



# PATHOLOGY TESTS EXPLAINED

Information about pathology tests to help everyone take control of their health and make the right decisions about their care.

## WHAT YOU SHOULD KNOW ABOUT YOUR IRON STUDIES

Iron Studies is a group of tests performed on the same blood sample. Together, they measure the amount of iron in your body.

Your doctor may order Iron Studies

- As part of a routine health check
- If it's possible you have iron deficiency anaemia
- To look for slow blood loss e.g. from the bowel or extra heavy periods If it's possible you have too much iron – iron overload

Often Iron Studies is ordered along with other tests such as the Full Blood Count and Liver Function Tests

### What happens in the lab?

- Iron Studies measures blood iron levels and two substances involved in transporting and storing iron
- By looking at the levels of each of these in relation to the others, and taking into account your symptoms and medical history, your doctor can put together a picture of what's going on.



#### Iron is vital to health

Iron is used in many body processes. Its main job is to form part of haemoglobin, a substance in red blood cells that takes up oxygen from the lungs and releases it as the blood travels around the body.

#### Iron deficiency anaemia

If you don't have enough iron you can't produce the haemoglobin needed to take oxygen around your body. Iron deficiency anaemia may leave you tired and short of breath. Low iron levels can be caused by many things including monthly periods, pregnancy, and bleeding in the stomach and intestines such as in inflammatory bowel disease and bowel cancer.

#### Haemochromatosis

Having too much iron in your body can cause damage to your heart, liver and pancreas as well as your joints. The most common reason for iron overload is the inherited disorder, haemochromatosis.

We get iron from the food we eat. It is absorbed through our small intestines. The body takes as much as it needs. We don't have a mechanism for removing iron from the body.

In hereditary haemochromatosis there's a breakdown in the process that controls iron absorption and your body behaves as if there is an iron shortage. It responds by absorbing more from food. This means there is more iron being taken in but no mechanism to get rid of it.



## What can your results tell you?

#### Serum iron

This is the amount of iron in your blood serum (the liquid part of the blood with the cells removed). The serum iron level is usually low in iron deficiency but it can also be low due to other causes such as infections. Serum iron is usually high if you have iron overload but it can also be high if you have recently eaten a lot of iron-rich foods such as steak or liver. Serum iron levels fluctuate throughout the day and are too variable for diagnosing iron disorders by itself.

#### Transferrin

Transferrin is a protein that attaches to iron and transports it around the body. It is difficult to interpret iron levels in the blood without knowing how much of this binding protein is also present. Instead of transferrin you might have a test for TIBC (total iron binding capacity) or UIBC – they all measure the amount of iron that can be transported in your blood.

#### Transferrin saturation

This is calculated from the iron and transferrin results. The number represents the amount of iron that has been attached to transferrin as a percentage of transferrin's total iron carrying capacity. It's a more accurate indicator of the amount of iron in the body than either iron or transferrin alone. If you have iron deficiency, transferrin saturation is likely to be low and with iron overload, it's more likely to be high. A higher transferrin saturation can be the earliest sign of haemochromatosis.

#### Ferritin

This is another protein that attaches to iron. The amount of ferritin in the blood serum is the best measure of the amount of iron stored in the body – mainly in the liver. A low ferritin is almost always due to iron deficiency. However, ferritin levels can be misleading. If you have an inflammatory disease, especially liver inflammation, this can cause high ferritin levels even if there is no iron overload.

## What if you have abnormal results?



A great many conditions can affect your iron levels and interpreting the many variations in test results is complex. Anaemia has many causes, as does iron overload. It's important to talk with your doctor about what the results mean for your personal situation.

## What are reference intervals (reference ranges)?



Some of your results are shown in your report as a comparison against a set of numbers called reference intervals or reference ranges. This is the range of test results considered 'normal' for the general population.

If a result in your report is outside this range it can be flagged as high (H) or low (L). This does not necessarily mean that anything is wrong and depends on your personal situation. Your results need to be interpreted by your doctor.

## What happens next?



Sometimes, tests need to be repeated to see if the results change over time. This can indicate whether your condition is getting better or worse and whether any treatment you are having is working.

You may need further, different tests. For instance, if your doctor suspects haemochromatosis you may need an HFE gene test.



## 5 questions to ask your doctor

Why does this test need to be done?

Do I need to prepare (such as fast or avoid medications) for the sample collection?

Will an abnormal result mean I need further tests?

How could it change the course of my care?

What will happen next, after the test?

## Having a medical test



The choice of tests your doctor makes will be based on your medical history and symptoms. Make sure you tell them everything you think might help.

You play a central role in making sure your test results are accurate. Do everything you can to make sure the information you provide is correct and follow instructions closely.

Talk to your doctor about any medication you are taking. Find out if you need to fast or stop any particular foods or supplements. These may affect your results.



For more detailed information on these and many other tests go to [pathologytestsexplained.org.au](http://pathologytestsexplained.org.au)

Please use this QR code to access more information



[www.pathologytestsexplained.org.au](http://www.pathologytestsexplained.org.au)

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Click on the link to find information about what your tests are investigating or measuring and what your results can tell your doctor.