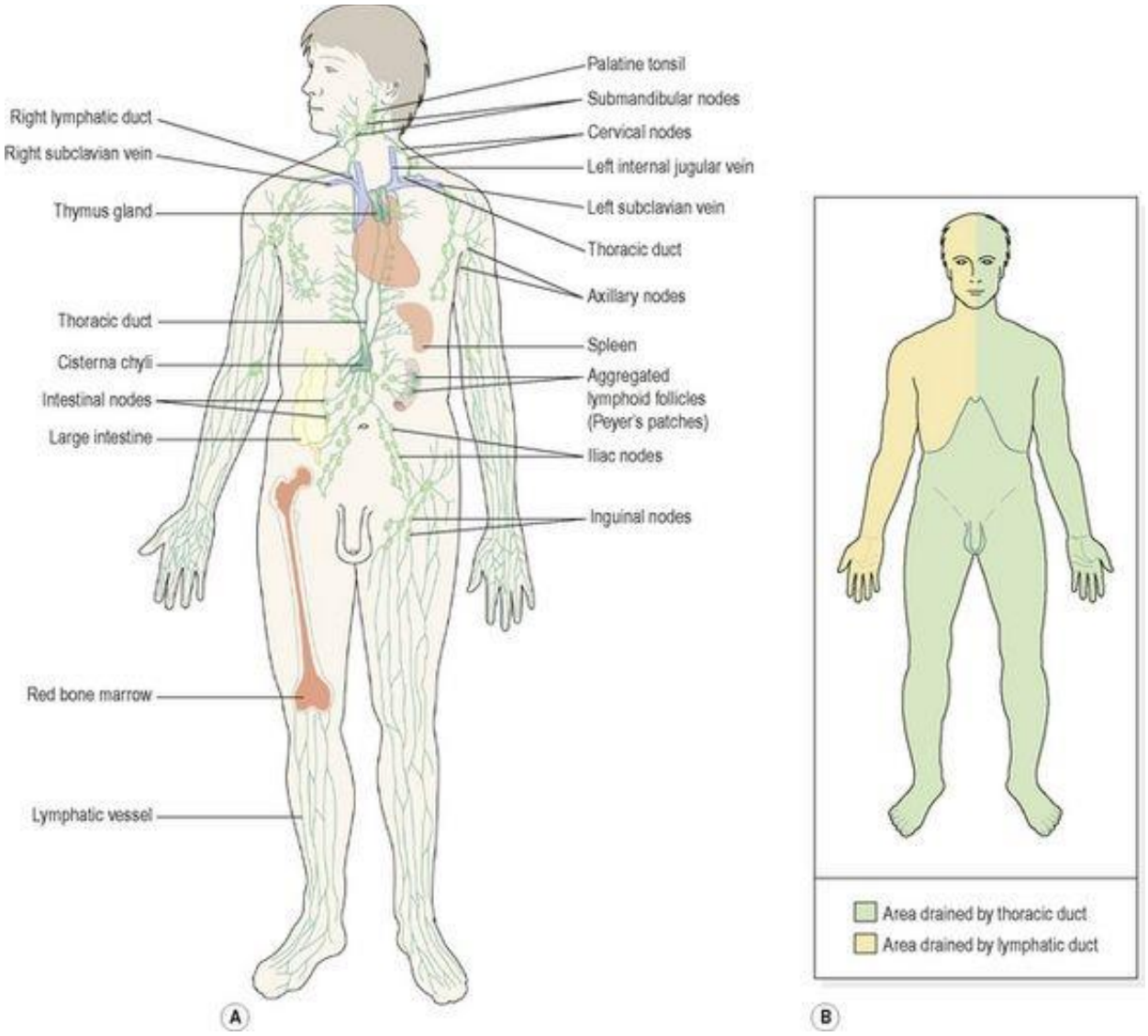
Lymphatic system

The cells of the body are bathed in *interstitial (tissue) fluid*, which leaks constantly out of the bloodstream through the permeable walls of blood capillaries. It is therefore very similar in composition to blood plasma. Some tissue fluid returns to the capillaries at their venous end and the remainder diffuses through the more permeable walls of the lymph capillaries, forming *lymph*.Lymph passes through vessels of increasing size and a varying number of *lymph nodes* before returning to the blood.

The lymphatic system consists of:

lymph
lymph vessels
lymph nodes
lymph organs, e.g. spleen and thymus
diffuse lymphoid tissue, e.g. tonsils
bone marrow.



A. Major parts of the lymphatic system. **B.** Regional drainage

Functions of the lymphatic system include the following.

Tissue drainage

1.Every day, around 21 litres of fluid from plasma, carrying dissolved substances and some plasma protein, escape from the arterial end of the capillaries and into the tissues. Most of this fluid is returned directly to the bloodstream via the capillary at its venous end, but the excess, about 3–4 litres of fluid, is drained away by the lymphatic vessels. Without this, the tissues would rapidly become waterlogged, and the cardiovascular system would begin to fail as the blood volume falls.

2. Absorption in the small intestine

Fat and fat-soluble materials, e.g. the fat-soluble vitamins, are absorbed into the central lacteals (lymphatic vessels) of the villi.

3.Immunity

The lymphatic organs are concerned with the production and maturation of lymphocytes, the white blood cells responsible for immunity. Bone marrow is therefore considered to be lymphatic tissue, since lymphocytes are produced there.