after you have recovered.

Sources

- National Institute for Health and Care Excellence. Cardiovascular disease: risk assessment and reduction, including lipid modification. NICE guideline NG238
- Centers for Disease Control and Prevention. Testing for Cholesterol
- MedlinePlus. Cholesterol Levels
- Nordestgaard BG, Langsted A, Mora S, et al. Fasting is not routinely required for determination of a lipid profile. European Heart Journal. 2016;37(25):1944-1958
- Wilson PWF, Jacobson TA, Martin SS, et al. Lipid measurements in the management of cardiovascular diseases: practical recommendations. Journal of Clinical Lipidology. 2021;15(5):629-648 00244-1/fulltext)