

# Glossary of Fertility Terms

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# Glossary of Fertility Terms

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## **Adenomyosis**

Adenomyosis is the growth of uterine lining inside the uterine muscle.

## **Adhesion**

Adhesions are bands of fibrous scar tissue that may bind the pelvic organs and/or loops of bowel together. Adhesions can result from previous infections, endometriosis, or surgeries.

## **Age**

Females are born with a certain number of eggs. As a woman ages, the number of eggs, as well as the quality of the eggs, decline. As a result, a woman over 35 years old has a lower chance of getting pregnant and a much higher chance of having a miscarriage or a baby with congenital problems (such as Down's syndrome) than a younger woman does.

## **Amenorrhea**

Amenorrhea is the absence of menstrual periods. The term "primary amenorrhea" is used if periods have never started in females aged 16 or older. It is a rare gynecological disorder. Regular menstruation usually begins (menarche) within two years of the onset of puberty. Absence of menses by age 16-18 constitutes primary amenorrhea. Secondary amenorrhea occurs when you have had periods and then they stop, especially for more than 3 months. There are many possible causes, including pregnancy, some medicines, stress, hormonal changes, or losing or gaining a lot of weight quickly. Your doctor or other health care professional may order tests to find out why your periods have stopped.

## **Anovulation**

Anovulation is the total absence of ovulation; however, menstruation may still occur.

## **Assisted Hatching (AH)**

As part of IVF, assisted hatching is when micromanipulative techniques are used (under a microscope using special laboratory equipment) to create a small slit or opening in the protective coating surrounding an embryo. This is intended to make it easier for the embryo to "hatch" out of the protective coating before being implanted into the woman's uterus. Assisted hatching may increase the chance of implantation, especially in older women. On the morning of the embryo transfer, the embryologist will assess the quality of each embryo. Each embryo is unique and develops independently of the other embryos. The embryologist will grade each one based on subjective criteria which will describe the "look" of the embryo. Assisted hatching is a technique used to weaken the outer wall of the embryo to assist with the implantation process. During the late 1980's and early 1990's, a mild acid solution was used to dissolve the outer coating (zona). With the advancement of technology, embryologists now use a sophisticated laser to create a precise incision to the zona. The laser is able to weaken the outer wall without needing to use mild acid solution.

## **Assisted Reproductive Technologies (ART)**

ART refers to all treatments which include laboratory handling of eggs, sperm, and/or embryos. Some examples of ART are in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT), pronuclear stage tubal transfer (PROST), tubal embryo transfer (TET), and zygote intrafallopian transfer (ZIFT).

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## **Asthenospermia**

Asthenospermia (also known as Asthenozoospermia) refers to poor sperm motility.

## **Asthenoteratospermia**

Asthenoteratospermia is low sperm motility with an increased number of abnormal forms.

## **Azoospermia**

Azoospermia is the absence of sperm present in seminal fluid.

## **Basal body temperature (BBT)**

Basal Body Temperature (BBT) is a measurement of your resting body temperature taken every morning to detect hormone changes that occur during your menstrual cycle. These changes are recorded and graphed to obtain information about your menstrual cycle for you and your provider. Basal body temperature is the lowest temperature a healthy person achieves in a day. This temperature is most accurate in the morning, before you get out of bed or engage in any physical activity. Progesterone is a hormone released from the cells surrounding an ovulated egg in the ovary. Progesterone is not released if ovulation does not occur. A rise in progesterone one to two days after ovulation causes body temperature to increase slightly. By detecting a rise in body temperature, one can predict that ovulation has most likely just occurred.

## **Cervical mucus**

This is the substance through which sperm must swim in order to pass into the cervical canal and enter the uterus.

## **Cervix**

The narrow, lower part of the uterus that opens into the vagina is called the cervix. The cervical canal runs through the cervix and connects the vagina with the uterine cavity. The cervix produces mucus through which sperm must swim before entering the uterine cavity and then the fallopian tubes.

## **Clomid (Clomiphene Citrate)**

CC is an oral medication used primarily for ovulation disorders. It is sometimes used for unexplained infertility both for diagnosis (clomiphene citrate challenge test) and for treatment. Normally each month the pituitary gland at the base of the brain makes enough follicle stimulating hormone (FSH) to allow one egg to grow in the ovaries. For women with ovulation disorders, the amount of FSH is inadequate to promote egg growth. This can occur for a number of reasons. The most common reason is being overweight. Even though a normal amount of FSH is secreted in overweight women, the extra weight absorbs or dilutes the amount of FSH that the ovaries receive and the signal to the ovaries is weakened. CC makes the brain secrete more FSH early in the cycle so the ovaries will hopefully get enough to promote egg growth. Even if being overweight is not your problem, CC works in the same way. CC works best in women with ovulation disorders including those with polycystic ovarian syndrome (PCOS). Over 75% of PCOS women will ovulate with CC and about half of these women will conceive. Another group of women who may benefit are those who ovulate but have low progesterone levels. For couples with unexplained infertility, CC may help subtle ovulation problems, increase progesterone levels, or grow 2 or more eggs, any of which may help a couple to conceive.

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## **Clomiphene Citrate Challenge Test (CCCT)**

The CCCT is a commonly used test that is over 95% accurate in predicting failure to have a successful pregnancy. A blood test is usually taken on the 2nd or 3rd day of your menstrual period. This will measure Follicle Stimulating Hormone (FSH) and Estradiol. Towards the beginning of your menstrual period, you will be directed to take clomiphene citrate for several days. You will then go to the laboratory and have another FSH blood test taken.

## **Corpus luteum**

Corpus luteum is a mature follicle that has collapsed after releasing its egg at ovulation. The corpus luteum secretes progesterone and estrogen during the second half of a normal menstrual cycle. The secreted progesterone prepares the lining of the uterus (endometrium) to support a pregnancy.

## **Cryopreservation of embryos**

Cryopreservation involves storing extra embryos retrieved and fertilized during an IVF cycle for use in a later frozen embryo cycle. If the uterine lining is not suitable for implantation in a stimulated cycle, cryopreservation allows transfer during a different menstrual cycle. Also, women facing medical procedures that affect fertility can bank embryos for the future.

## **Diminished Ovarian Reserve**

A diminished ovarian reserve is when ovaries no longer contain eggs to reliably produce a successful pregnancy. It is usually, but not always, associated with advanced reproductive age (female >35 years old). It is associated with much of the infertility and miscarriages experienced by women in their 30's and 40's. It is important to know if this condition exists, because there are no medicines that can help the ovaries of women with diminished ovarian reserve produce a pregnancy. Other methods of family building can be suggested.

## **Ectopic pregnancy**

An ectopic pregnancy occurs when a fertilized egg grows outside of the uterus. In a normal pregnancy, the fertilized egg grows inside the uterus, which stretches with the pregnancy. But in most ectopic pregnancies, the egg grows in a fallopian tube. This is also called a tubal pregnancy. In rare cases, an ectopic pregnancy occurs in an ovary or another place in the belly. An ectopic pregnancy cannot progress into a normal pregnancy and birth.

## **Egg donation**

During IVF, egg donation is the process of fertilizing eggs from a donor with the male partner's sperm in a laboratory dish and then transferring the resulting embryos into the female partner's uterus. The female will not be biologically related to the child, although she will be the birth mother on record. The male partner will be biologically related to the child.

## **Egg quality**

The quality of the egg refers to both the ability of an egg to become successfully fertilized and also the ability of that fertilized egg to develop into a healthy baby. Egg quality is most closely associated with age.

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## **Embryo grading**

The embryos frozen at Kaiser Permanente for IVF must meet specific criteria within their development in order for them to be frozen. Embryos freeze best at either day 1, 5 or 6; these are critical points within the embryos development. Your embryologist will only freeze those embryos that have a good potential to survive the freezing and thawing processes; therefore not all embryos in culture are frozen. Day 1 embryos will be displaying two pronuclei (signs of normal fertilization) and may be thawed at a later date and cultured for an additional 1 to 5 days to then be transferred back to the uterus on embryo days 2, 3 or 5. At day 5, the embryo is called a blastocyst which contains two different cell types, known as the inner cell mass cells (ICM = cells that become the fetus) and the trophectoderm cells (cells that will become the placenta). Blastocysts are graded with a number followed by two letters. The number assigned to the blastocyst refers to the size (1-5), the first letter refers to the quality of the inner cell mass cells (A-D), and the second letter refers to the quality of the trophectoderm cells. Blastocyst number grading has the following five definitions: (1) early blastocyst: fluid filled cavity being less than half of the volume of the embryo in which the two cell types (ICM and trophectoderm) are not yet fully differentiated, (2) blastocyst: fluid filled cavity being equal to or greater than half the volume of the embryo in which the two cell types (ICM and trophectoderm) are not yet fully differentiated, (3) full blastocyst: fluid filled cavity completely fills embryo in which two cell types are fully differentiated, (4) expanded blastocyst: fluid filled cavity is larger than the early embryo and the shell is thinning, and (5) hatching blastocyst: blastocyst has started to hatch from embryo shell. Blastocyst letter grading has the following four definitions: (A) tightly packed and many cells or many cells forming cohesive cell layer, (B) loosely grouped and several cells or few cells forming loose cell layer, (C) very few cells or very few large cells, and (D) no cells visible or no clear discernable cell layer. Blastocysts that are scored with a grade of 3BB or better have the best potential to survive the freezing and thawing process and therefore meeting the criteria for freezing. All embryos that have stopped their development or have a score which is less than 3BB are not frozen and instead discarded on day 6.

## **Endometrial biopsy**

An endometrial biopsy is the extraction of a small piece of tissue from the endometrium (lining of the uterus) for microscopic examination. The results indicate whether or not the endometrium is at the appropriate stage for implantation of a fertilized egg.

## **Endometrium**

This is also known as the lining of the uterus. During menstruation, this lining is shed both through the cervix (seen as menstrual blood) and back through the fallopian tubes where the uterine lining cells and blood drip into the pelvis.

## **Endometriosis**

Endometriosis is a condition where endometrial-like tissue (the tissue that lines the uterus) develops outside of the uterine cavity in abnormal locations such as the ovaries, fallopian tubes, intestines, ligaments supporting the uterus, and abdominal cavity. This tissue can grow with hormonal stimulation and may cause pain, inflammation, and scar tissue. Sometimes large cysts are formed. Endometriosis is a chronic, progressive condition. It may also be associated with infertility.

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## **Erectile dysfunction (impotence)**

A man has erection problems if he cannot get or keep an erection that is firm enough for him to have sex. Erection problems are also called erectile dysfunction or impotence. Erection problems can occur at any age; however, it is more common in older men, who often have other health problems. Treatment can help both older and younger men. Erection problems may be caused by physical problems, such as injury to nerves or loss of blood supply to the penis. They can also be linked to other health problems. These include diabetes, high blood pressure, high cholesterol, and atherosclerosis. Erection problems can also be linked to problems with the nervous system, such as multiple sclerosis and Parkinson's disease. Many medicines for other health problems may cause erection problems, but most do not. If you recently began taking a new medicine and started having erection problems, this could be a side effect of the medicine. Talk with your doctor. He or she may be able to change the dose or type of medicine you take. Men who drink too much alcohol, smoke, or use illegal drugs also are at risk for erection problems. Anxiety, stress, or depression can cause erection problems. Other causes include surgery, such as for prostate cancer, or injury to the pelvic area.

## **Estradiol**

Estradiol is the predominant estrogen (hormone) produced by the follicular cells of the ovary. Estradiol is made by the egg follicles as they grow in the ovary. Estradiol, in addition to progesterone, prepares the uterine lining to receive the fertilized egg. The blood test to measure estradiol is taken at the same time as the FSH level on day 2 or 3 of your cycle. An estradiol level less than 80 on day 2 or 3 of your cycle indicates that pregnancy is possible. A high estradiol level (greater than 80) shows that egg quality (ovarian reserve) is poor and a successful pregnancy is unlikely.

## **Fallopian tubes**

The fallopian tubes are two hollow tubes, each about 5 inches long, that connect to each side of the uterus and reach over the surface of each ovary. The end of each fallopian tube that is next to the ovary is flared open and has many fine, delicate fingers of tissue known as fimbriae. At the time of ovulation, when the ovary releases an egg, the fimbriae pick up the egg and guide the egg into the tube. The sperm and egg meet at the end (the distal portion) of the tube. The fallopian tube lining provides the fertilized egg with nutrition and also helps the sperm as it travels to fertilize the egg. The outside and inside of this end of the tube is most important because it has to pick up the egg, hold both the sperm and egg during fertilization and start the fertilized egg (embryo) on its trip into the uterus. The embryo may stay in the fallopian tube for up to five days before it passes into the uterus and implants in the wall of the uterine cavity. The fallopian tube is the most common site of ectopic pregnancy.

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## **Fibroids, benign (non-cancerous)**

Fibroids are tumors of the uterine muscle wall that can cause abnormal uterine bleeding. You can have fibroids on the inside, on the outside, or in the wall of your uterus. Your doctor may call them fibroid tumors, leiomyomas, or myomas; however, fibroids are not cancer. You do not need to do anything about them unless they are causing problems. Fibroids are very common in women in their 30s and 40s, yet fibroids usually do not cause problems. Many women never even know they have them. Doctors are not sure what causes fibroids; however, the female hormones estrogen and progesterone seem to make them grow. Your body makes the highest levels of these hormones during the years when you have periods. Your body makes less of these hormones after you stop having periods (menopause). Fibroids usually shrink after menopause and stop causing symptoms.

## **Follicle**

A follicle is a fluid-filled sac located just beneath the surface of the ovary, containing an egg (oocyte) and cells that produce hormones. The sac increases in size and volume during the first half of the menstrual cycle. At ovulation, the follicle matures and ruptures which releases the egg to begin its journey through the fallopian tube. As the follicle matures, it can be visualized by ultrasound. Thousands of follicles are in each ovary, yet only a few follicles grow large enough to be tracked by ultrasound. Oocytes (eggs) develop within the follicles at approximately one tenth of a millimeter in diameter. As the follicle is one hundred times bigger than the egg, the physician will be monitoring the growth of each follicle. On average, a follicle contains an egg about 70% of the time. The response to injectable medication will vary from person to person. On average, 12-14 follicles are typical; however, factors such as your age and FSH level will impact your response.

## **Follicle stimulating hormone (FSH)**

In women, FSH is the pituitary hormone responsible for stimulating growth of follicular cells in the ovary, stimulating egg development, and the production of the female hormone estrogen. In the male, FSH is the pituitary hormone which travels through the bloodstream to the testes and help stimulate them to manufacture sperm. FSH can also be given as a medication. Your FSH level is measured by taking a blood test on day 2 or 3 of your menstrual cycle (day 1 is the first day of your period). FSH levels measure ovarian reserve, or how well the ovary is working. A low FSH means the ovary is working well. An elevated FSH (greater than 10) is an early chemical indication of decreased fertility. A FSH of 10 or less (in our regional lab) indicates that pregnancy is possible. However, it does not guarantee that you will become pregnant, nor does it predict how well you may respond to fertility medication. A borderline FSH of 11-13 suggests that you have declining egg quality or ovarian reserve. A borderline FSH indicates that your chances of pregnancy are low with or without treatment. An abnormal FSH (14 or higher) indicates poor egg quality. The chances for a successful pregnancy (using the woman's own egg) and a live birth is rare. If you have an abnormal FSH, your provider can counsel you about alternative ways to become a parent. FSH levels can vary from cycle to cycle. It is the highest FSH level that predicts egg quality. Even one FSH level that is abnormal predicts a poor response to fertility medications and a decreased ovarian reserve.

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## **Gamete Intrafallopian Transfer (GIFT)**

GIFT is an IVF procedure that involves inserting a fiber-optic instrument called a laparoscope through small incisions in the abdomen to transfer unfertilized eggs and sperm (gametes) into the fallopian tubes. GIFT is used in less than 2 percent of all ART procedures.

## **Gonadotropins (Menopur, Repronex, Gonal-F)**

Gonadotropins are injectable fertility medicines that boost or replace the hormones made in the pituitary gland that stimulate egg growth in the ovaries. Normally, each month, your pituitary gland makes enough Gonadotropins to allow one egg to grow to full or "dominant" size. By injecting Gonadotropins, we are often able to stimulate one or more eggs to grow.

## **Human Chorionic Gonadotropin (hCG)**

Human Chorionic Gonadotropin (hCG) is a hormone that is produced during pregnancy. It is measured in early pregnancy to detect pregnancy and monitor embryonic growth. hCG can also be given as a medication to stimulate ovulation. Your test is positive for pregnancy if hCG is present in your blood or urine. Five thousand units to 10,000 units of hCG can be injected into your muscle or under your skin to trigger ovulation. When used at mid-cycle, hCG can act like your body's luteinizing hormone (LH) surge. The hCG causes the dominant follicle in the ovary to release its egg approximately 36 to 40 hours after the injection. When used in the second half of your menstrual cycle, hCG also stimulates your ovary to make progesterone. This helps support your uterine lining after ovulation. These injections are given every few days as prescribed by your provider.

## **Human immunodeficiency virus (HIV)**

HIV is a retrovirus that causes acquired immune deficiency syndrome (AIDS) which is a disease that destroys the body's ability to protect itself from infection and disease. It is transmitted the exchange of bodily fluids or through transfusions.

## **Hyperprolactinemia**

This is a disorder in which the pituitary gland in the brain produces too much of the hormone prolactin. Hyperprolactinemia (too much prolactin) can cause irregular or no ovulation, resulting in infertility. Women who have this disorder often have irregular periods and may also have some milk production (galactorrhea) even if they are not pregnant. When the prolactin levels are high, irregularities in reproductive hormones can occur. This can result in infertility, bone density loss, visual disturbances, and headaches

## **Hysteroscopy**

Hysteroscopy is a procedure that allows a physician to look through the vagina and neck of the uterus (cervix) to inspect the cavity of the uterus. A telescope-like instrument called a hysteroscope is used. Hysteroscopy is used as both a diagnostic and a treatment tool. This view is helpful in diagnosing problems within the uterus such as polyps, scar tissue, abnormal shapes or membranes, as well as fibroids.

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## **Hysterosalpingogram (HSG)**

A HSG is an x-ray procedure in which a special media (dye) is injected into the uterus to demonstrate the inner contour of the uterus and degree of openness (patency) of the fallopian tubes. This shows whether the tubes are open or damaged, and whether the uterine cavity is normal. Spillage of the dye from a tube indicates the tube is open. The inner shape of the uterus is also checked for abnormalities. Problems in these areas may make it difficult to become pregnant. It is usually performed after all menstrual bleeding is over with, but before ovulation. In women on a 28-day cycle, this is usually between cycle days 8 and 12.

## **Intracytoplasmic sperm injection (ICSI)**

In the early 1990's, an IVF technique called ICSI became available for the treatment of infertility due to male factors, such as low sperm count, high percentage of abnormal sperm, low sperm motility, and low yield of eggs. It is a procedure that uses micromanipulative techniques to directly inject a single sperm into an egg. Only the mature eggs, which are ready for fertilization, are selected for this process. It is most often used in cases of known or suspected male factor infertility, or in cases of previously demonstrated poor fertilization rates, possibly due to poor quality sperm and/or eggs. Using this technique, fertilization and pregnancy rates are comparable with those found using standard in vitro fertilization procedures. This technique can also be used for males with a prior vasectomy or congenital absence of the vas deference who require sperm aspiration directly for the epididymis or testes by an urologist.

## **Intrauterine insemination (IUI)**

IUI is the process whereby sperm are injected directly into the uterine cavity in order to bypass the cervix and place the sperm closer to the egg. The sperm are usually washed first to remove prostaglandin, bacteria and unwanted debris that can irritate the uterine lining. The washing may increase sperm motility and concentration.

## **In vitro fertilization (IVF)**

IVF is the process of combining a woman's eggs with a man's sperm outside the body, in a laboratory. Any combination might be used including the patient's own eggs and her partner's sperm, as well as donor eggs and donor sperm. IVF is used for patients experiencing infertility and may be a treatment option if there are blocked or missing tubes, the patient has endometriosis, her partner has a low sperm count, or motility, the patient has had artificial insemination cycles that have not been successful, or there is unexplained infertility. With IVF, oocytes (eggs) are retrieved from the ovary and placed in a Petri dish with active, motile sperm. Fertilization occurs in the Petri dish, thus the name "In Vitro" meaning "in glass". The eggs and sperm are maintained in a special culture media (nutrient fluid) within a controlled environment (incubator) for approximately three to five days. During this incubation period, the fertilized eggs develop into early dividing embryos, usually consisting of four to eight cells (three days after fertilization). If allowed to continue incubating, the embryos will continue to mature and form a blastocyst two days later (five days after fertilization). Embryos (Day 3) or blastocysts (Day 5) are transferred via a thin catheter, through the cervix, directly into the uterus using ultrasound guidance.

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## Laparoscopy

A laparoscopy is a diagnostic procedure in which a surgeon inserts a laparoscope through a small incision below the navel and visually inspects the uterus, uterine ligaments, fallopian tubes, ovaries, and abdominal organs. Other incisions may also be made through which additional instruments can be inserted to facilitate diagnosis and treatment of pelvic disease.

## Laparotomy

A laparotomy is a surgical procedure that is done by making an incision in the lower abdomen. This allows the surgeon to see and inspect the abdominal cavity for structural problems, sites of endometriosis (implants), and scar tissue (adhesions). The surgeon can then remove implants and adhesions. The surgeon can also correct structural problems that interfere with an organ's normal function, such as removing adhesions from the bowel wall. Many of the procedures that required a laparotomy in the past can now be done with laparoscopy, which uses a smaller incision.

## Leukospermia

Leukospermia refers to a low level of white blood cells in relation to the semen analysis results.

## Luteinizing hormone (LH)

LH is the hormone that triggers ovulation and stimulates the corpus luteum to secrete progesterone. LH is produced by the pituitary gland. In women, LH helps regulate the menstrual cycle and egg production (ovulation). The level of LH in a woman's body varies with the phase of the menstrual cycle. It increases rapidly just before ovulation occurs, about midway through the cycle (day 14 of a 28-day cycle). This is called an LH surge. Luteinizing hormone and follicle-stimulating hormone levels rise and fall together during the monthly menstrual cycle. In men, LH stimulates the production of testosterone, which plays a role in sperm production.

## Metformin (Glucophage)

Metformin is an insulin sensitizing medication typically used in the treatment of type II diabetes. Studies have found that some women with PCOS who take Metformin show lower testosterone levels, improved insulin response occasionally leading to spontaneous ovulation and improved response to Clomiphene Citrate. Women with PCOS (Polycystic Ovarian Syndrome) a common endocrine disorder, often have irregular menstruation, infertility, obesity, acne, mood swings, and unwanted facial or body hair (hirsutism). Often the eggs do not develop to maturity and many small follicles (small fluid-filled sacs containing immature eggs) develop, giving them a "polycystic" (many cysts) look on ultrasound and leading to menstrual irregularity. All women produce the male hormone testosterone, an important sex hormone, but women generally produce less than 10% of what men produce. Increased testosterone triggers many of the symptoms of PCOS. Although the root cause isn't well understood, there seems to be an interaction between male hormones (testosterone) and insulin. Many PCOS women don't respond properly to insulin. It may be that the insulin released by the pancreas in response to a meal isn't enough to move glucose into the cells properly and the body continues to pump out more insulin. It is possible that extra insulin may stimulate the ovaries to produce more testosterone creating even more insulin in a continuing circle. In addition to Metformin, weight loss, especially through reduction of carbohydrates and with increased exercise will help to improve insulin sensitivity. Your doctor may order base line lab tests before you begin taking Metformin.

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## **Miscarriage**

A miscarriage, also referred to as spontaneous abortion, is defined as a loss of pregnancy before 20 weeks gestation. Approximately 20% of pregnancies in young women end in miscarriage. As women get older, the chance of miscarriage increases. Most miscarriages occur within the first trimester (first twelve weeks of pregnancy). Because miscarriages are common, it is recommended that a couple wait to undergo testing until after they have had at least three consecutive miscarriages.

## **Myomectomy**

A myomectomy is the surgical removal of fibroids from the uterus. It allows the uterus to be left in place and, for some women, makes pregnancy more likely than before. Myomectomy is the preferred fibroid treatment for women who want to become pregnant. After a myomectomy, your chances of pregnancy may be improved but are not guaranteed. Before a myomectomy, shrinking fibroids with gonadotropin-releasing hormone analogue (GnRH-a) therapy may reduce blood loss from the surgery. GnRH-a therapy lowers the amount of estrogen your body makes. If you have bleeding from a fibroid, GnRH-a therapy can also improve anemia before surgery by stopping uterine bleeding for several months.

## **Necrospermia**

Necrospermia is a condition in which the spermatozoa in seminal fluid are dead or motionless.

## **Oligoasthenospermia**

Oligoasthenospermia refers to a low sperm count and poor sperm motility.

## **Oligospermia**

Oligospermia refers to a low sperm count.

## **Oral Contraceptive Pills (OCPs aka birth control pills)**

OCPs may be prescribed one or more months prior to your treatment cycle in an effort to improve your cycle outcome. They have not been ordered for birth control purposes but for hormone and cycle regulation. You may take these with most other antibiotics if necessary. It might also be prescribed prior to surgery or other procedures (especially hysteroscopy) to make it easier to visualize the uterine cavity, make excessive bleeding less likely and surgery safer, and lessen the chance of having surgery during an early, undiagnosed pregnancy.

## **Ovary**

An ovary is one of the two female sex glands in the pelvis. Most women are born with two ovaries. One is located on each side of the uterus. The ovaries produce eggs and hormones including estrogen, progesterone, and androgens.

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## **Ovarian Hyperstimulation (OHSS)**

OHSS is defined as a rare, unpredictable, complication of pharmacologic ovarian stimulation occurring during the second half of the menstrual cycle or during early pregnancy. It is a self-limiting condition which resolves itself if no pregnancy is achieved or once the placenta begins to establish function at approximately 6-8 weeks of pregnancy. This complication affects approximately 1% of patients undergoing reproductive treatment, and is classified as mild, moderate or severe. Treatment of OHSS can be done on an outpatient basis; however, patients who develop severe OHSS may need to be hospitalized for closer observation.

## **Ovarian reserve**

Ovarian reserve refers to a woman's fertility potential in the absence of any problems in the reproductive tract (fallopian tubes, uterus, and vagina). It mainly depends on the number and quality of eggs in the ovaries and how well the ovarian follicles are responding to the hormonal signals from the brain.

## **Ovulation**

Ovulation is the release of a ripened (mature) egg from its follicle in the outer portion of the ovary that usually occurs on day 14 or 15 of a 28-day cycle or 14 days prior to the first day of the next period. Two hormones produced by the pituitary gland in the brain are needed for this process. The first is follicle stimulating hormone (FSH) and the other is luteinizing hormone (LH). In the first half of the menstrual cycle, FSH is needed in the correct amount to stimulate the egg to grow within a fluid-filled cyst (follicle) in the ovary. At mid-cycle, LH causes the egg follicle to rupture and release the egg. As part of this growth process, the hormone estrogen is made by the egg follicle. Estrogen causes the lining of the uterus (the endometrium) to thicken in order to receive and nourish the fertilized egg. After ovulation, the same egg follicle makes the hormone progesterone which keeps the thickened lining in place until pregnancy occurs or a menstrual period comes.

## **Ovulation induction**

Ovulation induction is the administration of hormone medications (ovulation drugs) that stimulate the ovaries to produce multiple follicles. Sometimes, ovulation induction is called superovulation, enhanced follicular recruitment, or controlled ovarian hyperstimulation.

## **Ovulation predictor kit (OPK)**

These commercially available urine test kits use paper dip sticks that show changes in the levels of Luteinizing hormone (LH) in the urine. You can buy the OPK without a prescription to help determine when a woman is about to ovulate. Once the LH surge has occurred, ovulation usually takes place within 24-44 hours. Urine testing usually begins two days prior to the expected day of ovulation. About 12 to 14 days before a menstrual period, the brain releases its supply of luteinizing hormone (LH). This is called the LH surge and can be detected in your urine. The LH surge happens about 24 to 36 hours before an egg is released and triggers the egg's release from the ovary. You are fertile around the time the egg is released. Generally, you should have intercourse the day of, and the day following, the color change of the predictor kit. Be sure to carefully follow the directions from the kit you are using. It is best to test your urine in the morning after you have already urinated one time. You should begin testing your urine on the 10th day of your menstrual cycle unless your doctor/nurse practitioner tells you to start on a different day.

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## **Peritoneum**

The peritoneum is the lining of the abdominal cavity.

## **Polycystic Ovarian Syndrome (PCOS)**

PCOS is a disorder associated with ovulation problems. Commonly, the ovaries are enlarged and contain many small cysts (fluid-filled sacs). PCOS is estimated to affect about 5% of women in the U.S. Women with PCOS may experience irregular or no menstrual periods. Many, but not all, women with PCOS are overweight. In fact, overeating or lack of exercise can cause PCOS. Some women with PCOS have more hair or darker hair on their face or other places on their bodies. Because women with PCOS have irregular ovulation, they often have fertility problems. Some women with PCOS have a tendency to become diabetic. It occurs as a result of an increase in production of certain kinds of hormones called androgens by the ovaries and the adrenal glands. About half of women with PCOS inherit this tendency. The other half may have PCOS due to other reasons, including certain medical disorders. PCOS women who do not have a clear inherited tendency usually develop PCOS over time by increasing their body weight. This is often caused by poor diet and insufficient exercise.

## **Premature Ovarian Failure (POF)**

Also known as premature menopause, POF occurs when a woman's periods stop before the age of 40. Menopause usually occurs between the ages of 45 and 55. Many times the exact cause is unknown, although we know some of the reasons why the ovaries stop producing eggs. Some chemicals and medications can damage the ovary, including chemotherapy and radiation. Diseases that involve the immune system, heredity, and genetic abnormalities may also be factors.

## **Progesterone**

Progesterone is a female hormone secreted by the ovary during the second half of the menstrual cycle. Progesterone prepares the lining of the uterus for implantation of the fertilized egg. This is important because the fertilized egg must attach to the lining in order to grow. Progesterone also causes the small rise in body temperature that happens after ovulation. This is the rise in temperature that you measure if you are checking your basal body temperature. Progesterone is measured by taking a blood test during the second part of your menstrual cycle, usually a week following ovulation (around day 21, day 22, or day 23). If ovulation has occurred, your provider will see a rise in your progesterone level.

Progesterone is often used when women are suspected to have, or are proven to have, a problem called "luteal phase deficiency". Usually, before progesterone is used, another medicine called clomiphene citrate (Clomid®) is tried. For women taking fertility shots and Lupron® or Synarel®, progesterone is given after ovulation until the pituitary gland is able to recover enough function to send signals to the ovaries which make the body's own progesterone.

## **Prolactin**

Prolactin is a hormone that stimulates milk production in women. Small amounts of prolactin normally circulate in the blood of non-pregnant women. Large amounts circulate during pregnancy and right after birth. When the prolactin levels are high, irregularities in reproductive hormones can occur. This can result in infertility, bone density loss, visual disturbances, and headaches.

# Glossary of Fertility Terms

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## **Prostaglandins**

Prostaglandins are a group of acids found throughout the body, especially in semen that stimulates smooth muscle tissue and affects blood pressure, metabolism, body temperature, and other body processes. In women, prostaglandins are hormone-like chemicals produced in large amounts by endometrial cells. They stimulate the uterine muscles to contract and are largely responsible for menstrual cramps.

## **Retrograde ejaculation**

A condition that causes the ejaculate to be released backward into the bladder at male climax is known as retrograde ejaculation.

## **Saline Infusion Sonogram and Trial Transfer**

Prior to IVF, a saline infusion sonogram (SIS) is routinely performed to make sure that the endometrial cavity (inside of the uterus) appears normal. Benign uterine growths, such as endometrial polyps or uterine fibroids, may develop in the cavity and create an environment that is hostile for implantation. Scar tissue may also be identified. A SIS is commonly referred to as a water ultrasound. A small catheter is placed in the uterine cavity and saline is slowly injected. The saline fills the uterine cavity, exposing any polyps, sub-mucosal fibroids or scar tissue that could affect implantation. Additionally, a trial transfer (TT) is conducted using a catheter similar to the actual transfer catheter. This will help gauge the proper techniques and equipment to use during the actual embryo transfer procedure. Patients should drink 16 ounces of water one hour before the appointment and not empty their bladder until seen by the physician. The procedure can be done at any time while a patient is on birth control pills as long as there is no bleeding. Ideally, it should be done between cycle days 6 and 10. If the patient is unable to schedule the appointment during this time, oral contraceptive pills should be started on cycle day 2 and then the patient can have the procedure done at any time during the cycle as long as there is no bleeding.

## **Semen**

Semen is a thick, cloudy, white substance that contains sperm and other fluids. Semen is released, or ejaculated, from the penis during a man's sexual climax (orgasm). The amount of semen ejaculated varies from between a few drops to about 1 tsp (5 mL) and usually contains between 40 million and 600 million sperm.

## **Semen analysis**

A semen analysis is the microscopic examination of semen to determine the number of sperm, their shapes, and their ability to move. The semen analysis is one of the most basic laboratory tests of a couple undergoing an infertility work-up. The male partner is asked to produce a semen specimen to determine if the quality or quantity of the sperm is a contributing factor to their infertility.

## **Seminal plasma**

Seminal plasma is the fluid in which sperm is ejaculated. Seminal plasma makes up most of the fluid volume of sperm.

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## **Speculum**

A vaginal speculum is a metal or plastic device used during a pelvic exam. It is inserted into the vagina to open up and hold apart the sides, which allows the examiner to see the opening to the uterus (cervix).

## **Sperm**

Sperm is the male reproductive cells that fertilize a woman's egg. The sperm head carries genetic material, the midpiece produces energy for movement, and the thin tail wiggles to propel the sperm. A normal sperm has an oval head, intact middle piece, uncoiled tail, and a well-defined acrosome (end of the head).

## **Sperm count**

Sperm count refers to the number of sperm per milliliter of semen. A normal count is usually 20 million or more per milliliter.

## **Sperm morphology**

Sperm morphology is a way of using a special template to measure the shapes, characteristics and appearance of sperm. Sperm is examined for (1) abnormal heads that are too large or too small, absent heads, pin heads, two heads, (2) abnormal necks which would be thick necks or bent necks, and (3) immature sperm or white blood cells that can suggest infection.

## **Sperm motility**

Sperm motility is the percentage of all moving sperm in a semen sample.

## **Sperm washing**

Sperm washing is a procedure to remove seminal fluid, prostaglandin, bacteria and protease from sperm cells before intrauterine insemination or other assisted reproductive technologies.

## **Teratospermia**

Teratospermia is when less than 14% of sperm are structurally abnormal. This is based on using Kruger strict morphology guidelines.

## **Testicular Sperm Extraction (TESE)**

As part of IVF, TESE involves the removal of testicular tissue from the male donor in an attempt to recover live sperm for use in the ICSI procedure. This procedure is performed by a consulting urologist and is intended for men with severe sperm production problems or obstruction in the outflow of sperm from the testis itself that cannot be treated by any other methods.

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## **Thyroid Stimulating Hormone (TSH)**

Thyroid Stimulating Hormone (TSH) is a hormone produced in the brain that stimulates the thyroid gland. The thyroid gland is located in the front of the neck and is involved in metabolism. Your TSH level is measured by taking a blood test that shows how the thyroid gland is working. TSH measures how much hormone the brain needs to make for your thyroid gland to work properly. If your thyroid gland is not working properly, it is either overactive or underactive. If your blood tests show that you have hypothyroidism, your provider can talk to you about prescribing medication to correct the condition. When the thyroid is working properly, menstrual cycles and ovulation should become more regular, making it easier to get pregnant. Keep in mind that there may be other reasons why you are not getting pregnant. Your provider will be doing many tests to determine the reason(s).

## **Tubal Disease**

Tubal disease refers to fallopian tubes that have been damaged. Approximately 25% of infertility in women is caused by damaged tubes. Tubal damage occurs mainly from sexually transmitted diseases (such as chlamydia or gonorrhea), PID (pelvic inflammatory disease), previous ectopic pregnancy, endometriosis, and adhesions (scar tissue in the pelvis). A hysterosalpingogram (HSG) or laparoscopy (surgery through the “belly button”) is the procedure used to diagnose tubal disease. If there is only a small amount of damage and the woman is young (less than 36 years old), surgery can sometimes help. The best way to get pregnant if you have tubal damage is IVF as it bypasses the tubes altogether.

## **Unexplained Infertility**

Unexplained infertility is the diagnosis applied to couples who have no identifiable cause for their infertility after a comprehensive infertility evaluation. It implies that a thorough diagnostic evaluation has failed to reveal any specific cause or factor to cause the infertility. Some women with this diagnosis may be able to conceive without any further treatment. The incidence of unexplained infertility is estimated at approximately 15% to 20% of all couples who undergo a standard infertility evaluation. Although infertile women, older than 35 years, with no identifiable cause for their infertility are assumed to have "old eggs" as the reason for their infertility, often these patients are treated as if they had unexplained infertility. Although the cause of infertility is unexplained, treatment is possible. The treatment includes medical therapy in addition to intrauterine insemination (IUI). However, after age 43, having these treatments are no more successful than not having treatment.

## **Uterine Polyps**

Growths of tissue emerging from the uterine wall are referred to as uterine polyps.

## **Uterus (womb)**

The uterus is the hollow, muscular organ in the pelvis where an embryo implants and grows during pregnancy. The lining of the uterus (endometrium) produces the monthly menstrual blood flow when there is no pregnancy.

## **Vagina**

The vagina is the genital canal in the female that leads from the vulva (external genitalia) to the cervix and uterus.

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## **Vaginal Ultrasound**

An ultrasound scans your uterus and ovaries by using high frequency sound waves. The sound waves reflect off your internal organs and are "read" by scanners that create pictures of your internal organs. A small wand is inserted into the vagina to scan your uterus and ovaries. An ultrasound is an instrument that uses high frequency sound waves. The sound waves reflect off your internal organs and are "read" by scanners that create pictures of your internal organs. Sound waves, produced by a small crystal, are directed into a specific area of your body through a microphone-like device called a transducer. In an abdominal pelvic ultrasound a special gel, which helps to conduct the sound waves, is applied to your abdomen. The transducer glides across your skin to scan your pelvis. In most cases, for instance, in early pregnancy or infertility, it is easier to view the embryo, or developing egg, and pelvic organs through the vagina. This procedure is called a transvaginal ultrasound. A transvaginal transducer is inserted into your vagina to produce sharp clear images of the pelvic organs. Lubricant is applied to the probe and it is covered before it is inserted.

## **Varicocele**

Varicoceles are enlarged varicose veins that occur in the scrotum. They are fairly common, affecting 15% of men overall and 40% of men with known infertility. Varicoceles occur most often in the left testicle. Varicocele repair is performed to improve male fertility. It can usually be done surgically on an outpatient basis using local or general anesthetic. A small incision is made in the abdomen close to where the testicles originally descended through the abdominal wall. The veins that produce the varicocele are identified and cut to eliminate blood flow to the varicocele. Alternatively, a nonsurgical procedure called percutaneous embolization can be done to repair a varicocele. A small catheter is inserted through a large vein in the groin or neck and advanced to the varicocele, which is then blocked off by a balloon, coil, or medicine.

## **Vasectomy**

A vasectomy is considered a permanent method of birth control. A vasectomy prevents the release of sperm when a man ejaculates. During a vasectomy, the vas deferens from each testicle is clamped, cut, or otherwise sealed. This prevents sperm from mixing with the semen that is ejaculated from the penis. An egg cannot be fertilized when there are no sperm in the semen. The testicles continue to produce sperm, but the sperm are reabsorbed by the body. This also happens to sperm that are not ejaculated after a while, regardless of whether you have had a vasectomy. Because the tubes are blocked before the seminal vesicles and prostate, you still ejaculate about the same amount of fluid. It usually takes several months after a vasectomy for all remaining sperm to be ejaculated or reabsorbed.

## **Zygote intrafallopian transfer (ZIFT)**

ZIFT is a procedure that involves fertilizing eggs in the laboratory and then using a laparoscope to transfer the eggs (zygotes) into the fallopian tubes after the eggs have been fertilized. ZIFT is used in about 1.5 percent of all ART procedures.