

Luteinizing Hormone (LH)

Luteinizing hormone (LH) is an important hormone both men and women produce. This hormone is known as a gonadotropin, and it affects the sex organs in both men and women. For women, it affects ovaries, and in men, it affects the testes. LH plays a role in puberty, menstruation, and fertility.

The amount of LH in your blood can indicate underlying problems associated with a variety of reproductive health issues.

LH is a hormone that's produced in the pituitary gland. The pituitary gland is located at the base of the brain, and it's roughly the size of a pea. If you're a woman, LH is an important part of your menstrual cycle. It works with follicle-stimulating hormone (FSH), which is another gonadotropin made in the pituitary gland. FSH stimulates the ovarian follicle, causing an egg to grow. It also triggers the production of estrogen in the follicle.

The rise in estrogen tells your pituitary gland to stop producing FSH and to start making more LH. The shift to LH causes the egg to be released from the ovary, a process called ovulation. In the empty follicle, cells proliferate, turning it into a corpus luteum. This structure releases progesterone, a hormone necessary to maintain pregnancy. If pregnancy doesn't occur, the levels of progesterone drop off and the cycle begins again.

For men, your pituitary gland also produces LH. The hormone binds to receptors in certain cells in your testes called Leydig cells. This leads to the release of testosterone, a hormone that's necessary for producing sperm cells.

Testing for LH

The following values are normal LH blood levels measured in international units per liter (IU/L).

For women: in the follicular phase of the menstrual cycle 1.9 to 12.5 IU/L; at the peak of the menstrual cycle 8.7 to 76.3 IU/L; in the luteal phase of the menstrual cycle 0.5 to 16.9 IU/L; pregnant women, less than 1.5 IU/L; past menopause: 15.9 to 54.0 IU/L; using contraceptives: 0.7 to 5.6 IU/L. Increased levels of LH and FSH can indicate a problem with your ovaries. This is known as primary ovarian failure. Some causes of primary ovarian failure: ovaries that are not properly developed; genetic abnormalities, such as Turner syndrome; exposure to radiation; history of taking chemotherapy drugs; autoimmune disorders; ovarian tumor; thyroid or adrenal disease; and polycystic ovary syndrome (PCOS). Low levels of both LH and FSH can indicate secondary ovarian failure. This means another part of your body causes ovarian failure. In many cases, this is the result of problems with the areas of your brain that make hormones, such as the pituitary gland.

For men: between the ages of 20 and 70: 0.7 to 7.9 IU/L; over 70: 3.1 to 34.0 IU/L. High LH levels can indicate primary testicular failure. The causes of this condition: chromosome abnormalities, such as Klinefelter syndrome; gonad development failure; a history of viral infections, such as the mumps; trauma; radiation exposure; history of taking chemotherapy medications; autoimmune disorders; and tumors. Secondary testicular failure can also be due to a brain-related cause, such as a disorder in the hypothalamus. Low levels of LH in adult males may lead to low testosterone levels, potentially causing such symptoms as: sexual dysfunction; lack of sexual interest; and fatigue.