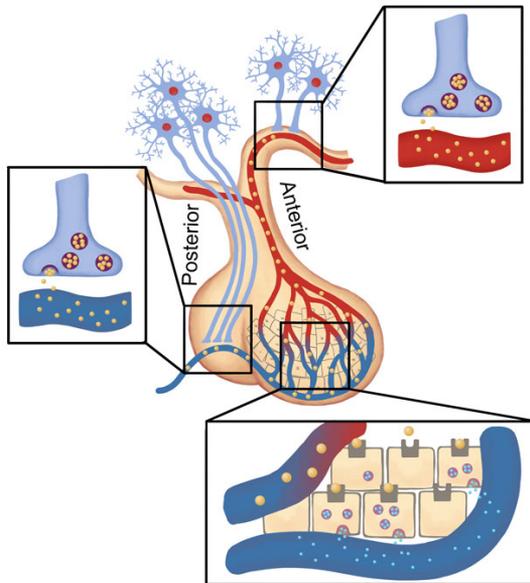


5.5.1

Structure and Function of the Hypothalamus and Pituitary Gland



Pituitary Gland and Hypothalamus

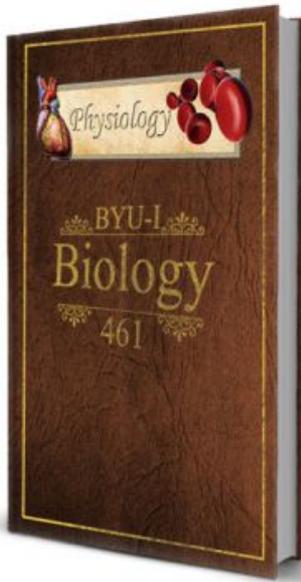
Created by BYU-Idaho Fall 2014

The image just above shows the pituitary gland and how it communicates with the hypothalamus. Notice that the posterior pituitary gland contains the axons and terminal ends of neurons that originate in the hypothalamus. The anterior pituitary gland contains cells that respond to signaling hormones from the hypothalamus. Neurons of the hypothalamus release a signaling hormone (represented by the tan balls in the image). These signaling hormones will stimulate anterior pituitary cells to either increase or decrease their release of other hormones that will travel through the body and act on specific target cells

The pituitary gland has been referred to as the "master gland" due to

its important role in regulating body functions. It is actually two glands in one, the **anterior pituitary** or **adenohypophysis** and the **posterior pituitary** or **neurohypophysis**.

The anterior pituitary is derived from epithelial tissue and thus has glandular properties. The posterior pituitary is composed of neural tissues and is actually an extension of the brain. Together, these two structures, or lobes, compose the pituitary gland. The pituitary is located in the sella turcica of the sphenoid bone and is connected to the hypothalamus by a stalk of tissue called the infundibulum. Although the pituitary regulates many other endocrine glands, its activity is controlled by the hypothalamus. Recall that the hypothalamus is the most inferior portion of the diencephalon and sits directly above the pituitary. The hypothalamus has the essential role of functioning as the interface between the nervous system and the endocrine system. Since these two systems are key for regulation of body function it stands to reason that there needs to be communication between the two and the hypothalamus is key in this interaction. It receives input from higher brain centers and, depending on the need, conveys that information to the endocrine system. Structurally the hypothalamus is composed of small clusters of neuron cell bodies called nuclei. Each nucleus has a unique function, such as secreting the neurohormones that regulate the anterior pituitary or producing hormones to be secreted by the posterior pituitary. The relationship between the hypothalamus and the pituitary is explained below.



Shaw, J. & Hunt, J. (n.d.). *BIO 461 Principles of Physiology*. EdTech Books.
https://edtechbooks.org/bio_461_principles_o