

# LEUKEMIA/LYMPHOMA

## Fact Sheet For Consumers

### **The Lymphatic System**

The lymphatic system is a part of the immune system that protects the body from disease and infection, among its other functions. This system is made up of many structures including the bone marrow, thymus gland, spleen, tonsils, and collections of lymph nodes throughout the body.

The lymphatic system partly works by way of white blood cells called lymphocytes. These cells are produced in the bone marrow and thymus gland and function to recognize, destroy, and then remember invading cells in the body. This is the basis of how the body fights off disease.<sup>1-7</sup>

### **Leukemia and Lymphoma**

Leukemia and lymphoma are cancers that affect the body's blood and immune systems.<sup>8</sup> Leukemia includes a number of cancers that begin in the bone marrow. White blood cells (or the cells that become white blood cells) can develop abnormally and multiply, preventing the function of the surrounding healthy cells. The cancerous cells can then spread anywhere in the body via the bloodstream. There are various forms of leukemia which depend on the specific cells involved and the aggressiveness of the disease.

Lymphomas are a group of cancers that can be found anywhere within the lymphatic system. Lymphocytes develop abnormally and multiply, decreasing the normal immune function of the system. Like the bloodstream, the lymphatic system provides a means for the cancer to spread to organs and tissues throughout the body. Lymphomas are broadly divided into Hodgkin and non-Hodgkin lymphomas and can be further diagnosed based on the specific cells involved and the rate of the disease's progression.<sup>1-7</sup>

### **Risk Factors**

There is not a good understanding of what causes or triggers leukemia or lymphoma, but there are risk factors that may predispose a person to developing these cancers. It is important to know that risk factors show a risk, not a guarantee, of disease development.<sup>2-7</sup>

- **Age:** Leukemia and lymphoma affect people of differing age ranges. There are types of leukemia that are more common in younger children and also those that are more common in adults over the age of 60. Lymphomas are commonly seen in patients between 15 and 40 years old and then again in those 55 years of age and older.
- **Individual health:** Individuals who have had an organ transplant or severe infection such as Hepatitis C, Epstein-Barr virus, or HIV are also at an increased risk for developing leukemia and lymphoma, simply because the immune system is already compromised.
- **Family History:** As with many cancers, a family (genetic) history of leukemia or lymphoma may predispose you to developing the disease. Generally, a first-degree family member, such as a parent or sibling with a history of cancer puts you at a higher risk.
- **Environmental Factors:** These factors include any type of exposure to radiation or chemicals. This exposure can occur with smoking, hazardous materials such as benzene, and also with previous cancer treatments.
- **Having an inadequate diet or being overweight.** These conditions may delay recovery and increase the risk for lymphedema.

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### **Signs and Symptoms**

Leukemia and lymphoma have many of the same signs and symptoms.<sup>3-7</sup>

- Fever or chills
- Persistent fatigue and weakness
- Loss of appetite or weight (as much as 10% or more of your body weight)
- Swollen lymph nodes (in neck, armpits, and/or groin)
- Unusual bleeding or bruising
- Tiny red spots in your skin (called petechiae)
- Excessive sweating / night sweats
- Bone pain or tenderness
- Itching
- Frequent infections

### **Medical Diagnosis and Treatment**

#### Diagnosis

The diagnosis of leukemia or lymphoma is done by a medical doctor and is done so using a physical exam, blood tests, various scans and imaging studies, and/or a biopsy. If you feel you have some of the above signs and symptoms, seek the advice of a medical professional.<sup>2-7</sup>

#### Treatment

Depending on the type of cancer, treatments may be different. The following are some, but by no means all of the available treatments:<sup>2-7</sup>

- Surgery
- Radiation therapy
- Chemotherapy
- Drug therapy
- Bone marrow transplant
- Immunotherapy (to boost immune system function)
- Stem cell transplantation

#### Medical Treatment Side Effects

It is important to know that in addition to the side effects of the cancer itself, treatment is, unfortunately, not without its own downsides. These can include:<sup>9-17</sup>

- Continued fatigue and weakness
- Decreased sensation in limbs
- Decreased balance
- Nausea
- Lymphedema (excessive and disproportionate swelling in a limb)
- Decreased bone mineral density (strength/solidness of bone)
- Hair loss
- Damage to soft tissues such as muscles, ligaments, and tendons

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### **What is physical therapy?**

Physical therapists are experts in movement and function, especially when movement involves changes in “normal” movement patterns. Physical therapists are dedicated to promoting health and wellness of all Americans through preventing functional decline and the development of certain conditions. To learn more about physical therapy and physical therapists, please visit the American Physical Therapy Association’s (APTA’s) Consumer Website at [www.choosept.com](http://www.choosept.com).

### **How can physical therapy help me?**

Physical therapists can perform an evaluation in the hospital or in an outpatient clinic. There are multiple areas that physical therapists may help you including:

- Regaining strength, function, and independence
- Learning to manage side effects of cancer treatments
- Returning to your previous work and recreational activities
- Establishing healthy lifestyle habits for life-long wellness

### **Physical Therapy Treatment**

Based on the findings from your examination and evaluation, your physical therapist will design a plan of care to address your individual needs.

Treatment interventions could include, but are not limited to:

- Body mechanics education and training
- Strengthening exercises
- Flexibility and stretching exercises
- Aerobic exercise (walking, biking, swimming)
- Relaxation techniques
- Balance exercises
- A safe home exercise program

### **How do I find a physical therapist?**

If you think you may benefit from physical therapy, the American Physical Therapy Association (APTA) offers a “Find A PT” database at [www.choosept.com](http://www.choosept.com) that can help you find a physical therapist who specializes in oncology rehabilitation. Insert “cancer” in the Practice Focus area.

You can also visit APTA Oncology’s consumer resources page at [www.oncologypt.org](http://www.oncologypt.org).

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### **Resources**

- Lymphoma Foundation of America - [www.lymphomahelp.org](http://www.lymphomahelp.org)
- Lymphoma Foundation of Canada - [www.lymphoma.ca](http://www.lymphoma.ca)
- National Cancer Institute (National Institutes of Health) - [www.cancer.gov](http://www.cancer.gov)
- National Cancer Institute Support Services - [www.cancer.gov/help](http://www.cancer.gov/help)
- American Cancer Society - [www.cancer.org](http://www.cancer.org)
- Leukemia and Lymphoma Society - [www.leukemia-lymphoma.org](http://www.leukemia-lymphoma.org)
- Mayo Clinic - [www.mayoclinic.com](http://www.mayoclinic.com)
- American Physical Therapy Association - [www.choosept.com](http://www.choosept.com)
- APTA Oncology - [www.oncologypt.org](http://www.oncologypt.org)

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