

Anaemia (low red blood cells)

Anaemia is a shortage of haemoglobin or red blood cells in your bloodstream. It can develop as an effect of lymphoma, or as a side effect of treatment. This information explains what anaemia is, how it might affect people who have lymphoma, and how it is treated.

On this page

[What is anaemia?](#)

[What is a normal haemoglobin level?](#)

[What causes anaemia in people with lymphoma?](#)

[Symptoms of anaemia](#)

[Treatment for anaemia](#)

We have separate information about the topics in **bold font**. Please get in touch if you'd like to request copies or if you would like further information about any aspect of lymphoma. Phone 0808 808 5555 or email information@lymphoma-action.org.uk.

What is anaemia?

Anaemia is a shortage of haemoglobin or red blood cells in your bloodstream.

- **Haemoglobin** is a protein in red blood cells. It carries oxygen around your body. It has a lot of iron in it.
- **Red blood cells** are made in your **bone marrow** (the spongy centre of larger bones). They normally work for about 3 months before they wear out. Worn out red blood cells are broken down in your **spleen**, liver and bone marrow. Your bone marrow uses the broken-down components of old red blood cells to make new red blood cells. Your body usually keeps the process of making and removing red blood cells carefully in balance.

The level of haemoglobin and red blood cells in your bloodstream can be measured by a simple blood test called a **full blood count (FBC)**. Your haemoglobin level and your red blood cell count are closely linked. Doctors usually use your haemoglobin level to check whether or not you have anaemia.

If you have anaemia, you are 'anaemic'.

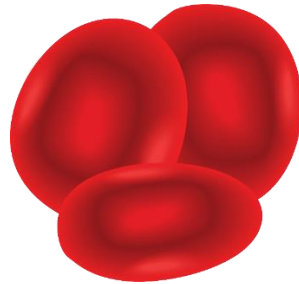


Figure: Red blood cells

What is a normal haemoglobin level?

A normal haemoglobin level for adults is around 120 to 180 grams per litre of blood (g/L). It varies according to age, sex and ethnic origin. Men usually have more haemoglobin than women.

Different hospitals use slightly different ranges when deciding if a person is anaemic, depending on exactly how they measure haemoglobin levels. In general, haemoglobin should be:

- above 130 g/L for a man
- above 120 g/L for a woman.

What causes anaemia in people with lymphoma?

Anaemia can develop for lots of different reasons. In people who have lymphoma, common causes include:

- **lymphoma in the bone marrow**
- a side effect of **lymphoma treatments**
- lymphoma cells making antibodies that attack red blood cells (this is known as '**autoimmune haemolytic anaemia**')
- **other causes**, some that are related to the lymphoma and its treatment, and others that are nothing to do with lymphoma.

Lymphoma in the bone marrow

If you have lymphoma cells in your bone marrow, they take up space that is normally used to make healthy blood cells. This can lower the number of red blood cells your bone marrow makes, leading to anaemia.

Anaemia caused by lymphoma in the bone marrow often improves once your lymphoma treatment starts to work.

Lymphoma treatments

The aim of lymphoma treatment is to kill lymphoma cells, but a **side effect** of many types of **chemotherapy**, **radiotherapy** and some **targeted drugs** is that some healthy cells are also destroyed. This can include red blood cells, or the cells in the bone marrow that make them.

Autoimmune haemolytic anaemia

Sometimes, lymphoma cells make **antibodies** that attack your own cells. These are called autoantibodies. If these autoantibodies stick to red blood cells, the red blood cells are removed by the **spleen**. If your bone marrow can't make new red blood cells fast enough to replace the ones that are removed, you develop anaemia. This type of anaemia is known as 'autoimmune haemolytic anaemia' (AIHA). It can affect people with **chronic lymphocytic leukaemia (CLL)**, **low-grade lymphomas** such as **Waldenström's macroglobulinaemia**, or occasionally **Hodgkin lymphoma**.

Other causes

There are other ways that lymphoma and its treatment can cause anaemia, including:

- A shortage of the **vitamins and minerals** your body uses to make red blood cells (especially iron, folic acid or vitamin B12). This might happen if you are not **eating well**.
- Swelling (inflammation) caused by your body's reaction to the cancer. This can affect the level of iron in your blood and disrupt your body's balance between making and destroying red blood cells.
- Bleeding, which might happen if you have lymphoma in your bowel, or if you have **low platelets (thrombocytopenia)**.

Symptoms of anaemia

Many people with a low haemoglobin level do not have any symptoms. This is because your body usually has much more haemoglobin than you need for day-to-day life. If your haemoglobin falls too much, your red blood cells can't carry enough oxygen around your body. It is important that all the organs and tissues in your body get oxygen – they can't work properly without it.

If you have anaemia, you might start to notice symptoms such as:

- **fatigue** (extreme tiredness)
- feeling weak and lacking energy
- feeling short of breath
- fluttering or pounding heart (palpitations)
- feeling dizzy or faint
- headache.

If you have anaemia, you might look paler than is normal for you. This is often more noticeable on your palms or the insides of your eyelids, especially if you usually have darker-toned skin.

Anaemia can make you less able to tolerate any **side effects** of lymphoma **treatment**. If you get an **infection** or fever, your anaemia could get worse and you might feel the effects of it more.

Tell your medical team if you have any symptoms of anaemia. They might suggest you have a **blood test** to check your haemoglobin level. If you have anaemia, your doctor should talk to you about possible treatments.

Treatment for anaemia

Treatment for anaemia depends on how badly it is affecting you and what is causing it. Often there is more than one cause. You might need more blood tests to find out. If your anaemia is caused by loss of blood, you might have other tests to look for the cause of the bleeding.

The main treatments for anaemia in people with lymphoma are:

- **blood transfusions** if your anaemia is causing serious symptoms or your haemoglobin level is very low
- **iron supplements** if your anaemia is caused by low iron levels
- **erythropoietin (EPO)** if your anaemia is a side effect of chemotherapy.

These don't usually work well for **autoimmune haemolytic anaemia**, which needs **different types of treatments**.

Blood transfusions

If your anaemia is causing serious symptoms, or your haemoglobin level is less than 70 g/L, you might need a **blood transfusion**. Your doctor will explain how this might help you and any risks that are involved.

A blood transfusion usually helps you feel better very quickly but it doesn't treat the underlying cause. If your bone marrow still isn't producing enough red blood cells, your symptoms could come back and you might need another transfusion.

Iron supplements

Haemoglobin is made from iron. If you have anaemia caused by low iron levels, you might need to take iron tablets or have iron through a drip into a vein (intravenous iron). Your doctor will tell you if this is the case. Always check with your medical team before taking any medicines or supplements that haven't been prescribed for you.

Erythropoietin (EPO)

Erythropoietin (EPO) is a chemical messenger made by your kidneys. It tells your bone marrow to make more red blood cells. Laboratory-made versions of EPO are available as a medicine.

EPO is recommended for people with cancer who are being treated with chemotherapy and who have haemoglobin levels lower than 100 g/L. It increases your haemoglobin level and can reduce the number of blood transfusions you need.

Treatment for autoimmune haemolytic anaemia

If your anaemia is caused by autoantibodies destroying your red blood cells, blood transfusions usually do not help. Instead, the treatment for this type of anaemia aims to reduce the number of autoantibodies being made.

In some cases, treating your lymphoma is also effective at treating autoimmune haemolytic anaemia. Other treatment options depend on the exact type of autoimmune haemolytic anaemia you have. Treatments include:

- **steroids**, which reduce the activity of your immune system
- **rituximab**, which targets the cells that make antibodies
- having your spleen removed (**splenectomy**)
- treatment with other drugs that dampen your immune system (immunosuppressants).

Acknowledgements

- With thanks to Dr Prem Mahendra, Consultant Haematologist, Queen Elizabeth Hospital, Birmingham, for reviewing this information.
- We would like to thank the members of our Reader Panel who gave their time to review this information.

References

The full list of references for this page is available on our website. Alternatively, email publications@lymphoma-action.org.uk or call 01296 619409 if you would like a copy.

Content last reviewed: February 2022

Next planned review: February 2025

LYMweb0054Anaemia2022v4

✓	Evidence-based
✓	Approved by experts
✓	Reviewed by users

© Lymphoma Action

Tell us what you think and help us to improve our resources for people affected by lymphoma. If you have any feedback, please visit lymphoma-action.org.uk/Feedback or email publications@lymphoma-action.org.uk.

All our information is available without charge. If you have found it useful and would like to make a donation to support our work you can do so on our website lymphoma-action.org.uk/Donate. Our information could not be produced without support from people like you. Thank you.

Disclaimer

We make every effort to make sure that the information we provide is accurate at time of publication, but medical research is constantly changing. Our information is

not a substitute for individual medical advice from a trained clinician. If you are concerned about your health, consult your doctor.

Lymphoma Action cannot accept liability for any loss or damage resulting from any inaccuracy in this information or third party information we refer to, including that on third party websites.