

# Lymphatic System Encyclopedia Article

## Lymphatic System

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# Lymphatic System

*System that filters harmful substances from fluids surrounding the tissues of the human body.*

The lymphatic system is the body's network of organs, ducts, and tissues that filter harmful substances out of the fluid that surrounds body tissues. The primary lymphatic organs are the thymus and bone marrow, which produce lymphocytes. Although the thymus is critical for T-cell development in children, it begins to shrink as they progress toward adulthood. The secondary lymphatic organs are the spleen, appendix, tonsils, adenoids, lymph nodes, and Peyer's patches in the small intestine. The tonsils reach full size at around age seven, gradually shrinking until adulthood. In the past, tonsils and adenoids were routinely removed surgically in most children. In the 1980s and 1990s, tonsils are not removed unless the child experiences repeated infections of the tonsils (tonsillitis). For most children, removal of tonsils is routine and is performed on an outpatient basis without an overnight hospital stay.

Lymphocytes are a type of white blood cell that is highly concentrated in lymphatic fluid. This clear fluid, also called lymph, travels through the lymphatic vessels connecting the lymphatic organs. The terminal lymphatic vessels feed into the thoracic duct that returns body fluids to the heart prior to blood reoxygenation. The reincorporated fluid originates in the bloodstream, bathes organs and tissues, and is returned to the bloodstream after passing through lymphatic filters that function as part of the body's defense system against infection and **cancer**.

Lymph nodes, primarily clustered in the neck, armpits, and pelvic area, are the system's battle stations against infection. Lymph nodes are connected to one another by lymphatic vessels. It is in the nodes and other secondary organs where white blood cells engulf and destroy debris to prevent them from reentering the bloodstream.

## Lymphatic Diseases

Although lymph nodes commonly enlarge to fight infection, an overwhelming infection can leave a lymph node and travel through the lymphatic system to other nodes and even to other body tissues. Cancer can spread very easily through the lymph system, but different cancers vary in how soon they attack the nodes.

## For Further Study

### Books

Alberts, B., D. Bray, J. Lewis, M. Raff, K. Roberts, and J. Watson, eds. *Molecular Biology of the Cell*. 3d ed. New York: Garland Publishing, 1994.

Rhoads, R., and R. Pflanzner, eds. *Physiology*. 2d ed. New York: Saunders College Publishing, 1992.