

# Lymphoma and the immune system

Lymphoma develops from cells in your immune system. Lymphoma and its treatment can affect the way your immune system works.

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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](mailto:information@lymphoma-action.org.uk).

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## How does lymphoma affect the immune system?

Lymphoma is a type of blood cancer that develops when white blood cells called **lymphocytes** grow out of control. Lymphocytes are part of your **immune system**. If you have lymphoma, your immune system might not work as well as it should for several reasons:

- The lymphocytes that grow out of control don't work properly. If you have too many of these abnormal lymphocytes and not enough healthy lymphocytes, your body can't fight infections as well as usual. You might pick up infections more easily, and they could be more severe or last for longer than they would normally.

- If you have lymphoma cells in your **bone marrow**, they take up space that is normally used to make healthy blood cells, including white blood cells that fight infections. This might mean your body can't make enough white blood cells to protect you from infection.
  - Cancer cells, including lymphoma cells, use up your body's energy. This can affect your immune system's ability to work well. It can also cause weight loss and loss of muscle mass.
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## How does treatment for lymphoma affect the immune system?

**Treatment** for lymphoma aims to kill lymphoma cells. However, it can also damage healthy cells. Cells in your immune system are particularly sensitive to the effects of cancer treatments. This is why many people have a lowered immune system during, and for a while after, treatment for lymphoma.

Your immune system should recover over time after your treatment finishes, but it might be lower than usual for several months. The impact on your immune system and the speed of recovery depends on the specific treatment you have received.

- **Chemotherapy.** Many chemotherapy drugs damage your bone marrow, where your blood cells develop. This can lead to low **blood counts**. In particular, you might develop low levels of white blood cells called neutrophils (**neutropenia**), increasing your **risk of infection**.
- **High dose chemotherapy with stem cell transplant.** This treatment can have a greater effect on the immune system than most other treatments. This is because it involves very high doses of chemotherapy, and sometimes radiotherapy. If you have a stem cell transplant using donor cells (an **allogeneic stem cell transplant**), you also have drugs that dampen your immune system to stop the donor cells attacking your own cells. These make your immune system very weak. It can take a year or more to recover.

- **Steroids.** Steroids are often given as part of lymphoma treatment to help fight the lymphoma and to reduce side effects. Steroids can reduce inflammation and swelling caused by lymphoma, particularly **CNS lymphoma**. Steroids can also boost the action of other treatments, such as **rituximab**. However, they can also lower your immune system. This can increase your risk of infections, particularly viral infections (such as cold sores or shingles) and fungal infections (such as thrush).
- **Antibody therapy.** Antibody therapies activate your own immune system. This can cause your body to 'overreact' with an inflammatory response. Antibody therapy can also reduce the number of white blood cells in your blood, increasing the risk of infection.
- **Splenectomy.** Occasionally, some people with lymphoma might need an operation to remove their spleen. This is called a splenectomy. Having no spleen can increase your risk of infection with certain bacteria. If you've had a splenectomy, it is important to stay up-to-date with specific vaccinations. Most people who've had a splenectomy take long-term, low-dose antibiotics to help prevent infections.

Your immune system includes **physical barriers** to help stop germs getting into your body. Some procedures or treatments for lymphoma can affect these barriers, which might increase your risk of infection. This can include:

- chemotherapy or radiotherapy, which can damage your **skin** or the **lining of your mouth**, making it easier for germs to enter
- injections or **blood tests**, which pierce your skin and can provide a point of entry for germs
- having a peripherally inserted central catheter (**PICC line**) or **central line** fitted, which can give bacteria a route into your bloodstream
- surgery, including **biopsies**, which create a break in your skin that can allow germs into your body.

Your medical team take great care to avoid introducing infections when performing any procedures. They also regularly check lines and wounds and keep them clean.

**Tell your medical team if you notice any **signs of infection**, such as redness, swelling or pain at the affected area.**

We have additional information on **infection risk and prevention**.

## Using the immune system to treat lymphoma

Some lymphoma treatments use your immune system to help treat the lymphoma. These include:

- **Antibody therapy**, which uses antibodies that have been specially made in a lab. They are designed to recognise and stick to a protein on a cancer cell. This activates your immune system to destroy the cancer cell. Antibody therapy is used to treat many types of lymphoma, usually in combination with **chemotherapy**. This is known as 'chemo-immunotherapy'.
- **Targeted treatments** that help your immune system to recognise and attack lymphoma cells (such as **checkpoint inhibitors**).
- **CAR-T cell therapy**, where your own T cells are genetically modified (changed) in a laboratory to recognise lymphoma and kill lymphoma cells.

Many of these treatments are already available for some types of lymphoma, and more are being tested in clinical trials. To find out more about clinical trials, or to search for a trial that might be suitable for you, visit [Lymphoma TrialsLink](#).

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## References

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

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