TEST

Gastrin blood test

A gastrin blood test measures a hormone that helps control acid production in your stomach.

WHAT IT MEASURES
Gastrin, a hormone that stimulates stomach acid

SAMPLE
Blood

FASTING NEEDED?
Yes, usually 8 to 12 hours

HOW LONG IT TAKES
About 5 to 10 minutes

RESULTS IN
Usually one to three days; laboratory turnaround differs

USED FOR
Diagnosis and monitoring

MAIN LIMITATION
Acid-suppressing medicines and low stomach acid can raise gastrin

Overview

A gastrin blood test measures the amount of gastrin in your blood. Gastrin is a hormone made mainly in the lower part of the stomach. It stimulates stomach acid production, which helps digest food.

Gastrin normally rises after eating and falls as the stomach becomes more acidic. Results can be difficult to interpret unless you have fasted and your care team knows about your medicines.

The test is most often used to investigate unusually high stomach acid, repeated peptic ulcers, or a rare gastrin-producing tumour called a gastrinoma. Gastrinomas can cause Zollinger-Ellison syndrome, in which excess gastrin leads to excess stomach acid.

High gastrin does not automatically mean you have a gastrinoma. It is more commonly raised because the stomach is making too little acid or because acid-suppressing medicines are being used.

Why the test is ordered

A gastrin test may help investigate:

Autoimmune atrophic gastritis damages the stomach cells that make acid. It can also cause pernicious anaemia by preventing vitamin B12 absorption. When stomach acid is low, the body may produce more gastrin to try to stimulate it.

The test may be repeated to monitor treatment. It is not generally used to screen people without symptoms or a relevant medical history.

- Peptic ulcers that recur, are difficult to treat, or occur in unusual locations
- Several ulcers at the same time
- Severe acid reflux or unexplained excess stomach acid
- Long-lasting diarrhoea alongside ulcer symptoms
- Suspected Zollinger-Ellison syndrome
- Autoimmune atrophic gastritis or pernicious anaemia
- A known gastrinoma before or after treatment

Who should have the test

You may be offered this test if your symptoms, ulcer history, scans, or other results suggest abnormal stomach acid production. It may be considered when ulcers continue despite treatment or return after treatment.

The test may also help assess suspected pernicious anaemia or autoimmune stomach inflammation.

Results must be interpreted alongside your medical history and medicines. Proton pump inhibitors, such as omeprazole or pantoprazole, can raise gastrin even when there is no gastrinoma.

How to prepare

Most laboratories ask you to fast for 8 to 12 hours. Do not eat during this period. Plain water is usually allowed, but follow your laboratory's instructions. The sample is commonly collected in the morning after an overnight fast because food, especially protein, temporarily raises gastrin.

Tell your care team about all prescription medicines, over-the-counter products, vitamins, and

supplements you take. Medicines that reduce stomach acid can substantially raise gastrin, including:

Do not stop acid-suppressing medicine on your own. Stopping may cause symptoms to return and can be unsafe if you have severe ulcer disease or suspected Zollinger-Ellison syndrome. Any interruption needs an individual plan, sometimes with replacement treatment or specialist supervision.

Ask whether to avoid biotin supplements before the test. High-dose biotin can interfere with some laboratory methods.

- Proton pump inhibitors like omeprazole or lansoprazole , or PPIs
- Histamine-2 blockers, or H2 blockers
- Some antacids and other treatments affecting stomach acid

What happens during the test

A healthcare professional inserts a small needle into a vein, usually in your arm, and collects blood into a tube. The needle is normally in place for less than a minute, and the appointment often takes 5 to 10 minutes.

The laboratory may need to separate, cool, or store the sample in a particular way to prevent gastrin from breaking down.

Understanding your results

Your report will show your gastrin level and the laboratory's reference range. Do not compare it with a range found online. Methods and ranges differ, and interpretation may also depend on medicines, kidney function, pregnancy, and other clinical factors.

A result within range makes a major fasting gastrin excess less likely. However, a normal result may not settle the question if symptoms strongly suggest abnormal acid production. A repeat fasting sample or another test may be needed.

A raised result has several possible causes. The key question is whether your stomach is producing too much or too little acid. High gastrin with a strongly acidic stomach may suggest inappropriate gastrin production. High gastrin with low stomach acid is more likely to be related to acid-suppressing medicines, autoimmune atrophic gastritis, or another low-acid condition.

Gastrin may therefore be interpreted with a stomach acidity measurement called gastric pH.

Other blood tests, endoscopy, a secretin stimulation test, or imaging may also be needed.

What affects the results

Factors that can alter gastrin include:

Poor sample handling can also affect results because gastrin may break down. If a result does not fit your symptoms or other findings, repeating the test under controlled fasting and medicine conditions may be more useful than acting on one number.

- Eating before the test: Meals stimulate gastrin release
- Acid-suppressing medicines: PPIs and H2 blockers can cause substantial increases
- Low stomach acid: Autoimmune atrophic gastritis and pernicious anaemia can raise gastrin
- Helicobacter pylori infection: This can affect acid production and gastrin
- Reduced kidney function: Gastrin may remain in the blood longer
- Previous stomach surgery: Changes in anatomy or acid production affect interpretation
- Age: Low-acid stomach conditions become more common with age
- Pregnancy: Pregnancy and medicine changes should be considered
- Testing method: Assays may detect different forms of gastrin

Accuracy and limitations

A fasting gastrin test can detect an abnormal level but cannot show why it is abnormal. High gastrin caused by PPIs or low stomach acid can resemble an elevation caused by a gastrinoma.

The test may also miss inappropriate gastrin production if the increase is small, intermittent, or affected by testing conditions. Repeated measurements still cannot locate a tumour.

When results are unclear, gastric pH can show whether high gastrin occurs with high or low acid production. A supervised secretin stimulation test may help: an unusual rise in gastrin after secretin is given can support a gastrinoma diagnosis.

Endoscopy can examine ulcers and stomach inflammation. Imaging may locate a suspected tumour, although small gastrinomas do not appear on every scan.

Risks and complications

The risks are those of a routine blood draw. You may have brief discomfort, a small bruise, or feel faint. Significant bleeding or infection is uncommon.

What happens next

A normal result may need no further action if it fits your symptoms and other tests. If the result is raised, follow-up may include reviewing medicines, repeating the fasting test, checking vitamin B12 or kidney function, measuring stomach acidity, or arranging specialist tests.

Do not change ulcer or reflux medicines unless the clinician overseeing the investigation gives you a clear plan.

Seek urgent medical help if you vomit blood, pass black tar-like stools, become faint with possible bleeding, or develop sudden severe abdominal pain. These may indicate bleeding or an ulcer complication; they are not side effects of the gastrin test.

Common questions

Can I drink coffee before a gastrin blood test?

Usually not. Coffee can affect stomach activity, and milk or sugar breaks the fast. Plain water is generally safest unless your laboratory says otherwise.

Can I drink water while fasting?

Plain water is usually allowed and can make the blood draw easier. Avoid flavoured water, juice, milk, and other drinks.

Does the time of day matter?

The test is commonly done in the morning after an overnight fast. For repeat testing, similar fasting and medicine conditions make results easier to compare.

Can I exercise beforehand?

Ordinary activity is unlikely to have a major effect. Avoid strenuous exercise immediately beforehand if your laboratory has asked you to rest.

Should I stop my acid-reflux medicine?

Not without medical instructions. PPIs and H2 blockers can raise gastrin, but stopping them may cause significant symptoms or ulcer complications. Your care team should decide whether and how they can be paused safely.

Can I have the test while pregnant?

A blood draw is generally safe during pregnancy. Tell your care team because pregnancy, medicines, and the reason for testing affect interpretation.

Sources

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- Metz DC. Diagnosis of Zollinger-Ellison syndrome in the era of PPIs, faulty gastrin assays, sensitive imaging and limited access to acid secretory testing. International Journal of Endocrine Oncology . 2017;4(4):167-185
- National Library of Medicine, Endotext. Gastrinoma