

## — Metabolic & Endocrine Health

The endocrine system is the collection of glands, each of which secretes different types of hormones that regulate metabolism, growth and development, tissue function, sexual function, reproduction, sleep and mood, among other things.

The endocrine system is made of eight major glands, which are groups of cells that produce and secrete chemicals. A gland selects and removes materials from the blood, processes them, and secretes the finished chemical product for use somewhere in the body. Almost every organ and cell in the body is affected by the endocrine system.

A group of glands that signal each other in sequence are usually referred to as an axis. One example is the hypothalamic-pituitary-adrenal axis, which coordinates interactions among the hypothalamus, the pituitary gland and the adrenal, also called "suprarenal" glands, which are small, conical organs on top of the kidneys.

The endocrine system sends signals throughout the body, much like the nervous system, but unlike the immediate responses triggered by the nervous system, the effects can take a few hours or weeks. Hormones released from endocrine tissue into the bloodstream where they travel to target tissue to elicit a response.

Endocrine glands are vascular and generally do not have ducts, using intracellular vacuoles, or granules, to store hormones. They differ from, exocrine glands – salivary glands, sweat glands and glands within the gastrointestinal tract – which have ducts or a hollow lumen.

The endocrine system gets some help from organs such as the kidney, liver, heart and gonads, which have secondary endocrine functions. The kidney, for example, secretes hormones such as erythropoietin and renin.

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### Thyroid

The thyroid is one of the endocrine glands, which make hormones. Thyroid hormones control the rate of many activities in your body. These include how fast you burn calories and how fast your heart beats. All of these activities are your body's metabolism. Thyroid problems include; goiter - enlargement of the thyroid gland, hyperthyroidism - when your thyroid gland makes more thyroid hormones than your body needs, hypothyroidism - when your thyroid gland does not make enough thyroid hormones, thyroid cancer, thyroid nodules - lumps in the thyroid gland, thyroiditis - swelling of the thyroid.

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#### T4, FREE

(ng/dL)

The free T4 test is not affected by protein levels. Since free T4 is the active form of thyroxine, the free T4 test is may be a more accurate reflection of thyroid hormone function.

