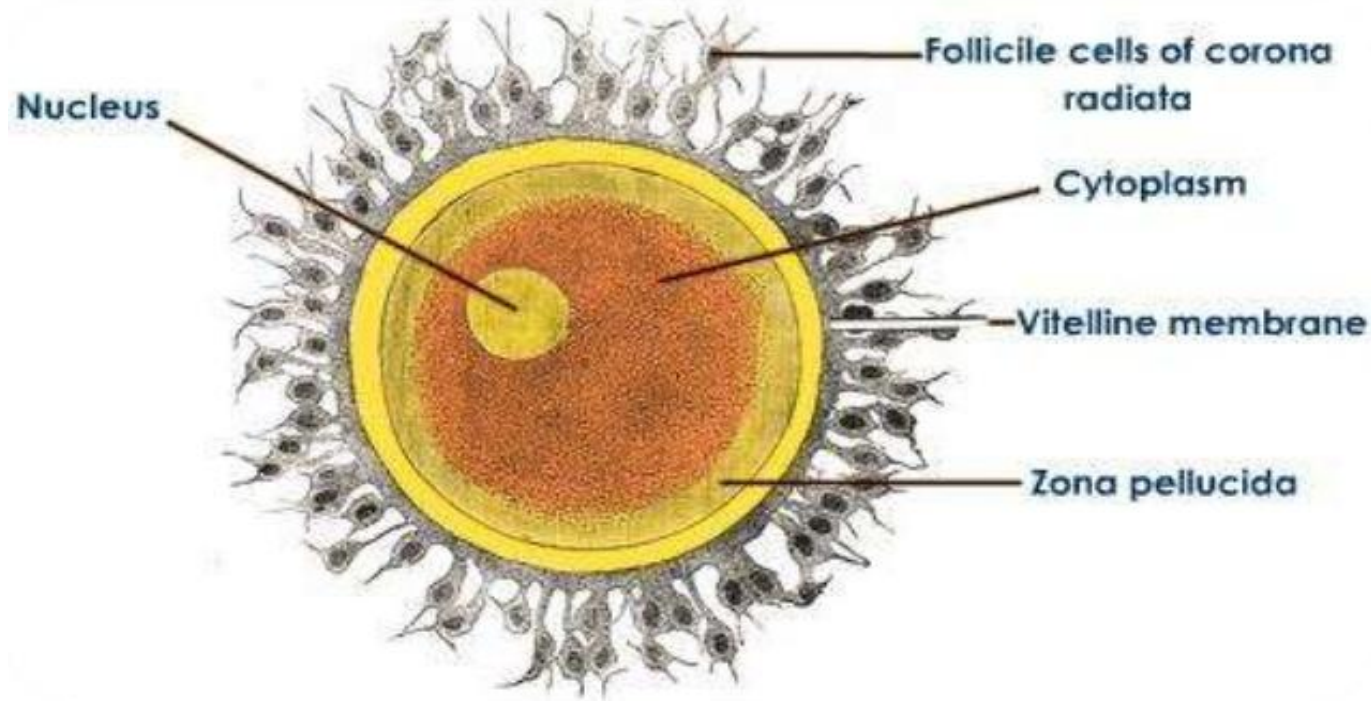


Structure of Ovum



Oogenesis

OVARIAN CYCLE – in OVARY (14 days)

MENSTRUAL CYCLE – focus on UTERUS

(Full 28 day cycle)



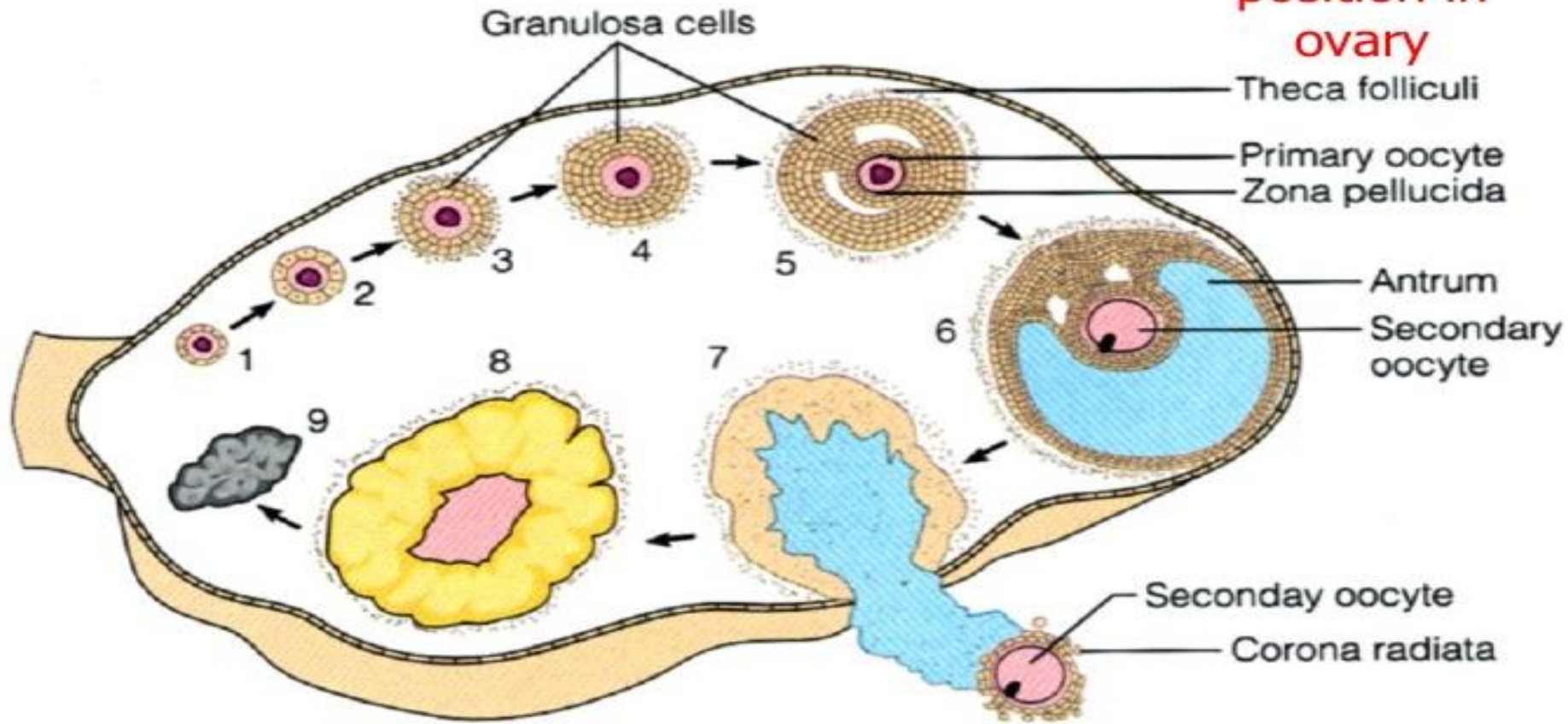
OVARIAN CYCLE



- The **ovary** is lined with **germinal epithelial** cells.
- **Pituitary gland** releases **FSH (Follicle Stimulating Hormone)** and, later, **LH (Luteinizing Hormone)**.
- Ovarian **follicle** is **stimulated** by FSH - meiosis occurs.
- It develops into the **Graafian follicle** (around the ovum).
- After 14 days of development, the **Luteinizing** Hormone forms the Corpus **Luteum** by causing the Graafian follicle to release the ovum – a process called **OVULATION**.
- **Corpus Luteum** produces **Progesterone** (Pregnancy Hormone), which now controls conditions in the uterus.
- (***Oestrogen** = Female hormone; **Progesterone** = Pregnancy hormone.*)
See details on page 26.

Ovarian cycle diagram

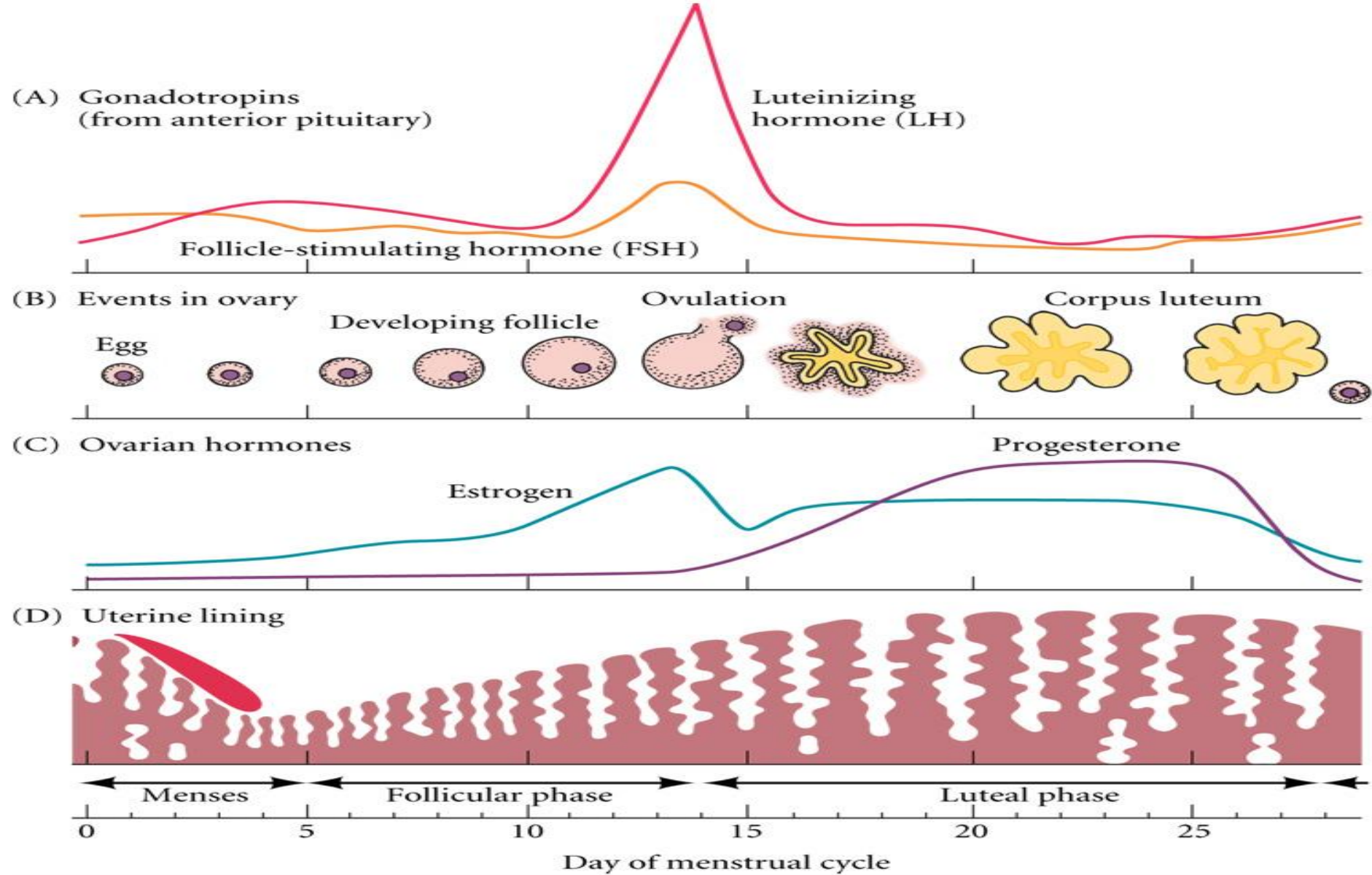
Numbers =
sequence in
cycle NOT
position in
ovary



MENSTRUAL CYCLE

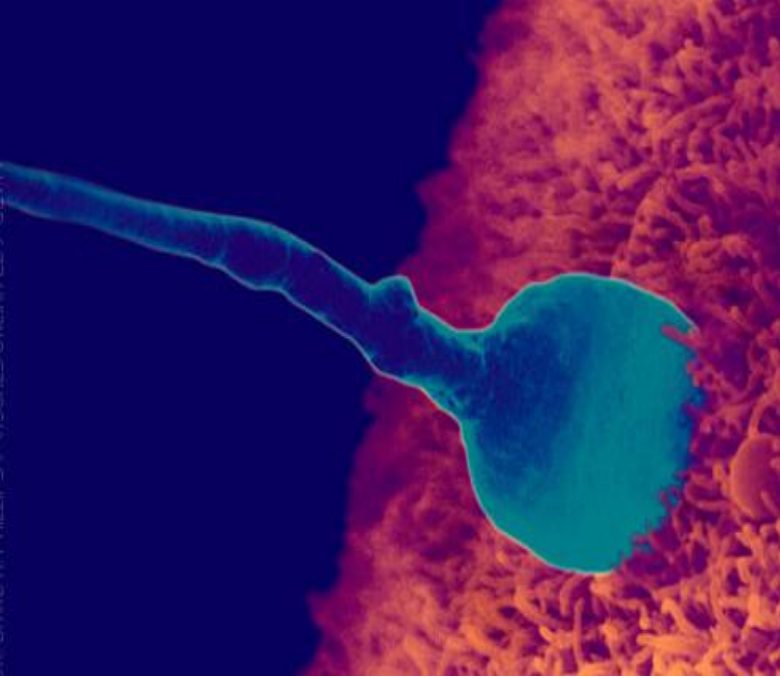


- In the womb, Oestrogen (from the developing Graafian follicle) **started** thickening the walls of the uterus (endometrium) with blood, at **start** of cycle.
- When the egg is released, Progesterone takes over the further thickening of the endometrium.
- Fertilization can happen now in the fallopian tube.
- Embryo then implants itself in the endometrium.
- If the egg was not fertilized, the Corpus Luteum disintegrates.
- The Endometrium now breaks down. Menstrual flow of blood results.



Hormone	Secreted From	Function
FSH	Anterior pituitary	<ul style="list-style-type: none">• Stimulates follicular growth• Stimulates estrogen secretion (from developing follicles)
Estrogen	Ovaries (developing follicle)	<ul style="list-style-type: none">• Development of endometrium• Stimulates LH secretion (follicular phase)• Inhibits LH and FSH (luteal phase)
LH	Anterior pituitary	<ul style="list-style-type: none">• Surge causes ovulation• Development of corpus luteum• Stimulates progesterone secretion
Progesterone	Ovaries (corpus luteum)	<ul style="list-style-type: none">• Thickening of endometrium• Inhibits LH and FSH (luteal phase)

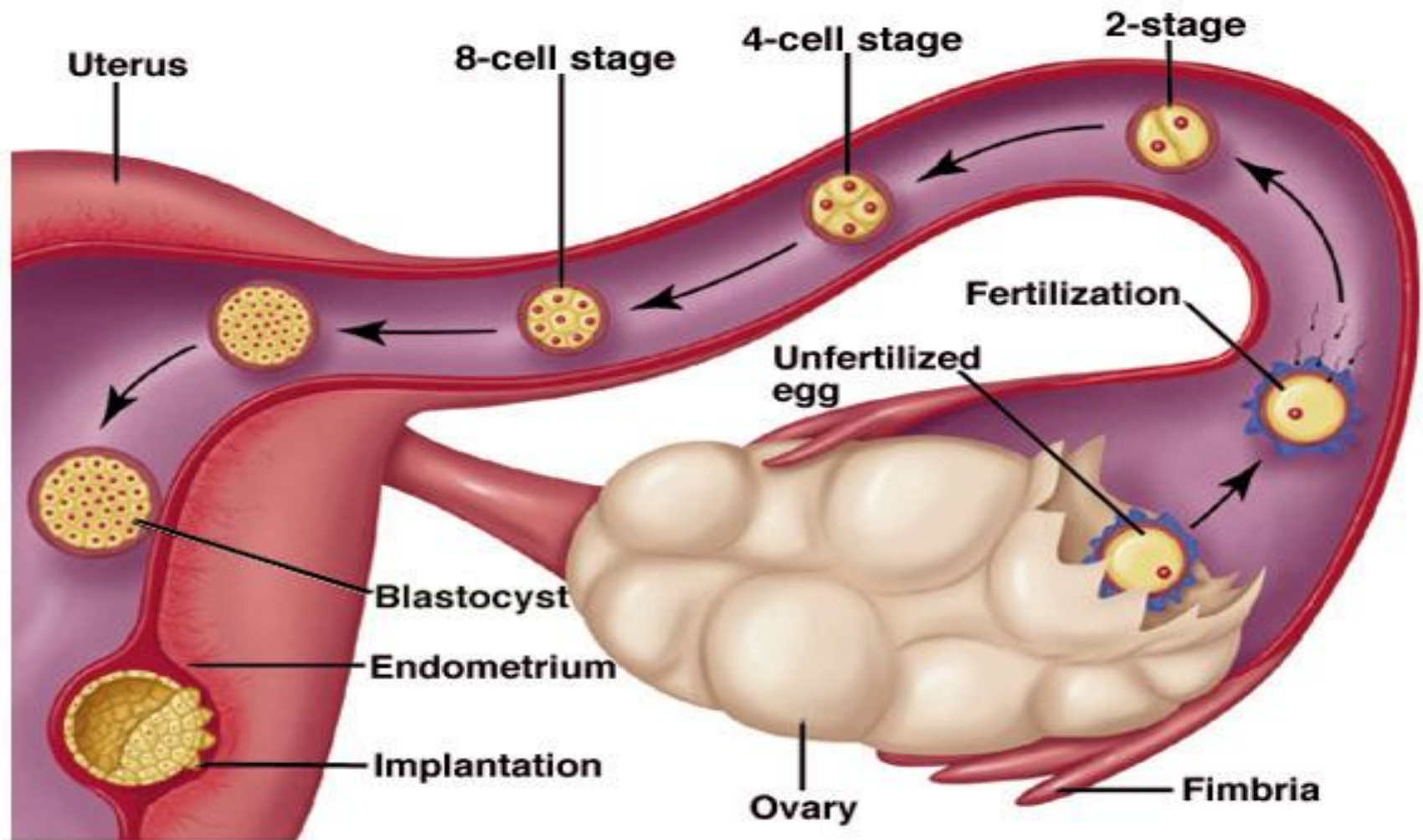
FERTILIZATION

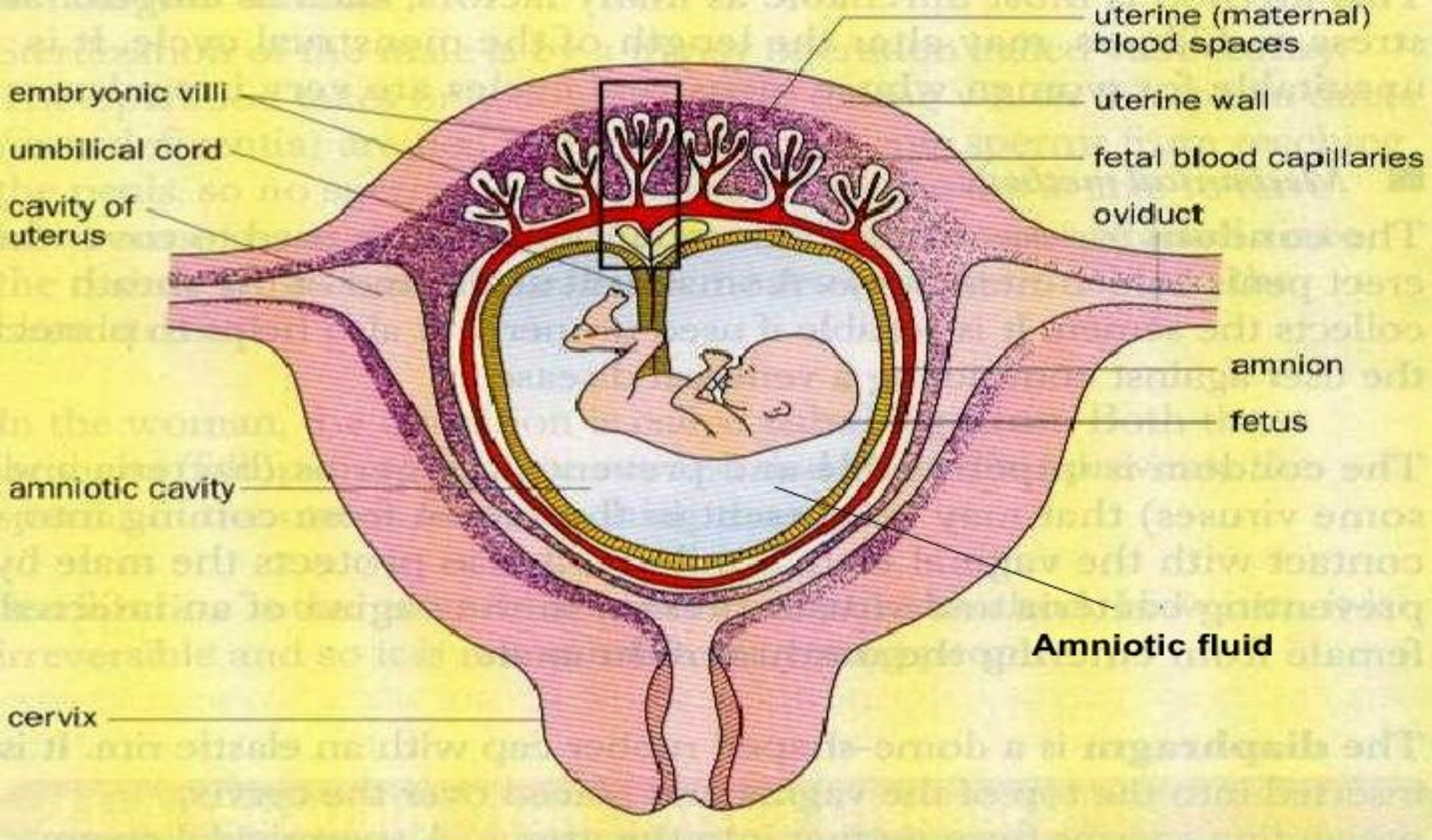


- During sex, many sperms are released into the vagina.
- They swim to the fallopian tube, using their tails.
- Ovulation = one ovum from one ovary → Fallopian tube.

- Sperm (n) + Ovum (n) → Zygote (2n).
- Mitosis: Zygote → morula → blastula → embryo.
- Blastula implants itself in the endometrium.
- Placenta links to mother for nutrients, excretion, gas. Filters *bacteria*. Antibodies and Progesterone.

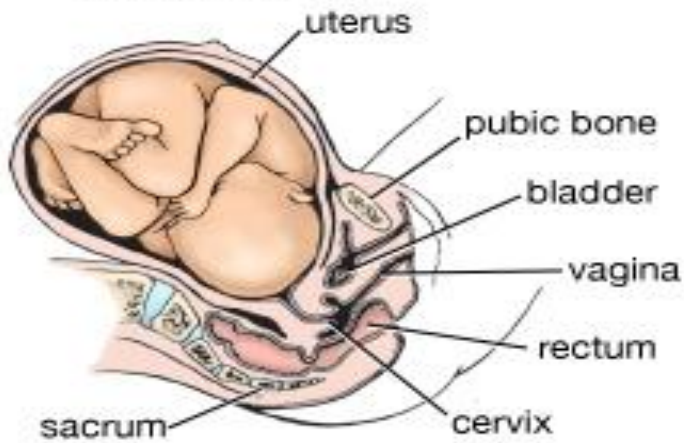
Stages of Development-Early Embryo





SECTION THROUGH HUMAN FETUS IN UTERUS

Onset of labour



Flexion



Internal rotation of head



Extension



External rotation of head



Uterus immediately after birth



NATURAL CHILD BIRTH

BIRTH CONTROL



• NATURAL METHODS

1. **Withdrawal** = male pulls penis out of vagina, just before climax and ejaculation. Unreliable.
2. **Rhythm** = do **not** have sex in days 8 to 18 of her cycle, when the woman is fertile. (Not reliably regular.)

• CHEMICAL METHODS

1. **The Injection** from the clinic – lasts 3 months.
2. **The Pill** taken regularly each day. FSH and LH are not produced, so no ovum is released.
3. **Spermicide** = foam placed into vagina before sex – kills sperms. (Works together with a Diaphragm.)

• MECHANICAL METHODS

1. **Male condom** – sheath placed over the erect penis to catch the sperm.
2. **Female condom** – a plastic sheath that dips into the vagina, to catch the sperm.
3. **Diaphragm** = a cap fitted over the cervix, so no sperm can get beyond the vagina. Needs to work together with spermicides each time. Only 88% reliable.
4. **Intra-uterine device (IUD)** – placed inside the uterus.

• STERILIZATION THROUGH SURGERY

1. **Ligation** = tying the female's fallopian tubes.
2. **Hysterectomy** = removing the female's uterus.
3. **Vasectomy** = cutting the vas deferens of the male.





CONTRACEPTION methods



Condom



Oral contraception



Hormonal ring



UID



Female condom



Contraceptive
injection



Surgical
sterilization



Implant



Coitus interruptus



Calendar
rhythm method



Vaginal douche



Contraceptive
patch



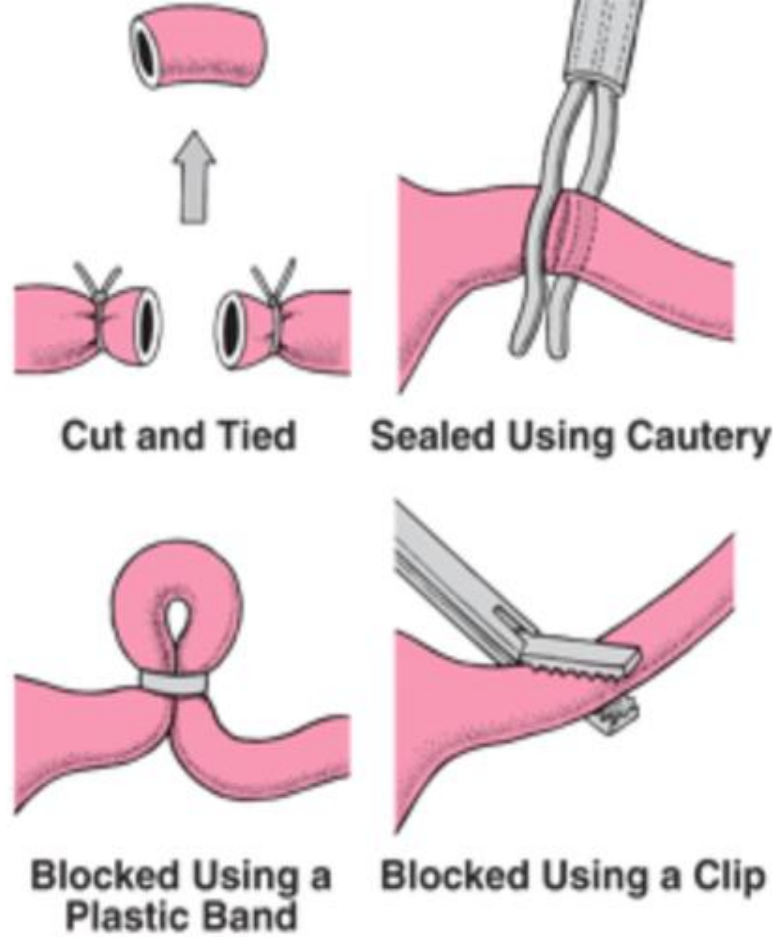
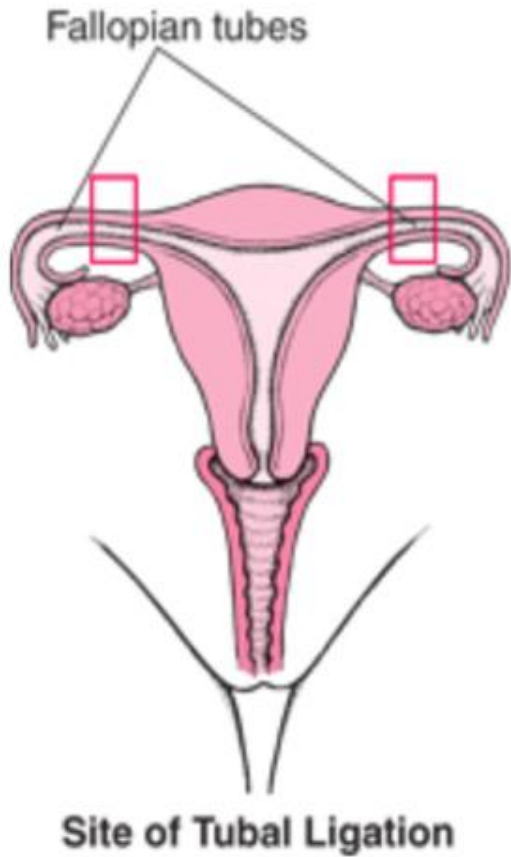
Diaphragm / cap



INTERESTING FACTS



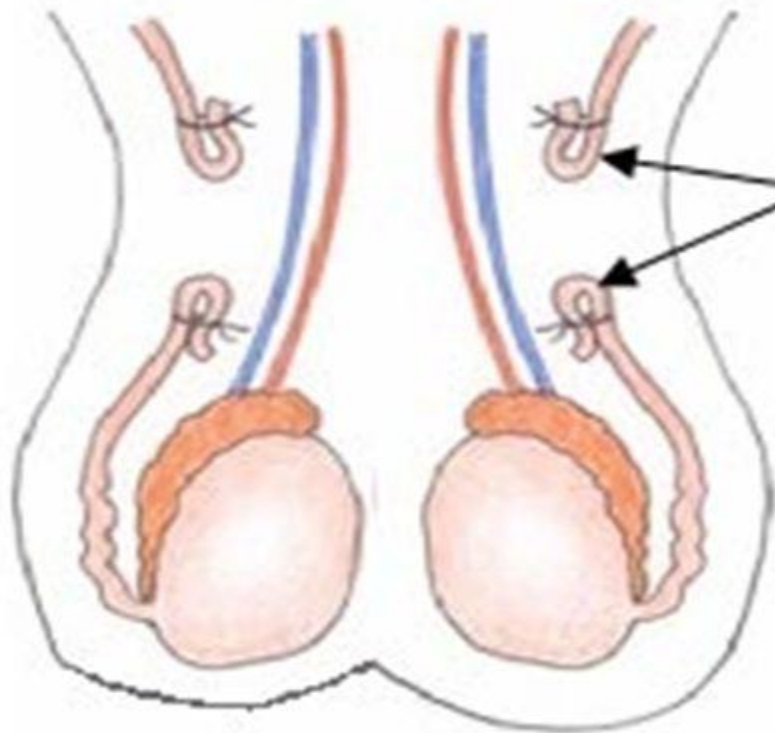
- **Injections:** 99,8% reliable. Inject Progesterone, to prevent ovulation. *Can take a year after stopping before fertility returns.*
- **Patches:** 99% reliable. Needs controlled replacing every week. *Can be blood clots – heart attacks, strokes.*
- **Implants:** 99,8% reliable. Small plastic rod inserted under the skin in the arm. Releases Progesterone. Lasts 3 years. Easily reversible. *Possible mood-swings.*
- **IUD:** 99% reliable. Plastic ones release hormones to stop implantation for 5 years. Copper ones release ions for 10 years, which kill sperms – no hormones affected here.
- **Condoms:** 95-98% reliable. The only system that might protect against HIViruses and STDs.



LIGATION

Male Sterilization

b



Ends of the
vas closed
with stitches

VASECTOMY: simple surgery in which the tubes that carry sperm up to the penis are cut and sealed.

- considered a permanent (*not reversible*) method of birth control and should be chosen only if you are sure that you do not want any more children.