

Introduction

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Endocrine glands secrete hormones into the blood where they affect tissue elsewhere to influence bodily growth, development, activity, and repair. Hormone output depends largely on negative feedback processes. The main endocrine glands include the pituitary, thyroid, adrenals, pancreas, testes, and ovaries.

Pituitary gland Found at the base of the skull, this comprises the anterior and posterior pituitary. The anterior pituitary produces hormones stimulating the thyroid, adrenal cortex, ovarian follicles, ovaries, and testes. The posterior pituitary influences smooth muscle and the kidneys, with hormones from the brain's hypothalamus. That also largely controls hormone output from the pituitary gland.

Thyroid gland This gland at the front of the neck produces hormones increasing metabolic rate. The related parathyroid glands control calcium levels in blood.

Thymus Located behind the sternum (breastbone) this may influence growth and sexual maturation. It shrinks after puberty.

Pancreas This controls blood-sugar levels by insulin and glucagon secreted into the duodenum from the Islets of Langerhans in the pancreas.

Testes In males from puberty onward these produce testosterone, responsible for secondary sexual characteristics.

Ovaries In females from puberty onward these produce the hormones estrogen and progesterone, between them determining female secondary sexual characteristics and preparing the uterus for pregnancy. Ovulation - the bursting of a ripe ovum from an ovarian follicle - is influenced by hormones from the pituitary gland.