

## *INFERTILITY*

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#### ***What is infertility?***

Infertility is defined as a lack of conception in a couple that has been having unprotected intercourse, one to three times per week, for one year. Infertility affects 10 to 15 percent of couples. About 25 percent of American couples experience an episode of infertility at some point during their reproductive lives. Most couples experience infertility as a life crisis. Feelings of frustration, anger, depression, grief, guilt, and anxiety are common. Consider consulting your physician if you are experiencing undesired infertility.

#### ***What causes infertility?***

Male factor infertility 35 percent.

Female factor infertility 65 percent.

- Tubal and pelvic disease — 25 percent.
- Ovulatory dysfunction — 20 percent.
- Cervical — 10 percent.
- Unexplained — 5 percent.
- Unusual — 5 percent.

#### ***Semen Analysis***

This is a very inexpensive test that should be done early in any infertility evaluation. If a man has had a prior child, this is reassuring, but it does not excluded a male factor. A semen analysis requires abstinence for two to three days, the specimen should be collected directly into a clean container, protected from the cold, and delivered to the laboratory within one hour. Things that can cause male factor infertility are a history of testicular injury or surgery, mumps, heat (jockey shorts instead of briefs, hot baths, hot tubs, or long hours of sitting), marijuana, alcohol, and cigarette smoking. Some drugs, especially anabolic steroids, can have a detrimental effect on semen quality. It takes 74 days for spermatozoa to develop, so any insult requires about 2.5 months to resolve. Motile sperm counts over 60 million per milliliter are best. When the motile count drops to 5 million per milliliter the chance for natural conception drops to 37 percent. Technologies are available to overcome decreased sperm counts. If the total motile count is between 10 and 20 million, intrauterine insemination is helpful. Between 2.5 and 10 million, invitro fertilization is used. At less than 2.5 million, invitro fertilization is combined with intracytoplasmic sperm injection. These assisted reproduction technologies are available through a reproductive endocrinologist.

**Are your tubes open?**

If you have a history of chlamydia, gonorrhea, pelvic inflammatory disease, ectopic pregnancy, abortion with infection, ruptured appendicitis, severe painful menses, or a family history of endometriosis it is reasonable to determine early in your evaluation whether your fallopian tubes are open.

An HSG (hysterosalpingogram) or a diagnostic laparoscopy will determine if your fallopian tubes are open. An HSG involves putting x-ray dye into your womb on day 5 through 12 of your menstrual cycle, two to five days after the end of your menstrual flow. Your gynecologist will perform this test in the radiology department at the hospital. Because this test involves x-rays, you will have to have a pregnancy test done in the clinic the day of your test. To schedule an HSG, call the OB/GYN scheduling nurse at (763) 785-8558 on the first clinic day of your menses. It is a good idea to take Ibuprofen 800 mg 30 minutes prior to the procedure, as this will decrease your pain. Your physician may give you an antibiotic, doxycycline 100 mg, to be taken twice a day for three to five days after your HSG.

Another test to evaluate your internal pelvic organs is a diagnostic laparoscopy. This test is a surgical procedure, and is very expensive. This surgery should be considered if your HSG is abnormal, if there is a strong suspicion of internal pelvic adhesions, multiple second trimester losses, or if you have unexplained infertility.

An HSG can increase your chance for pregnancy, by about a third. This increase only applies to the first seven months after the procedure, so it is important that your ovulation be checked first, and that your partner's semen analysis has been completed.

**Are you ovulating?**

About 95 percent of women with regular cycles, premenstrual symptoms, and menstrual cramping are ovulatory (releasing eggs). Irregular cycles, cycle length of less than 25 days or more than 36 days, or variable in length by more than seven days suggest ovulatory defects. A basal body temperature chart is very inexpensive, and can be reassuring if one has a sustained temperature rise for at least 11 days each month prior to menstruation.

A 21 day progesterone level is a blood test that confirms ovulation, and is done once on the 21 through 23 day of your menstrual cycle, with day one being the first day of menses. A 21 day progesterone value should be at least 6.5 ng per milliliter and it is best if it is above 18 ng per milliliter.

If you are not ovulating there are some simple steps that can be taken to help you release eggs. Clomid (clomiphene citrate), or Tamoxifen (used rarely on very thin women who do not respond to Clomid) are drugs that can help your pituitary (an organ in your brain) send a stronger signal to your ovaries to release an egg. The risk of twins with this drug is less than two percent. When on Clomid your doctor will usually ask you to obtain a 21 day progesterone level to check for ovulation. Clomid can

be taken on cycle days three through seven, or cycle days five through nine. About 90 percent of Clomid conceptions occur in the first six cycles. Side effects of Clomid include hot flashes, abdominal discomfort, nervousness, insomnia, breast tenderness, visual symptoms, headaches, nausea, and mood alterations. If you develop blurry vision or a black spot in your vision discontinue the Clomid and notify your doctor's office.

***What about my biological clock?***

Age is a factor in fertility. Female fertility decreases significantly after age 35. About 74 percent of women less than 31, 62 percent of women age 31 to 35, and only 54 percent of women over 35 conceive within one year. The oldest woman to have a live birth naturally was 57 years old. Realistically, conception is difficult after age 44. If you are over 30, your physician may request an ovarian reserve test to assess your fertility. This test involves drawing blood on day three (FSH & estradiol) and day ten (FSH) of your cycle, with Clomid 100 mg being taken on days five through nine of your cycle. This test evaluates the health of your ovaries. If your Day Three FSH is greater than 13, your estradiol is greater than 80 pg per milliliter, or the sum of Day Three and Day Ten FSH is greater than 26, your ovaries are at the end of their reproductive period, and the chance for pregnancy is only nine percent. If either the Day Three or Day Ten level is over 25, the chance of pregnancy is close to zero. All women over 34 with infertility should consider ovarian reserve testing. Seven percent of women age 30 to 34, 10 percent of women 35 to 39, and 26 percent of women 40 to 42 will have an abnormal test result.

***What are the chances that we will have children?***

In an English study, 80 percent of couples that had infertility for the first two years of marriage went on to have a baby. Seventy-four percent of couples that are infertile will conceive within two years without medical treatment. The main goal of an infertility evaluation is to decrease the waiting interval prior to conception.

***What is unexplained infertility?***

Unexplained infertility is infertility occurring in a couple when all testing returns as normal. In this group of couples the conception rate per cycle is 3.8 percent with no treatment, 4 percent IUI, 6 percent Clomid, 6.7 percent Clomid & IUI, 7.7 percent HMG, 18 percent HMG & IUI, and 23 percent with IVF.

***What are unusual causes?***

There are some causes of infertility that occur rarely. Shift work increases the risk of delayed conception two-fold at ten months. Exposure to nitrous oxide may decrease fertility by 50 percent. Polycystic Ovarian Syndrome (obesity, oily skin, acne, extra body hair) also contributes to infertility. Hypothyroidism is characterized by cold intolerance, weight gain, dry skin and hair loss. If you have any of these symptoms then a TSH (thyroid stimulating hormone) will evaluate your thyroid function. If you have ovulatory disturbances, there is a 15 percent chance that your Prolactin is elevated. This hormone causes breast tenderness and lactation — milk production. If your progesterone level is greater than one ng per milliliter on day 14 of your cycle, you have pre-

mature luteinization; your eggs are maturing too early to be fertilizable. If your estradiol is less than 250 pg per milliliter on day 14, or your ovarian follicles are less than 18 millimeters by ultrasound, despite medical treatment, you have poor recruitment; your eggs are not being released for fertilization. In either case you will require gonadotropin treatment, this is done under the supervision of a reproductive endocrinologist.

***What is a post-coital test?***

The post-coital test involves evaluating your cervical mucus 2 to 18 hours after intercourse on cycle day 11 through 14 to see if the mucus is acting as a barrier to fertilization (2 to 8 hours) or impairing storage and survival (12 to 18 hours). This test can substitute for a semen analysis, but it is not as good at evaluating male factor infertility. This test can raise the suspicion of anti-sperm antibody production, which is treated with intrauterine insemination.

***How often should we have sex?***

Conceptions can occur up to seven days after intercourse, however, there is a significant decrease in the conception rate if intercourse occurs more than four days prior to ovulation. Optimal timing is every 36 hours around the time of ovulation, which is cycle day 14 or 15 for most women. In general, you should try to have intercourse every two to four days beginning on cycle day 10 extending through cycle day 18. In addition, it is beneficial to stay in bed for 30 minutes after intercourse. Semen coagulates immediately and dissolves 20 to 30 minutes thereafter releasing sperm. If the majority of this coagulum is expelled from the vagina prior to the sperm being released then there might not be enough sperm to allow fertilization. If your womb is retroflexed (flipped backwards), it may help for you to rest in a back up, knee to chest position after intercourse.