

## — 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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## Reproductive Hormones

ESTROGENS, TOT...  
(pg/mL)

99

Range: See Comments

### ESTROGENS, TOTAL, IA

(pg/mL)

Estrogen is a group of steroids that regulate the menstrual cycle and function as the main female sex hormones. Estrogens are responsible for the development of female sex organs and secondary sex characteristics and are tied to the menstrual cycle and pregnancy. They are considered the main sex hormones in women and are present in small quantities in men.

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#### Result Comments

Reference Ranges for Total Estrogen:

Follicular Phase:	51-601
Luteal Phase:	87-1194
Postmenopausal:	< or = 214