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**Male infertility** refers to a male's inability to cause pregnancy in a fertile female. In humans it accounts for 40–50% of infertility It affects approximately 7% of all men. Male infertility is could be due to low sperm production, abnormal sperm function or blockages that prevent the delivery of sperm. Illnesses, injuries, chronic health problems, lifestyle choices and other factors can play a role in causing male infertility.The main sign of male infertility is the inability to conceive a child. There may be no other obvious signs or symptoms. In some cases, however, an underlying problem such as an inherited disorder, a hormonal imbalance, dilated veins around the testicle or a condition that blocks the passage of sperm causes signs and symptoms.Although most men with male infertility do not notice symptoms other than the inability to conceive a child, signs and symptoms associated with male infertility include:

* Problems with sexual function — for example, difficulty with ejaculation or small volumes of fluid ejaculated, reduced sexual desire, or difficulty maintaining an erection (erectile dysfunction)
* Pain, swelling or a lump in the testicle area
* Recurrent respiratory infections
* Inability to smell
* Abnormal breast growth (gynecomastia)
* Decreased facial or body hair or other signs of a chromosomal or hormonal abnormality
* A lower than normal sperm count (fewer than 15 million sperm per milliliter of semen or a total sperm count of less than 39 million per ejaculate)
* **Spermatogenesis**, the origin and development of the [sperm cells](https://www.britannica.com/science/sperm) within the male [reproductive](https://www.britannica.com/science/human-reproductive-system) organs, the [testes](https://www.britannica.com/science/testis). The testes are composed of numerous thin, tightly coiled tubules known as the [seminiferous tubules;](https://www.britannica.com/science/seminiferous-tubule) the sperm cells are produced within the walls of the tubules. Within the walls of the tubules, also, are many randomly scattered cells, called [Sertoli cells](https://www.britannica.com/science/Sertoli-cell), that function to support and nourish the immature sperm cells by giving them nutrients and blood products. As the young germ cells grow, the Sertoli cells help to transport them from the outer surface of the seminiferous tubule to the central channel of the tubule. Sperm cells are continually being produced by the testes, but not all areas of the seminiferous tubules produce sperm cells at the same time. One immature germ [cell](https://www.britannica.com/science/cell-biology) takes as long as 74 days to reach final maturation, and during this growth process there are [intermittent](https://www.merriam-webster.com/dictionary/intermittent) resting phases. The immature cells (called [spermatogonia](https://www.britannica.com/science/spermatogonium)) are all derived from cells called [stem cells](https://www.britannica.com/science/stem-cell) in the outer wall of the seminiferous tubules. The stem cells are composed almost entirely of nuclear material. (The nucleus of the cell is the portion containing the chromosomes.) The stem cells begin their process by multiplying in the process of cell duplication known as [mitosis](https://www.britannica.com/science/mitosis). Half of the new cells from this initial crop go on to become the future sperm cells, and the other half remain as stem cells so that there is a constant source of additional germ cells. Spermatogonia destined to develop into mature sperm cells are known as primary sperm cells. These move from the outer portion of the seminiferous tubule to a more central location and attach themselves around the Sertoli cells. The primary sperm cells then develop somewhat by increasing the amount of [cytoplasm](https://www.britannica.com/science/cytoplasm) (substances outside of the nucleus) and structures called organelles within the cytoplasm. After a resting phase the primary cells [divide into a form](https://www.britannica.com/science/meiosis-cytology) called a secondary sperm cell. The secondary sperm cell still must mature before it can fertilize an egg; maturation entails certain changes in the shape and form of the sperm cell. The nuclear material becomes more condensed and oval in shape; this area develops as the head of the sperm. The head is covered partially by a cap, called the acrosome, which is important in helping the sperm to gain entry into the egg. Attached to the opposite end of the head is the tailpiece. The tail is derived from the secondary sperm cell’s cytoplasm. In the mature sperm, it consists of a long, slender bundle of filaments that propel the sperm by their undulating movement. Once the sperm has matured, it is transported through the long seminiferous tubules and stored in the [epididymis](https://www.britannica.com/science/epididyme) of the testes until it is ready to leave the male body.
* Semen is an organic fluid, also known as seminal fluid, that may contain spermatozoa. It is secreted by the gonads (sexual glands) and can fertilize female ova. In humans, seminal fluid contains several components besides spermatozoa, including enzymes (proteolytic and others) and fructose. These elements promote the survival of spermatozoa and provide a medium for motility. Semen is produced and originates from the seminal vesicles, located in the pelvis. The process that results in the discharge of semen is called ejaculation.During the process of ejaculation, sperm pass through the ejaculatory ducts and mix with fluids from the seminal vesicle, the prostate, and the bulbourethral glands to form semen. The seminal vesicles produce a yellowish viscous fluid rich in fructose, amino acids, and other substances that make up about 70% of human semen. The prostatic secretion, influenced by dihydrotestosterone, is a whitish (sometimes clear), thin fluid containing proteolytic enzymes, citric acid, acid phosphatase, and lipids. The bulbourethral glands secrete a clear fluid to lubricate the lumen of the urethra.Sertoli cells, which nurture and support developing spermatocytes, secrete a fluid into seminiferous tubules that helps transport sperm to the genital ducts. The ductuli efferentes possess cuboidal cells with microvilli and lysosomal granules that modify the semen by reabsorbing some fluid. Once the semen enters the ductus epididymis, the principal cells (which contain pinocytotic vessels indicating fluid reabsorption) secrete glycerophosphocholine, which most likely inhibits premature capacitation.The seminal plasma provides a nutritive and protective medium for the spermatozoa during their journey through the female reproductive tract. The normal environment of the vagina is a hostile one for sperm cells, as it is acidic (from the native microflora producing lactic acid), viscous, and patrolled by immune cells. The components in the seminal plasma attempt to compensate for this hostile environment. Basic amines such as putrescine, spermine, spermidine, and cadaverine are responsible for the smell and flavor of semen. These alkaline bases counteract the acidic environment of the vaginal canal and protect DNA inside the sperm from acidic denaturation.
* **Testosterone** is the primary [male](https://en.wikipedia.org/wiki/Male) [sex hormone](https://en.wikipedia.org/wiki/Sex_hormone) and [anabolic steroid](https://en.wikipedia.org/wiki/Anabolic_steroid) In male humans, testosterone plays a key role in the development of [male reproductive](https://en.wikipedia.org/wiki/Male_reproductive_system) tissues such as [testes](https://en.wikipedia.org/wiki/Testes) and [prostate](https://en.wikipedia.org/wiki/Prostate), as well as promoting [secondary sexual characteristics](https://en.wikipedia.org/wiki/Secondary_sexual_characteristic) such as increased [muscle](https://en.wikipedia.org/wiki/Muscle) and [bone](https://en.wikipedia.org/wiki/Bone) mass, and the growth of [body hair](https://en.wikipedia.org/wiki/Androgenic_hair).[]](https://en.wikipedia.org/wiki/Testosterone#cite_note-Mooradian_1987-4) In addition, testosterone is involved in health and well-being, and the prevention of [osteoporosis](https://en.wikipedia.org/wiki/Osteoporosis). Insufficient levels of testosterone in men may lead to abnormalities including frailty and bone loss.
* **Male orgasm** begins with sensory and mental stimulation in which the brain sends nerve messages to the penis in order to stimulate it and produce an erection. During sexual arousal, impulses from the brain and nerves in the penis cause the arterial muscles of the corpora cavernosa to relax, allowing blood to flow in and fill the open spaces. The blood creates pressure within the corpora cavernosa, making the penis expand, thereby creating an erection. The membrane surrounding the corpora cavernosa, the tunica albuginea, helps trap the blood in the corpora cavernosa, by occluding the venous outflow, and sustain the erection. The erection is lost when arterial muscles in the penis contract after ejaculation, stopping the inflow of blood and opening outflow channels.Sexual intercourse produces stimulation and friction, which provide the impulses that are delivered to the spinal cord and into the brain. A reflex action controlled by the central nervous system, ejaculation is triggered when the sexual act reaches a critical level of excitement. Ejaculation has two phases. In the first phase, the tubes that store and transport sperm from the testes (vas deferens) contract to squeeze the sperm toward the base of the penis. Simultaneously the prostate gland (walnut-sized gland located between the bladder and the penis, just in front of the rectum) and seminal vesicles (pair of pouch-like glands behind the bladder) release secretions to make seminal fluid. At this stage, ejaculation is unstoppable. In the second phase of ejaculation, muscles at the base of the penis contract every 0.8 seconds and force the semen out of the penis in up to 5 spurts.On average, ejaculation occurs within 4 to 8 minutes after the start of sexual intercourse.