TEST

Gamma-glutamyl transferase (GGT) blood test

A blood test that measures a liver and bile duct enzyme called GGT

WHAT IT MEASURES
GGT, an enzyme mainly from the liver and bile ducts

SAMPLE
Blood

FASTING NEEDED?
Sometimes, if combined tests or your laboratory require fasting

HOW LONG IT TAKES
Usually under 10 minutes

RESULTS IN
Often one day; timing varies by laboratory

USED FOR
Investigating and monitoring liver or bile duct problems

MAIN LIMITATION
High levels cannot identify one specific cause

Overview

A gamma-glutamyl transferase test measures GGT in your blood. GGT is an enzyme found mainly in the liver and bile ducts, which carry bile from the liver to the intestine.

Small amounts normally enter the blood. Levels can rise when liver cells or bile ducts are irritated or damaged. Alcohol and some medicines can also increase GGT.

GGT is usually interpreted with other blood tests, including alkaline phosphatase (ALP), alanine aminotransferase (ALT), aspartate aminotransferase (AST), and bilirubin. It cannot identify the cause of a problem by itself or directly measure how well your liver works.

Why the test is ordered

Your healthcare professional may order GGT to investigate abnormal liver blood tests. In particular, it can help show whether raised ALP is more likely to come from the liver or bile ducts rather than bone.

The test may also be ordered if you have symptoms of a liver or bile duct problem, such as

yellow skin or eyes, dark urine, pale stools, itching, nausea, or pain in the upper-right abdomen.

GGT can help monitor a known condition or response to treatment. It is sometimes used when alcohol may be affecting the liver, but it cannot confirm alcohol use or show how much someone drinks.

Because many conditions and medicines can raise GGT, it is generally not useful as a stand-alone screening test in someone without symptoms, risk factors, or other abnormal results.

Who should have the test

You may be offered a GGT test if:

The decision depends on your symptoms, medical history, medicines, and other test results. GGT is usually one part of a broader assessment.

- another liver-related test, especially ALP, is raised
- you have symptoms or risk factors for liver disease
- you take a medicine that may affect the liver
- a known liver or bile duct condition needs monitoring

How to prepare

GGT testing alone usually does not require fasting. However, it is often ordered with tests that do. Follow the instructions from your healthcare professional or laboratory.

If told to fast, drink only plain water unless instructed otherwise. Coffee, tea, milk, juice, and other drinks may break the fast.

Alcohol can affect GGT. Do not change your usual intake solely to influence the result. If you need to avoid alcohol for a set period, the person ordering the test should provide specific instructions.

Tell your healthcare professional about all prescription medicines, over-the-counter products, and supplements. Do not stop any medicine unless the clinician responsible for it tells you to do so.

What happens during the test

A healthcare professional takes blood from a vein, usually inside your elbow or on the back of your hand. They clean the skin, place a band around your upper arm, and insert a small needle.

The sample is collected in a tube and sent to a laboratory. The needle is usually in place for less than a minute, and you can normally resume your usual activities immediately.

Understanding your results

Your report will show your result and the laboratory's reference range. Use the range on your report because ranges and measurement methods vary. Interpretation can also depend on age, sex, pregnancy, medicines, and clinical context.

Raised GGT can occur with liver inflammation, reduced bile flow, or bile duct irritation. It may also be associated with alcohol exposure, smoking, metabolic conditions, and certain medicines. The result cannot identify which cause applies.

Other results provide important context. Raised ALP and GGT together make a liver or bile duct source more likely. Raised ALP with normal GGT may suggest a bone source, although further testing may be needed.

A normal GGT does not rule out every liver condition, and a low result is generally not concerning. The size of an increase does not always reflect severity. Changes over time, symptoms, and other results are often more useful than one measurement.

What affects the results

Factors that may influence GGT include:

Ordinary exercise does not usually change GGT substantially, although strenuous exercise can affect other blood tests.

- Alcohol: Regular or recent heavy exposure can raise GGT, although responses vary.
- Medicines: Phenytoin, phenobarbital, carbamazepine, and some other medicines can increase it.
- Smoking: Smoking is associated with higher levels in some people.
- Metabolic health: Obesity, insulin resistance, and fatty changes in the liver can raise GGT.
- Age and sex: Levels can vary, which is one reason laboratories use their own ranges.
- Pregnancy: GGT is often normal or lower, while ALP may rise because the placenta produces ALP.

- Recent illness: Liver inflammation, infection, or temporary changes in bile flow can alter the result.
- Laboratory method: Different methods may produce slightly different values.

Accuracy and limitations

Laboratories can measure GGT reliably, but the result is not specific to one condition. A high level does not by itself identify the cause or confirm permanent liver damage.

GGT can support a liver or bile duct source when ALP is raised, but it may remain normal despite some liver or bile duct conditions. It can also rise because of alcohol, smoking, medicines, or metabolic factors without a blocked bile duct.

The test cannot accurately measure alcohol intake and should not be used alone to diagnose alcohol dependence or determine whether someone recently drank alcohol.

If raised ALP remains unexplained, ALP isoenzyme testing or another liver-related test may help. If blockage or a structural problem is suspected, imaging such as ultrasound is usually more useful than repeating GGT alone.

Risks and complications

A blood draw may cause brief discomfort, minor bleeding, or a small bruise. Some people feel lightheaded or faint, but serious complications are uncommon.

Tell the person taking the sample if you have previously fainted during blood tests or have difficulty with bleeding.

What happens next

A mildly abnormal result without concerning symptoms is usually managed through routine follow-up. Your healthcare professional may review your medicines and alcohol intake, compare earlier results, or repeat liver blood tests after an appropriate interval.

Further tests may include ALT, AST, ALP, bilirubin, albumin, blood clotting tests, viral hepatitis tests, or an ultrasound. The appropriate tests depend on your history and overall pattern of results.

Seek prompt medical advice if you develop yellow skin or eyes, dark urine, pale stools, worsening itching, or persistent upper abdominal pain.

Get urgent or emergency help for severe abdominal pain with fever, new confusion or marked drowsiness, vomiting blood, black stools, fainting, or rapidly worsening illness. These symptoms need assessment regardless of your GGT result.

Common questions

Can I drink coffee before a GGT test?

Usually, if GGT is the only test. If told to fast for other tests, drink only plain water because coffee may break the fast.

Does the time of day matter?

Usually not. For monitoring, having tests under similar conditions may make small changes easier to interpret.

Can I exercise beforehand?

Ordinary exercise is unlikely to affect GGT significantly. Follow any instructions for the full group of tests being taken.

Should I avoid alcohol before the test?

Follow the instructions provided. There is no single avoidance period suitable for everyone. Be open about your usual intake because it helps interpretation.

Do I need to stop my medicines?

No, unless the clinician managing them tells you to stop. Stopping medicines without advice may be unsafe.

Does a high GGT mean I have liver disease?

Not necessarily. It must be interpreted with your other liver tests, symptoms, medicines, alcohol exposure, and medical history.

Sources

- MedlinePlus Medical Test: Gamma-glutamyl transferase test
- Kwo PY, Cohen SM, Lim JK. ACG Clinical Guideline: Evaluation of Abnormal Liver Chemistries . American Journal of Gastroenterology . 2017;112:18-35.
- Newsome PN, Cramb R, Davison SM, et al. Guidelines on the management of abnormal liver blood tests . Gut . 2018;67:6-19.



- Mayo Clinic Laboratories: Gamma-Glutamyltransferase, Serum
- ARUP Consult: Evaluation of Liver Function