

Clinical Use



- Diagnose and manage pubertal disorders
- Diagnose (including differential diagnosis) gonadal dysfunction
- Monitor FSH suppressive therapy

Reference Range

Males	IU/L
0-9 y	<3.0
10-13 y	0.3-4.0
14-17 y	0.4-7.4
Females	
0-8 y	0.5-4.5
9-13 y	0.4-6.5
14-17 y	0.8-8.5

In male infants, FSH peaks (typically 3.0-6.0 IU/L using this assay) at 4 months of age, falling to pre-pubertal levels by 1 year of age. In female infants, FSH peaks (as high as 30.0 IU/L using this assay) at 3 months of age, falling slowly to prepubertal levels by 1-2 years of age (Forest MG, Ducharme JR. Gonadotropic and gonadal hormones. In: Bertrand J, Rappaport R, Sizonenko PC, eds. *Pediatric Endocrinology*. 2nd ed. Baltimore, MD: Williams & Wilkins; 1993:100-120).

Interpretive Information

-  • Precocious puberty
- Primary hypogonadism
- Gonadotropin-secreting pituitary tumors
- Menopause
- Germinal cell aplasia
-  • Delayed puberty
- Hypothalamic GnRH deficiency
- Pituitary insufficiency
- Isolated FSH deficiency
- Isolated gonadotropin deficiency
- Hyperprolactinemia

Clinical Background

Follicle stimulating hormone (FSH, follitropin) is produced by the anterior pituitary gland after stimulation by hypothalamic gonadotropin releasing hormone (GnRH). FSH stimulates testicular inhibin and sperm production in males and ovarian inhibin and estrogen production in females. GnRH and FSH production are regulated by negative feedback systems, whereby low levels of gonadal hormones stimulate and high levels inhibit circulating FSH levels.

FSH is secreted transiently during infancy, after which the GnRH pulse generator controlling secretion becomes quiescent. Secretion is reactivated during pubescence, the first sign of which is increased FSH and LH secretion at night. Puberty progresses as gonadotropin secretion increases, and increasing gonadal responsiveness is associated with sustained increases in circulating sex hormone levels.

Method

- Immunochemiluminometric assay (ICMA)
- Analytical sensitivity: 0.05 IU/L

Specimen Requirements

0.5 mL refrigerated serum
0.3 mL minimum
No additive red top preferred
SST red top acceptable