



25 Questions and Answers: Diagnostic Testing

1. How common is infertility?

After 1 year of having unprotected sex, 15% of couples are unable to conceive—that is, to get pregnant. After 2 years, 10% of couples still have not had a successful pregnancy.

2. What are the causes of female infertility?

For about a third of couples that have difficulty conceiving, the woman is found to have the problem. In order for a woman to conceive, she needs to ovulate (produce and release eggs from her ovaries), have patent Fallopian tubes (that is, tubes free of blockages), and have a healthy uterus that can support a pregnancy. Fertility can be affected by problems with the menstrual cycle, by a disease or a condition, by lifestyle factors, and/or by age-related factors.

3. How is female infertility evaluated?

In addition to a health history and physical exam, we routinely order blood tests to check for conditions that may impact your fertility. Common blood tests include:

- TSH to evaluate for thyroid disorders.
- Prolactin to rule out inappropriate production of the hormone responsible for supporting lactation.
- Anti-Müllerian hormone (AMH) level to evaluate ovarian reserve (your remaining egg supply).
- Follicle-stimulating hormone and estradiol levels in the first few days of the menstrual cycle to evaluate ovarian function.
- Progesterone level late in the second half of your menstrual cycle to tell if ovulation has occurred and if your ovaries are producing a normal amount of this hormone.

Because some of these tests must be done at specific times in the menstrual cycle and repeated for accuracy, this part of your evaluation may take several weeks.

Other tests may be done to examine your Fallopian tubes and determine if a blockage is preventing movement of the egg from the ovaries or preventing the egg and sperm from reaching each other. The options to test the tubes include a hysterosalpingogram (x-ray test of the Fallopian tubes and uterus), FemVue transvaginal ultrasound (TVUS), and laparoscopy. TVUS can also be used to assess your ovaries, including the number of remaining follicles you have, and it can be used to assess the uterus.

4. What are the causes of male infertility?

For more than a third of couples that have difficulty conceiving, the man is found to have the problem. In order for conception to occur, a man must have sperm that can reach and combine with a woman's egg. Sperm are made and stored in the testicles. During sex, sperm mix with seminal fluid, or semen, and are ejaculated by the penis into the woman's reproductive tract. Infertility in a man is often related to low sperm production, which may be due to a varicocele, an enlarged vein in the testicle. Other causes of male infertility are hormone imbalances, medication or steroid use, and blockages in the reproductive organs.

5. How is male infertility evaluated?

A health history and physical exam are also part of the man's evaluation. The most common lab test for male infertility is a semen analysis to assess the quantity and quality of the sperm. A man may need to provide a semen sample on more than one occasion because sperm production can vary over time, depending on his activities and stress level.

6. How is male infertility treated?

Medication can treat problems such as hormone imbalances. Surgery can help repair blockages in the tubes that transport sperm from the testicles to the penis. Surgery can be used to repair a varicocele. If medication or surgery does not restore fertility, IVF may be considered.

7. When should couples seek evaluation for infertility?

In general, if a couple has had unprotected intercourse for 1 year, an evaluation should be performed. However, cases in which the female has irregular menstrual cycles, a history of tubal or pelvic infection, and those over the age of 35 should be evaluated after 6 months of unsuccessful efforts.

8. Can infertility be unexplained?

Yes. In about 20% of couples that undergo infertility evaluation, the cause will be unexplained. In the presence of regular ovulation and patent fallopian tubes, it is still possible that the fallopian tubes fail to trap the egg. Similarly, although semen analysis may be normal, it is possible that the sperm fail to swim through the cervix and uterus or fail to find/fertilize the egg in the fallopian tube. Pregnancy represents the ultimate proof of fertilization, so if a couple has never previously conceived then there is no way to know if these steps have ever occurred.



Our Mission

To provide comprehensive care and unwavering compassion to patients struggling with reproductive health issues.

9. What is the difference between a saline infused sonogram (saline sono or SIS) and a hysterosalpingogram (HSG)?

A saline sono is a procedure performed under transvaginal ultrasound in the office, in which saline is infused into the uterine cavity as contrast, while images are obtained to evaluate the uterine cavity. An HSG is a similar procedure performed in outpatient radiology, under x-ray, using iodine-containing dye as contrast. The contrast provided from the HSG dye allows for establishment of tubal patency in addition to evaluation of the uterine cavity. HSG is superior in diagnosing anatomical abnormalities such as uterine septum, and SIS is best in detection of abnormalities within the cavity, such as endometrial polyps or adhesions.

10. What is a FemVue?

FemVue is a procedure performed in conjunction with SIS to establish tubal patency. After the SIS is completed, the saline is changed to a saline-air combination, and air bubbles are observed traveling through the fallopian tubes and exiting into the pelvis.

11. Is an HSG painful? My friend said it was awful.

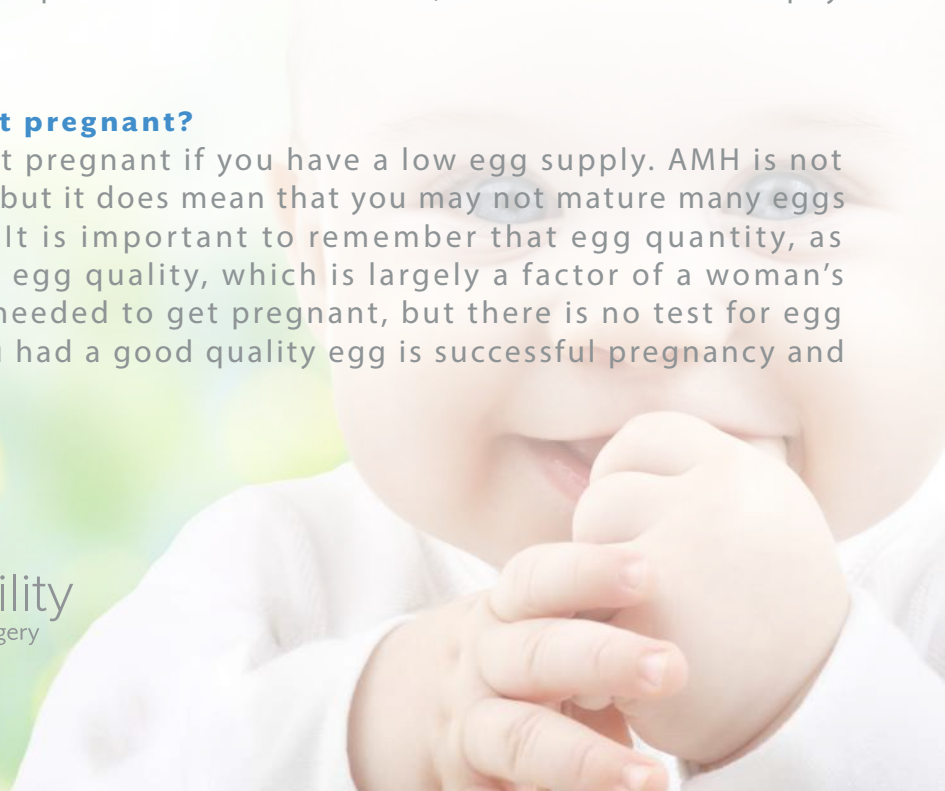
An HSG usually causes mild or moderate uterine cramping for about 5-10 minutes. However, some women may experience cramping for several hours. Taking over the counter anti-inflammatory medications, such as Advil or Aleve, before the procedure can reduce these symptoms. You should be prepared to have a family member or friend drive you home after the procedure in the event that you are experiencing cramping.

12. Do I need an endometrial biopsy?

Endometrial biopsy is not a routine part of the infertility work up. However, it can be beneficial in some cases. If you have bleeding between periods, have risk factors for endometrial cancer, or have had multiple failed IVF transfers, an endometrial biopsy may be indicated.

13. My AMH is very low. Can I still get pregnant?

Generally, yes, it is still possible to get pregnant if you have a low egg supply. AMH is not a single determining factor in fertility, but it does mean that you may not mature many eggs in response to fertility medications. It is important to remember that egg quantity, as measured by AMH, is not the same as egg quality, which is largely a factor of a woman's age. Only one egg of good quality is needed to get pregnant, but there is no test for egg quality. The only way to know that you had a good quality egg is successful pregnancy and delivery.



14. My husband has no sperm. What could cause that?

The absence of sperm on a semen analysis is a condition known as azoospermia. Azoospermia can be divided into two major categories: obstructive and nonobstructive.

Obstructive azoospermia occurs when the duct carrying the sperm from the testicle to the urethra (vas deferens) becomes blocked. This blockage may be the result of scar tissue formation from a previous surgery on the scrotum or testicle, or even after repair of an inguinal hernia. Scar tissue can also form as the result of an infection (most commonly gonorrhea, although other infectious diseases may also cause blockage).

Some men can be born without a vas deferens on either side. This rare condition is called congenital bilateral absence of the vas deferens (CBAVD). Men with CBAVD may carry two copies of the gene that causes cystic fibrosis, but instead of suffering from lung disease they present with absence of sperm.

Nonobstructive azoospermia results from dysfunctional sperm production. The failure of sperm production in an otherwise normal testis may be the result of a testicular, pituitary, or hypothalamus issue. If a hormonal evaluation reveals normal levels of prolactin and thyroid hormone, then a testicular biopsy is often performed to assess whether any sperm are present within the testis. Genetic testing to rule out deletions of the Y chromosome or other chromosomal problems is also recommended in cases of very low or absent sperm production.

15. What is prolactin, and why is my level elevated?

Prolactin is a hormone produced by your pituitary gland, which causes breasts to grow and develop and causes milk to be made after a baby is born. Normally, both men and women have small amounts of prolactin in their blood. High prolactin levels (hyperprolactinemia) interfere with the normal production of other hormones, such as estrogen and progesterone. This can interfere with ovulation, leading to irregular or missed periods.

Some common causes of hyperprolactinemia are:

- Pituitary tumors (prolactinomas), which are most often benign
- Hypothyroidism (underactive thyroid)
- Medicines given for depression, psychosis, and high blood pressure
- Herbs, including fenugreek, fennel seeds, and red clover
- Irritation of the chest wall (from surgical scars, shingles, or even a tight-fitting bra)
- Stress or exercise (usually excessive or extreme)
- Certain foods
- Nipple stimulation

The Southeastern Center for Fertility and Reproductive Surgery is the oldest and best-established medical practice in East Tennessee dedicated to the treatment of infertility.

16. One of my tubes is blocked. What is my next step?

There are several options for treatment when you have a blocked tube. You should know that it is still possible for you to get pregnant when you have only one open tube. You could choose to undergo monitoring to determine if and when you will ovulate from the ovary on the side of the open tube and try to conceive with IUI or timed intercourse. If you want a more aggressive treatment approach, you may be a candidate for a procedure called cannulation, in which your doctor will attempt to open the tube using a catheter during either HSG or hysteroscopy (surgical procedure to look inside the uterine cavity). If you want to completely eliminate the tubal factor, you could pursue IVF.

17. Can testosterone shots cause a sperm problem?

Yes. Testosterone supplements can either partially or completely suppress sperm production. High doses of anabolic steroids for bodybuilding can also suppress sperm production. Sperm production can be reinitiated in such patients by stopping the testosterone or steroids and starting fertility medications like clomiphene citrate or gonadotropins (analogous to ovulation induction therapy in women).

18. Is a laparoscopy necessary as part of the fertility evaluation?

While laparoscopy is not a routine part of fertility evaluation, it can be beneficial in some cases. For example, if you have a history of endometriosis and/or pelvic adhesive disease and symptoms have returned, or if you have a new onset of symptoms, surgery might be the next step for you. Well-designed medical studies clearly show that destroying even small implants of endometriosis can improve fertility by as much as 50%.

19. How do I know if I am ovulating?

Signs and symptoms that you are ovulating include regular menstrual cycles, mittelschmerz (one-sided pelvic discomfort at mid-cycle), rise in basal body temperature at mid-cycle, cervical mucus changes, and molimina (premenstrual symptoms of bloating, breast tenderness, and mood change).

Ovulation is triggered by a surge of luteinizing hormone (LH) in the blood, and occurs approximately 36 hours after the start of this LH surge. There are several ways to predict ovulation, including urine test kits to measure LH levels, transvaginal ultrasound to monitor ovarian follicles and endometrial lining, blood tests to measure hormone levels, and the basal body temperature (BBT) chart. After ovulation occurs, it can then be confirmed by an appropriate rise in progesterone.

20. What is luteal phase defect?

Luteal phase defect is a condition in which your ovaries do not produce enough progesterone after ovulation, or your endometrial lining does not appropriately respond to progesterone. While studies have not established luteal phase defect as a direct cause for infertility, your doctor may choose to provide luteal phase progesterone supplementation in certain situations.

21. Does infertility run in families?

Infertility can sometimes be caused by an inherited chromosome abnormality or a single-gene defect passed from parent to child. Some conditions that can run in families, such as PCOS and endometriosis, can also lead to infertility.

22. How much does age impact female fertility?

Fertility in women peaks between the ages of 20 and 24, decreases relatively little until approximately age 30 to 32, and then decreases progressively. Overall, fertility rates are 4-8% lower in women aged 25-29 years, 15-19% lower in those aged 30-34, 26-46% lower in women aged 35-39, and as much as 95% lower for women aged 40-45 years.

Success rates achieved with assisted reproductive technologies (ART) also decline as age increases. The numbers of oocytes retrieved and embryos available are lower, embryo fragmentation rates are higher, and implantation rates are lower in older than in younger women. Although ART pregnancy rates have increased steadily over the past 20 years for women in all age groups, annual reports derived from registry data collected by the Centers for Disease Control and Prevention (CDC) in the U.S. since 1989 demonstrate consistently that age is the single most important factor affecting the probability of success with ART.

Just as fertility decreases with increasing age, the incidence of clinically recognized miscarriage rises as age advances. Miscarriage rates in natural conception cycles are generally low before age 30 (7-15%) and rise with age, only slightly for ages 30-34 (8-21%), but to a greater extent for ages 35-39 (17-28%) and ages 40 and older (34-52%).

23. How much does age impact male fertility?

The available evidence indicates that pregnancy rates decrease and time to conception increases as male age increases. However, because there is little or no overall measurable decline in male fertility before age 45-50, male factors generally contribute relatively little to the overall age-related decline in fertility.

24. What is a post coital test? Do I need one?

A post coital test is a procedure in which your doctor obtains a sample of your cervical mucous after intercourse at suspected ovulation time to evaluate the compatibility of your husband's sperm and your cervical mucous.

Post coital testing is no longer performed as a routine part of the fertility evaluation, as studies have shown that the results of a post coital test do not directly correlate with pregnancy rates. For this reason, it is now more often recommended to proceed with intrauterine insemination (IUI) if male factor infertility or cervical mucous problems are suspected, rather than waiting for a post coital test.

25. My husband has a child from a previous relationship. Why would he need a semen analysis?

Sperm parameters can change over time for various reasons, such as changes in hormone levels, exposure to extreme temperatures or chemicals, medications, genital trauma, or infections. The entire process of spermatogenesis (development of sperm in the testicles) takes only about 3 months; therefore, male fertility can change in a relatively short amount of time. In any couple who has had unprotected intercourse for 12 months without pregnancy, the male partner should undergo semen analysis regardless of proven fertility in the past.