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Infertility *By Robert S. Hollabaugh, Jr. MD*

Conceiving a baby is often taken for granted. While seemingly simple, pregnancy requires an intricate series of events to take place in the right order at the right time in the male and female. When one knows the complexity of these processes, it is easy to conclude that conception is nothing short of a miracle. Even the most fertile couples have only a one in four chance of pregnancy during a given month. For those who cannot get pregnant easily, science and medicine can offer additional considerations. Couples experiencing fertility problems need accurate information on each of the various options available in today's highly-sophisticated world of reproductive medicine.

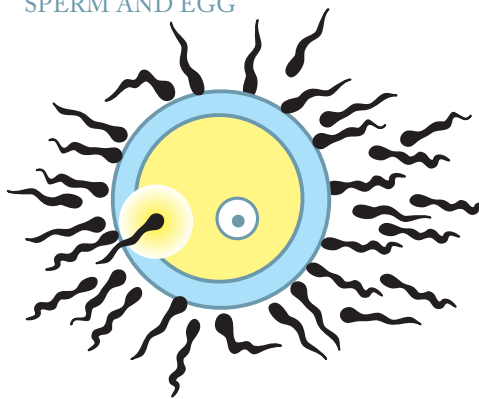
In the general population, infertility is usually perceived as a female issue. It is important to realize, however, that problems with fertility can originate in the male or female, and possibly, both. When couples are unsuccessful at pregnancy over a period of 12 months with unprotected intercourse, fertility evaluation is warranted. Fertility evaluation should involve both male and female factor evaluation. Surprisingly, in 30 percent of infertile couples, a male factor is the sole cause, and in another 20 percent, both the male and female have problems. Compared to the female evaluation, male

testing is relatively uncomplicated – usually being related to semen analysis. In the female, there are lots of gynecologic, anatomic and hormonal considerations that have to be evaluated. In the male, a properly performed semen analysis is the first step in the evaluation of the male and provides the basis for any subsequent testing.

Semen Analysis

The semen analysis includes several characteristics, but the most important are semen volume, sperm quantity or concentration, sperm motility, and sperm morphology. When these parameters

SPERM AND EGG



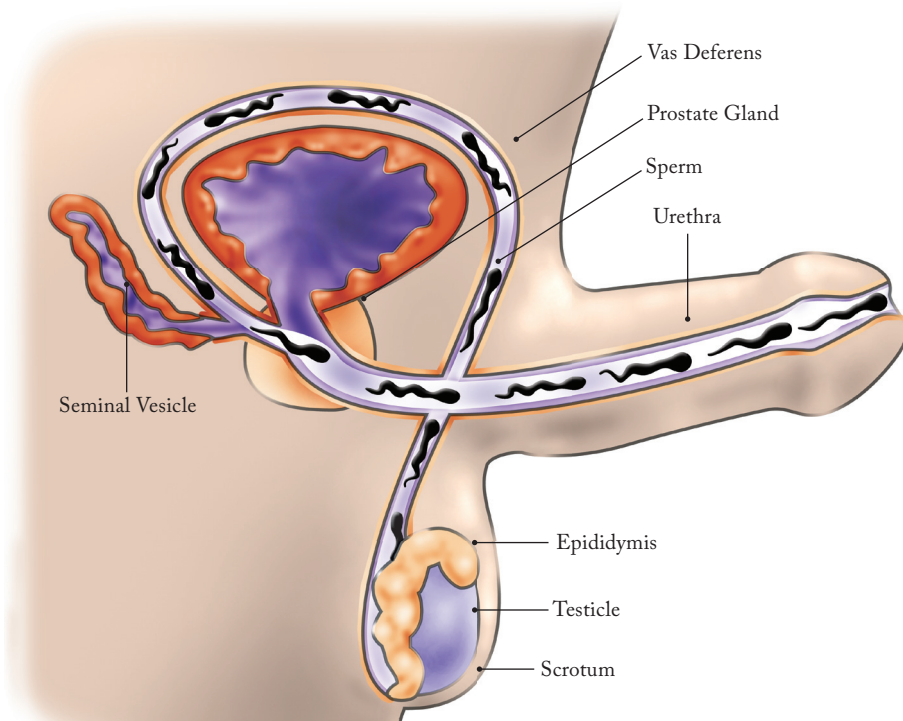
are compared to established normal ranges, the likelihood of pregnancy can be assessed. For a semen analysis to be accurate, it must be a fresh and representative sample. This requires that

the man not have any ejaculation for 48 hours prior to specimen collection. The specimen should be collected in a sterile cup from the doctor's office; condoms and other collection devices do not allow for accurate interpretation. Once collected, the specimen needs to be delivered to the lab site as soon as possible; preferably within 30 minutes but absolutely within 2 hours. If delayed, the sperm will start to die and we will never know if they came out dead or just died due to the environment. Most labs allow for collection at home; however, some labs prefer on-site collection. Make sure to clarify where the lab is located that you plan to use, and that the lab is open when you plan to collect the specimen. If the specimen is not a good specimen, we may need to get a second specimen at a later date.

Causes of Infertility

If the semen analysis is normal, the male system is generally cleared. When the semen is abnormal, the specific deficiencies will direct the subsequent testing. Areas of abnormality in quantity, morphology, and motility may hint at the root cause. It is essential to obtain a thorough medical history with particular emphasis on conditions that can affect testicle health, as certain medical and environmental factors can greatly affect

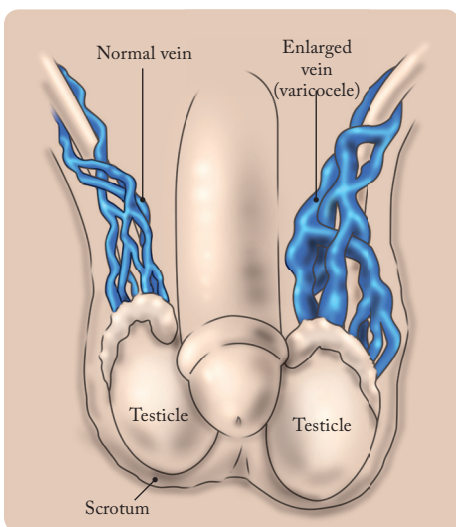
SPERM TRANSIT



sperm production. Specific questioning related to scrotal surgery, testicle injury, genital infection, radiation exposure, toxic chemical exposure, hot tub or sauna exposure, bathing habits, steroid exposure, and drug use are critical elements. Abnormal patterns of urination may suggest “blockages” that can also block delivery of sperm. Injury to the vas

deferens during previous inguinal hernia repair can severely impair the sperm transport process and thereby compromise infertility. Certain chemical (pesticides, for example) or radiation exposure (x-ray) is toxic to the sperm producing cells. Some activities of routine living can adversely affect fertility, such as regular sauna or hot tub use. A detailed history can identify many such issues, and point in a direction for correction. Physical examination is particularly helpful as the most common factor affecting male fertility is a varicocele, which is commonly identified on examination. A varicocele is a dilated collection of veins that envelope the testicle, typically on the left. Often the varicocele causes no problems except swelling of the scrotal sac or mild testicle ache. It can silently affect sperm production though. In some cases, the scrotum has the appearance of a “bag of worms” as the veins are easily seen; whereas in other cases the varicocele is very subtle and can only be recognized by ultrasound. A varicocele can be surgically corrected in hopes of improving sperm quality.

VARICOCELE



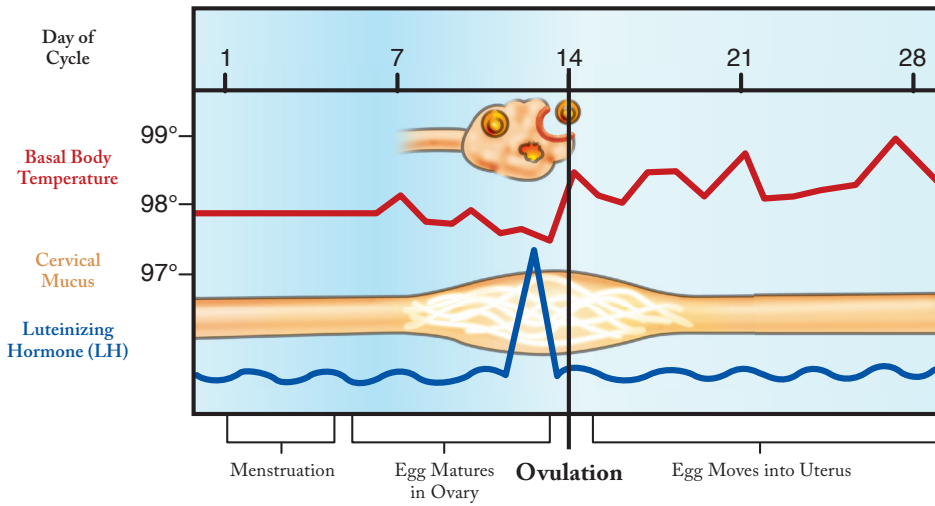
General Considerations

When trying to get pregnant, several simple measures may help. First of all, your mother would tell you to “stop wearing tight underwear.” While it seems silly, there actually is some scientific backing to this. Any added heat to the testicle may adversely effect sperm production. The testicles hang outside the body where they are slightly cooler than the body core temperature. Pressing them against the body can raise their temperature. The same concept is involved with taking hot baths and using hottubs regularly. The constant excess heat raises the testicle temperature. Exercising and sweating will not raise the testicle temperature as your body meticulously regulates internal core temperature.

Steroids adversely effect sperm production. Steroids come in the form of medications used to treat a variety of medical conditions including asthma, lung problems, lupus, and arthritis. Steroids are also occasionally used by athletes to increase muscle mass. Regardless of the intent, steroid use will suppress sperm production. Testosterone is also a steroid, and use of testosterone will depress sperm production.

Other considerations involve understanding anatomy. As a basic concept, the sperm must end up inside the vagina in order to get pregnant. The female position during sex may contribute to difficulties. Most experts recommend that the female be on the bottom with a pillow under her buttocks to elevate the pelvis. This best insures that the sperm will remain in the vaginal vault rather than leak out. The female should remain on her back for a few minutes to allow the sperm to reach the cervix before getting up. Certainly, wait a few minutes before using any vaginal hygiene products after sex.

FEMALE CYCLE



Timing of sex can enhance chances for pregnancy as well. Fertility kits generally can help determine the point of ovulation. They help to identify the timing of the LH surge which brings on ovulation. Usually, in a 28 day menstrual cycle (day 1 of the cycle is the first day of menstruation), ovulation occurs on the 14th day. Actual timing of cycles may vary, and ovulation kits used over several months time can help specify the exact interval between ovulations. Once ovulation is predicted, couples should have sex every 48 hours around the date of ovulation. For example, if ovulation occurs on day 14, couple should plan sex on day 11, day 13, day 15, and day 17. More frequent sex, while entertaining, is no more helpful. Also, men should not have any extra ejaculation during that timeframe so as to allow for best quality semen during intercourse.

Many couples get frustrated during the months trying to get pregnant. Men often experience temporary erection difficulties. This is usually psychological, due to the fact that sex has become a scheduled chore rather than a spontaneous, recreational activity. Better performance will undoubtedly return.

Anatomy

Beyond patient medical history and physical exam, a general understanding of sperm physiology can help focus in on the evaluation. Sperm are produced in the testicle. The stimulation for sperm production comes from pituitary gland messengers. Once the sperm is produced, it is delivered outside the body thru a plumbing system called the vas deferens. When sperm counts are abnormal, the problem is usually related to either production of sperm or delivery of sperm. If a production problem is suspected, evaluation focuses on the testicle and the pituitary gland. If a delivery problem is suspected, evaluation focuses on the plumbing system. While it sounds simple, only an experienced urologist specializing in male fertility can sort out the fine details of these systems to arrive at a correct diagnosis. Much of the testing and counselling used just 10 years ago is now completely out of date.

Complex Male Infertility

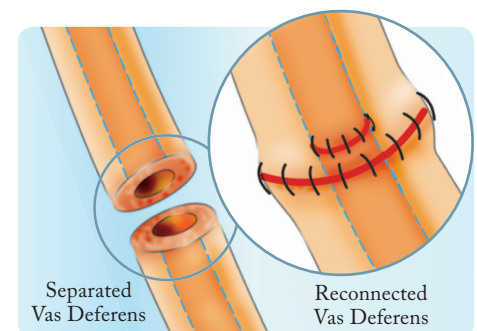
The Conrad-Pearson Clinic has specialists in male fertility that work hand in hand with female fertility experts in the area to provide state-of-the-art fertility evaluation. In some cases, evaluation may yield no particular diagnosis to explain the

infertility. Approximately 20 percent of couples have this type of unexplained infertility. In the case of the male, he may just be “subfertile” with a sperm count that is inadequate to produce a pregnancy in the usual manner. Consequently, empirical therapy with male fertility medication (Clomid) can be used with the hope of improving the semen quality to a point that pregnancy can occur. For complex infertility situations such as prior vasectomy or severely low sperm counts (oligospermia or azoospermia) a variety of highly sophisticated options exist.

Vasectomy Reversal
(Vasovasostomy)

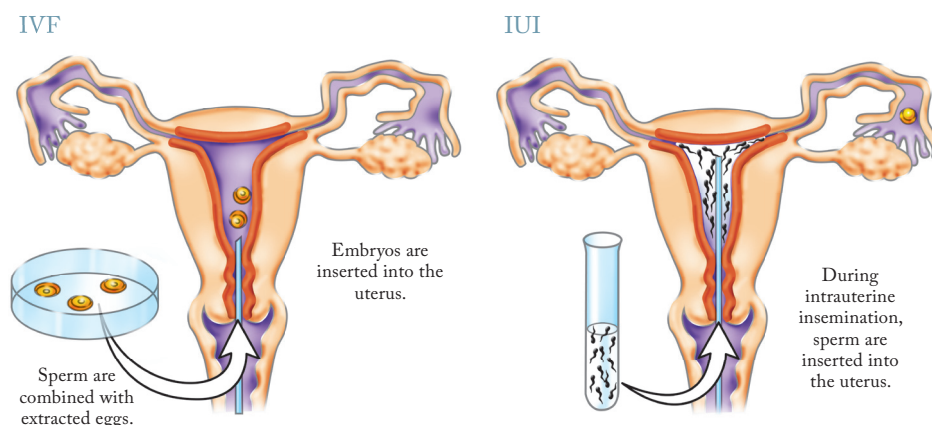
While vasectomy is usually performed as a permanent method of birth control, the high instances of divorce and remarriage find many couples wanting a vasectomy reversal. Fortunately, modern microsurgical technique allows reversal of vasectomy with a high degree of success. For vasectomy reversal, it is important to find experienced surgeons who have been trained in the most advanced techniques of microsurgery. While a variety of parameters can help predict success rates of vas reversal, if the procedure is performed within eight years of the man’s vasectomy, there’s a high likelihood that his sperm production over time will return to fertile levels. While there is no absolute time limit, success of vas reversal clearly declines beyond 12 years after vasectomy.

VASECTOMY REVERSAL



Microsurgical Sperm Harvesting (MESA)

Another complex situation in male fertility is severe oligospermia or azospermia. In these cases, sperm have to be microscopically harvested for use with in vitro fertilization procedures. This procedure is performed in an outpatient surgery center under general anesthesia. Using microsurgical techniques, sperm can be harvested from the testis or epididymis and cryopreserved for future in vitro fertilization procedures. In vitro fertilization has several versions, but each involves getting the eggs out of the female, fertilizing them with sperm, and replacing the fertilized eggs back into the female uterus. For a variety of reasons in vitro fertilization may not be a realistic option for everyone. Emotional, financial, religious, and ethical considerations must be reconciled in the hearts and minds of each couple, and it is a very personal decision-making process. Accurate education about the options is very important as the technology available in today's world of assisted reproduction extends well beyond the "test-tube baby" of past decades. Even in extremely difficult cases where sperm are virtually non-existent, if a few viable sperm can be isolated microscopically then pregnancy rates using the most sophisticated form of in vitro fertilization (intracytoplasmic sperm injection or ICSI) can exceed 50 percent. Just 15 years ago, this type of therapy had not been even dreamed of, let alone performed; now it is a commonplace part of fertility counseling at the Conrad-Pearson Clinic. Our clinic specializes in vasectomy reversal as well as microscopic sperm harvesting procedures.



Our dedication to the specialty includes equipping our own surgery center with state-of-the-art operating microscopes and microsurgical instruments which are integral to the success rates of these procedures. Make sure to see a urologist who is experienced with these procedures so that you can get the most accurate information about today's high-tech fertility options.

If getting pregnant has proven more difficult than you had expected, make sure to get full evaluation to make sure that you have all of today's information at your disposal. Whether you have a minor fertility problem, want to reverse a vasectomy, or just need to clarify a very complicated situation, the Conrad-Pearson Clinic can help you with state-of-the-art evaluation and management of your fertility needs.

FERTILITY: FACT OR FICTION

Sperm counts fluctuate widely, even among normal, fertile individuals. Seemingly minor illnesses can cause major temporary decreases in sperm production. A bad cold, the flu, or even an elective surgery can depress sperm counts for several months.

The life cycle of a sperm is about 70 days. Any interventions done hoping to improve sperm counts need 3-4 months before an accurate assessment of their success or failure can be judged.

Taking testosterone (shots, gels, or patches) will suppress sperm production. Do not, however, rely on testosterone use as a form of birth control.

Recreational Street drugs, heavy alcohol use, and smoking do likely interfere with male fertility.

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