thymus gland, mass of glandular tissue located in the neck or chest of most vertebrate animals. In humans, the thymus is a soft, flattened, pinkish-gray organ located in the upper chest under the breastbone. It is relatively large in the newborn infant (about the size of the baby's fist), and continues to grow throughout childhood up to the age of puberty when it weighs about 1.2 oz (35 grams). Then it gradually decreases in size until it blends in with the surrounding tissue. The functions of the thymus were not well understood until the early 1960s, when its role in the development of the body's system of immunity was discovered. Beginning during fetal development, the thymus processes many of the body's lymphocytes, which migrate throughout the body via the bloodstream, seeding lymph nodes and other lymphatic tissue. The main cells undergoing this processing are the T cells, a heterogeneous groups of cells essential in protecting the body against invasions by foreign organisms (see immunity). If the thymus fails to develop or is removed early in fetal life, the immune system cannot develop completely. Normally, by the time the infant is a few months old, the immune system has sufficiently formed so as to function throughout life. However, further growth and development of lymphoid tissue still depends on intervention by the thymic cells. After the initial seeding process, the thymus releases a hormonal substance that stimulates further growth of lymphoidal tissue, although such a substance has not yet been isolated.
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