

Female Infertility

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What is infertility?

- Couples that have been unable to conceive a child after 12 months of regular sexual intercourse without birth control are infertile.
- Women who have repeated miscarriages are also said to be infertile.

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Infertility

- In order for a woman to become pregnant:
 - Egg must be released from one of her ovaries (**ovulation**)
 - Egg must go through the fallopian tube toward the uterus
 - Sperm must join with the egg in the fallopian tube (**fertilization**)
 - Fertilized egg must attach to the uterine wall (**implantation**)
- Infertility can result from problems that interfere with any of these steps.

Natural conception rates:

- 80% of couples will be pregnant after 12 cycles.
- 50% of remaining will conceive during a 2nd year (hence cumulative rate 90%)
- 50% in the following 4 years.



PRIMARY/SECONDARY INFERTILITY

- PRIMARY – Couple without a prior pregnancy
- SECONDARY – Couple with previous pregnancy including miscarriage/ectopic.



Natural conception rates: .

- About 12% of women (7.3 million) in the United States aged 15-44 had difficulty getting pregnant or carrying a baby to term in 2002.
- Ten to 15% of couples in the U.S. are infertile.

- The American Society for Reproductive Medicine estimates there are 6.1 million people dealing with infertility in the United States -- that's roughly 10% of those trying to conceive.
- Fortunately, there are many tests and procedures that can identify and treat the causes of infertility.

Etiology

- One in six couples is infertile.
- In 40 per cent of cases the problem rests with the **male**,
- in 40 per cent with the **female**,
- 10 per cent with both partners,
- and in a further 10 per cent of cases, the cause is unknown

When should you go see a doctor?

- Women in their 30s who've been trying to become pregnant for six months should speak to their doctors as soon as possible.
- Women with the following issues should speak to their doctors:
 - irregular periods or no menstrual periods
 - very painful periods
 - Endometriosis
 - pelvic inflammatory disease
 - more than one miscarriage

Etiology (female)

- **Ovulatory dysfunction 15-20%**
 - Hypothalamic/hypogonadotrophic hypogonadism
 - Hypothalamic pituitary dysfunction (PCOS)
 - Ovarian failure
- **Uterine cavity abnormalities**
 - Asherman's syndrome
 - Uterine fibroids.
- **Cervical hostility 5-10%,**
 - Infection
 - Female sperm antibodies.



What Increases the Risks?

- Age
- Stress
- Poor diet
- Smoking
- Alcohol
- STDs
- Overweight
- Underweight
- Caffeine intake
- Too much exercise

The Age Factor

- After about age 32, a woman's fertility potential gradually declines.
- Infertility in older women may be due to a higher rate of chromosomal abnormalities that occur in the eggs as they age.
- Older women are also more likely to have health problems that may interfere with fertility.
- The risk of miscarriage also increases with a woman's age.

Tobacco smoking.

- Men and women who smoke tobacco may reduce their chances of becoming pregnant and reduce the possible benefit of fertility treatment.
- Miscarriages are more frequent in women who smoke.

Male

Account for 25%

- **Hypogonadotrophic hypogonadism**
- **Obstructive azoospermia**
Surgery
- **Erectile dysfunction**
- **Anatomical**
 - Hypospadias
 - Undescended/
maldescended testis



- Hypothalamus secret GNRH
affect on anterior pituitary secret LH
and FSH
- FSH act on sertoli cell
spermatogenesis
- LH act on leydig cell produce
testosterone during increase
testosterone negative feedback on
hypothalamus and pituitary

SEMEN ANALYSIS SHOULD BE ABSTINENCE OF 3 DAY

VOLUM

1 -5 ML •

PH

7-2 7-8 •

VISCOSITY

<30 •

SEPERM

>15 MILLION •

CONCENTRATION

40 MILLON •

TOTAL COUNT

40% •

MOTALITY

NORMAL FORM •

MORPHOLOGY

90%

LEUCOCYTOSIS

<1 MILLION •

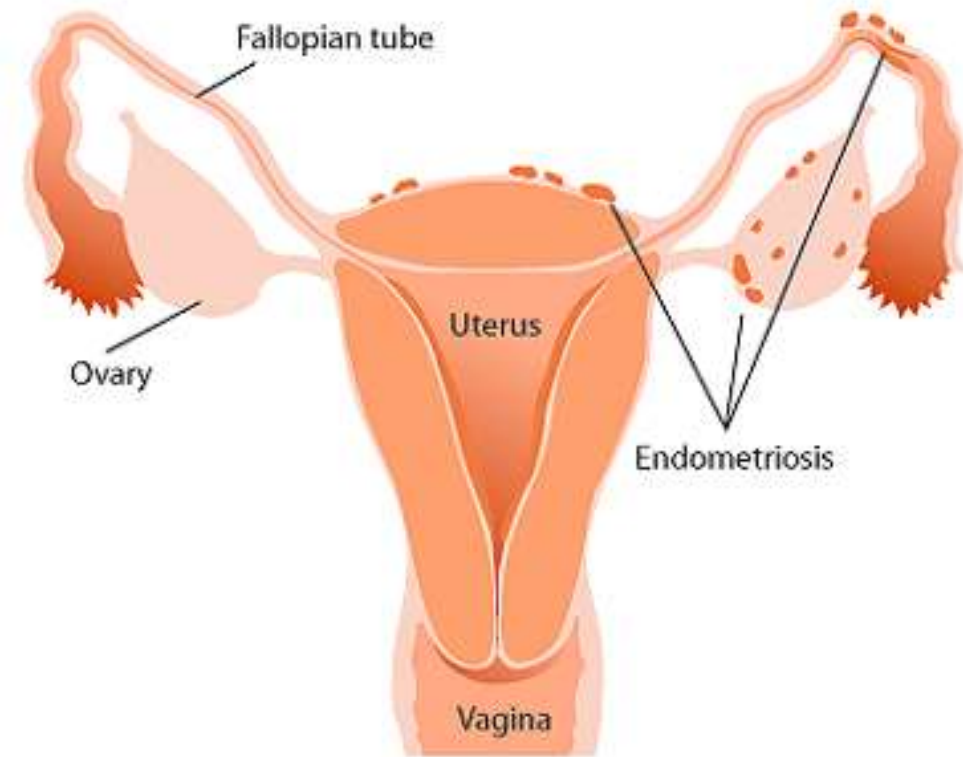
Causes of Infertility

- Male factor
- Decreased ovarian reserve
- Ovulatory factor
- Tubal factor
- Uterine factor
- Pelvic factor
- unexplained

Common Causes of Infertility

- Severe endometriosis
- Pelvic Inflammatory Disease (PID)
- Ovulation disorders
- Elevated prolactin
- Polycystic ovary syndrome (PCOS)
- Early menopause
- Benign uterine fibroids
- Pelvic adhesions

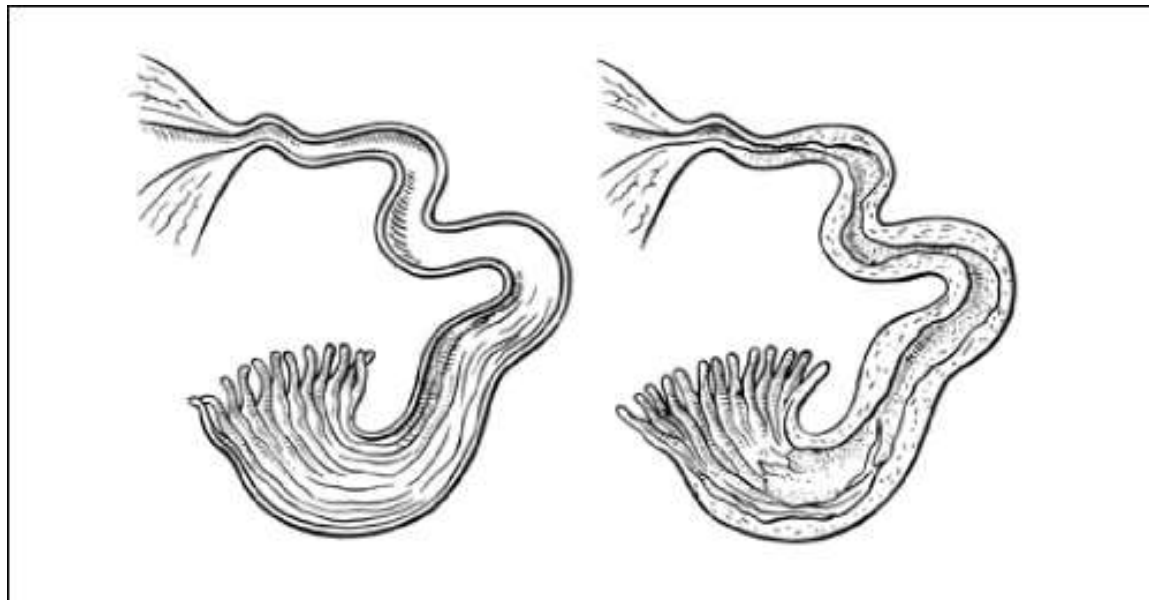
Endometriosis



- Occurs when the uterine tissue implants and grows outside of the uterus, affecting the function of the ovaries, uterus and fallopian tubes.
- Scar tissue can block the fallopian tubes and prevent the egg from entering the uterus.
- There is a 25-35% rate of infertility in moderate to severe cases of Endometriosis

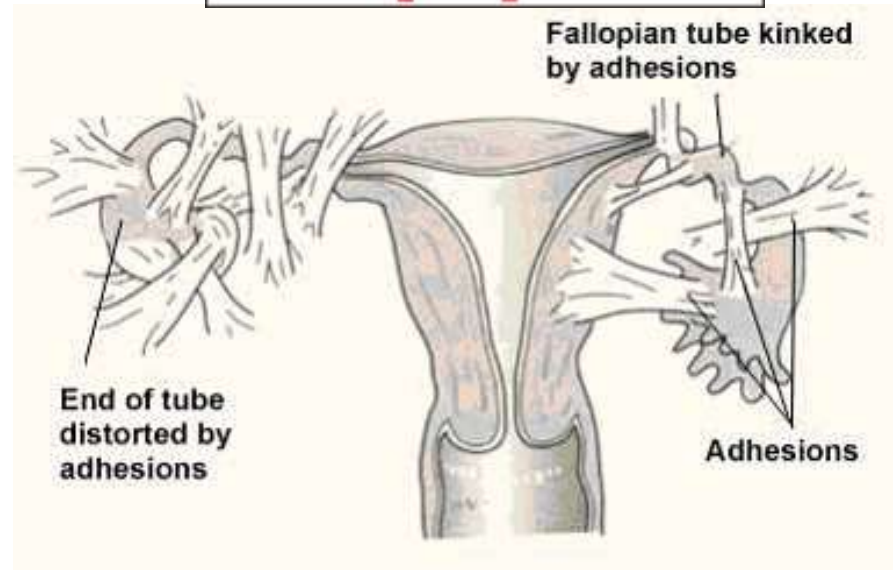
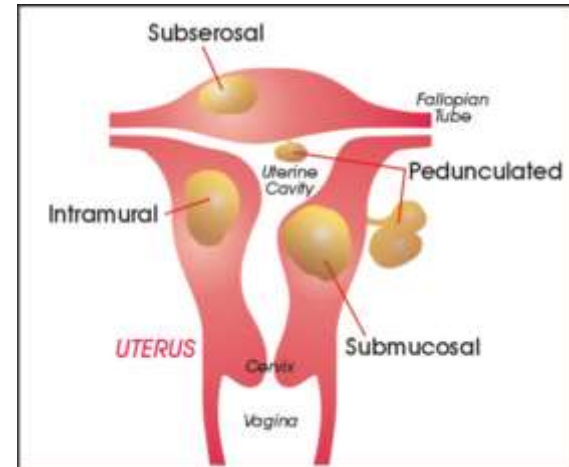
PID

- Pelvic inflammatory disease (PID) is a spectrum of infections of the female genital tract that includes endometritis, salpingitis, tuboovarian abscess, and peritonitis.



Uterine Fibroids and Pelvic Adhesions

- Fibroids are benign tumors in the wall of the uterus
- May cause infertility by blocking the fallopian tubes
- Pelvic adhesions are bands of scar tissue that bind organs after pelvic infection, appendicitis, or abdominal or pelvic surgery
- This scar tissue formation may impair fertility.



Ovarian failure

- Ovarian failure can be a consequence of medical treatments, or the complete failure of the ovaries to develop or contain eggs in the first place (Turner's Syndrome).
- Ovarian failure can also occur as a result of treatments such as chemotherapy and pelvic radiotherapy for cancers in other body areas. These therapies destroy eggs in the ovary.

Hormonal Obstructions

- Ovulation disorders
- Elevated prolactin
- Polycystic ovary syndrome
- Early menopause

Ovulation disorders

- Disruption in the part of the brain that regulates ovulation can cause low levels of luteinizing hormone (LH) and follicle-stimulating hormone (FSH).
- Even slight irregularities in the hormone system can affect ovulation.

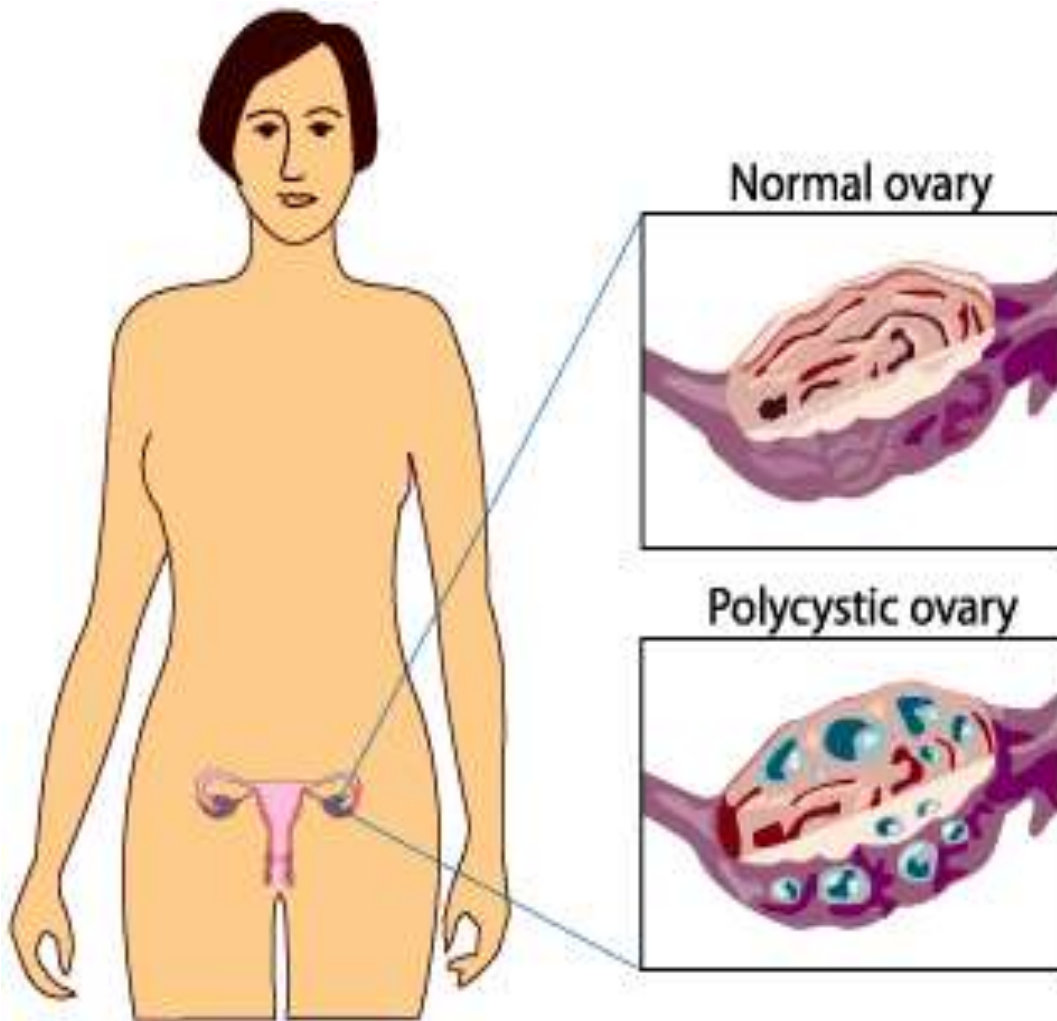


Elevated prolactin

- Also called hyperprolactinemia
- Can cause irregular or no ovulation
- Irregular periods
- May cause galactorrhea, milk production when not pregnant



PCOS



- Polycystic ovary syndrome (PCOS)
- Produces too much androgen hormone (male hormones)
- Causes an irregular or no menstrual cycle

Early menopause

- Absence of menstruation
- Early depletion of ovarian follicles before age 35
- Although the cause is unknown, certain conditions are associated with early menopause, including immune system diseases, radiation or chemotherapy treatment, and smoking

Other Causes

- Medications
- Thyroid problems
- Cancer and treatment
- Other medical conditions
 - conditions associated with delayed puberty or amenorrhea, sickle cell disease, HIV/AIDS, kidney disease and diabetes

Fertilization Problems

- Anti-sperm antibodies (ASA)
- Oocyte membrane proteins

Immune Infertility

- The developing embryo may be miscarried due to the mother's immune system recognizing it as a "foreign body" and attacking it.
- Also, the woman may produce anti-sperm antibodies (ASA) to her partner's sperm.

Membrane Proteins

- Receptin, an oocyte membrane protein, is responsible for binding sperm with the egg.
- If this protein is not receptive or present, fertilization cannot occur.

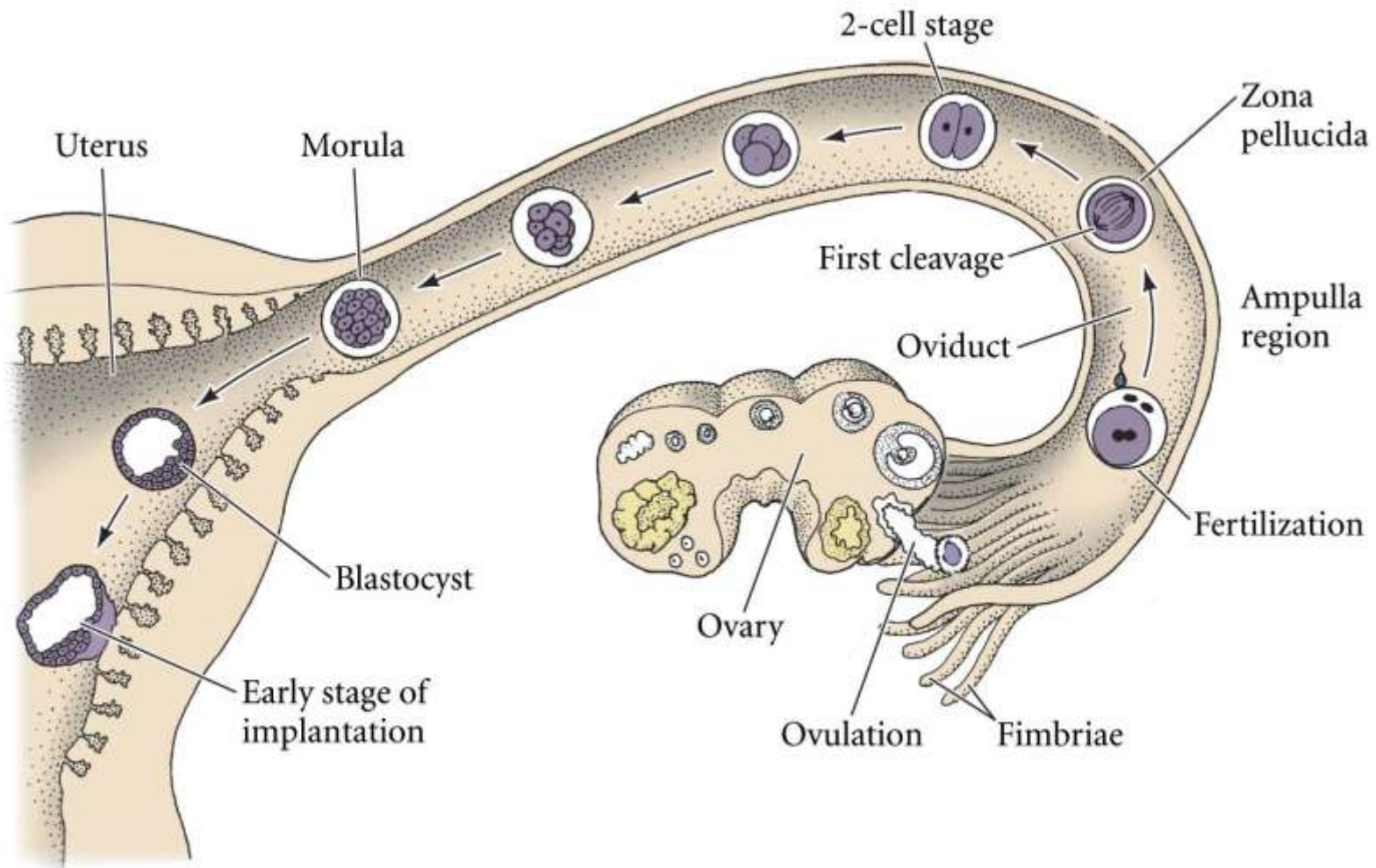
Development Problems

- Hard Eggs
- Teratogens

Hard Eggs

- If your egg is too 'hard', then the sperm cannot hatch out of the zona pellucida and it dies.
- To fix this problem, scientists can make a tiny hole in the egg to give it a head start.

Early Development



Teratogens

- Damage from external sources, including viral infections, x-rays and other radiation, and poor nutrition
- Depending on the stage of development at which the exposure to the teratogen takes place, a variation of developmental malformations may occur.
 - Week 8= stunting of the fingers and toes

History taking (female)

- Symptoms (past or present)
 - P I D / STD,
 - dyspareunia
 - galactorrhoea,
 - thyroid symptoms
- Obstetric history

History taking (female)

- Menstrual history
 - irregularities
- Surgical history
 - D & C, abdominal/pelvic surgery
- Contraception
 - IUCDs
- Cervical smear

History taking (male)

- Symptoms
 - h/o genital tract infection e.g. mumps orchitis, prostatitis
- Surgical history
 - Hernia repair
 - Testicular surgery for torsion/ undescended /maldescended testis
 - Prostate surgery

History taking (male)

- Trauma to the male genital or inguinal region
- Occupational history
 - exposure to lead, cadmium
- Drug history
 - **Sulphasalazine** – impairs spermatogenesis
 - **Phenothiazines/ typical antipsychotics/metoclopramide**
increase prolactin levels
 - **Immunosuppressants**

EXAMINATION

- General health and nutritional status
- BMI
 - <19 (F)
 - > 29.(M/F)

Female:

- Hirsutism, galactorrhoea
- Bimanual examination
 - adnexal masses (tubo/ovarian, ovarian cyst)
 - tenderness (PID/ endometriosis)
 - Uterine fibroids

Investigations

Primary care

Female

Assess ovulation.

Other hormonal tests

Tests for PID

Male

Sperm analysis

Secondary care

Tubal patency

Uterine abnormality

Assessing ovulation

Do if

- regular cycles with > 1 year of infertility
- irregular cycles

1) Serum progesterone

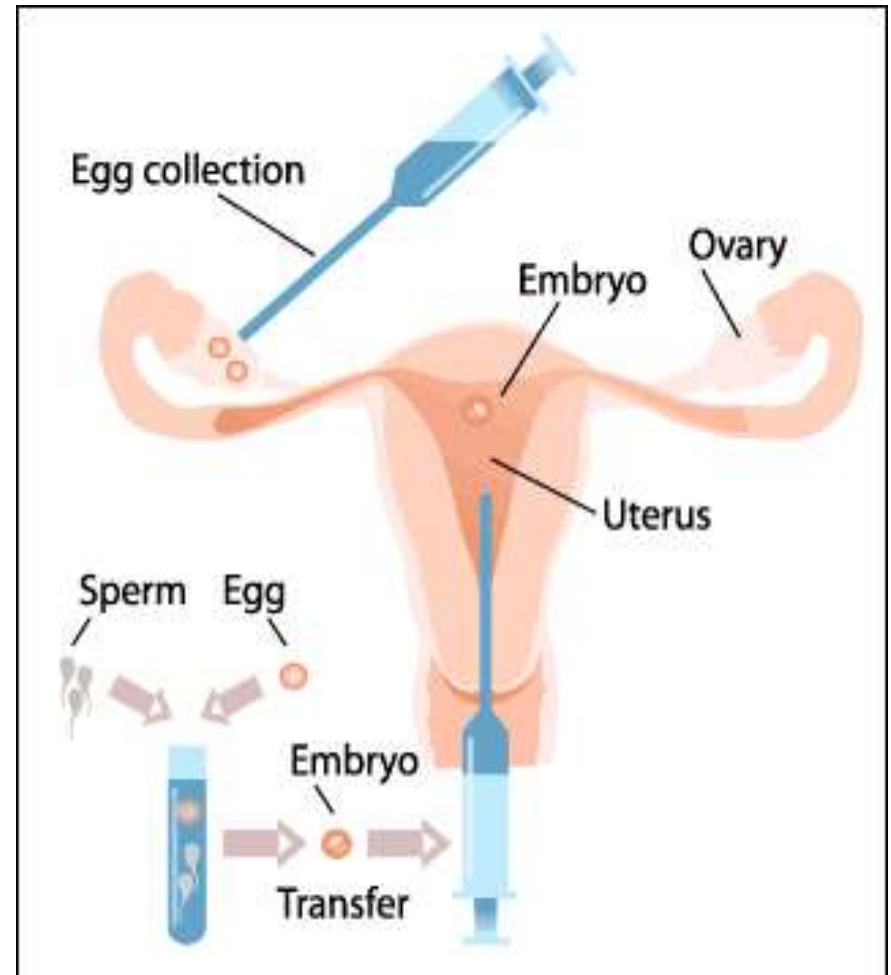
2) LH/FSH levels

Treatment

- Infertility can be treated with medicine, surgery, artificial insemination or assisted reproductive technology.
 - Stimulate ovulation with fertility drugs
- About two-thirds of couples who are treated for infertility are able to have a baby.
- In most cases, infertility is treated with drugs or surgery.

Assisted reproductive technology (ART)

- In vitro fertilization (IVF)
 - Most effective
 - Recommended when both fallopian tubes are blocked
- ART works best when the woman has a healthy uterus, responds well to fertility drugs, and ovulates naturally or uses donor eggs.



Complications

- Multiple pregnancy
- Ovarian hyperstimulation syndrome (OHSS)
 - Ovaries may enlarge and cause pain and bloating
 - Higher risk in PCOS women
- Bleeding or infection
- Low birth weight
- Birth defects

Ways to Battle Infertility

- Regular exercise
- Avoid alcohol, tobacco, and narcotics
- Limit caffeine
 - No more than 250 mg per day
- Limit medications
- Eat a balanced diet

Coping with Infertility



- Consider other options
 - Adoption, donor sperm or egg
- Talk about your feelings
 - To each other
 - Support groups
 - Counseling services

Coping with Infertility

- Acupuncture
- Practice relaxation
- Stay in touch with loved ones

