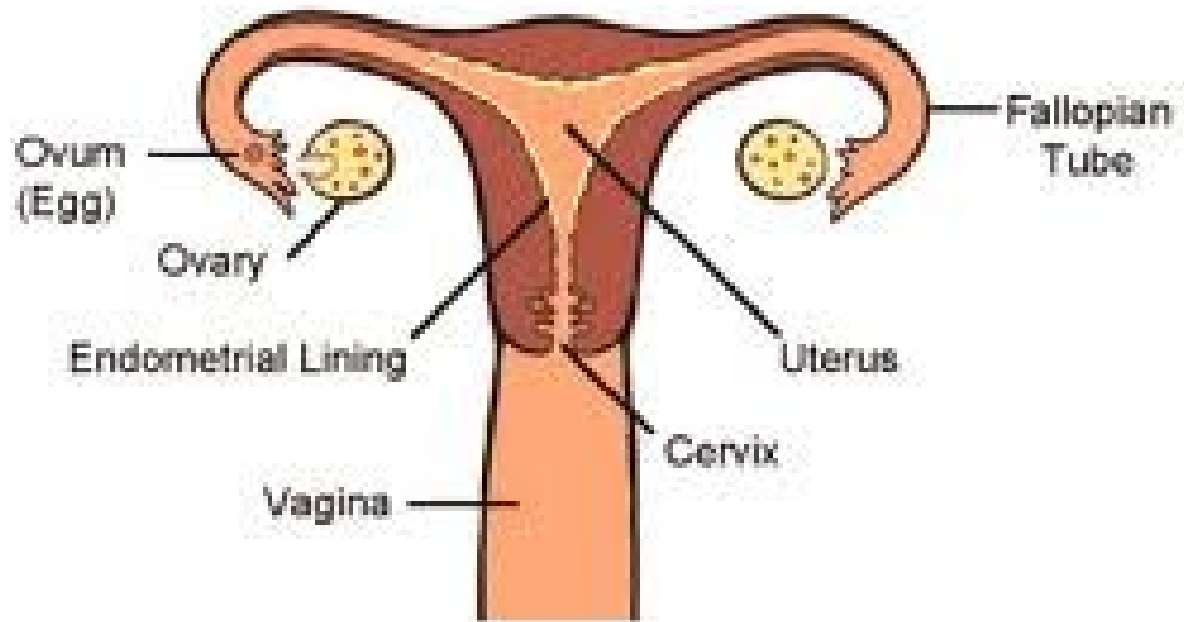


The Female Reproduction System

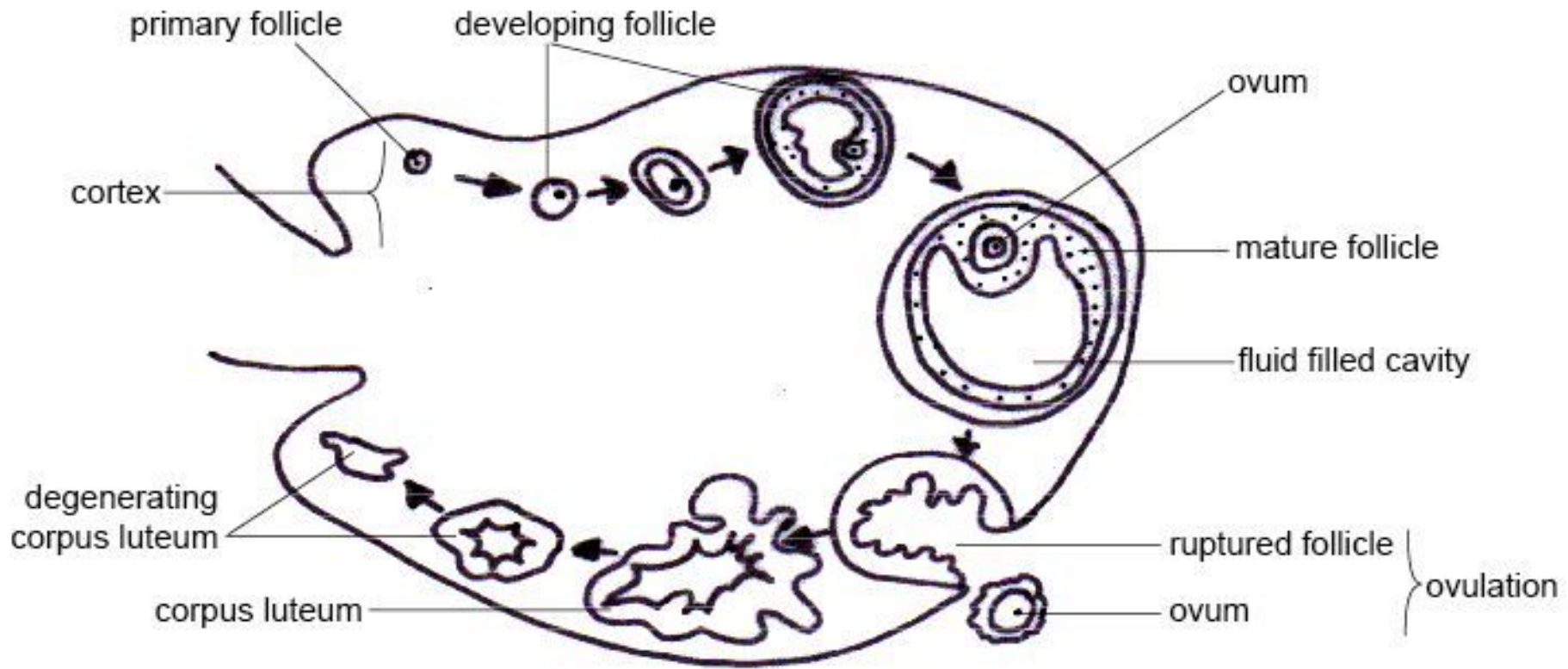


Oogenesis

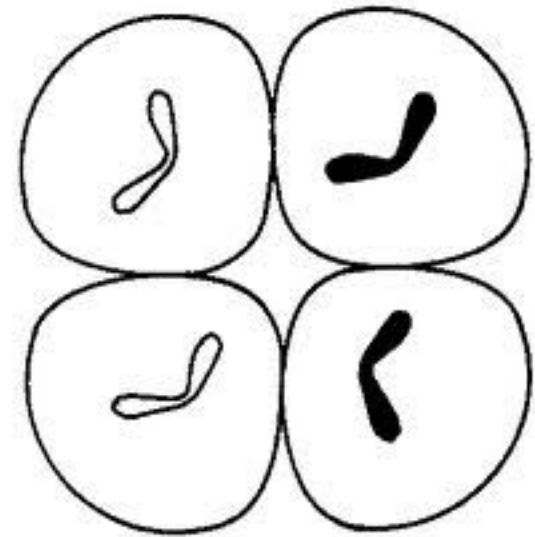
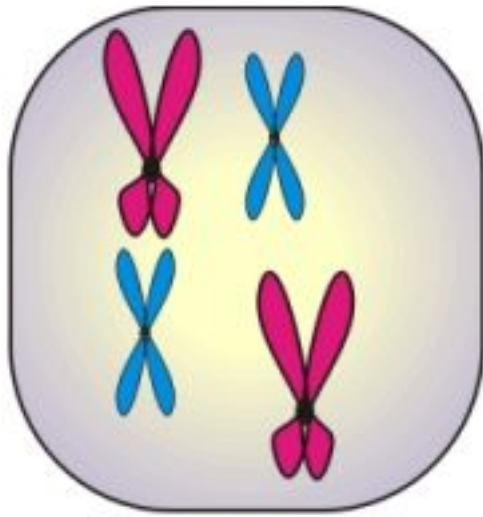
- **Oogenesis is** the process of ovum production.
- At puberty, a girl has 700 000 cells in her ovaries that can become ova.
- Under the influence of FSH and LH, every cycle one oocyte (egg cell) will mature into an ovum.

The Ovarian Cycle

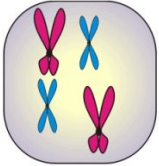
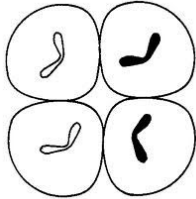
- **The ovarian cycle is** the process in which a single ovarian follicle (oocyte) matures and changes for the purpose of fertilization and implantation.
- Fertilization: The joining of an ovum and a sperm
- Implantation: When the fertilized egg reaches the uterus and attaches to the endometrial lining.



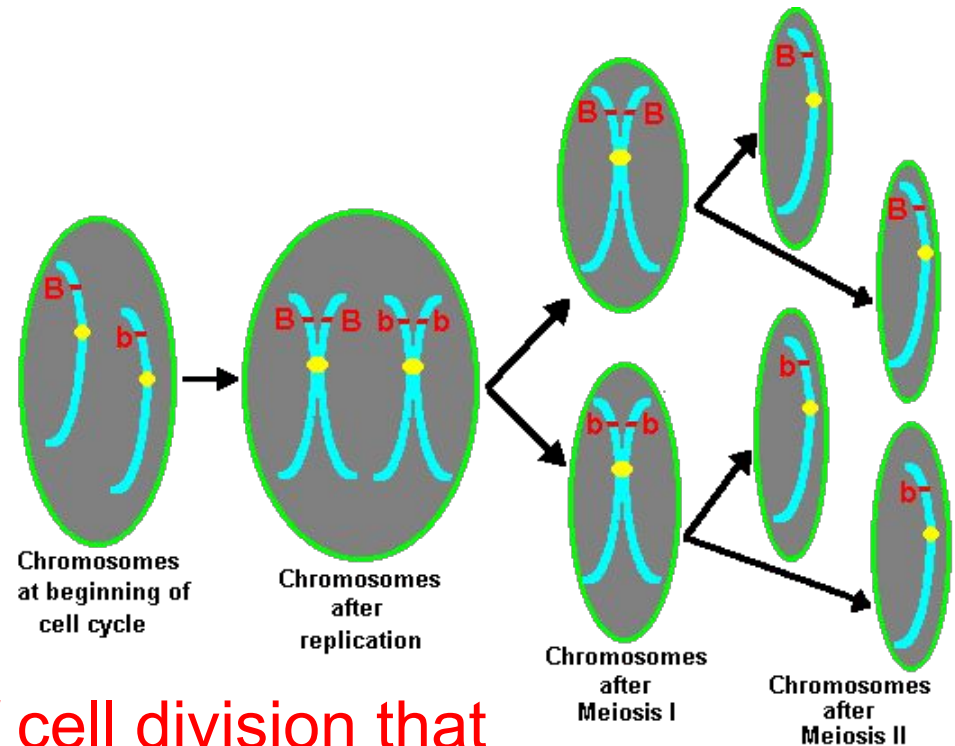
A Diploid Cell vs. A Haploid Cell



What is the difference?

A Diploid Cell	A Haploid Cell
	
<p>Contains a total of 46 chromosomes (23 pairs)</p> <p>All of the DNA required in the cells of a human.</p>	<p>Contains a total of 23 chromosomes (no pairs)</p> <p>Only ½ of the DNA required in the cells of a human.</p>

Meiosis

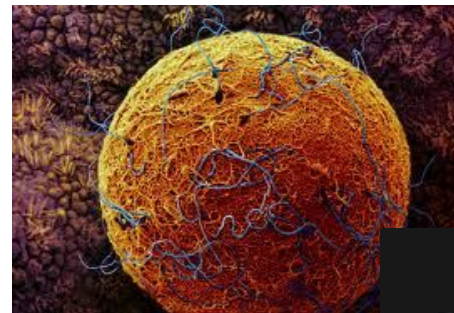
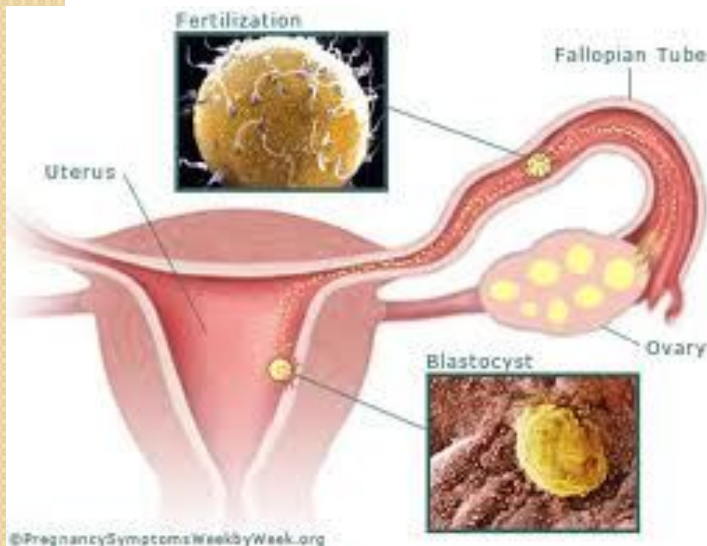


Meiosis is a type of cell division that happens in the reproductive organs only (Ovaries and Testicles)

This type of cell division always produces haploid cells (gametes = sperm or ova) .

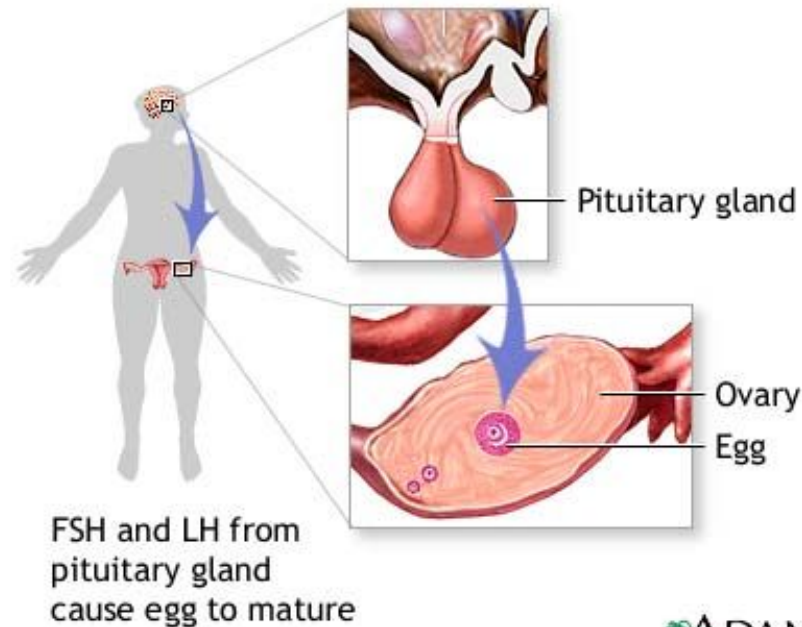
Fertilization

- Fertilization occurs in the fallopian tube
- A **zygote** forms when fertilization occurs and the zygote **implants** in the uterus.
- During Fertilization 2 gametes (haploid cells) join together to form the zygote (diploid cell)



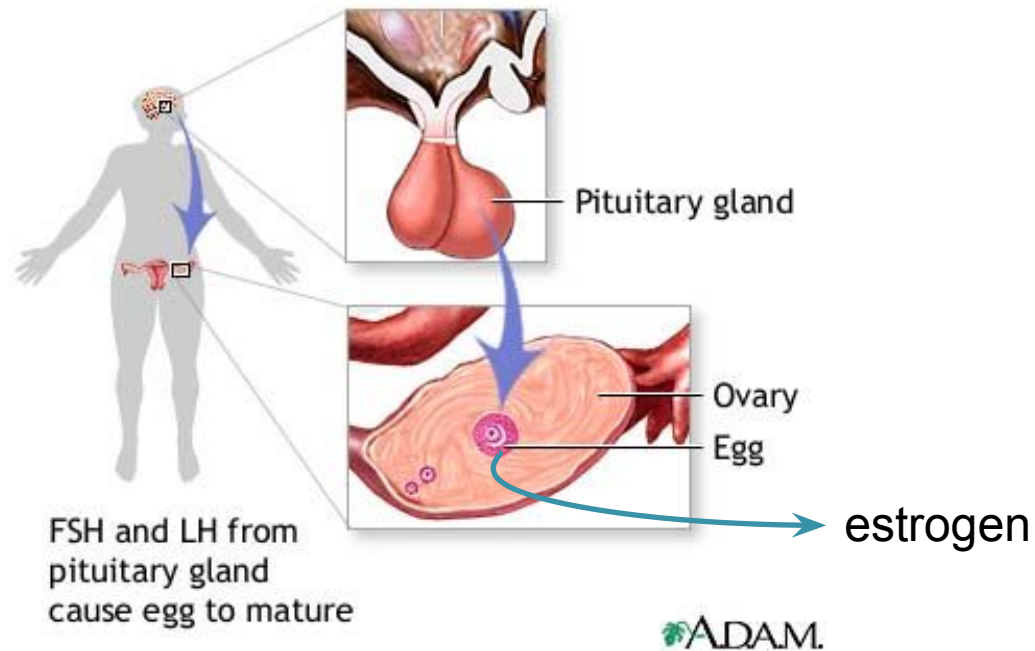
How FSH and LH mature the oocyte

1. A large amount of FSH is released from the pituitary gland at the beginning of every ovarian cycle.



How FSH and LH mature the oocyte

2. The FSH causes the ovarian follicle (immature egg) to grow and release **estrogen**



How FSH and LH mature the oocyte

3. The estrogen from the maturing oocyte travels through the blood and causes the pituitary gland to release LH



This is commonly known as the LH surge

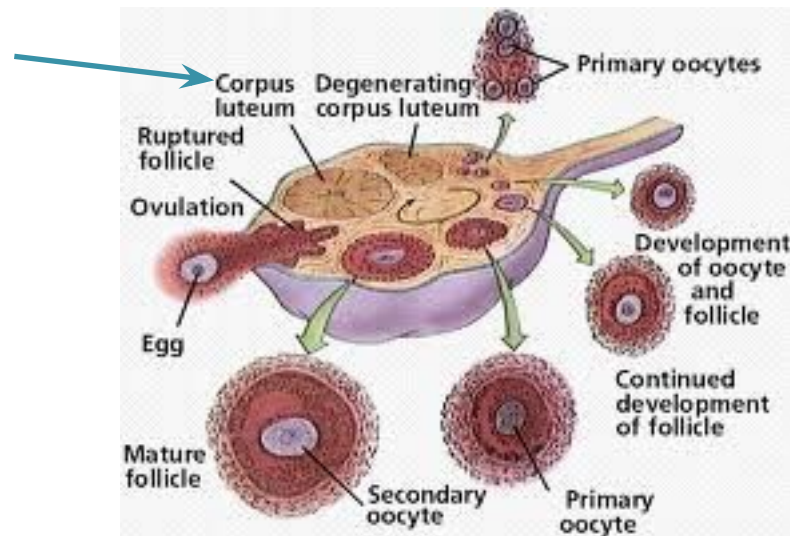
How FSH and LH mature the oocyte

4. The LH travels in the blood, to the ovary and causes the mature ovum to break out of the ovary.



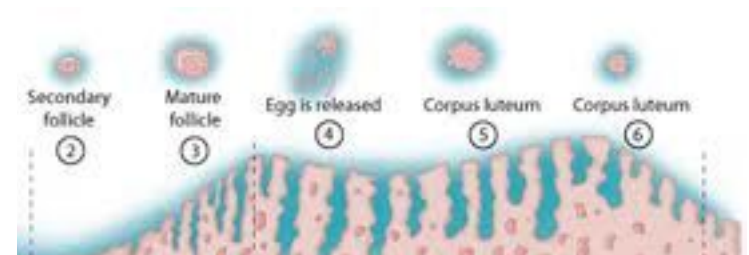
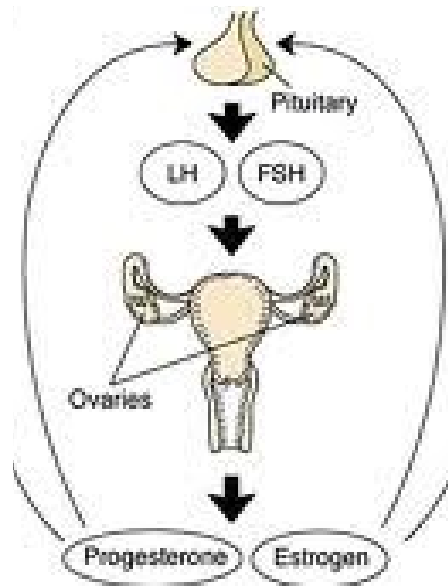
The corpus luteum

- Once the ovum has left the ovary the corpus luteum is left behind
- The corpus luteum releases another hormone called **progesterone**.



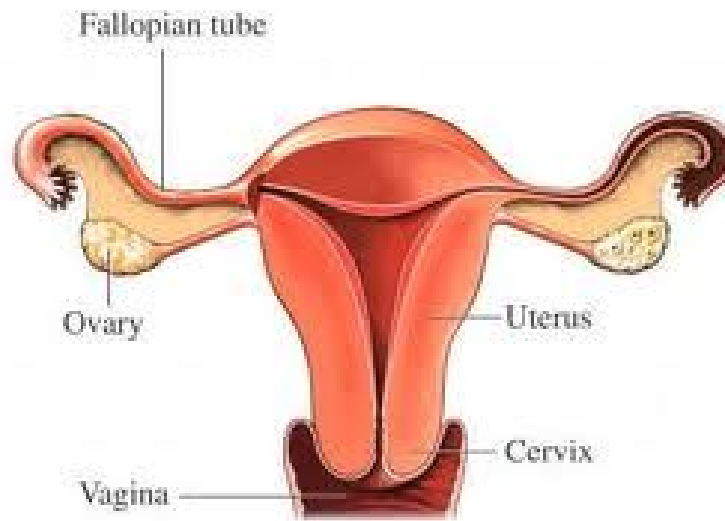
Progesterone

- Prepares the body to receive a fertilized ovum (implantation).
 - It does this by blocking the release of more FSH and LH from the pituitary gland.
- It also causes the endometrial lining of the uterus to get thicker.



The Menstrual Cycle

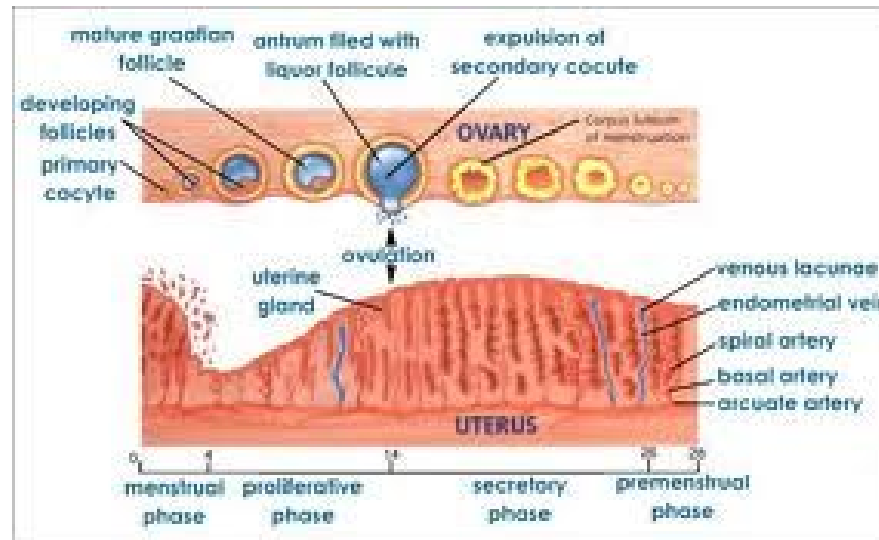
- The menstrual cycle happens in the **uterus**



- It represents all of the changes that happen to the **endometrial lining** of the uterus.

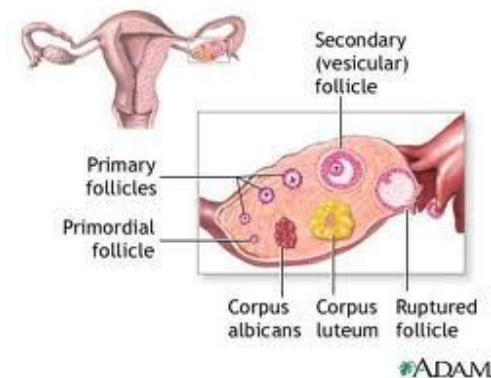
The first day

- The menstrual cycle begins with the first day of menstruation (bleeding).



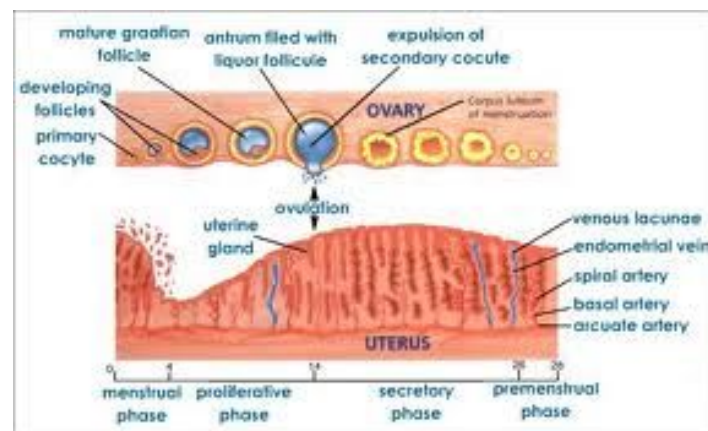
Menstruation

1. Menstruation occurs when the corpus luteum deteriorates and stops producing progesterone.
2. The ovum is not fertilized.
3. The ovum and the endometrial lining is shed from the body.



After Menstruation

- Once menstruation is over, the ovarian cycle starts again.
 - New ovarian follicles begin to grow and develop.
 - Endometrial lining begins to thicken again.

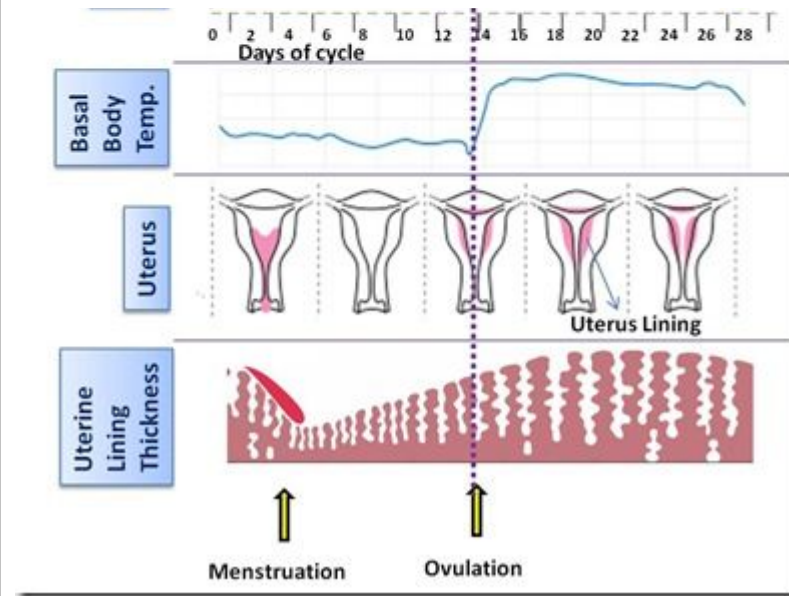
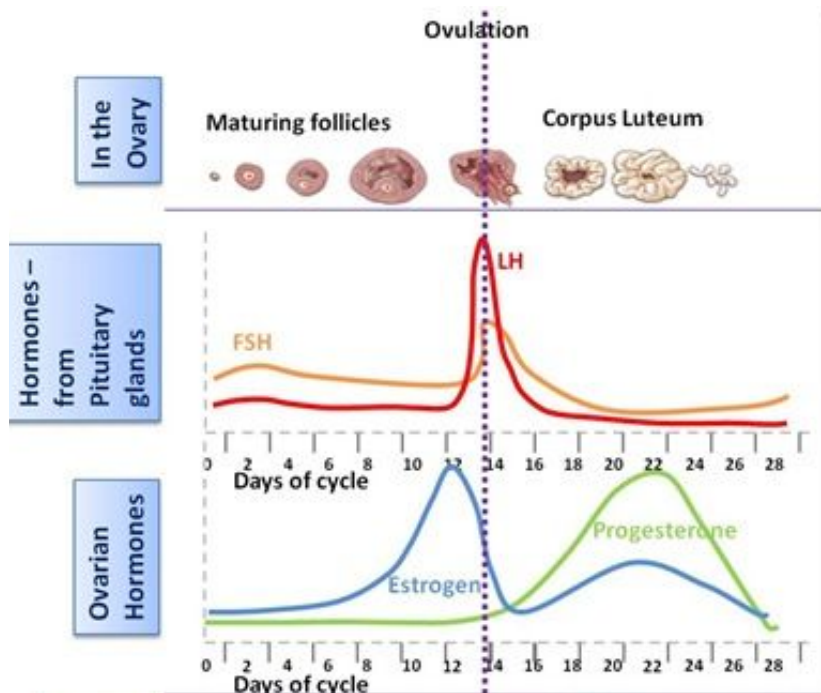


- There are about 14 days between ovulation and menstruation.
- An ovum lives from 12 to 24 hours



A Review of the Ovarian Cycle

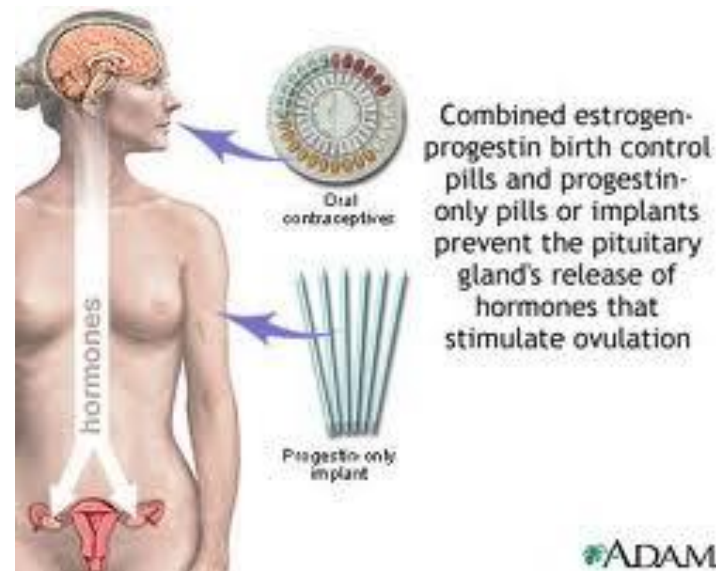
- [Ovulation - YouTube](#)



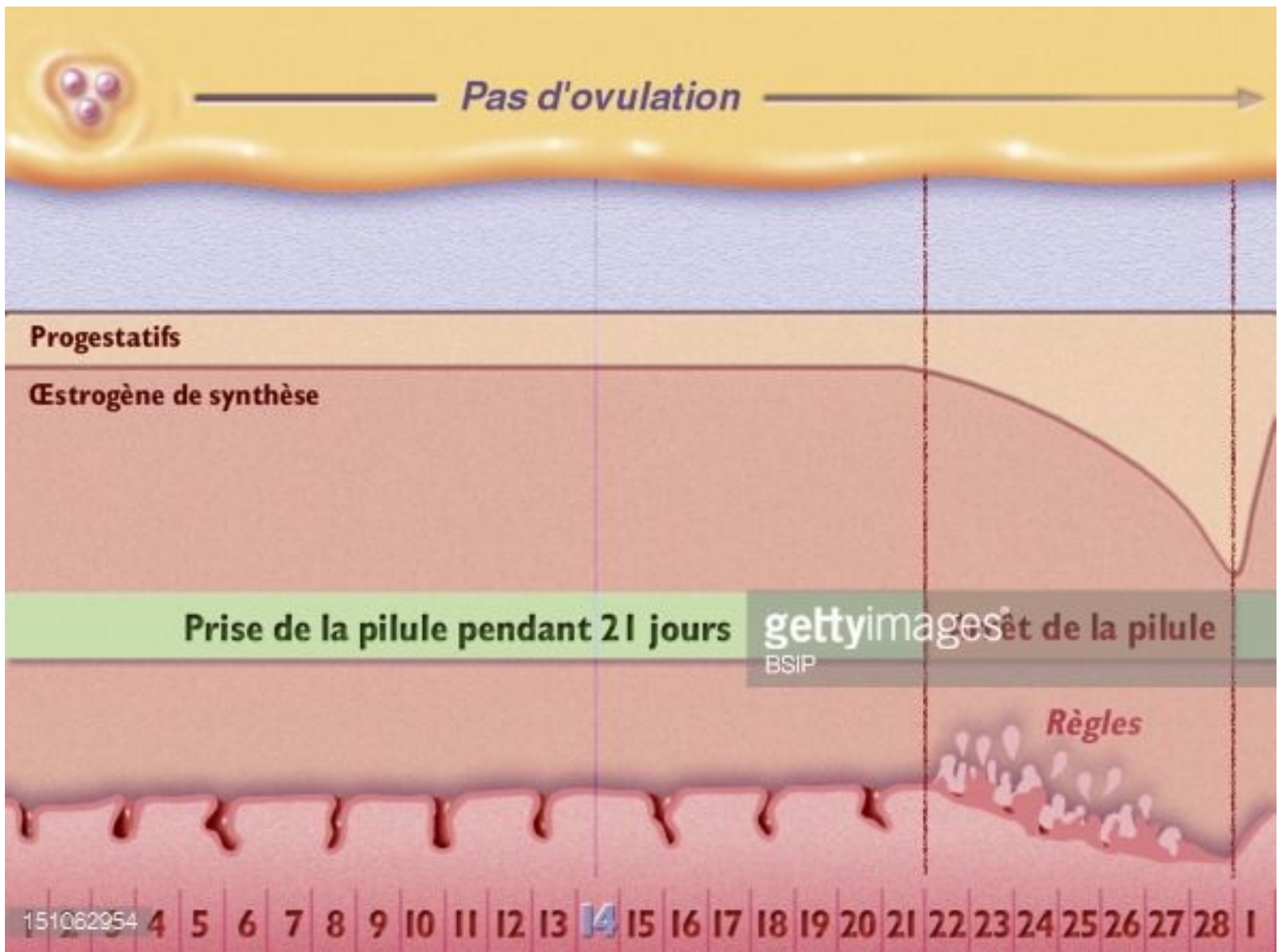
Birth Control

- “The pill” (and other hormonal methods) is made up mostly of **progesterone** and **estrogen**
- What are the roles of these hormones in the ovarian cycle?
 - Progesterone and estrogen cause the LH surge from the pituitary gland.

How Birth Control Works



- The ovum doesn't mature because FSH and LH are blocked.
- There is **no surge** in hormones near day 14.



Menopause

1. A woman over 40 years old, who has not menstruated for a year
2. The ovarian and menstrual cycles come to an end
3. The ovaries stop producing estrogen
 - Symptoms include:
 - Hot flashes
 - Mood swings
 - Bone loss

