➢ MALE AND FEMALE INFERTILITY

FEMALE INFERTILITY CAN BE CAUSED BY:

1. **Failure to Ovulate** (leading cause of female infertility)
   Can be caused by stress, low body fat (Athletic Menstrual Cycle Irregularity), depression or lack of hypothalamic (GnRH) hormone secretion or hyperprolactinemia
   Treatments
   clomiphene = anti-estrogen drug that blocks the negative feedback effects of estrogen on LH and FSH = more likely LH surge = more likely to ovulate;
   can increase the possibility of twins (about 5% versus the normal 1%)
   hMG = Pergonal, followed by hCG = mimics effects of LH surge
   bromocriptine = inhibits prolactin to block effects of hyperprolactinemia; allows LH surge to occur

2. **Tubal Blockage**
   Blockage of oviducts (about 30-35% of infertile women); can be caused by kink in tube, scarring, ectopic pregnancy, endometriosis, or pelvic inflammatory disease (PID)/STI
   Treatment
   Introduce carbon dioxide gas or air to inflate and expand the tubes = transcervical balloon tuboplasty; sometimes fixed with surgery

3. **Implantation does not occur**
   Can be due to inadequate priming of the uterus by estrogen and progesterone; fibroids, scars due to PID or abortion by dilation and curretage (D & C)
   Treatment
   Give supplemental estrogen and progesterone to thicken endometrium

4. **Reduced Sperm Transport or Antibodies Made Against Partner's sperm**
   Highly acidic vagina, hostile cervical mucous, cervical damage due to an abortion or as a result of STI infection
   Multiple exposure to the same semen sometimes causes the woman to make antibodies against her partner's sperm which cause the immune system to destroy the sperm (like a sperm vaccination)
   Treatment
   Surgery to correct cervical problems; when antibodies against the partner's sperm are made donor artificial insemination is often the only effective treatment

MALE INFERTILITY CAN BE CAUSED BY:

1. **Oligospermia (Hypospermatogenesis)=** low sperm count due to low spermatogenesis

2. **Azoospermia =** absence of sperm in the semen
   Azoospermia could be caused by a blockage in any portion of the male duct system = **Obstructive Azoospermia** or it could be caused by a significant lack of spermatogenesis in the seminiferous tubules
   Non-obstructive causes of azoospermia:
   - **Sertoli-Cell Only Syndrome** = man is born with no gonocytes or developing sperm cells in testes, only Sertoli cells are found in the seminiferous tubules
   - **Seminiferous Tubule Hyalinization** = a greatly increased growth and thickening of the connective tissue around the seminiferous tubules which crushes the tubules and kills the developing sperm cells.

3. **Lacking sufficient numbers of gonadotropin receptors or structural damage to the testes due to mumps (fever), radiation, old age, or the presence of a varicocele.** A **varicocele** is a varicose (twisted) vein in the testes that could lead to an increase in testes temperature and a decrease in spermatogenesis.

4. **In about 10% of infertile men, they make antibodies against their own sperm as the sperm somehow escaped the reproductive tract**

5. **About 1 in 1000 men are lacking a portion of the Y chromosome necessary for normal spermatogenesis**

6. **Malfunction in the duct system caused by scarring or an STI**

7. **Malfunction of one of the accessory glands (seminal vesicles, prostate)**

8. **Environmental causes** such as smoking (decreases sperm motility, causes more abnormal sperm to form, & lower blood testosterone levels); marijuana; environmental pollutants or endocrine disrupters

Treatments for Male Infertility

1. Supplemental hormone administration (GnRH, Pergonal, clomiphene or sometimes adrenal hormones)
2. Surgery for some cases of varicocele or obstructive azoospermia

Measuring the FSH level in a male can help determine if the cause is obstructive (blocked duct = no effect on spermatogenesis) or decrease in spermatogenesis (fewer sperm = lower inhibin level)

Blockage in ducts = normal sperm production = normal inhibin = normal blood FSH level

Decrease spermatogenesis = decrease sperm production = decrease inhibin = abnormally high blood FSH level