HYPOGONADISM

Hypoandrogenism, Hypoestrogenism,

It is a medical term which describes a diminished functional activity of the gonads – the testes and ovaries in males and females, respectively.

Related Diagnoses:
- Varicocele
- Azoospermia
- Erectile dysfunction
- Obesity
- Polycystic ovary syndrome
- Anovulation
- Undescended testes
- Ejaculatory disorders
- Turner syndrome
- Klinefelter syndrome
- Kallmann syndrome
- Non-obstructive azoospermia
- XX male syndrome
- Delayed ejaculation
- Amenorrhoea
- Hyperprolactinemia
- Noonan syndrome
- Hypoestrogenism
- Hypoandrogenism

About Hypogonadism

Low androgen (e.g., testosterone) levels are referred to as hypoandrogenism and low estrogen (e.g., estradiol) as hypoestrogenism, and may occur as symptoms of hypogonadism in both sexes, but are generally only diagnosed in males and females respectively. Other hormones produced by the gonads which may be decreased by hypogonadism include progesterone, DHEA, anti-Müllerian hormone, activin, and inhibin.

Deficiency of sex hormones can result in defective primary or secondary sexual development, or withdrawal effects (e.g., premature menopause) in adults. Defective egg or sperm development results in infertility. The term hypogonadism is usually applied to permanent rather than transient or reversible defects, and usually implies deficiency of reproductive hormones, with or without fertility defects. The term is less commonly used for infertility without hormone deficiency. There are many possible types of hypogonadism and several ways to categorize them. Hypogonadism is also categorized by
endocrinologists by the level of the reproductive system that is defective. Physicians measure gonadotropins (LH and FSH) to distinguish primary from secondary hypogonadism.

**In primary hypogonadism** the LH and/or FSH are usually elevated, meaning the problem is in the testicles, whereas **in secondary hypogonadism**, both are normal or low, suggesting the problem is in the brain.

Primary defect is inherent within the gonad: e.g. Noonan syndrome, Turner syndrome (45X,0), Klinefelter syndrome (47XXY), XY females with SRY gene-immunity. Mumps is known to cause testicular failure, and a varicocele can reduce hormonal production as well.

Secondary defect lies outside of the gonad: e.g. Polycystic ovary syndrome, and Kallmann syndrome, also called hypogonadotropic hypogonadism. Hemochromatosis and diabetes mellitus can be causes of this as well.

Examples of congenital causes of hypogonadism, that is, causes that are present at birth:

Turner syndrome in females, and

Klinefelter syndrome in males. It is also one of the signs of CHARGE syndrome.

Examples of acquired causes of hypogonadism:

Opioid Induced Androgen Deficiency (resulting from the prolonged use of opioid class drugs, e.g. morphine, oxycodone, methadone, fentanyl, hydromorphone)

Anabolic steroid-induced hypogonadism (ASIH)

Childhood mumps

Children born to mothers who had ingested the endocrine disruptor diethylstilbestrol for potential miscarriage

Traumatic brain injury, even in childhood

In males, normal aging causes a decrease in androgens, which is sometimes called "male menopause" (also known by the coinage "manopause"), late-onset hypogonadism (LOH), and andropause or androgen decline in the aging male (ADAM), among other name
Impact on fertility

Spermatogenesis and ovulation in males and females, respectively, may be impaired by hypogonadism, which, depending on the degree of severity, may result in partial or complete infertility.

Symptoms

**Women** with hypogonadism will not begin menstruating and it may affect their height and breast development. Onset in women after puberty causes cessation of menstruation, lowered libido, loss of body hair and hot flashes. In boys it causes impaired muscle and beard development and reduced height.

**In men** it can cause reduced body hair and beard, enlarged breasts, loss of muscle, and sexual difficulties. A brain tumor (central hypogonadism) may involve headaches, impaired vision, milky discharge from the breast and symptoms caused by other hormone problems.

The symptoms of hypogonadotrophic hypogonadism, a subtype of hypogonadism, include late, incomplete or lack of development at puberty, and sometimes short stature or the inability to smell; in females, a lack of breasts and menstrual periods, and in males a lack of sexual development, e.g., facial hair, penis and testes enlargement, deepening voice.

Therapies

**Conventional medicine**

For women, estradiol and progesterone are replaced. Some types of fertility defects can be treated, others cannot. Some physicians will also give testosterone to women, mainly to increase libido.
Male hypogonadism is most often treated with testosterone replacement therapy (TRT) in patients who are not trying to conceive. Adverse effects of testosterone replacement therapy include increased cardiovascular events (including strokes and heart attacks) and deaths.

Find more about related issues

**Diagnoses**

**Varicocele**
An abnormal enlargement of the pampiniform venous plexus in the scrotum.
Learn more at: [www.fertilitypedia.org/therapy/diag/varicocele](http://www.fertilitypedia.org/therapy/diag/varicocele)

**Azoospermia**
Complete absence of sperm in the ejaculate of a man.
Learn more at: [www.fertilitypedia.org/therapy/diag/azoospermia](http://www.fertilitypedia.org/therapy/diag/azoospermia)

**Erectile dysfunction**
The inability (that lasts more than 6 months) to develop or maintain an erection of the penis during sexual activity.
Learn more at: [www.fertilitypedia.org/therapy/diag/erectile-dysfunction](http://www.fertilitypedia.org/therapy/diag/erectile-dysfunction)

**Obesity**
A disease of excess body fat that can have a negative effect on health, leading to reduced life expectancy and other health problems.
Learn more at: [www.fertilitypedia.org/therapy/diag/obesity](http://www.fertilitypedia.org/therapy/diag/obesity)

**Polycystic ovary syndrome**
Polycystic ovary syndrome is a condition in which a woman has an imbalance of female sex hormones and cysts in the ovaries.
Learn more at: [www.fertilitypedia.org/therapy/diag/polycystic-ovary-syndrome](http://www.fertilitypedia.org/therapy/diag/polycystic-ovary-syndrome)

**Anovulation**
Failure of the ovaries to release an oocyte over a period of time generally exceeding 3 months.
Learn more at: [www.fertilitypedia.org/therapy/diag/anovulation](http://www.fertilitypedia.org/therapy/diag/anovulation)
Undescended testes
In the case of cryptorchidism one or both testes are absent from the scrotum. It is the most common etiologic factor of azoospermy in the adult.
Learn more at: www.fertilitypedia.org/therapy/diag/undescended-testes

Ejaculatory disorders
A class of sexual disorders defined as the subjective lack of normal ejaculation.
Learn more at: www.fertilitypedia.org/therapy/diag/ejaculatory-disorders

Turner syndrome
Turner syndrome is a genetic disorder in which a female is partly or completely missing one X chromosome that results in ovarian dysgenesis.
Learn more at: www.fertilitypedia.org/therapy/diag/turner-syndrome

Klinefelter syndrome
The set of symptoms that result from two or more X chromosome in males.
Learn more at: www.fertilitypedia.org/therapy/diag/klinefelter-syndrome

Kallmann syndrome
A genetic condition where the primary symptom is a failure to start puberty or a failure to fully complete puberty.
Learn more at: www.fertilitypedia.org/therapy/diag/kallmann-syndrome

Non-obstructive azoospermia
Complete absence of sperm in the ejaculate due to testicular failure.
Learn more at: www.fertilitypedia.org/therapy/diag/non-obstructive-azoospermia

XX male syndrome
The male sex chromosomal disorder characterized by a spectrum of clinical presentations, ranging from ambiguous to normal male genitalia.
Learn more at: www.fertilitypedia.org/therapy/diag/xx-male-syndrome

Delayed ejaculation
A man's inability for or persistent difficulty in achieving orgasm, despite typical sexual desire and sexual stimulation.
Learn more at: www.fertilitypedia.org/therapy/diag/delayed-ejaculation
**Amenorrhoea**
The absence of a menstrual period in women of reproductive age.
Learn more at: [www.fertilitypedia.org/therapy/diag/amenorrhoea](http://www.fertilitypedia.org/therapy/diag/amenorrhoea)

**Hyperprolactinemia**
The presence of abnormally high levels of prolactin in the blood.
Learn more at: [www.fertilitypedia.org/therapy/diag/hyperprolactinemia](http://www.fertilitypedia.org/therapy/diag/hyperprolactinemia)

**Noonan syndrome**
A frequent autosomal dominant developmental disorder primarily characterized by short stature, typical facial features and heart defects.
Learn more at: [www.fertilitypedia.org/therapy/diag/noonan-syndrome](http://www.fertilitypedia.org/therapy/diag/noonan-syndrome)

**Hypoestrogenism**
A lower than normal level of estrogen which is the primary sex hormone in women.
Learn more at: [www.fertilitypedia.org/therapy/diag/hypoestrogenism](http://www.fertilitypedia.org/therapy/diag/hypoestrogenism)

**Hypoandrogenism**
A medical condition characterized by not enough androgenic activity in the body.
Learn more at: [www.fertilitypedia.org/therapy/diag/hypoandrogenism](http://www.fertilitypedia.org/therapy/diag/hypoandrogenism)

**Organs**

**Fallopian tubes**
Two very fine tubes that transport sperm toward the egg, and allow passage of the fertilized egg back to the uterus for implantation.
Learn more at: [www.fertilitypedia.org/edu/organs/fallopian-tubes](http://www.fertilitypedia.org/edu/organs/fallopian-tubes)

**Hypothalamus**
A region of the forebrain that regulates body temperature, some metabolic processes and governs the autonomic nervous system.
Learn more at: [www.fertilitypedia.org/edu/organs/hypothalamus](http://www.fertilitypedia.org/edu/organs/hypothalamus)

**Ovary**
The ovum-producing organs of the internal female reproductive system
Learn more at: [www.fertilitypedia.org/edu/organs/ovary](http://www.fertilitypedia.org/edu/organs/ovary)
**Penis**  
Internal male sex organ that additionally serves as the urinal duct.  
Learn more at: [www.fertilitypedia.org/edu/organs/penis](http://www.fertilitypedia.org/edu/organs/penis)

**Pituitary gland**  
An endocrine gland, about the size of a pea, whose secretions control the other endocrine glands and influence growth, metabolism, and maturation.  
Learn more at: [www.fertilitypedia.org/edu/organs/pituitary-gland](http://www.fertilitypedia.org/edu/organs/pituitary-gland)

**Testes**  
Male gonads which produce both sperm and androgens, such as testosterone, and are active throughout the reproductive lifespan of the male.  
Learn more at: [www.fertilitypedia.org/edu/organs/testes](http://www.fertilitypedia.org/edu/organs/testes)

**Uterus**  
The uterus is the largest and major organ of the female reproductive tract that is the site of fetal growth and is hormonally responsive.  
Learn more at: [www.fertilitypedia.org/edu/organs/uterus](http://www.fertilitypedia.org/edu/organs/uterus)

**Reproductive cells**

**Oocyte**  
A female germ cell involved in reproduction.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-cells/oocyte](http://www.fertilitypedia.org/edu/reproductive-cells/oocyte)

**Sperm**  
A male reproductive cell which is able to fertilize the counterpart female gamete - the oocyte.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-cells/sperm](http://www.fertilitypedia.org/edu/reproductive-cells/sperm)

**Spermatogonium**  
An undifferentiated male germ cell with self-renewing capacity representing the first stage of spermatogenesis.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-cells/spermatogonium](http://www.fertilitypedia.org/edu/reproductive-cells/spermatogonium)

**Biological control**

**Estradiol**  
A steroid and estrogen sex hormone produced in the ovaries of females.  
Learn more at: [www.fertilitypedia.org/edu/biological-control/estradiol](http://www.fertilitypedia.org/edu/biological-control/estradiol)
**Estrogen**
The primary female sex hormone responsible for the development and regulation of the female reproductive system and secondary sex characteristics.
Learn more at: [www.fertilitypedia.org/edu/biological-control/estrogen](http://www.fertilitypedia.org/edu/biological-control/estrogen)

**Follicle-stimulating hormone**
FSH is a hormone secreted by the anterior pituitary gland. It regulates the development, growth, pubertal matur and reproductive functions of the body
Learn more at: [www.fertilitypedia.org/edu/biological-control/follicle-stimulating-hormone](http://www.fertilitypedia.org/edu/biological-control/follicle-stimulating-hormone)

**Gonadotropin-releasing hormone**
A releasing hormone responsible for the release of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) from the anterior pituitary.
Learn more at: [www.fertilitypedia.org/edu/biological-control/gonadotropin-releasing-hormone](http://www.fertilitypedia.org/edu/biological-control/gonadotropin-releasing-hormone)

**Luteinizing hormone**
A hormone, that stimulates ovulation and the development of the corpus luteum in females, and the production of androgens in males.
Learn more at: [www.fertilitypedia.org/edu/biological-control/luteinizing-hormone](http://www.fertilitypedia.org/edu/biological-control/luteinizing-hormone)

**Progesterone**
Steroid hormone, secreted by the ovaries, whose function is to prepare the uterus for the implantation of a fertilized ovum and to maintain pregnancy.
Learn more at: [www.fertilitypedia.org/edu/biological-control/progesterone](http://www.fertilitypedia.org/edu/biological-control/progesterone)

**Testosterone**
Steroid hormone produced primarily in the testes of the male; responsible for the development of secondary sex characteristics in the male.
Learn more at: [www.fertilitypedia.org/edu/biological-control/testosterone](http://www.fertilitypedia.org/edu/biological-control/testosterone)

**Reproductive functions**

**Erection**
The physiological process by which a penis becomes erect by being engorged with blood.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/erection](http://www.fertilitypedia.org/edu/reproductive-functions/erection)
**Fertilization**  
The fusion of an ovum with a sperm to initiate the development of a new individual organism.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/fertilization](http://www.fertilitypedia.org/edu/reproductive-functions/fertilization)

**Oogenesis**  
The process of the maturation of the female gametes through the meiotic division.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/oogenesis](http://www.fertilitypedia.org/edu/reproductive-functions/oogenesis)

**Ovulation**  
The release of egg(s) from the ovaries.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/ovulation](http://www.fertilitypedia.org/edu/reproductive-functions/ovulation)

**Spermatogenesis**  
The process in which spermatozoa are produced from male primordial germ cells in testicles by way of mitosis and meiosis.  
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/spermatogenesis](http://www.fertilitypedia.org/edu/reproductive-functions/spermatogenesis)

⚠️ **Risk factors**

**Hemochromatosis**  
An accumulation of iron in the body from any cause.  
Learn more at: [www.fertilitypedia.org/therapy/rf/hemochromatosis](http://www.fertilitypedia.org/therapy/rf/hemochromatosis)

**High level of FSH**  
It is a condition with high serum FSH concentration.  
Learn more at: [www.fertilitypedia.org/therapy/rf/high-level-of-fsh](http://www.fertilitypedia.org/therapy/rf/high-level-of-fsh)

**High level of LH**  
A condition with high blood luteinizing hormone (LH) leading to irregular periods and reduced fertility in both females and males.  
Learn more at: [www.fertilitypedia.org/therapy/rf/high-level-of-lh](http://www.fertilitypedia.org/therapy/rf/high-level-of-lh)

**Low level of estrogen**  
A diminished level of blood estrogen level.  
Learn more at: [www.fertilitypedia.org/therapy/rf/low-level-of-estrogen](http://www.fertilitypedia.org/therapy/rf/low-level-of-estrogen)
Low level of FSH
A condition with low serum follicle–stimulating hormone (FSH) concentration.
Learn more at: www.fertilitypedia.org/therapy/rf/low-level-of-fsh

Low level of LH
A serum luteinizing hormone (LH) levels under normal serum concentration for gender and age.
Learn more at: www.fertilitypedia.org/therapy/rf/low-level-of-lh

Low level of testosterone
An abnormally low testosterone production which may occur because of testicular or hypothalamic-pituitary dysfunction.
Learn more at: www.fertilitypedia.org/therapy/rf/low-level-of-testosterone

Mumps
An infection that primarily affects the parotid glands, caused by the mumps virus which can impair male fertility.
Learn more at: www.fertilitypedia.org/therapy/rf/mumps

Symptoms

Absence of menstrual periods
The absence of a menstrual period in a woman of reproductive age.
Learn more at: www.fertilitypedia.org/edu/symptoms/absence-of-menstrual-periods-1

Delayed puberty
An organism has passed the usual age of onset of puberty with no physical or hormonal signs.
Learn more at: www.fertilitypedia.org/edu/symptoms/delayed-puberty

Disturbed sense of smell
A qualitative and quantitative alteration or distortion of the perception of smell.
Learn more at: www.fertilitypedia.org/edu/symptoms/disturbed-sense-of-smell

Gynecomastia
A disorder of the endocrine system in which there is a non-cancerous swelling of the breast tissue in boys or men.
Learn more at: www.fertilitypedia.org/edu/symptoms/gynecomastia
Hypospadias
A birth defect of the urethra in the male where the urinary opening is not at the usual location on the head of the penis.
Learn more at: www.fertilitypedia.org/edu/symptoms/hypospadias

Impaired muscle and beard development
Reduced body hair and loss of muscle mass in males.
Learn more at: www.fertilitypedia.org/edu/symptoms/impaired-muscle-and-beard-development

Infertility
The failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.
Learn more at: www.fertilitypedia.org/edu/symptoms/infertility

Lack of breasts development and menstrual periods
Learn more at: www.fertilitypedia.org/edu/symptoms/lack-of-breasts-development-and-menstrual-periods

Low facial and body hair growth
Decrease of facial and body hair in males.
Learn more at: www.fertilitypedia.org/edu/symptoms/low-facial-and-body-hair-growth

Lowered libido
The absence of sexual appetite.
Learn more at: www.fertilitypedia.org/edu/symptoms/lowered-libido

Reduced height
A height of a human being which is below typical.
Learn more at: www.fertilitypedia.org/edu/symptoms/reduced-height

Small penis
An adult penis with an erect length of less than 7 cm or 2.76 inches.
Learn more at: www.fertilitypedia.org/edu/symptoms/small-penis

Small testes
Abnormally small testicular volume.
Learn more at: www.fertilitypedia.org/edu/symptoms/small-testes
Therapies

**Egg donation**
Process by which a woman donates eggs for purposes of assisted reproduction or biomedical research.
Learn more at: [www.fertilitypedia.org/edu/therapies/egg-donation](http://www.fertilitypedia.org/edu/therapies/egg-donation)

**Embryo donation**
The giving of embryo to another person or couple for conception or to research.
Learn more at: [www.fertilitypedia.org/edu/therapies/embryo-donation](http://www.fertilitypedia.org/edu/therapies/embryo-donation)

**ICSI**
A micromanipulative fertilization technique in which a single sperm is injected directly into an egg.
Learn more at: [www.fertilitypedia.org/edu/therapies/icsi](http://www.fertilitypedia.org/edu/therapies/icsi)

**Laser-assisted immotile sperm selection**
Method, which uses a laser to identify viable sperm cell, recommended in MESA/TESA IVF cycles or in patients diagnosed with sperm immotility.
Learn more at: [www.fertilitypedia.org/edu/therapies/laser-assisted-immotile-sperm-selection-1](http://www.fertilitypedia.org/edu/therapies/laser-assisted-immotile-sperm-selection-1)

**Micro TESE**
Microsurgical method used to identify areas of sperm production within the testes with the aid of optical magnification.
Learn more at: [www.fertilitypedia.org/edu/therapies/micro-tese](http://www.fertilitypedia.org/edu/therapies/micro-tese)

**PESA**
Sperm aspiration procedure in which a needle is inserted into the epididymis in order to retrieve sperm.
Learn more at: [www.fertilitypedia.org/edu/therapies/pesa](http://www.fertilitypedia.org/edu/therapies/pesa)

**Preimplantation genetic diagnosis**
Technology that allows couples with a family history of monogenic disorders, x-linked diseases and chromosomal abnormality to have a healthy baby.
Learn more at: [www.fertilitypedia.org/edu/therapies/preimplantation-genetic-diagnosis](http://www.fertilitypedia.org/edu/therapies/preimplantation-genetic-diagnosis)
**Preimplantation genetic screening**
The term PGS is used to denote procedures that do not look for a specific disease but to identify embryos at risk of de-novo occurring aneuploidies.
Learn more at: [www.fertilitypedia.org/edu/therapies/preimplantation-genetic-screening-1](http://www.fertilitypedia.org/edu/therapies/preimplantation-genetic-screening-1)

**Sperm donation**
The procedure in which a man (sperm donor) provides his sperm for fertility treatment.
Learn more at: [www.fertilitypedia.org/edu/therapies/sperm-donation](http://www.fertilitypedia.org/edu/therapies/sperm-donation)

**Standard IVF**
A process in which an egg is fertilised by sperm outside the body: in vitro. Own or donated gametes may be used.
Learn more at: [www.fertilitypedia.org/edu/therapies/standard-ivf](http://www.fertilitypedia.org/edu/therapies/standard-ivf)

**TESE**
Removal of a small portion of testicular tissue in order to extract a few viable sperm.
Learn more at: [www.fertilitypedia.org/edu/therapies/tese](http://www.fertilitypedia.org/edu/therapies/tese)