



Facts About Lymphoma



**The Leukemia &
Lymphoma Society**[®]

Fighting Blood-Related Cancers

Lymphoma is a type of cancer

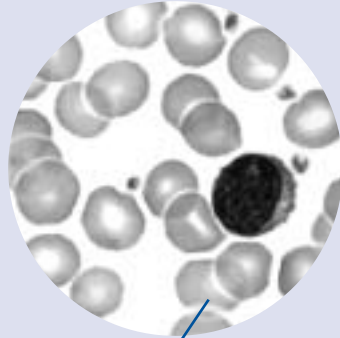
All organs are made up of cells.

- Normally, cells grow and die in an orderly way.
- If a cell turns into a cancer, the cell multiplies and accumulates. This growth causes tumors to form.

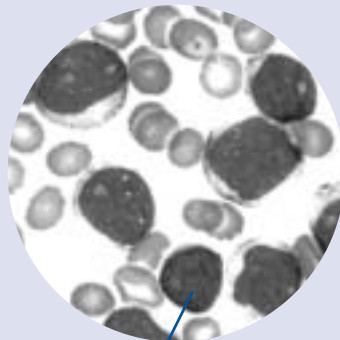
In lymphoma, cancer develops in the lymphatic system.

The lymphatic system:

- is the part of the immune system – the body's defense against infection
- runs throughout the whole body.



Normal Cells



Cancerous Cells

Parts of the lymphatic system

Lymphocytes

These are a kind of white blood cell. They're made in the lymph nodes. When a lymphocyte becomes cancerous the cancer grows and forms masses of lymphoma cells in the lymph nodes or other parts of the lymphatic system.

Lymph Nodes

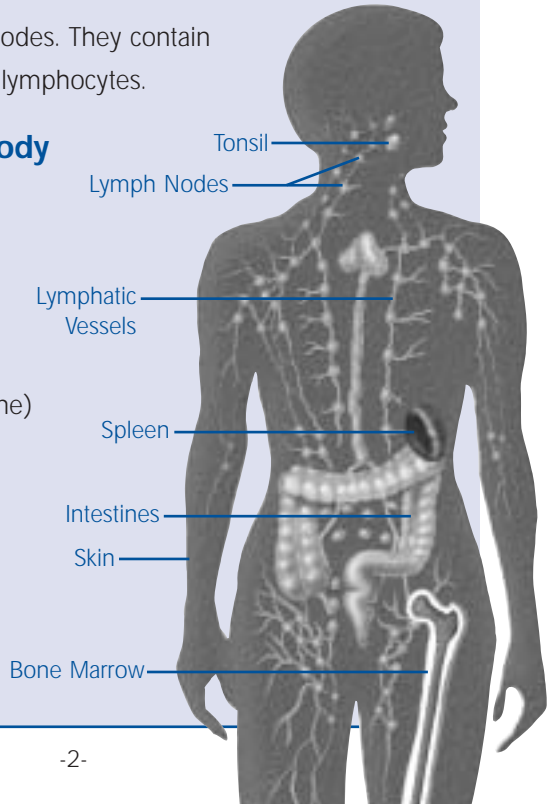
These are bean-sized collections of lymphocytes found throughout the body. They cluster in certain areas, such as the neck, armpits, chest, abdomen, and groin.

Lymphatic Vessels

These connect the lymph nodes. They contain lymph – a fluid that carries lymphocytes.

Other Parts of the Body That Are Part of the Lymphatic System:

- tonsils
- spleen
- bone marrow
(the soft, inner part of bone)
- intestines
- skin



There are two main types of lymphoma

Hodgkin Lymphoma

People with Hodgkin lymphoma:

- have lymphoma cells called Reed-Sternberg cells
- are often adolescents or young adults
- have a better chance of recovery than those with other kinds of lymphoma

Hodgkin lymphoma generally spreads from one group of lymph nodes to the next in an orderly way.

Non-Hodgkin Lymphoma

This includes all other lymphomas. It's more common than Hodgkin lymphoma. People with non-Hodgkin lymphoma:

- are usually adults
- can have good chances of recovery, depending on factors such as how advanced the disease is

Non-Hodgkin lymphoma generally spreads through the lymphatic system in a less orderly way.



Anyone can get lymphoma

About 61,000 Americans will contract lymphoma in 2003. About 24,700 others will die of the disease.

It strikes more children between the ages of 15 and 19 than any other cancer – and it strikes many more adults than children.

Approximately 445,679 Americans are living with lymphoma.

Most cases of lymphoma are not preventable. Today, modern treatments offer more hope than ever before to people who have lymphoma.



Risks for Lymphoma

The causes of most cases of lymphoma are unknown. Factors that may increase risk include:

Certain Health Conditions

Risk may be higher for people who:

- are born with a disease that weakens their immune system or develop a disease that weakens the immune system (such as infection with HIV, the virus that causes AIDS)
- take certain organ transplant medications

Age and Sex

The risk of lymphoma increases with age and is most common among older adults and men.

Certain Job Hazards

For example:

- working with chemicals that kill weeds and insects may raise the risk of non-Hodgkin lymphoma.
- woodworking may raise the risk of Hodgkin lymphoma.

Many people with lymphoma don't have these risk factors. And most who do have them never develop the disease.



Symptoms of lymphoma

The most common symptom is painless swelling of lymph nodes. This may occur in the:

- neck
- armpits
- groin
- other areas

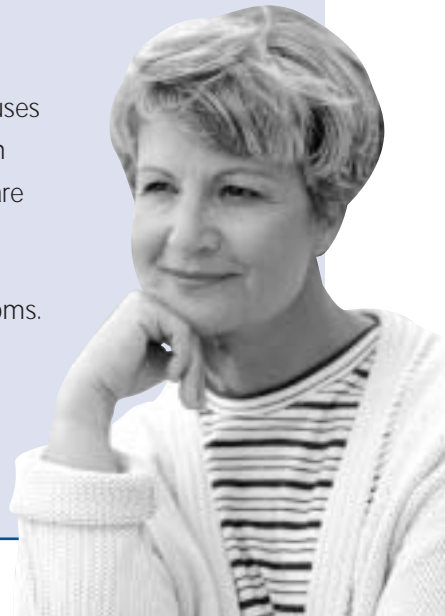
Sometimes, a person's health care provider discovers lymph node swelling during a routine exam.

Other symptoms may include:

- fever
- night sweats
- tiredness
- weight loss
- itchy skin
- skin rash

These symptoms can also have other causes – for example, an infection or illness such as the flu. It's important to see a healthcare provider to get the correct diagnosis.

Some people may not notice any symptoms.



Diagnosing lymphoma

Diagnosis generally involves the primary healthcare provider and specialists, who perform these tests to determine the type of lymphoma and decide on the best treatment.

A Medical History

Including:

- a physical exam checking for swollen lymph nodes
- checking for an enlarged liver or spleen and checking the skin for specific rashes

Taking A Biopsy

This involves removing an enlarged lymph node or taking a small tissue sample from the affected area. The tissue is studied under a microscope.

Blood Tests

These can uncover:

- lymphoma cells in the blood
- chemical changes in the blood, e.g. elevated LDH

Imaging Tests

These create pictures of the inside of the body. Examples include:

- X-rays
- computed tomography (CT) scans
- magnetic resonance imaging (MRI) scans
- Positron Emission Tomography (PET) scans

The Type of Lymphoma

If the person has non-Hodgkin lymphoma, this involves learning exactly what kind the person has.

The Stage of The Disease

This involves looking for:

- how many lymph nodes are affected
- where the affected lymph nodes are (for example, on one or both sides of the body)
- whether any cancer cells are outside the lymph nodes or lymphatic system

Other Important Information

This includes information such as:

- how the cells look under a microscope
- how fast the cells are growing



Treatment for lymphoma

Treatment depends on the type, stage and other factors. It may involve one or more of the following:

Chemotherapy

- medication is used to kill lymphoma cells throughout the body. Medication may be injected, given through an IV tube or taken by mouth.
- several medications are usually used together.
- treatment usually involves several cycles. Each cycle generally lasts about 3-4 weeks, with periods of treatment and rest.

Chemotherapy may also affect normal cells, causing side effects (see page 10).

Monoclonal Antibodies

- are made in the laboratory.
- are designed to target lymphoma cells.
- can kill lymphoma cells.
- in some cases, they are attached to a radioisotope, carrying radiation to the lymphoma cells.

Radiation

- uses high-energy rays to kill lymphoma cells in one area.
- rays are usually directed at nearby areas, too, to kill any lymphoma cells that may not have been found.
- treatment usually takes place 5 days a week for several weeks.

Radiation may also affect normal cells nearby, causing side effects (see page 10).

Blood or bone marrow stem cell transplants

If lymphoma returns after treatment, very high doses of chemotherapy may be needed. But chemotherapy also kills normal blood-forming cells in the bone marrow, which are needed to help ensure healthy blood cells recover after treatment. For that reason, blood or bone marrow stem cells are taken from the patient before treatment or from a donor. In some cases they are returned to the patient after treatment.

This procedure restores the ability to make normal blood cells after high-dose chemotherapy.

Possible side effects of treatment can vary. Some possible short-term treatment side effects include:

- Nausea, decreased appetite, tiredness, skin rashes or temporary hair loss
- low white blood cell counts and risk of infection

Some long-term side effects may include:

- problems having children
- developing another kind of cancer later in life

Ask your healthcare provider about these and other possible side effects and ways to manage them.

Working as a partner with the healthcare team

Being part of your healthcare team can help your treatment be as successful as possible. It's important for patients and loved ones to:

Work With Everyone Involved

The team may include:

- the primary healthcare provider
- cancer specialists (oncologists)
- nurses
- dietitians
- rehabilitation specialists, such as physical therapists
- social workers
- mental-health professionals

Ask About Taking Part In A Clinical Trial

These are research studies that test promising new treatments. Ask the same kinds of questions as for any treatment you're considering.

Questions to ask about treatment

- What's involved in treatment?
- What's the goal?
- How long will treatment last?
- How often will I receive treatment?
- What are the possible risks and side effects?
- What follow-up care is needed?
- How will my ability to work or do other activities be affected?

If you or your family have uncertainties about recommended treatments, it may also help to get a second opinion.

Take care of yourself if you have lymphoma

Keep Healthy Habits

- Keep all appointments for follow-up care.
- Follow your health-care provider's advice for preventing infection.
- Eat a variety of healthy foods each day. You may prefer eating several smaller meals.
- Don't smoke – if you do, get help to quit.
- Get enough rest and exercise. (Talk with your health-care provider before starting an exercise program.)

Reach Out for Support From:

- family and friends
- support groups
- religious faith leaders
- The Leukemia & Lymphoma Society chapter in your area

Family and friends can help in many ways

- Encourage your loved one to share his or her feelings. Share your own, too.
- Offer to go to appointments with him or her.
- Learn how you can help with care.

We're here to help

Learn more about lymphoma and the help that's available for patients and families.

The Leukemia & Lymphoma Society is a national voluntary health agency with 61 chapters serving all 50 states. It provides education and support services for the public and for cancer treatment professionals. Services for patients and families include:

- the Information Resource Center (IRC) (800)955-4572
- additional educational materials on lymphoma (printed and on the Web at WWW.LLS.ORG)
- family support groups
- help with costs of medications, transportation and procedures
- education programs for patients and caregivers
- peer support program
- other special programs

To find the chapter nearest you, contact:

The Leukemia & Lymphoma Society

1311 Mamaroneck Ave.

White Plains, NY 10605

800-955-4572

WWW.LLS.ORG

You can also check your phone book to see if there's a chapter near you.

What about the future?

Research continues on.

Discovering more effective drugs that will kill lymphoma cells with minimal damage to normal ones such as monoclonal antibodies.

Discovering possible causes of lymphoma such as:

- defects in DNA
- viruses, HIV, EBV
- bacterium that causes peptic ulcers
- herbicides/pesticides

To support lymphoma research, local patient services and education, contact The Leukemia & Lymphoma Society and find out how you can help. Call (800)955-4572 or visit WWW.LLS.ORG



Contact for more information



or the Home Office numbers listed below



***The Leukemia &
Lymphoma Society***[®]

Fighting Blood-Related Cancers

The Society is a nonprofit organization that relies on the generosity of corporate and individual contributions to advance its mission. Call our Information Resource Center for information about lymphoma, lymphoma treatment, clinical trials, education programs and support services.

Toll free at **800.955.4572** or visit

WWW.LLS.ORG

National Office
1311 Mamaroneck Avenue
White Plains, New York 10605