TEST

Digoxin test

A digoxin test measures the amount of digoxin medicine in your blood

WHAT IT MEASURES
Amount of digoxin medicine in your blood

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually less than five minutes

RESULTS IN
Same day to two days, varying by laboratory

USED FOR
Monitoring treatment and investigating possible toxicity

MAIN LIMITATION
Blood taken soon after a dose may look falsely high

Overview

A digoxin test measures how much digoxin is in your blood. Digoxin is a prescription medicine used for certain abnormal heart rhythms and some cases of heart failure.

The test can help assess whether the amount in your body is suitable or whether digoxin toxicity-harm from too much digoxin or increased sensitivity to it-is possible.

The result cannot be interpreted alone. The timing of your last dose, kidney function, symptoms, heart rhythm, other medicines, and levels of minerals such as potassium all matter.

Why the test is ordered

Digoxin has a narrow therapeutic range, meaning the amount needed for benefit can be close to the amount associated with harmful effects. However, there is no single blood level that is right for everyone.

The test may be ordered to:

Regular digoxin tests are not usually needed when your dose, kidney function, medicines, and condition are stable. Kidney function and electrolyte tests may still be part of routine follow-up.

- Check a level after starting digoxin or changing the dose
- Investigate possible side effects or toxicity
- Assess symptoms that are not improving as expected
- Check the effect of worsening kidney function
- Review an interaction with another medicine
- Assess a missed dose, extra dose, or possible overdose
- Monitor someone whose health is changing

Who should have the test

You may need this test if you take digoxin and your healthcare professional needs more information about its effect or safety.

Testing is particularly relevant if you develop nausea, vomiting, poor appetite, unusual tiredness, confusion, visual changes, or a new slow or irregular heartbeat. These symptoms can have other causes and do not prove digoxin is responsible.

A test may also be useful after a major change in kidney function or when starting or stopping an interacting medicine. Older adults and people with low body weight or impaired kidney function may need closer assessment because digoxin can remain in the body longer.

How to prepare

You do not normally need to fast. You can usually eat, drink water, and have coffee unless you have separate instructions for other tests.

Timing is important. Blood is generally collected just before your next dose or at least 6 hours after the previous dose. Some services prefer 8 to 12 hours after a dose because digoxin needs time to move from the blood into body tissues.

Tell the person arranging the test:

Do not stop digoxin or change the timing of a dose unless you have been told to do so.

- The exact time and amount of your last digoxin dose
- Whether you missed or took an extra dose

- About all medicines and supplements you take
- Whether you recently received digoxin immune Fab, an antidote for serious toxicity
- Whether you are pregnant or have kidney problems

What happens during the test

A healthcare professional takes a small blood sample from a vein, usually in your arm. A band is placed around your upper arm, the skin is cleaned, and a needle is inserted into the vein.

Collecting the sample usually takes less than five minutes. The laboratory then measures the digoxin concentration.

Understanding your results

Results are commonly reported in nanograms per millilitre (ng/mL). The same concentration may be written as micrograms per litre (mcg/L).

Compare your result with the range and units on your laboratory report. Interpretation varies according to the laboratory, kidney function, medicines, treatment goal, and clinical circumstances.

For some people with heart failure, clinicians aim for lower concentrations, often around 0.5 to 0.9 ng/mL. This is not a universal target, especially when digoxin is used for an abnormal heart rhythm.

Toxic effects become more likely as the level rises. Toxicity is more common above 2 ng/mL, but it can occur at lower levels. A result above the laboratory range does not prove toxicity, and a result within range does not rule it out.

Symptoms, pulse, an electrocardiogram (ECG), kidney function, and potassium, magnesium, and calcium levels may be more important than one digoxin result.

What affects the results

Several factors can affect interpretation:

Food, coffee, ordinary activity, and a recent blood transfusion usually have little direct effect. Abnormal potassium, magnesium, or calcium may not change the measured digoxin level but can increase the risk of harmful effects.

- Timing after a dose: A sample taken too soon can look high because digoxin has not fully moved into body tissues.
- Recent dose changes: Digoxin can take several days to reach a stable level, especially with reduced kidney function.
- Kidney function: The kidneys remove most digoxin, so impairment can cause it to build up.
- Missed or extra doses: These can lower or raise the result.
- Interacting medicines: Amiodarone, quinidine, verapamil, some antibiotics like amoxicillin or doxycycline , and other medicines can affect digoxin exposure.
- Age and body size: Older age, low muscle mass, and low body weight can affect dosing and kidney clearance.
- Pregnancy or laboratory interference: Some substances and medicines can be mistaken for digoxin by certain tests.
- Digoxin immune Fab: Many tests measure both bound and unbound digoxin after treatment, making the total level difficult to interpret.
- Biotin supplements: High-dose biotin can interfere with some laboratory methods.

Accuracy and limitations

Modern laboratory tests usually measure digoxin reliably, but the number does not directly show how the medicine is affecting your heart.

A result may look high if blood was taken too soon after a dose or another substance interfered with the test. It may look acceptable even when someone is sensitive to digoxin because of low potassium, kidney impairment, or a heart problem.

After an overdose, one test can miss a changing concentration while digoxin is moving into body tissues. If toxicity is suspected, an ECG and tests for kidney function and electrolytes are usually more informative than repeating the digoxin test alone.

After digoxin immune Fab treatment, symptoms, ECG findings, potassium, and kidney function are generally more useful than a standard total digoxin level.

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or minor bleeding. Some people feel faint during or shortly after the procedure.

What happens next

If your level fits the treatment goal and you feel well, you may continue the same dose with routine follow-up. The test may be repeated if the sample timing was unsuitable or your health, kidney function, or medicines change.

An unexpected result may lead to a review of your dose, kidney function, electrolytes, and other medicines. Do not adjust digoxin yourself.

Contact your healthcare service promptly if you develop ongoing nausea, vomiting, poor appetite, confusion, visual changes, or a noticeably slow or irregular pulse.

Seek urgent or emergency help for fainting, collapse, severe breathing difficulty, severe confusion, chest pain, or a sustained very slow or abnormal heartbeat. If you may have taken an overdose, contact emergency services or your local poison information service without waiting for symptoms.

Common questions

Can I drink coffee before a digoxin test?

Usually, yes. Follow any separate fasting instructions if other tests are being collected.

Does the time of day matter?

The time since your last dose matters most. The sample is usually taken before the next dose or at least 6 hours after the previous one.

Can I exercise beforehand?

Ordinary exercise does not usually affect the result. Avoid strenuous activity if it makes you unwell or you are also having heart rhythm testing.

Should I take my digoxin before the blood test?

Follow your appointment instructions. Do not skip or delay a dose unless specifically told to, and report when you last took it.

How long after a dose change should I be tested?

Testing is usually more useful after the level has stabilised. Timing depends partly on kidney function, so follow your healthcare professional's instructions.

Can a normal result rule out digoxin toxicity?

No. Harmful effects can occur within a laboratory range, particularly with kidney impairment or abnormal electrolyte levels. Symptoms and an ECG are also important.

Sources

- National Library of Medicine, DailyMed: Digoxin tablet prescribing information
- NHS Specialist Pharmacy Service: Digoxin monitoring
- MedlinePlus Medical Test: Digoxin test
- American Heart Association, American College of Cardiology, and Heart Failure Society of America: 2022 guideline for managing heart failure
- Roberts DM and colleagues: Diagnosis and practical management of digoxin toxicity-narrative review and consensus, European Journal of Emergency Medicine, 2023
- National Library of Medicine, DailyMed: DigiFab prescribing information