

## Certified Fertility Counselor Course-Session 11- List of Hormones Involved with Fertility Cycles

### Hormones and terms of the Reproductive System

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| Acrosome membrane- a covering over the head of the sperm that contains enzymes that when released from the membrane will allow the sperm to penetrate the egg  |
| Acrosome reaction- the breakdown of the acrosome membrane that changes the sperm into a cell that can penetrate the egg.   |
| Androgens- male sex hormones produced by the testes and ovaries that give rise to male characteristics.  |
| Anovulation- failure to ovulate  |
| Asherman's syndrome- a condition where scar tissue forms in the uterine cavity that interferes with normal uterine lining development. Usually this is associated with the loss of the menstrual period following a D&C. |
| Assisted hatching- a window like opening made in the zona pellucida of the embryo to improve implantation or attachment of the embryo to the uterine lining.   |
| Assisted reproductive technologies (ART) - term to identify procedures such as IVF, GIFT, and ZIFT.  |
| Asthenospermia- term used to describe sperm that has poor mobility or progressive movement (low motility sperm)  |
| Basal body temperature (BBT) - daily record of the body's temperature at rest. When ovulation occurs, the body's temperature will rise 0.6F degrees to 0.8F degrees above baseline.                                      |
| Bicornuate uterus- a malformation of the uterus resulting in two separate cavities, each with a connective fallopian tube.   |
| Blastocyst-the time in embryonic development where the embryo consists of the cells that will make the placenta and those which form the fetus.  |
| Capacitation- change in the sperm cell that occurs after ejaculation and during the passage through the female reproductive tract, which enables the sperm to penetrate the egg.   |
| Cervical mucus- mucus secretion produced by glands in the cervical canal under the influence of estrogen.  |
| Chocolate cysts- ovarian cysts filled with degenerating blood which resembles melted chocolate. This occurs when endometriosis invades the ovary and bleeds cyclically creating a cyst.                                  |
| Chromosome- structure in each cell's nucleus that hold the parent's genetic information in the form of DNA.  |
| Cilia- hairlike projections inside the fallopian tubes that move the egg/and or embryo toward the uterus.  |
| Cleavage- process of embryo cell division.   |

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| Coagulum- non-liquefied ejaculate that is present upon emission.   |
| Computer-assisted semen analysis (CASA) - the measurement of sperm number, shape and movement by computer technology.  |
| Congenital abnormality- a malformation that takes place during fetal development.  |
| Corpus luteum- the cyst that forms after the follicle that releases its egg, from the follicle. It produces estrogen and progesterone during the second half of the ovulatory cycle. |
| Cryocautery- the destruction of abnormal cervical cells by freezing.   |
| Cryopreservation- storing of tissue or cells by freezing.  |
| Cryptorchism- failure of the testicles to descend into the scrotal sac.  |
| Culture medium- the fluid solution used for growth of cells or tissue in vitro.  |
| Cumulus oophorus- a sticky mass of cells in a cloudlike pattern that surround the egg at the time of ovulation.  |
| Cytoplasm- the material within the cell that is fluid-like and contains the microscopic structures that relate to cell function.   |
| Dehydroepiandrosterone sulfate (DHEAS) - a hormone made by the adrenal gland that has androgen (male hormone) effects.   |
| Deoxyribonucleic acid (DNA) - material in each cell nucleus that contains each individual's genetic code.  |
| Dermoid- a benign tumor on the ovary that contains hair, teeth, and bone fragments   |
| Dilatation and curettage (D&C) - opening the cervix and removing the contents of uterine cavity by scraping or suction.  |
| Directional motility- term used to denote sperm that can move in a straight line.  |
| Digenesis- faulty formation of any cell or organ.  |
| Dysmenorrhea- painful menstrual periods.   |
| Dyspareunia- painful intercourse   |
| Dysplasia- abnormalities in the cell layers covering the cervix, vagina, or vulva.   |
| Egg aspiration- removal of the egg from the follicle during in vitro fertilization process.  |
| Egg production protocol- use of various combinations of fertility drugs to stimulate multiple eggs to ovulate.   |
| Ejaculate- the fluid (semen) that carries the sperm cells out of the male's reproductive tract.  |
| Ejaculatory duct- the tubes that connect that testicular system to the urethra in the penis for the release of the sperm organism.   |
| Embryo- used to describe the time from the fertilization of the egg until the eight week of pregnancy.   |

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| Endocrinologist- a physician who specializes in diagnosis and treatment of issues relating to hormones or endocrine gland abnormalities.   |
| Endometrial polyps- an overgrowth of normal endometrial tissue, forming a protrusion into the uterine cavity.  |
| Endometrioma- a cyst on the ovary caused by endometriosis, (another term for chocolate cyst).  |
| Endometritis- infection or inflammation of the uterine lining.   |
| Epididymis- the coiled tubules attached alongside the testicles that act as a storage system for sperm prior to ejaculation.   |
| Estradiol- an estrogen formed and released by the ovarian follicle during ovulation.   |
| Estrogen- a category female hormone that is necessary for female characteristics.  |
| Extracorporeal fertilization- another term for in vitro fertilization.   |
| Fallopian tube- a narrow tubular structure connected to the uterus that carries the egg from the ovary into the uterus after fertilization.  |
| Fertilization- entrance or penetration of the egg by the sperm cell.   |
| Fibroids- a benign tumor made up of fibrous tissues found in the uterus.   |
| Fimbria- fingerlike projections on the end of the fallopian tube that pick up the egg after ovulation.   |
| Fimbrioplasty- surgical procedure to reconstruct the fingerlike projections on the end of the fallopian tube.  |
| Follicle- small fluid filled sac contained within the ovary that prepares the egg for ovulation. Also is the estrogen production factory in the female.                                    |
| Follicle-stimulating hormone (FSH) - protein hormone produced and released by the anterior pituitary gland. FSH stimulates follicle growth in the female and sperm production in the male. |
| Follistatin- small protein hormone found in the follicle fluid that controls follicle growth.  |
| Galactorrhea- a milk-like production from the breast of women who are either not nursing or who has never been pregnant.   |
| Gamete intrafallopian transfer (GIFT) - a surgical procedure whereby the egg and the sperm are laparoscopically placed into the fallopian tube.  |
| Gametes- the reproductive cells of the male and female (egg and sperm)   |
| Germ cell- the precursor of other cells  |
| Germ cell aplasia- congenital condition in which the cells that are necessary for formation of gametes are not present.  |

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| Gonadotropin releasing hormone (GnRH) - a small protein hormone produced in the hypothalamus responsible for controlling the production and release of FSH and LH.                                   |
| Gonadotropins- protein hormones FSH and LH, they stimulate ovarian function in female and testicular function in males.  |
| Gonads- the glands that produce the male and female gametes  |
| Granulosa cells- the cells within the ovarian follicle that make estrogen and progesterone during the ovulation cycle.   |
| Hatching- the final event that the embryo must complete before implantation can occur. Hatching of the embryo is a breaking out of the zona pellucida in order to implant in the endometrial cavity. |
| Hemizona assay test- a test used to determine whether sperm binding or attachment to the zona membrane of the egg is normal.   |
| Histones- a simple protein found in the cell nucleus that contains a high proportion of basic amino acids.   |
| Human chorionic gonadotropin (HCG) - a hormone produced by the placenta during pregnancy. It is used as an LH replacement during ovulation induction therapy.  |
| Hyaluronic acid- the bond that holds granulosa cells in a tight mass around the mature egg cell.   |
| Hyaluronidase- an enzyme that is found in the sperm membrane, which is released during fertilization so that sperm can separate the granulosa cells from the egg.                                    |
| Hydrosalpinx- closure of the fallopian tube at the fimbriated end, which results in a fluid filled saclike structure   |
| Hypospadias- a congenital defect of the penis in which the urethral opening occurs on the underside rather than at the end of the organ.   |
| Hypospermatogenesis- low sperm production  |
| Hypothalamus- the mid-portion of the brain that produces GnRH and other hormones that control the pituitary gland.   |
| Hysterosalpingogram (HSG) - an X-ray study in which a dye visible by fluoroscopy is injected into the uterine cavity to determine the shape of the uterus and patency of the fallopian tubes.        |
| Hysteroscopy- a surgical procedure that uses a small telescope placed through the cervical canal to view the interior of the uterine cavity.   |
| Implantation- the attachment of the embryo to the endometrial lining of the uterus.  |

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| Infertility- lack of conception after 1 year of unprotected intercourse   |
| Inhibin-a protein hormone that interferes with the activity of FSH.   |
| Interstitial- the portion of the fallopian tube that travels through the muscular wall of the uterus to connect the endometrial cavity to the fallopian tube.   |
| Intracytoplasmic sperm insemination (ICSI) - the injection of a single sperm cell into a mature egg.  |
| Intrauterine insemination (IUI) - placement of sperm into the uterine cavity.   |
| In vitro fertilization and embryo transfer (IVF-ET) - the procedure in which the egg is removed from the ovary, fertilized in the laboratory environment and the resulting embryo placed into the uterine cavity. |
| In vitro mucus penetration test- a test used to determine whether sperm mucus interaction is normal, commonly done with bovine mucus and human sperm.   |
| Isthmus- the most muscular part of the fallopian tube, connected directly to the uterus.  |
| Kallman's syndrome- a congenital condition in men in which the hypothalamus fails to produce GnRH, resulting in lack of FSH and LH production and lack of sperm production.                                       |
| Karyotyping- counting and identifying the genes in a person's cells.  |
| Klinefelter's syndrome- a chromosomal and developmental abnormality in the male that causes the individual to have female characteristics and male sterility.   |
| Laparoscopy- a surgical procedure in which a telescope is inserted through the abdominal wall to view the inner organs.   |
| Laparotomy- - a surgical procedure in which an incision is made through the abdominal wall in order to view the inner organs.   |
| Leydig cells- cells in the testicals that manufacturer testosterone.  |
| LH surge-the large release of LH from the anterior pituitary that causes the release of the mature egg from the follicle.   |
| Luteal phase- the second half of the menstrual cycle.   |
| Luteal phase defect- inadequate production of hormone from the corpus luteum, or poor response of the endometrial lining to hormonal stimulation which interferes with implantation.                              |
| Luteinizing hormone (LH) - protein produced and secreted from the anterior pituitary gland which is involved in ovulation.  |
| Methotrexate- chemotherapy agent that destroys cells, commonly used for ectopic pregnancies.  |
| Micromanipulation- the use of high magnification and hydraulically controlled instrumentation to achieve fertilization in vitro.  |
| Mitotic spindle- the 46 chromosome structure found within the cytoplasm of the egg prior to fertilization.  |
| Mullerian ducts- the fetal structures that fuse to form the uterus  |

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| Myometrium- the muscular walls of the uterus   |
| Nucleus- the part of the cell that contains the genetic profile  |
| Oligozoospermia- low sperm number  |
| Oocyte- another term for egg   |
| Oocyte maturation inhibitor (OMI) - a protein found in the follicular fluid that keeps the egg from maturing.                            |
| Ovarian dysgenesis- a congenital condition caused by an abnormality in the second X chromosome, resulting in sterility of the female.    |
| Ovarian failure-a condition in which the ovaries are either devoid of follicles and eggs, or they are non-responsive to FSH stimulation. |
| Ovarian stimulation- the use of fertility drugs to either regulate single egg ovulation or multiple.                                     |
| Ovaries- the female organs responsible for the production of sex hormones and eggs.  |
| Ovotestes- a congenital abnormality characterized by the presence of gonads that are a mixture of testicles and ovaries.                 |
| Ovulation- the release of the egg from the follicle  |
| Ovulation induction- stimulation of follicle growth and egg release through the use of fertility drugs.                                  |
| Partial zona dissection (PZD) a form of micromanipulation in which the zona pellucida is opened to allow sperm to swim through.          |
| Penis- male sex organ  |
| Percoll separation- a liquid gradient that is used to filter the semen during sperm washing, prior to IVF.                               |
| Peritoneum- the silky lining that covers the inside of the pelvic abdominal cavity.  |
| Phenotype- the outward appearance of a person's genetic makeup.  |
| Pituitary- a small gland at the base of the brain that secretes hormones that control the endocrine glands.                              |
| Pituitary adenoma- a benign growth that causes the pituitary gland to be over productive of certain hormones.                            |
| Placenta- a spongy structure surrounding the fetus that serves as a conduit between the mother and fetus during pregnancy.               |
| Polar body- an extrusion of material from the cytoplasm of an egg usually contains unused sets of chromosomal material.                  |
| Polycystic ovarian syndrome (PCOS) - the development of multiple ovarian cysts due to an imbalance of hormone in the ovary.              |

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| Postcoital test (PCT) - a test used to determine whether sperm/mucus interaction is normal.  |
| Preimplantation genetic diagnosis- a removal of an embryonic cell prior to implantation to determine whether the genetic makeup of the embryo is normal. |
| Progesterone- the hormone produced from the corpus luteum after ovulation.   |
| Prolactin- the hormone produced from the pituitary that prepares the breasts for lactation.  |
| Pronuclear stage- the stage in embryonic development that occurs after sperm penetration of the egg.   |
| Pronuclei- striations that look like moon craters on the surface of the egg.   |
| Prostaglandin- a hormone that is produced by the endometrium which causes the uterine muscle to contract.  |
| Prostate gland- a walnut shaped gland that provides fluid for semen during ejaculation.  |
| Proximal (or cornual) block- obstruction of the fallopian tube at the junction at the tube and the uterus.   |
| Receptor- the site on a cell surface where a hormone attaches to express its function.   |
| Relaxin- a hormone that may be involved in the uterine muscle activity.  |
| Rete testis- a network of canals that drains the sperm from the seminiferous tubules.  |
| Retrograde ejaculation- ejaculation of the sperm into the bladder, instead of through the prostatic urethra.   |
| Retrograde menstruation- the back flow of menstrual blood and tissue into the pelvic cavity.   |
| Rokitansky syndrome- the congenital absence of the uterus  |
| Salpingitis- inflammation of the fallopian tubes   |
| Scrotal sac- a saclike structure that cradles the testes   |
| Seminal fluid- the liquid that carries the sperm out of the male reproductive tract.   |
| Seminal vesicles- the glands that produce the majority of the seminal fluid  |
| Seminiferous tubules- the tiny tubules within the testes that are necessary for sperm production.  |
| Septate uterus- a fibrous division of the uterine cavity.  |
| Sertoli cell- the cells within the testes that are involved in sperm cell production.  |
| Sperm- male reproductive cell  |
| Spermatocyte- an immature sperm cell.  |
| Sperm washing- a technique used to separate sperm cells from seminal fluid.  |
| Syncytiotrophoblasts- the cells the form the placenta  |
| Testicle- the male reproductive organ  |
| Testicular feminization- a syndrome in which the individual appears to be a female by her ovaries and testicular tissue.                                 |
| Testosterone- the male hormone   |

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| Teteratospermia- sperm that has an abnormal shape.   |
| Tubal embryo transfer (TET)- the placement of the embryo into the fallopian tube after IVF   |
| Turner's syndrome- a genetic abnormality in which the female has a missing chromosome and no ovarian function.   |
| Urofollitropin (FSH) urinary FSH that used to stimulate follicle growth and development.   |
| Uterine didelphys- duplication of the uterus (double uterus)   |
| Uterosacral ligament- the major supporting ligament of the uterus, a common area of involvement with endometriosis.  |
| Varicocele- dilated veins around the testicle, most commonly on the left side which causes sperm abnormalities.  |
| Vasectomy- a surgically created obstruction of the vas deferens which is used as a method of male sterilization.   |
| Vasovasostomy- reversal of a vasectomy by reconnecting the vas deferens.   |
| Vitelline membrane- the membrane that surrounds the egg cytoplasm which sperm fuses with prior penetration of egg cytoplasm located under the zona pellucida |
| Woffian ducts- the embryonic structure that forms into the fallopian tubes during fetal development.   |
| Zona pellucida- the outer protein covering the egg that the sperm first comes in contact with during fertilization.  |
| Zygote- a fertilized egg.  |
| Zygote intrafallopian transfer (ZIFT)- placement of a fertilized egg into the fallopian tube   |