

Review

- What are hormones?
- What is the difference between primary and secondary sexual characteristics?

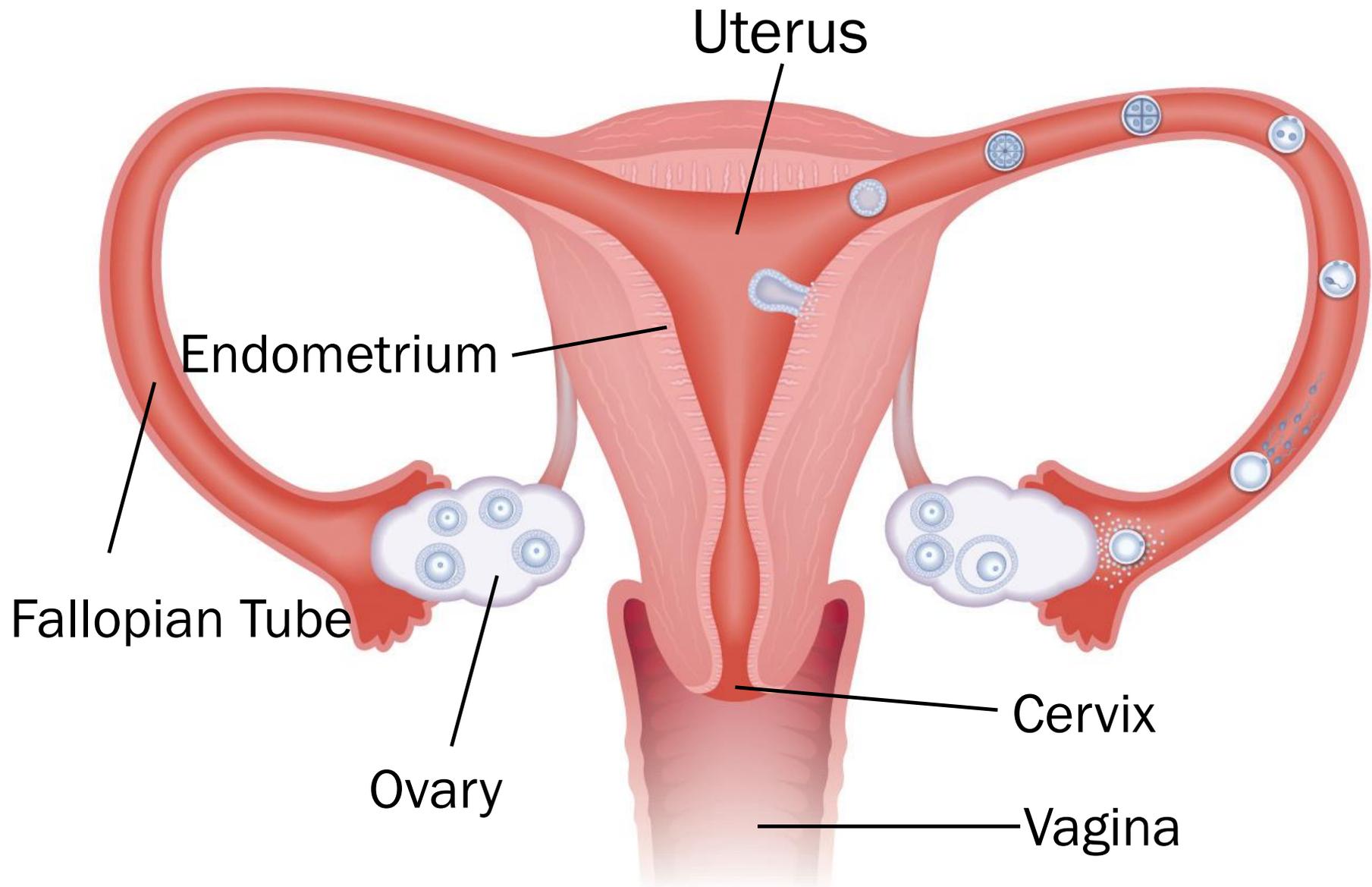
FEMALE REPRODUCTIVE SYSTEM



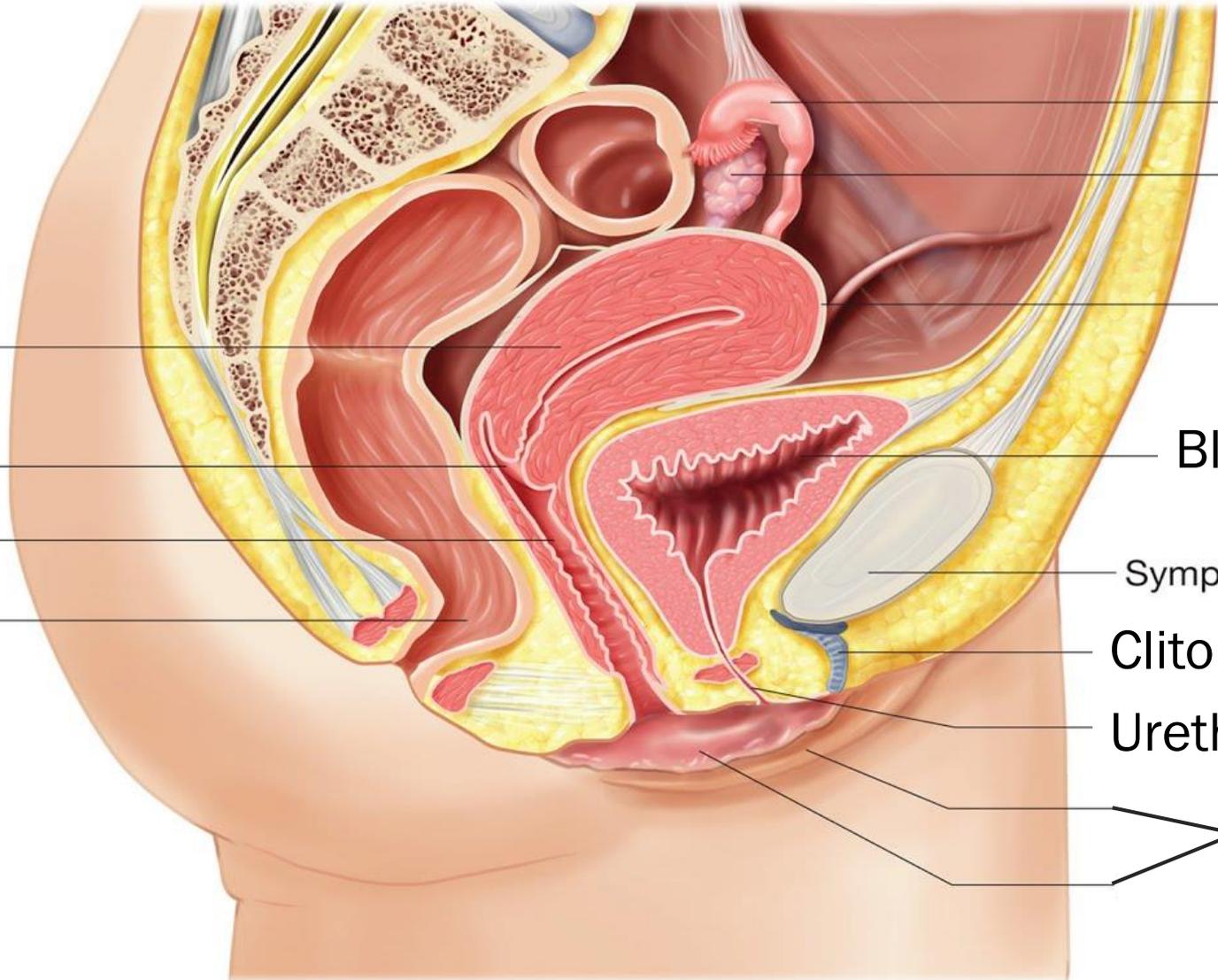
Ovaries before brovaries

Puberty in Females (Review)

- Underarm and pubic hair appears
- Breasts develop
- Pelvis widens (wider hips)
- Fatty tissues accumulate on hips and breasts primarily
- Menstrual cycle begins
- Genital organs mature



Uterus
Cervix
Vagina
Rectum



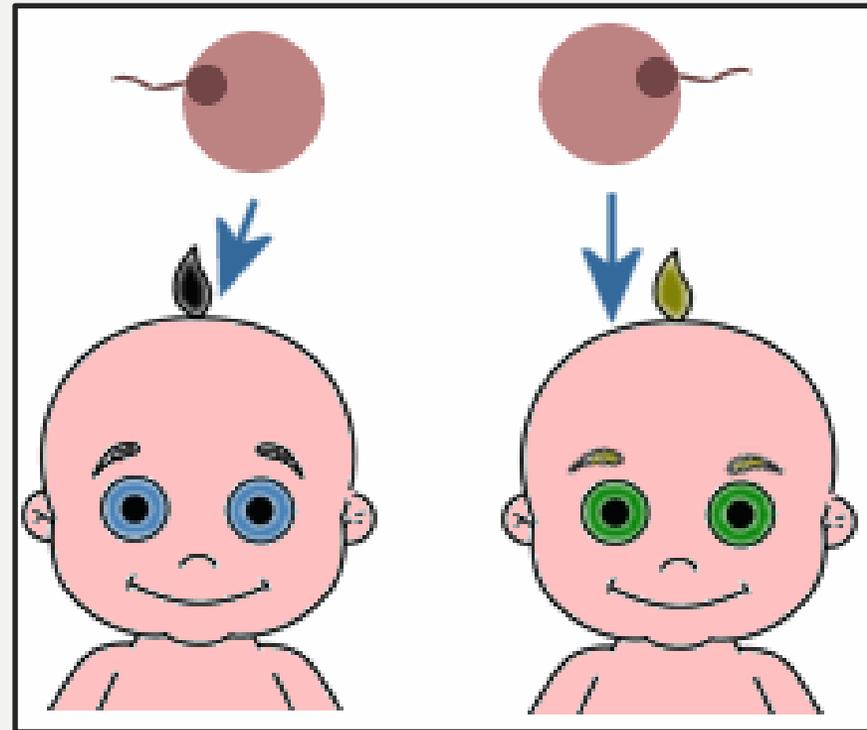
Fallopian Tube
Ovary
Fundus of uterus
Bladder
Symphysis pubis
Clitoris
Urethra
Labia

Oogenesis

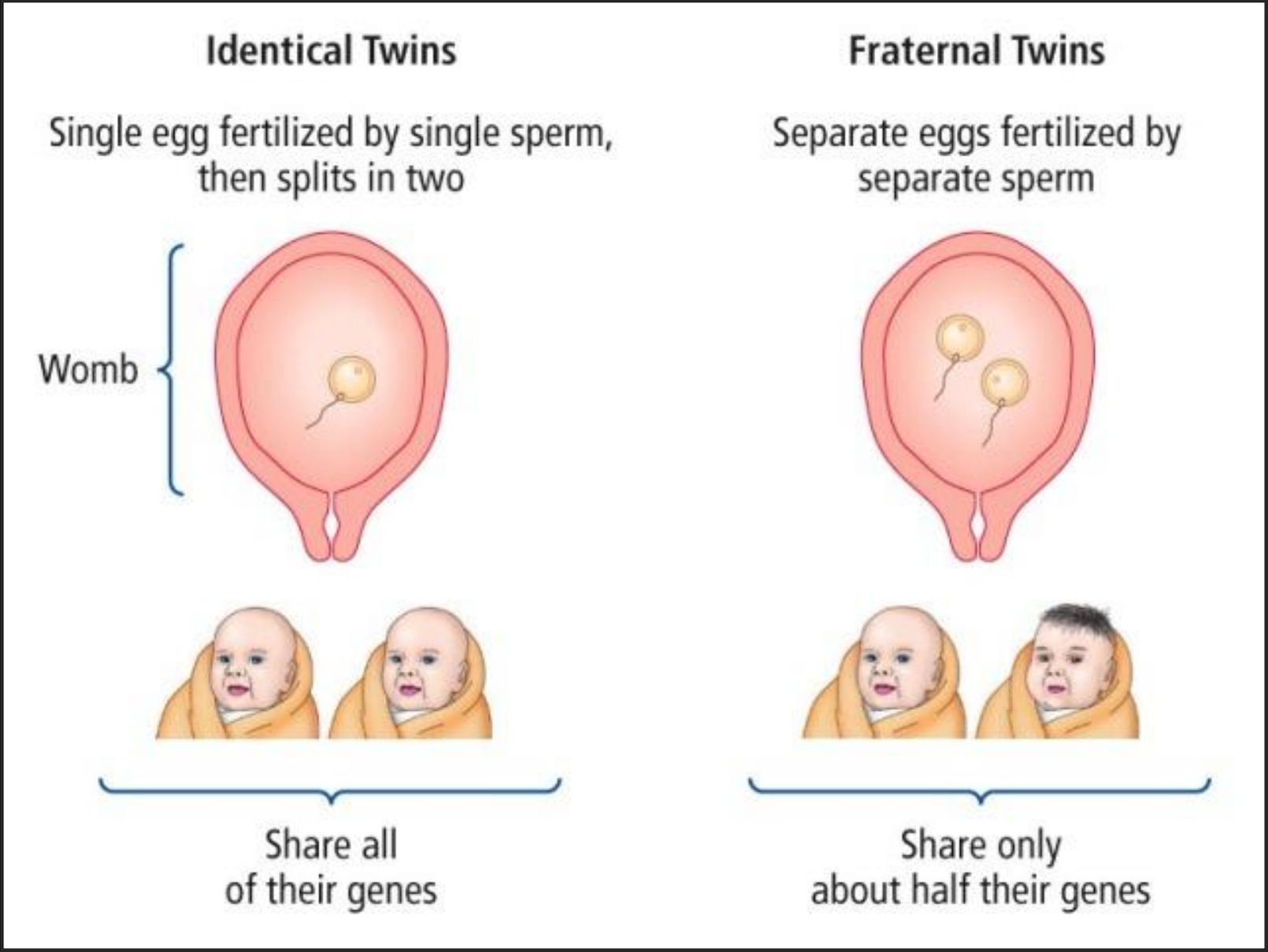
- By the time a girl reaches puberty she has around 700 000 oocytes (cells capable of becoming ova)
 - *These oocytes will undergo meiosis in order to produce the ova*
 - Similar to the spermatogonia in the male that undergo meiosis to produce the spermatozoa
 - Unlike sperm, ova are not constantly being produced; a woman only gets one set (she is born with them)

Oogenesis

- Usually, only one oocyte per cycle will mature into an ovum and be released into the fallopian tubes to be fertilized
 - *If more are released, this is how you get fraternal twins, triplets, etc.*



Identical vs Fraternal Twins



The Ovarian Cycle

FSH = follicle stimulating hormone

- 1) FSH is secreted by the pituitary gland and stimulates the growth of an ovarian follicle around the oocyte
- 2) the follicle starts to release more and more estrogen
- 3) estrogen levels cause the pituitary to release LH along with FSH which triggers the follicle to rupture and release the ovum (ovulation)
- 4) The follicle then turns into the corpus luteum and releases progesterone that will stop the release of more FSH and LH, and cause the uterine lining (endometrium) to thicken

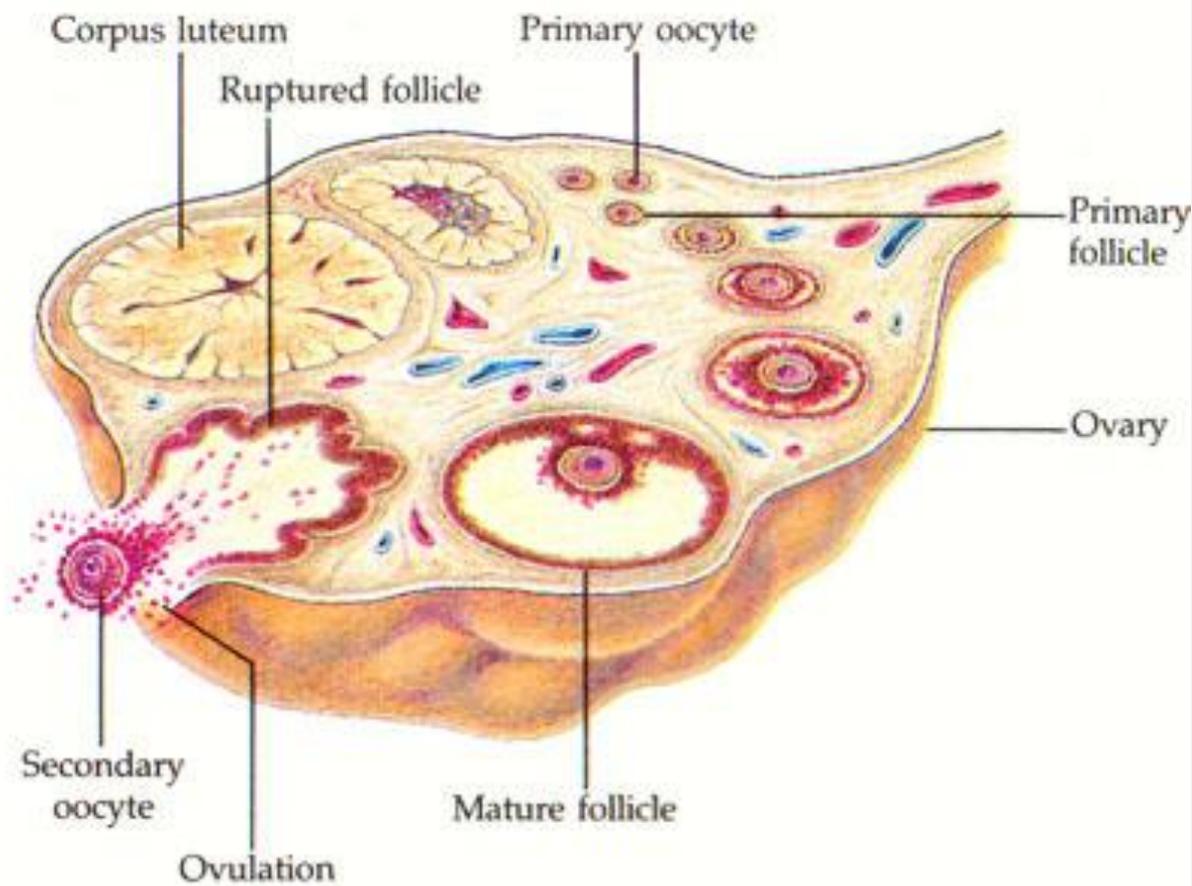
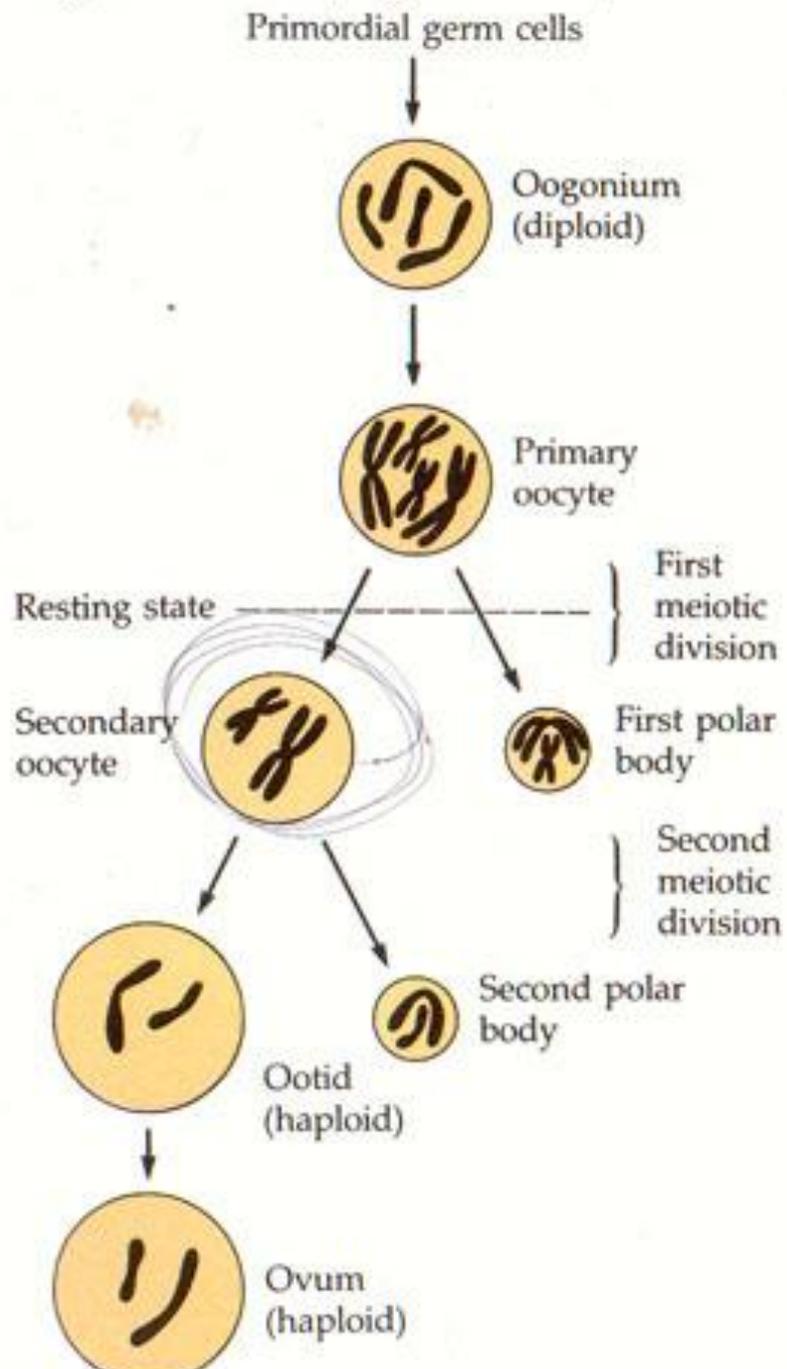
LH = Luteinizing hormone

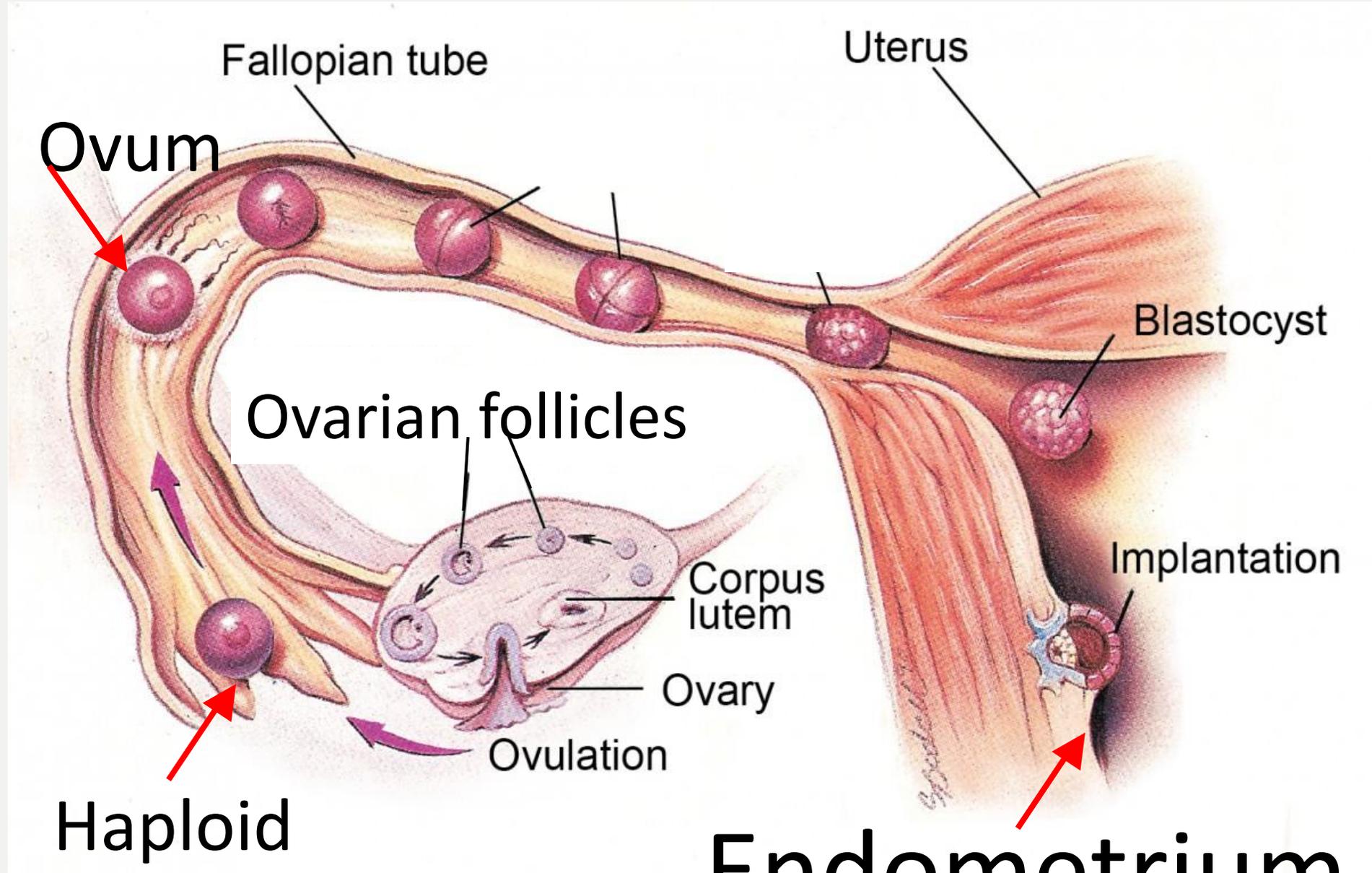
The Ovarian Cycle

- 5a) if the ovum is not fertilized the corpus luteum disintegrates, and the endometrium detaches from the uterus and is expelled through menstruation
- 5b) if the ovum is fertilized the zygote (fertilized ovum) will implant itself in the uterine wall and the corpus luteum will continue to produce progesterone until the placenta is fully formed

Fertilization to Pregnancy

Oogenesis (Figure 42.14)





Ovum

Fallopian tube

Uterus

Blastocyst

Ovarian follicles

Implantation

Corpus luteum

Ovary

Ovulation

Haploid oocyte

Endometrium

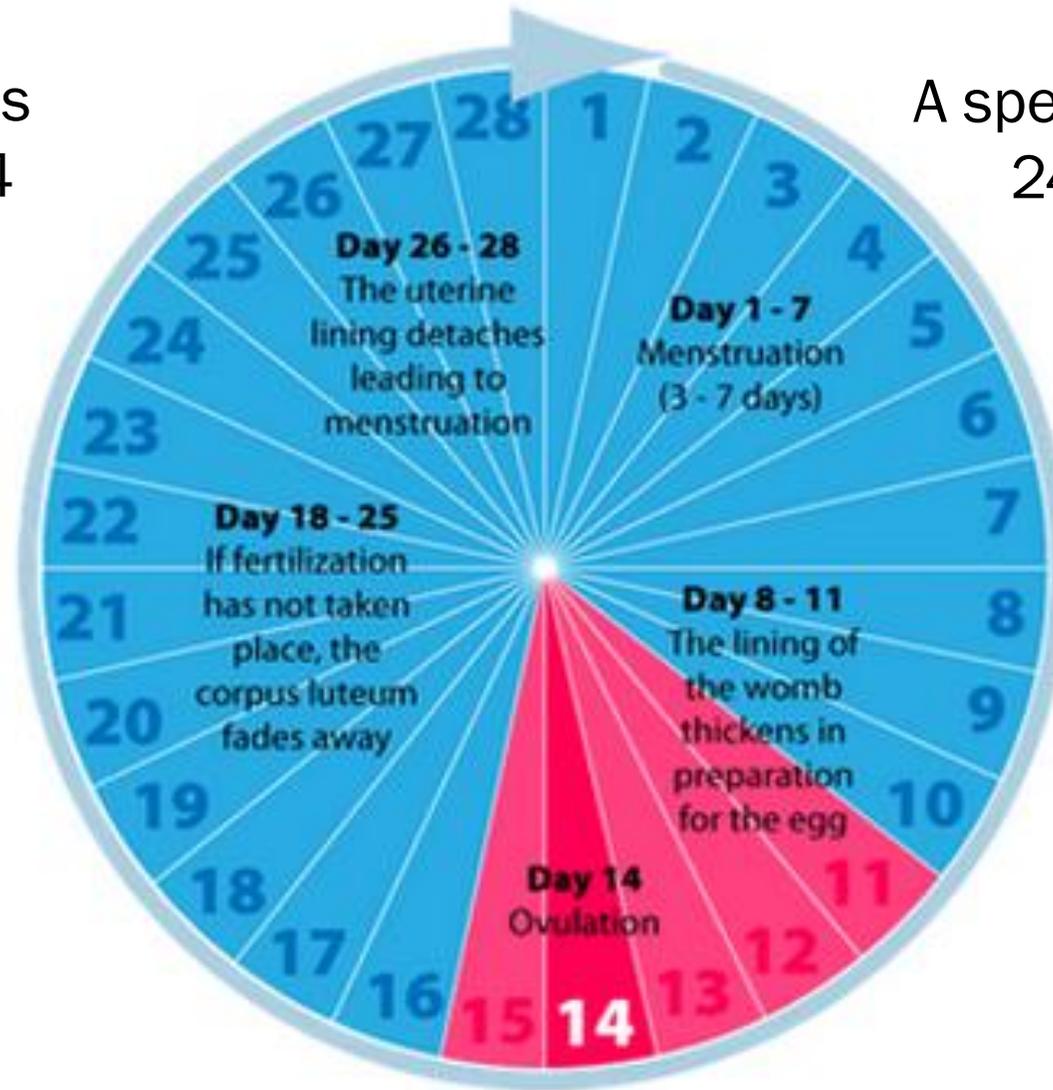
The Menstrual Cycle

- The menstrual cycle is triggered as a result of the ovarian cycle and hormone production
- The menstrual cycle has 3 main phases:
 - The menstrual phase: period of bleeding due to the expulsion of the endometrium and the unfertilized ovum
 - The proliferation phase: the endometrium begins to thicken, estrogen levels increase due to new ovarian follicle
 - The secretory phase: endometrium continues to thicken, progesterone levels increase from the corpus luteum

Fertility Period

An ovum lives about 12-24 hours

A sperm lives about 24-72 hours



Note:
menstrual cycle always starts with menstruation!