TEST

Bilirubin blood test

A bilirubin blood test measures a yellow waste pigment processed by your liver

WHAT IT MEASURES
Bilirubin, a yellow pigment from red blood cell breakdown

SAMPLE
Blood

FASTING NEEDED?
Usually no; sometimes when combined with other blood tests

HOW LONG IT TAKES
Usually less than five minutes

RESULTS IN
Often one day; timing varies by laboratory

USED FOR
Diagnosis and monitoring of liver, bile duct, or blood conditions

MAIN LIMITATION
An abnormal result cannot identify the cause by itself

Overview

A bilirubin blood test measures bilirubin, a yellow pigment produced when old red blood cells break down.

The liver changes bilirubin into a water-soluble form and sends it into bile. Bile passes through the bile ducts into the intestine. If this process is disrupted, bilirubin can build up and cause yellow skin or eyes, known as jaundice.

The test may report:

The balance between direct and indirect bilirubin can suggest possible causes but cannot confirm a diagnosis by itself.

- Total bilirubin: all bilirubin in the blood
- Direct bilirubin: mainly bilirubin processed by the liver
- Indirect bilirubin: usually total bilirubin minus direct bilirubin

Why the test is ordered

Bilirubin is often measured as part of a liver panel or comprehensive metabolic panel. It may be included in routine blood work.

Your healthcare professional may order it if you have yellow skin or eyes, dark urine, pale stools, itching, abdominal discomfort, nausea, or unexplained tiredness.

It can also help investigate:

If you have a liver, gallbladder, bile duct, or blood condition, repeat tests can show how the bilirubin level is changing.

- Liver inflammation or injury
- Blockage of the bile ducts
- Increased red blood cell breakdown, called haemolysis
- Abnormal results from other liver tests
- Effects of medicines that can affect the liver
- Jaundice in a newborn baby

Who should have the test

You may need this test if your symptoms, medical history, examination, or other blood results suggest a problem with bilirubin processing.

It may also be used if you take a medicine that requires liver monitoring. Do not stop a prescribed medicine because of a bilirubin result unless the healthcare professional managing it tells you to.

Newborn babies may be tested when jaundice is noticed or they have risk factors for high bilirubin. Results require special interpretation based on age in hours, gestational age, feeding, health, and how quickly the level is changing.

The test is not generally used by itself to screen healthy people for a specific disease.

How to prepare

You usually do not need to fast. However, fasting may be required if bilirubin is measured with other tests. Follow the instructions from the laboratory or healthcare service.

Tell them about prescription and non-prescription medicines, vitamins, and supplements.

Some can affect bilirubin or its interpretation. Do not stop taking them without medical advice.

Drink water as normal unless instructed otherwise. Good hydration can make collecting blood easier.

What happens during the test

A healthcare worker inserts a small needle into a vein, usually in your arm. Blood is collected into a tube and sent to a laboratory.

You may feel a brief scratch or sting. Collection usually takes less than five minutes, although the appointment may take longer.

Newborn blood may be collected from a heel prick or vein. A light meter placed against the skin may be used first, but this estimate may need confirmation with a blood test.

Understanding your results

Use the reference range on your laboratory report. Interpretation varies by laboratory, testing method, age, sex, pregnancy status, medicines, and clinical context. Newborn ranges change rapidly and cannot be interpreted using adult ranges.

High total bilirubin may result from increased red blood cell breakdown, reduced processing by the liver, liver injury, or reduced bile flow.

A mainly indirect rise can occur when bilirubin production increases or the liver processes it more slowly. One possible cause is Gilbert syndrome, a common inherited difference that is often harmless. Other causes require assessment.

A mainly direct rise may occur when processed bilirubin cannot leave the liver normally. This can be associated with liver inflammation, medicine effects, or impaired bile flow.

Low bilirubin is usually not medically important. Any result should be considered alongside symptoms and other tests.

What affects the results

Prolonged fasting can raise indirect bilirubin, especially in people with Gilbert syndrome. Dehydration, illness, stress, lack of sleep, intense exercise, and normal day-to-day variation may also affect results.

Medicines can alter bilirubin processing, bile flow, or liver function. Atazanavir and indinavir, for

example, can raise indirect bilirubin without necessarily causing liver damage. Herbal products may also affect the liver.

Bilirubin is not expected to rise simply because of an uncomplicated pregnancy, so an abnormal result needs assessment. Blood transfusion, transfusion reactions, internal bleeding, and altered red blood cell turnover can also change bilirubin.

Sample problems may affect accuracy. Bright light can break bilirubin down and cause a falsely low result. Breakdown of red blood cells within the sample or a very fatty sample can interfere with some methods. The laboratory may request another sample.

Accuracy and limitations

Laboratory bilirubin tests are generally reliable when samples are handled correctly. However, accuracy varies with the method, cut-off, reason for testing, and population tested.

A normal result does not rule out liver disease because other blood tests may become abnormal first. An elevated result does not always mean serious disease; fasting and Gilbert syndrome can cause rises. Significant liver or bile duct disease may also occur with little initial bilirubin increase.

"Direct bilirubin" is a laboratory measurement and may not exactly equal conjugated, or liver-processed, bilirubin. Results from different methods may vary.

Tests that help identify the cause include liver enzymes, a full blood count, reticulocyte count, haptoglobin, and lactate dehydrogenase. Ultrasound or other imaging may be used if reduced bile flow is suspected.

Risks and complications

A blood draw may cause a small bruise, brief soreness, or light-headedness. Serious complications are uncommon.

What happens next

If the result is slightly outside the laboratory range and you feel well, follow-up may include reviewing medicines, comparing previous results, repeating the test, or checking other liver and blood tests.

A clearly abnormal or changing result may require more blood tests or imaging. The next step

depends on whether direct or indirect bilirubin is raised, your symptoms, and your other results.

Seek prompt medical advice for new yellowing of the skin or eyes, especially with dark urine, pale stools, persistent vomiting, fever, or worsening abdominal pain.

Seek emergency care if jaundice occurs with confusion, difficulty waking, fainting, severe abdominal pain, or signs of severe illness. A newborn with increasing jaundice, poor feeding, unusual sleepiness, abnormal movements, or difficulty waking needs urgent medical assessment.

Common questions

Can I drink coffee before a bilirubin blood test?

Usually, if fasting was not requested. If told to fast, have only water unless your instructions allow coffee. Milk, cream, or sugar breaks a fast.

Does the time of day matter?

Small changes occur, but testing usually does not need to happen at a specific time. Similar conditions can make repeat results easier to compare.

Can I exercise beforehand?

Ordinary activity is unlikely to matter. Avoid unusually strenuous exercise just before testing if possible because it may affect hydration and other blood results.

Do I need to stop my medicines?

Not unless the healthcare professional managing them tells you to. Bring an up-to-date list of medicines and supplements.

Why is my bilirubin high when my other liver tests are normal?

Possible causes include fasting, Gilbert syndrome, medicine effects, or increased red blood cell breakdown. Direct and indirect results, previous tests, and your clinical context guide follow-up.

Will I need another test?

Possibly. A repeat test can show whether the change was temporary. Depending on the pattern, other blood tests or imaging may be more useful than repeating bilirubin alone.

Sources

- MedlinePlus. Bilirubin Blood Test . US National Library of Medicine
- American College of Gastroenterology Clinical Guideline: Evaluation of Abnormal Liver Chemistries . American Journal of Gastroenterology . 2017;112:18-35
- NICE guideline CG98: Jaundice in newborn babies under 28 days . National Institute for Health and Care Excellence
- Mayo Clinic Laboratories. Bilirubin, Total, Serum . Test catalog and specimen information
- Sticova E, Jirsa M. New insights in bilirubin metabolism and their clinical implications . World Journal of Gastroenterology . 2013;19(38):6398-6407