

Male Infertility

A plain-English guide for you and your family

WHAT IS HAPPENING

Male infertility means a couple has tried for a year to get pregnant and the reason is on the man's side. Think of it like a factory that makes and ships a product. First, the brain (the hypothalamus and pituitary, two control centers deep inside your head) sends chemical signals to the testicles to make sperm. The testicles then make millions of tiny sperm cells every day and also make testosterone, the main male hormone. Once made, the sperm travel through a series of tubes (the epididymis, then the vas deferens) where they grow stronger and learn to swim. Finally, during sex, muscles squeeze the sperm out through the urethra (the tube inside the penis). If any step breaks—the brain does not send the signal, the testicles cannot make sperm, the tubes are blocked, or the sperm shoot backward into the bladder instead of out—then pregnancy cannot happen. The first test is always a semen analysis, where the lab counts how many sperm are in the fluid, checks if they swim well, and looks at their shape. That one test tells you which part of the factory is broken, and then the doctor can trace it back and fix the real problem.

What you might feel

- Low sperm count (fewer than 15 million sperm per milliliter of semen)
- Poor sperm movement (fewer than 40% of sperm swim forward)
- Abnormal sperm shape (fewer than 4% have a normal oval head and single tail)
- Small or soft testicles (less than 4 cm long, or softer than normal firm feel)
- Visible or palpable varicocele (swollen, twisted veins above the testicle, usually on the left side, that feel like a bag of worms)
- Absent vas deferens on physical exam (the tube that carries sperm from the testicle to the urethra cannot be felt)
- No semen comes out during ejaculation (dry orgasm)
- Reduced sexual desire or difficulty getting or keeping an erection

Call the doctor right away if...

- No sperm at all in the semen on two separate tests (may mean a blockage in both vas deferens or complete testicular failure—needs urgent urology referral)
- Hard lump or swelling in the testicle (could be testicular cancer, which can raise hormone levels and harm fertility)
- Sudden severe testicular pain with swelling (may be testicular torsion, where the testicle twists and cuts off its own blood supply—this is a surgical emergency to save the testicle)
- Milky or cloudy discharge from the penis between ejaculations (may signal an untreated sexually transmitted infection that can scar the reproductive tract)

What the care team will do

- Teach the patient to stop using testosterone, anabolic steroids, or bodybuilding supplements immediately if he is taking them.
- Schedule semen analysis after two to five days without ejaculation and teach the patient to collect the sample by masturbation into a sterile cup within one hour of drop-off.
- Coordinate morning blood draw for FSH, LH, and testosterone levels before nine in the morning.
- Teach lifestyle changes including stopping smoking, limiting alcohol to two drinks per day, losing weight if BMI is over thirty, and avoiding hot tubs and saunas.
- Perform and document testicular exam noting size, firmness, and presence of varicocele by having the patient stand and bear down while you palpate above the testicle for a bag-of-worms feeling.
- Refer to urology for testicular ultrasound if the physical exam shows varicocele, a mass, very small testicles under fifteen milliliters volume, or if semen analysis shows azoospermia (zero sperm).
- Educate both partners that male factor alone causes infertility thirty percent of the time, but both male and female factors together cause it another thirty percent, so the female partner also needs evaluation.
- Provide emotional support and normalize that infertility causes depression, anxiety, and relationship stress equal to cancer or heart disease diagnosis.

Medicines you may be given — and why

Clomiphene citrate

Clomiphene blocks estrogen (a hormone) from reaching sensors in the hypothalamus (the brain's control center for hormones). When those sensors think estrogen is low, they send more

GnRH (a signal hormone) to the pituitary gland, which then releases more LH and FSH (hormones that tell the testicles to make testosterone and sperm). This medicine is used when a man's brain isn't sending enough signal to his testicles, causing low testosterone and low sperm count.

Human chorionic gonadotropin (hCG)

hCG is a hormone injection that acts exactly like LH (luteinizing hormone), the natural signal from the pituitary gland that tells the testicles to make testosterone. It is used when the pituitary isn't releasing enough LH—often in men with hypogonadotropic hypogonadism (a condition where the brain's hormone signals are too low). By giving hCG, you replace the missing signal and restart testosterone and sperm production.

Recombinant FSH (follitropin alfa or beta)

Recombinant FSH is a lab-made copy of FSH (follicle-stimulating hormone), the natural signal from the pituitary gland that tells the testicles to make sperm. It is used in men whose pituitary isn't sending enough FSH—usually combined with hCG. FSH works on Sertoli cells (nurse cells inside the testicles that feed and organize developing sperm), pushing them to support sperm production.

Pseudoephedrine or imipramine

These medicines tighten the muscle at the bladder neck (the doorway between the bladder and the urethra) during ejaculation. Normally that muscle closes to push semen forward and out through the penis. In retrograde ejaculation (backward ejaculation), the muscle stays open, so semen flows backward into the bladder instead of out. Pseudoephedrine and imipramine help the muscle squeeze shut, redirecting semen forward. If the medicine works, sperm will appear in the ejaculate and can be used naturally or collected for assisted reproduction.

Aromatase inhibitors (anastrozole, letrozole)

Aromatase inhibitors block aromatase, the enzyme that converts testosterone into estrogen (estradiol). Some men with infertility have high estrogen levels, which tell the hypothalamus and pituitary to stop sending signals to the testicles. By lowering estrogen, these medicines allow the brain to release more GnRH, LH, and FSH, which in turn boost testosterone and sperm production. They are used off-label in men with a high testosterone-to-estrogen ratio problem or mild hypogonadism.

Antibiotics (doxycycline, azithromycin, levofloxacin)

Antibiotics kill or stop bacteria from growing. They are used when infertility is caused by a bacterial infection in the reproductive tract—such as epididymitis (infection of the coiled tube behind the testicle), orchitis (testicle infection), or prostatitis (prostate infection). Infection can block sperm flow, damage sperm quality, and cause inflammation. Treating the infection can

reduce inflammation, clear blockages, and improve sperm health. The specific antibiotic is chosen based on the likely bacteria and culture results if available.

Where this information comes from

- American Urological Association (AUA) Male Infertility Guideline 2020
- World Health Organization (WHO) Laboratory Manual for the Examination and Processing of Human Semen, 6th edition 2021
- American Society for Reproductive Medicine (ASRM) Practice Committee
- Endocrine Society Clinical Practice Guideline on Male Hypogonadism

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