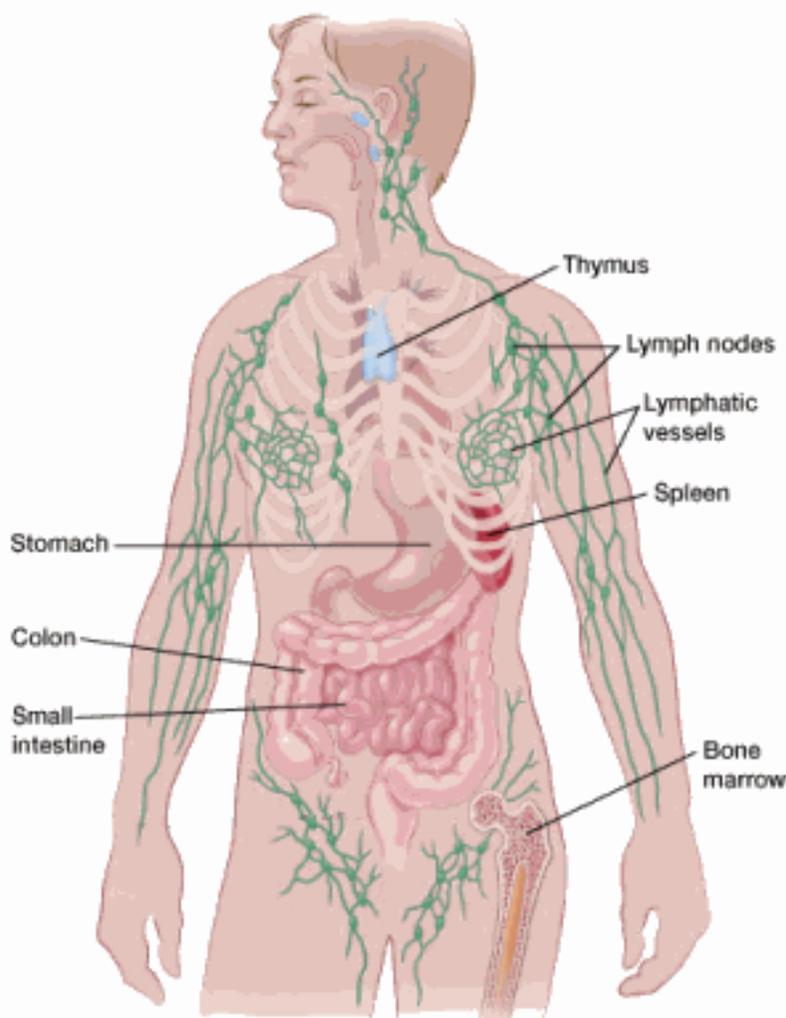

Lymph Nodes and Cancer

- [What is the lymph system?](#)
- [Cancer in the lymph nodes](#)
- [Effects of removing lymph nodes](#)

What is the lymph system?

The lymph (or lymphatic) system is a part of your body's immune system. It includes a network of lymph vessels and lymph nodes. Lymph vessels are a lot like the veins that collect and carry blood through the body. But instead of carrying blood, these vessels carry the clear watery fluid called lymph. Lymph fluid also contains white blood cells, which help fight infections.



Lymph fluid would build up and cause swelling if it were not drained in some way. Lymph vessels draw up the lymph fluid from around the cells to send it towards the chest. There, lymph fluid collects into a large vessel that drains into a blood vessel near the heart.

What are the main functions of lymph nodes?

Lymph vessels send lymph fluid through nodes throughout the body. Lymph nodes are small structures that work as filters for foreign substances, such as cancer cells and infections. They contain immune cells that can help fight infection by attacking and destroying germs that are carried in through the lymph fluid. Lymph nodes are located in many parts of the body, including the neck, armpit, chest, abdomen (belly), and groin. They contain immune cells that can help fight infection by attacking and destroying

germs that are carried in through the lymph fluid.

There are hundreds of lymph nodes throughout the body. Each lymph node filters the fluid and substances picked up by the vessels that lead to it. Lymph fluid from the fingers, for instance, works its way toward the chest, joining fluid from the arm. This fluid may filter through lymph nodes at the elbow, or those under the arm. Fluid from the head, scalp, and face flows down through lymph nodes in the neck. Some lymph nodes are deep inside the body, such as between the lungs or around the bowel, to filter fluid in those areas.

What causes swollen lymph nodes?

When there's a problem, such as infection, injury, or cancer, lymph nodes in that area may swell or enlarge as they work to filter out the "bad" cells. Swollen lymph nodes (lymphadenopathy) tell you that something is not right, but other symptoms help pinpoint the problem. For instance, ear pain, fever, and enlarged lymph nodes near your ear are clues that you may have an ear infection or cold.

Some areas where lymph nodes commonly swell are in the neck, groin, and underarms. In most cases, only one area of nodes swells at a time. When more than one area of lymph nodes is swollen it's called *generalized lymphadenopathy*. Some infections (such as strep throat and chicken pox), certain medicines, immune system diseases, and cancers like [lymphoma](#)¹ and [leukemia](#)² can cause this kind of swelling. Your health care provider will look for more information to figure out the cause of the swelling. **Lymph node swelling is often caused by something other than cancer.**

Cancer in the lymph nodes

Cancer can appear in the lymph nodes in 2 ways: it can either start there or it can spread there from somewhere else.

Cancer that starts in the lymph nodes is called **lymphoma**. You can read more about lymphoma in [Hodgkin Lymphoma](#)³ and [Non-Hodgkin Lymphoma](#)⁴.

More often, cancer starts somewhere else and then spreads to lymph nodes. That is the focus of this section.

How does cancer spread to lymph nodes?

Cancer can spread from where it started (the primary site) to other parts of the body.

When cancer cells break away from a tumor, they can travel to other areas through either the bloodstream or the lymph system. If they travel through the lymph system, the cancer cells may end up in lymph nodes. Most of the escaped cancer cells die or are killed before they can start growing somewhere else. But one or two might settle in a new area, begin to grow, and form new tumors. This spread of cancer to a new part of the body is called **metastasis**.

In order for cancer cells to spread to new parts of the body, they have to go through several changes. They must become able to break away from the original tumor and attach to the outside wall of a lymph or blood vessel. Then they must move through the vessel wall to flow with the blood or lymph to a new organ or lymph node.

When cancer does spread to lymph nodes, it usually spreads to nodes near the tumor itself. These are the nodes that have been doing most of the work to filter out or kill the cancer cells.

How is cancer in lymph nodes found?

Normal lymph nodes are tiny and can be hard to find, but when there's infection, inflammation, or cancer, the nodes can get larger. Those near the body's surface often get big enough to feel with your fingers, and some can even be seen. But if there are only a few cancer cells in a lymph node, it may look and feel normal. Lymph nodes deep in the body cannot be felt or seen. So doctors may use [scans or other imaging tests](#)⁵ to look for enlarged nodes that are deep in the body. Often, enlarged lymph nodes near a cancer are assumed to contain cancer.

The only way to know whether there is cancer in a lymph node is to do a biopsy. Doctors may remove lymph nodes or take samples of one or more nodes using needles. The tissue that's removed is looked at under the microscope by a pathologist (a doctor who diagnoses illness using tissue samples) to find out if there are cancer cells in it. The pathologist prepares a [report](#)⁶, which details what was found. If a node has cancer in it, the report describes what it looks like and how much was seen.

When a surgeon operates to remove a primary cancer, they may remove one or more of the nearby (regional) lymph nodes as well. Removal of one lymph node is considered a biopsy, but when many lymph nodes are removed, it's called **lymph node dissection**. When cancer has spread to lymph nodes, there's a higher risk that the cancer might come back after surgery. This information helps the doctor decide whether more treatment, like [chemo](#),⁷ [immunotherapy](#)⁸, [targeted therapy](#)⁹ or [radiation](#)¹⁰, might be needed after [surgery](#)¹¹.

What does it mean if there's cancer in my lymph node?

If cancer is found in one or more lymph nodes, it could mean that more tests are needed to know how far the cancer has spread. This information is used to determine the stage of your cancer and the best treatment options.

For more information on staging, see [Cancer Staging](#)¹², or find [your cancer type](#)¹³ for more detailed information.

Effects of removing lymph nodes

When lymph nodes are removed, it can leave the affected area without a way to drain off the lymph fluid. Many of the lymph vessels now run into a dead end where the node used to be, and fluid can back up. This is called **lymphedema**, which can become a life-long problem. The more lymph nodes that are removed, the more likely it is to occur. To learn more about what to look for, ways reduce your risk, and how to manage this side effect, see [Lymphedema](#)¹⁴.

Removing lymph nodes during cancer surgery is highly unlikely to weaken a person's immune system, since the immune system is large and complex and is located throughout the body.

Hyperlinks

1. www.cancer.org/cancer/types/lymphoma.html
2. www.cancer.org/cancer/types/leukemia.html
3. www.cancer.org/cancer/types/hodgkin-lymphoma.html
4. www.cancer.org/cancer/types/non-hodgkin-lymphoma.html
5. www.cancer.org/cancer/diagnosis-staging/tests.html
6. www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report.html
7. www.cancer.org/cancer/managing-cancer/treatment-types/chemotherapy.html
8. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy.html
9. www.cancer.org/cancer/managing-cancer/treatment-types/targeted-therapy.html
10. www.cancer.org/cancer/managing-cancer/treatment-types/radiation.html
11. www.cancer.org/cancer/managing-cancer/treatment-types/surgery.html
12. www.cancer.org/cancer/diagnosis-staging/staging.html

13. www.cancer.org/cancer.html
14. www.cancer.org/cancer/managing-cancer/side-effects/swelling/lymphedema.html

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Liao S, von der Weid PY. Lymphatic system: an active pathway for immune protection. *Semin Cell Dev Biol*. 2015;38:83–89.

National Institute of Allergy and Infectious Diseases. *Overview of the Immune System*. Updated December 30, 2013. Accessed at <https://www.niaid.nih.gov/research/immune-system-overview> on February 23, 2021.

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