Infertility

What is infertility?

Infertility can be caused by a variety of diseases and medical conditions and affects about one in six men and women of reproductive age. Infertility is the following conditions or circumstances:

1. You are a woman under 35 years of age and have been unsuccessful getting pregnant after one year of unprotected sexual intercourse.
2. You are a woman over 35 and have been trying to conceive for six months or more.
3. You have experienced two or more miscarriages.
4. You have been diagnosed with a medical condition such as endometriosis or *polycystic ovarian syndrome* (PCOS) or have a male partner with a low sperm count that might impair your ability to get pregnant.

The longing to have children is one of human nature's most natural and basic desires. There is no reason to feel ashamed or embarrassed because you can't get or stay pregnant or to avoid seeking timely treatment. In fact, more than 7 million men and women in the U.S. are affected by infertility as are millions around the globe. The causes of infertility equally impact men and women; some couples have multiple diagnoses affecting both partners and others are faced with what many consider the most perplexing reason: unexplained infertility.

The causes of infertility are numerous, but can be categorized around these issues: ovulation and egg quality; sperm production, transport and function; fertilization; and implantation.

SomeCommonCauses/ReasonsforInfertility:

Problems with menstruation and ovulation

Irregular or abnormal ovulation, called anovulation, is one of the biggest reasons for female infertility and can be attributed to 25% of all female infertility problems.

Blocked fallopian tubes/tubal disease

Blockages or scarring of the fallopian tubes, a pair of hollow structures leading from the area of the ovaries to the uterus where fertilization occurs. In its early days, in vitro fertilization initially was used to help women with this condition.

Endometriosis

Endometriosis can be a painful and chronic condition that is characterized by uterine lining tissue found outside the uterus, often inside the peritoneal cavity on the ovaries, fallopian tubes, uterus, bowels and bladder. The scar tissue formed from this condition can cause infertility. Surgery and in vitro fertilization have been found to be effective treatments for infertility patients with endometriosis.

Polycystic Ovarian Syndrome (PCOS)

PCOS is a hormonal imbalance resulting in lack of ovulation, irregular periods and infertility. It is characterized by the appearance of many small cysts in the ovary as seen on an ultrasound. It also is often associated with insulin resistance. Weight loss, medication therapy and techniques like IUI and IVF can help PCOS sufferers.

Fibroids

Fibroids are non-cancerous, estrogen-dependent benign tumors growing in the uterus that can cause pelvic pain and heavy menstrual bleeding. They also can cause infertility and recurrent miscarriages. A physician might recommend a myomectomy as the best surgical intervention to remove fibroids for women who want to get pregnant.

Premature Ovarian Failure

Women are diagnosed with premature ovarian failure (POF) if they are 40 years old or younger and their ovaries no longer function to ovulate eggs. Not only will these young women potentially lose their reproductive capabilities, but they also are at greater risk for heart disease and osteoporosis. A variety of medical conditions can cause POF, but doctors cannot always identify one. POF is not premature menopause.

Older Intended Mothers

No matter how good she looks or feels, a woman's ovarian function declines in both quantity and quality as she ages. This is why it is important for women over 40 to seek help after three months of trying to get pregnant. Just because you are ovulating and having a period does not mean you are capable of getting pregnant.

Secondary Infertility

After successfully having one or two children, many couples are perplexed by their inability to conceive again. Secondary infertility can be just as emotionally devastating as primary infertility and couples often do not get the support they need because of fear and guilt.

Male Factor Causes of Infertility

Azoospermia (complete absence of sperm) and oligospermia (few sperm cells produced) are two of the most common causes of male factor infertility. Other causes include malformed sperm cells or sperm cells that die before they reach the egg. In rare cases, male factor infertility can be attributed to a genetic disease or chromosomal abnormality.

Other reasons for male infertility include congenital absence of the vas deferens that transport sperm for ejaculation; cryptorchidism or hidden testicles, which also is congenital; varioceles, enlarged varicose veins in the scrotum that prevent normal function; and a previous vasectomy that needs to be reversed.

Common Myths About Infertility:

There are lots of myths "out there" about getting pregnant and infertility. Chances are you've heard a lot of them from well-meaning relatives and friends who were just trying to make you feel better. But when you're trying to conceive, it is important to separate fact from fiction. In fact, it's crucial to do so because believing some of those myths could prevent you from getting the care and treatment you need.

Just relax. Infertility is a psychological problem that's all in your head.

Psychological problems ARE NOT a major cause of infertility. Maybe your friends or family members have told you to stop trying so hard and simply "relax." Although stress has been shown to contribute to infertility in some cases, it's more likely that infertility is causing anxiety, depression, and sexual problems than the other way around.

Infertility is primarily a female problem?

Infertility is no longer regarded as "her" problem. In fact, approximately 40 percent of cases of infertility are due to problems that occur in the man. Another 40 percent are due to problems that occur in the woman. In approximately 20 percent of all infertile couples, both partners have physical problems contributing to their infertility. Modern infertility treatment focuses on the couple as a unit, recognizing them as a team who will work together to resolve this problem.

Adoption increases the chances of becoming pregnant?

Almost every couple that has had difficulty becoming pregnant probably has heard the story about someone who became pregnant shortly after adopting. This myth is an offshoot of the "just relax" myth, assuming that adoption relieves the anxiety and stress that presumably were causing the infertility. In fact, infertile couples who adopt are no more likely to become pregnant than couples who do not: Though adoption is a wonderful way to build your family, no one should adopt because they think they will get pregnant naturally because of it.

It's not complicated. Getting pregnant is simple and easy.

INFERTILITYTERMS:

Adhesions: rubbery or filmy bands of scar tissue often caused by a previous infection, surgery or endometriosis that attach to the surface of reproductive organs and the bowels or the bladder. Adhesions to or around the fallopian tubes and ovaries may block a tube and prevent an egg (oocyte) from meeting with a sperm.

Amenorrhea: the absence of menstruation

Anovulation: lack of ovulation

Artificial insemination: prepared or washed sperm is placed into the uterus using a specialized catheter. Also referred to as IUI (Intrauterine Insemination).

Autologous endometrial coculture: growth of embryos on top of a woman's own endometrial (womb) cells.

Basal body temperature (BBT): a woman's temperature upon first awakening in the morning. A rise of about one degree Fahrenheit is seen in the middle of the cycle to help predict ovulation. Charting of these temperatures is very popular but can be inaccurate.

Blastocyst: a more developed embryo, often referred to as a preimplantation embryo. It begins to implant into the uterine lining six to seven days after fertilization.

Bromocriptine: a medication used to treat abnormally high prolactin, which is a pituitary hormone responsible for breast milk production that may result in infertility and amenorrhea. Prolactin may be secreted in higher amounts due to pituitary brain tumors, chest wall trauma, breast implants or as a side effect of various medications.

Cervical mucus: the opening to the uterus is referred to as the cervix. It produces mucus that is normally thick, then becomes thin at the time of ovulation to help with the transport and survival of sperm.

Chlamydia: a sexually transmitted disease that may cause fallopian tube scarring or blockage. It is responsible for up to 50 percent of all pelvic inflammatory infections.

Chlamydia antibody test: A blood test used to determine previous exposure to chlamydia.

Clomiphene citrate: a commonly prescribed fertility drug that works by binding to the estrogen receptor causing increased release of FSH, follicle stimulating hormone. Pregnancy rates with Clomid and IUI (intrauterine insemination) are approximately five-10%, of which eighth percent are twins. FSH stimulates specialized cells in the ovary to produce estrogen that results in an increased number of oocytes (eggs).

Corpus luteum: responsible for progesterone production in the ovary after ovulation has occurred. It helps prepare the uterine lining for implantation. It appears as a cyst on the ovary and regresses if pregnancy does not occur. Otherwise, it continues to produce progesterone until the 10-12th week of pregnancy when the placenta takes over progesterone production.

Cryopreservation: the process of sperm or embryo freezing, and storage in liquid nitrogen.

Donor oocytes: eggs donated to help achieve pregnancy in patients who have lost their ovaries, have premature ovarian failure or are at an advanced maternal age. Donors may be known to the recipient or anonymous.

Ectopic pregnancy: a pregnancy that occurs outside the uterus, usually in the fallopian tube, requiring either medication or surgical treatment.

Embryo transfer: the transfer of an embryo that has been fertilized in vitro from a dish into the uterus of a woman, as a result of in vitro fertilization.

Endometrial biopsy: uterine lining cells obtained through an office procedure, allowing the pathologist to directly determine the hormonal effects of progesterone. An inadequate amount of progesterone may lead to a condition known as luteal phase deficiency, which can cause infertility or recurrent pregnancy loss.

Endometriosis: uterine lining tissue found outside the uterus, often inside the peritoneal cavity on the ovaries, fallopian tubes, uterus, bowels and bladder.

Estrogen: steroid hormones produced by the ovaries starting at puberty and ceasing at menopause.

Fallopian tubes: pair of hollow structures leading from the area of the ovaries to the uterus. Fertilization occurs here. Blockages or scarring of the tubes are one of the most common causes of infertility.

Fertilization: the combining of genetic material of one egg and one sperm.

Fimbria: finger-like structures at the end of the fallopian tube that help pick up the egg from the ovary after ovulation.

Fimbrioplasty: surgical procedure to open up the constricted end of a fallopian tube.

Follicle: a fluid-filled sac on the surface of the ovary in which the maturing egg (oocyte) grows. It produces estrogen until release of the egg, when it becomes the corpus luteum that secretes progesterone.

Follicle stimulating hormone (FSH): in females, a gonadotropin (pituitary hormone) that stimulates estrogen production in the ovary and matures an oocyte. In males, FSH stimulates testosterone production in the testicle.

Gametes: the reproductive cells: oocytes in women; sperm in men.

Gamete intrafallopian transfer (GIFT): a variation of the IVF procedure requiring laparoscopy. After oocytes are collected, they are mixed with sperm and, using a catheter, are placed into the fallopian tube through laparoscopic guidance. Fertilization therefore occurs in the body (in vivo) as opposed to in a glass dish (in vitro).

Gonad: an ovary or testis.

Gonadotropin: a hormone (FSH, LH or HCG) that stimulates the ovaries or testes. These can be administered in the form of injections to stimulate the ovaries to facilitate follicle growth and/or induce ovulation. Trade names

include Follistim (FSH), Gonal F, Repronex, Bravelle, Pergonal, Pregnyl (hcg), Profasi (hcg) and Novarel (HCG).

Gonadotropin releasing hormone (GnRH): the hypothalamic hormone that stimulates the pituitary to release LH and FSH. It is used in IVF to prevent the body from spontaneously triggering ovulation (Lupron). It is also used to treat endometriosis and to shrink the size of fibroids.

Gonorrhea: a sexually transmitted disease that may cause inflammation of the reproductive organs in both men and women, resulting in infertility

Hamster-oocyte penetration test: a SPA (Sperm Penetration Assay) that evaluates the ability of human sperm to penetrate an ovum. Sperm are incubated with hamster eggs, and normal sperm will penetrate an egg. If no penetration occurs, this correlates in our laboratory with a poor prognosis of spontaneous fertilization. The ICSI procedure can then circumvent this situation.

Human chorionic gonadotropin (HCG): a hormone secreted by the embryo that maintains corpus luteum function when pregnancy occurs. It is also used like a LH hormone to trigger ovulation.

Human menopausal gonadotropin (HMG): FSH and LH hormones extracted from the urine of postmenopausal women and then injected to stimulate follicle recruitment and growth within the ovaries.

Hyperprolactinemia: overproduction of prolactin, the hormone responsible for breast milk production. It may be treated with bromocriptine (Parlodel or Dostinex). If left untreated, it can lead to ovulatory dysfunction (missed and/or irregular menses).

Hypothalamus: an area in the brain responsible for release of GnRH(Gonadatropin Releasing Hormone), as well as other hormones.

Hysterosalpingogram: a test done with X-ray and dye to assess the uterine cavity and patency of the fallopian tubes. A special dye is injected through the cervix and flows into the uterine cavity and through the tubes. If the tubes are not blocked, the dye will spill out of the tubes into the abdomen, indicating that the tubes are open. The uterine cavity also can be examined to rule out uterine size or shape abnormalities.

Hysteroscopy: a diagnostic test using a very small camera (hysteroscope) to assess the inner walls of the uterine cavity for fibroids, polyps, and scar tissue. A hysteroscope is inserted into the uterus through the cervix from the vagina to directly visualize the inside of the uterus. Removal of fibroids, scar tissue, and polyps may be performed in this way without having to operate on the abdomen.

Implantation: the process whereby a fertilized egg (zygote) attaches to the uterine lining.

Intracytoplasmic sperm injection (ICSI): beneficial in the case of male factor infertility, where sperm counts are very low or fertilization was a prior factor with an IVF attempt. For the procedure, a single sperm is placed in the center of the egg with a microneedle.

In vitro: Latin for "in glass." A term referring to in vitro fertilization or fertilization occurring in a dish as opposed to in the body.

In vitro fertilization (IVF): a technique used in women with blocked fallopian tubes, endometriosis, unexplained infertility and male factor causes. Fertility medications are given to mature multiple eggs. These eggs are then removed from the ovary and placed into a dish with sperm. Fertilization therefore occurs outside the body. There are variations of this procedure to accommodate different faiths and religious beliefs.

Intrauterine insemination: sperm are directly deposited into the uterus using one of many specialized catheters, bypassing the cervical mucus barrier.

Isolate wash: a complex wash used to separate sperm for insemination.

Karyotype: evaluation of chromosomes for their number, sizes and shapes. Abnormalities may generate explanations for recurrent pregnancy loss, premature ovarian failure, primary amenorrhea and low or absent sperm counts.

Laparoscopy: an outpatient surgical technique in which a five or ten mm narrow, lighted instrument is placed through the belly button to allow direct visualization of the ovaries, uterus, fallopian tubes and peritoneal cavity. Various laser and microsurgical procedures can be performed through the laparoscope using additional small incisions at the pubic hairline.

Laparotomy: a surgical incision through the abdomen, typically four to six inches in length to allow direct visualization and correction of the reproductive structures. Typically recommended for removing large fibroids.

Luteal phase deficiency: the uterine lining fails to develop appropriately after ovulation. This condition is often treated with progesterone or ovulation induction medications.

Menopause: the cessation of the menstrual cycle. Occurs when there are no more oocytes in the ovaries. The average age of menopause is 50.

Microsurgery: fine, delicate surgery requiring magnification, often through the use of a microscope. It is used to reconnect tied tubes after sterilization or repair blocked fallopian tubes. Also used for sperm extraction.

Mycoplasma: an organism that has been associated with some types of infertility and miscarriages.

Oligomenorrhea: infrequent menses.

Oocyte: egg or ovum that is produced in the ovary.

Ovaries: paired, female sex glands where eggs are stored and estrogen and progesterone are produced.

Ovulation: the release of an oocyte from the ovary, usually occurring in the middle of the menstrual cycle.

Ovulation induction: medications/hormones such as Clomiphene Citrate or gonadotropins are used to stimulate the ovaries to produce estrogen and induce ovulation. It is used in conditions such as polycystic ovaries, oligomenorrhea, anovulation, endometriosis and male factor infertility.

Ovulation predictor kit: home urine test for LH, which is the signal to release that an egg will be released by the ovaries.

Pelvic inflammatory disease (PID): infection of the upper reproductive tract that can be caused by gonorrhea or chlamydia)—including the tubes (salpingitis), ovaries (oophoritis) and uterus (endometritis)—that ascends from the lower tract (vagina). If untreated, it may cause infertility.

Peritoneal cavity: the abdominal cavity.

Pituitary: the master gland situated at the base of the brain. It secretes FSH (follicle stimulating hormone) and LH (luteinizing hormone), as well as prolactin and TSH (thyroid stimulating hormone).

Polycystic ovarian syndrome (PCOS): a hormonal imbalance resulting in lack of ovulation, irregular periods and infertility. It is characterized by the appearance of many small cysts in the ovary as seen on an ultrasouond. Often also associated with insulin resistance.

Post-coital test: cervical mucus is examined within 12 hours of intercourse in the middle of the menstrual cycle. Sperm number, movement and cervical mucus quality are graded.

Preimplantation genetic diagnosis (PGD): a technique to determine whether an embryo has a chromosomally abnormal karyotype or if a specific disease is carried. One cell is removed from an embryo at the six to eight-cell stage and then analyzed. Non-affected embryos may then be replaced to prevent transmission of that specific condition.

Primary infertility: infertility in those who have never conceived a child.

Progesterone: a steroid hormone secreted by the ovary after ovulation has occurred to prepare the uterine lining for implantation.

Prolactin: a pituitary hormone that stimulates breast milk production.

Recominant FSH: DNA technology, using a host cell to replicate the FSH molecule. Product brand names are Gonal F and Follistim. These medications are injected subcutaneously.

Salpingostomy: surgical attempt to create a new opening at the end of a blocked fallopian tube.

Secondary infertility: infertility in those who have previously been fertile.

Subcutaneous: the layer of adipose (fate) under the skin, used for injecting medication.

Uterine sounding: a process in which a specialized catheter is gently placed through the cervix and into the uterus to measure the uterus' depth and position.

Zygote: a fertilized oocyte formed by the fusion of the egg with the sperm

Male Infertility Terms:

Asthenospermia: poor motility of sperm.

Azoospermia: complete absence of sperm.

Clomiphene citrate: a commonly used fertility drug in women, occasionally prescribed for men with poor sperm quality. The drug may work by increasing testosterone levels to improve sperm. Unfortunately, it only works in 40 percent of all cases.

Cryptorchidism: testicles that are not descended into the scrotal sac.

Donor sperm: sperm that has been donated (known or anonymously). This option is considered in cases of men with no sperm or very few sperm. Commercial sperm banks screen prospective donors using a battery of genetic tests. Prospective donors also are screened for sexually transmitted diseases including HIV. Physical, medical and personal characteristics are provided to help match various traits.

Electroejaculation: electrical stimulation of nerves that control ejaculation. Used to obtain semen from men with spinal cord injuries.

Epididymis: the collection of tubes that store sperm after they have left the testicle but before they have entered the ejaculatory duct (vas deferens), where sperm mature and acquire motility and fertilization potential.

Follicle stimulating hormone (FSH): in males, a pituitary hormone that stimulates testosterone production in the testicle to help mature sperm.

Hypospadias: a structural abnormality of the penile shaft resulting in an opening on the underside. Abnormal urine flow is a common indicator of this condition.

Intracytoplasmic sperm injection (ICSI): process in which sperm is injected into an oocyte using micromanipulation equipment. Useful in cases of very few sperm, surgically removed sperm or sperm that are unable to fertilize.

Impotence: inability to maintain an erection.

Oligospermia: less than 20 million total sperm.

Oligoasthenospermia: poorly moving and low numbers of sperm.

Microdeletiony chromosome: an area of the Y chromosome that is missing or partially missing. This condition can cause low sperm counts and/or male infertility, and can be inherited by a male offspring.

Prostate gland: a male gland supplying part of the fluid for sperm transport. Infections of this gland may decrease sperm quality (prostatitis).

Retrograde ejaculation: a clinical condition in which sperm are not ejaculated in a forward direction and therefore reflux into the bladder. This can occur despite a normal sensation of ejaculation. This condition can be caused by a variety of factors, including diabetes, surgical damage to nerves that lead to the bladder neck and side effects of various medications (e.g. Anti-hypertensives such as alpha blockers). Exposure to urine is highly toxic to sperm. Alkalinization of the urine with sodium bicarbonate can help to protect the sperm.

Semen: the fluid that provides nutrients, as well as a transport medium for sperm. It comes from seminal vesicles, prostate and glands adjacent to the urethra.

Semen analysis: analysis of the semen for sperm number, appearance (morphology), motility, volume and viscosity. The presence of a bacterial infection or immature sperm cells may also be determined. A Computer Aided Semen Analysis Machine (CASA) may be used for analysis.

Sperm: the male reproductive gamete.

Sperm bank: cryopreserved sperm are stored for use in artificial insemination or donor sperm situations.

Sperm washing: dilution of sperm sample prior to insemination to remove prostaglandin chemicals in the semen that cause contractions of the uterus. This procedure may also be used to remove other debris from the semen.

Teratospermia: abnormally shaped sperm.

Testicular biopsy: removal of a small sample of testicular tissue to study sperm development and production.

Testicular/epididymal sperm aspiration (TESA): surgical procedure in which the testicle or epididymis are biopsied for the purposes of obtaining sperm for ICSI. Useful in men with vasectomies, blockages, azoospermia or failed vasectomy reversals.

Testosterone: an androgen hormone produced in the testes that affects sperm production and male sex characteristics. Also found in women, elevated testosterone levels can cause unwanted hair growth and interfere with proper ovulation.

Varicocele: an abnormal dilation or torsion of the vein that carries blood from the testes back to the heart. Most commonly occurs on the left side and may cause decreased sperm production by increasing the temperature in the sperm producing cells, decreasing blood flow and oxygenation or changing hormone concentrations.

Vas deferens: the tubule that carries sperm from the epididymis to the ejaculatory duct of the penis.

Vasectomy: sterilization procedure in men that involves surgically removing part of the vas deferens.

Vasogram: an X-ray examination of the vas deferens to check for blockage (male counterpart of HSG).