

Male Infertility

When a man's body cannot make, store, move, or deliver enough healthy sperm to make a baby. Always start with a semen analysis to see what is broken.

THE ONE-LINE TRUTH

A couple cannot get pregnant after one year of trying, and the problem is on the man's side.

The chain — how it unfolds

1. A couple tries for one year to get pregnant with regular sex and no birth control, but no pregnancy happens. — why: Pregnancy needs millions of healthy sperm to reach the egg. If the man's body is not making enough sperm, the sperm do not swim well, the tubes are blocked, or the sperm go the wrong way, then the egg never gets fertilized.
2. The doctor orders a semen analysis—the lab counts sperm, checks how they swim, and looks at their shape. — why: That one test shows which step is broken. Low count or no sperm? Problem is before or inside the testicles. Normal count but sperm do not swim or have weird shapes? Problem is inside the testicles or in the environment (heat, toxins). Normal semen but no sperm? Tubes are blocked. Normal semen but sperm in the urine after sex? Retrograde ejaculation.
3. If the semen analysis is abnormal, the next step is to trace the problem back to its source. — why: The doctor checks FSH and LH (brain signals), testosterone (testicle output), and does a physical exam (size of testicles, feeling for a varicocele or missing vas deferens). High FSH with small testicles means the testicles are failing. Low LH and FSH means the brain is not sending the signal. A bag of worms feeling in the scrotum is a varicocele.
4. If the testicles are small and FSH is high, the doctor checks a karyotype (picture of chromosomes) and Y-chromosome microdeletion panel. — why: Klinefelter syndrome (XXY) causes small firm testicles, no sperm, low testosterone, tall height, and higher risk of diabetes and breast cancer. Y deletions erase the gene that makes sperm. Both are permanent and need donor sperm or special retrieval techniques, and the man needs lifelong testosterone and heart/bone monitoring.

5. If a varicocele is found, the doctor can tie off the swollen vein to cool the testicles and let sperm production recover. — why: A varicocele is a tangled, swollen vein in the scrotum that traps warm blood around the testicle like a hot water bottle. Heat kills sperm-making cells. Fixing the varicocele drops the temperature, and sperm count often goes up in three to six months.
6. If the tubes are blocked but the testicles make sperm, the doctor can retrieve sperm directly from the testicle or epididymis and use IVF (in vitro fertilization) to make a baby. — why: Blocked tubes (from missing vas deferens, infection, or surgery) stop sperm from getting out, but the testicles still make them. A needle or small surgery pulls sperm out, and the lab injects one sperm into each egg to start a pregnancy.
7. If sperm go backward into the bladder, the doctor can give medicine to tighten the bladder neck, or collect sperm from the urine after sex and use them for IVF. — why: Retrograde ejaculation happens when the muscle at the bladder neck does not close during orgasm (often after prostate surgery or from diabetes nerve damage). The sperm are healthy—they just go the wrong way. Medicine or sperm retrieval from urine can fix it.
8. If no cause is found and the semen analysis is only a little abnormal, the couple can try IUI (intrauterine insemination) or IVF to boost the chance of pregnancy. — why: Sometimes the sperm count is low or the swimmers are slow, but no clear cause is found. Washing and concentrating the sperm, then placing them directly in the uterus (IUI) or injecting one into each egg (IVF), can overcome the mild problem and lead to a healthy baby.

Spot it — what you see, and why

- Low sperm count (fewer than 15 million sperm per milliliter of semen): The testicles may not be making enough sperm because of hormone imbalances (signals from the pituitary gland in the brain are too low), damage from past infections or injury, varicoceles (swollen veins in the scrotum that overheat the testicles like a heating pad left on too long), or genetic problems that affect how sperm are built.
- Poor sperm movement (fewer than 40% of sperm swim forward): Sperm need to swim through the cervix and up into the fallopian tubes to reach the egg. If the tail structure is damaged by infections, high heat in the scrotum, or chemical exposures (like smoking or certain medications), the sperm cannot swim well enough to make the journey.
- Abnormal sperm shape (fewer than 4% have a normal oval head and single tail): Sperm are built inside the testicles over about 72 days. If DNA is damaged by oxidative stress (harmful molecules that act like rust inside cells), infections, heat, or toxins during that building time, the sperm come out misshapen and cannot penetrate the egg's outer shell.

- Small or soft testicles (less than 4 cm long, or softer than normal firm feel): The testicles shrink when they are not making sperm normally. This can happen with low testosterone (the main male hormone made by the testicles), Klinefelter syndrome (a genetic condition where boys are born with an extra X chromosome and testicles do not develop fully), mumps infection in the past that damaged testicular tissue, or long-term steroid use that shuts down the testicle's own production.
- Visible or palpable varicocele (swollen, twisted veins above the testicle, usually on the left side, that feel like a bag of worms): Varicoceles happen when the valves inside the veins that drain blood from the testicle fail, so blood pools and the vein swells. The pooled blood raises the temperature in the scrotum by 1–2 degrees, which is enough to slow sperm production and damage sperm DNA because sperm-making cells work best a few degrees cooler than core body temperature.
- Absent vas deferens on physical exam (the tube that carries sperm from the testicle to the urethra cannot be felt): Some men are born without the vas deferens on one or both sides, most often because they carry mutations in the CFTR gene (the same gene that causes cystic fibrosis). Without the vas, sperm made in the testicle have no highway to reach the semen, so the ejaculate has no sperm even though the testicles are making them.

Red flags — act now

- 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)

Treat it — in this order

1. Varicocele repair (surgical ligation by microscope or percutaneous embolization by interventional radiology) if varicocele is present and sperm count is low → Surgery ties off or blocks the swollen veins so blood stops pooling and heating up the testicle. Cooler temperature lets the sperm-making cells recover. Sperm count, movement, and shape often improve over 3 to 6 months. Pregnancy rates go up by 30 to 40 percent after repair in couples who were not getting pregnant before.

2. Clomiphene citrate (25–50 mg by mouth every other day) or hCG injections (subcutaneous, 1,000–2,000 units three times per week) if testosterone or LH/FSH are low → Clomiphene blocks estrogen at the hypothalamus (the brain's thermostat for hormones), which makes the brain send more GnRH (gonadotropin-releasing hormone). That pushes the pituitary to release more LH and FSH, which tells the testicles to make testosterone and sperm. hCG mimics LH directly and kicks the testicles into gear. Both restart the hormone conversation between the brain and the testicles.
3. Testicular sperm extraction (TESE or micro-TESE) with intracytoplasmic sperm injection (ICSI) if tubes are blocked or absent, or if the testicles make very few sperm → A urologist opens the testicle under a microscope and pulls out tiny bits of tissue that contain sperm. The sperm is then injected directly into an egg in the lab (ICSI) to make an embryo for IVF. This bypasses blocked or missing tubes entirely and can work even when only a few sperm exist inside the testicle.
4. Intrauterine insemination (IUI) or in vitro fertilization (IVF with or without ICSI) if sperm count is low but some healthy sperm are present in the ejaculate → IUI washes and concentrates the healthiest sperm from the ejaculate and injects it directly into the woman's uterus at ovulation, giving sperm a head start. IVF mixes sperm and eggs in a dish in the lab. ICSI injects one sperm into one egg. These methods work around poor sperm movement or mild count problems and raise the chance of pregnancy without fixing the testicle.
5. Lifestyle modification: stop smoking, avoid hot tubs and saunas, lose weight if BMI is over 30, cut alcohol to fewer than 5 drinks per week, and avoid tight underwear → Smoking and heat poison sperm-making cells and slow sperm movement. Obesity raises estrogen (from fat tissue converting testosterone) and lowers testosterone and sperm count. Alcohol in high amounts damages DNA in sperm. Fixing these removes the toxins and heat stress and can raise sperm count by 10 to 50 percent over 3 months (one full sperm-making cycle is 74 days).

Your top priorities at the bedside

1. Teach the patient to stop using testosterone, anabolic steroids, or bodybuilding supplements immediately if he is taking them. — why: Testosterone and steroids tell the brain to stop making FSH and LH (hormones that signal the testicles to make sperm). Sperm production shuts down completely but can restart three to twelve months after stopping.

2. 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. — why: Semen analysis is the single most important test because it measures sperm count, movement, and shape. Too long or too short without ejaculation gives wrong results. Temperature changes during transport kill sperm and make the test useless.
3. Coordinate morning blood draw for FSH, LH, and testosterone levels before nine in the morning. — why: Testosterone levels are highest in early morning and drop during the day. Low FSH and LH mean the brain is not signaling the testicles, which clomiphene or hCG can fix. High FSH means the testicles themselves are failing and hormone treatment will not work.