

Gametogenesis

immature ♂ and ♀ gametes

↓ inside the gonads (testis; ovary)

mature ♂ and ♀ gametes

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BUT!!

With changes on the cytoplasm & nucleus



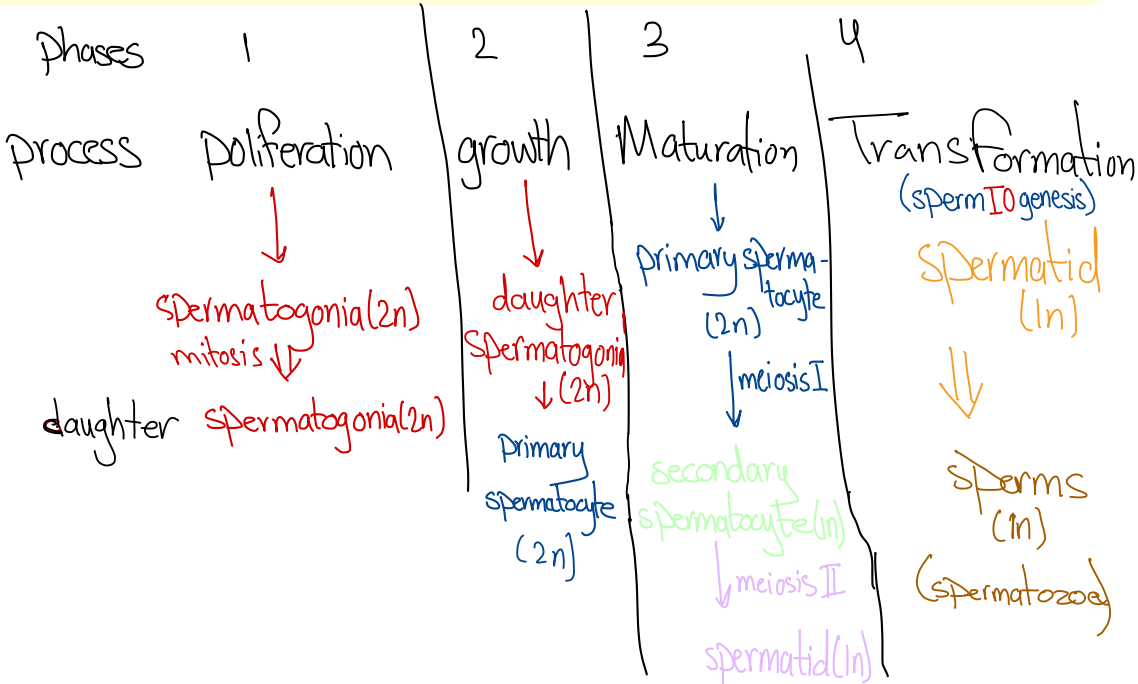
♀ increased
♂ decreased



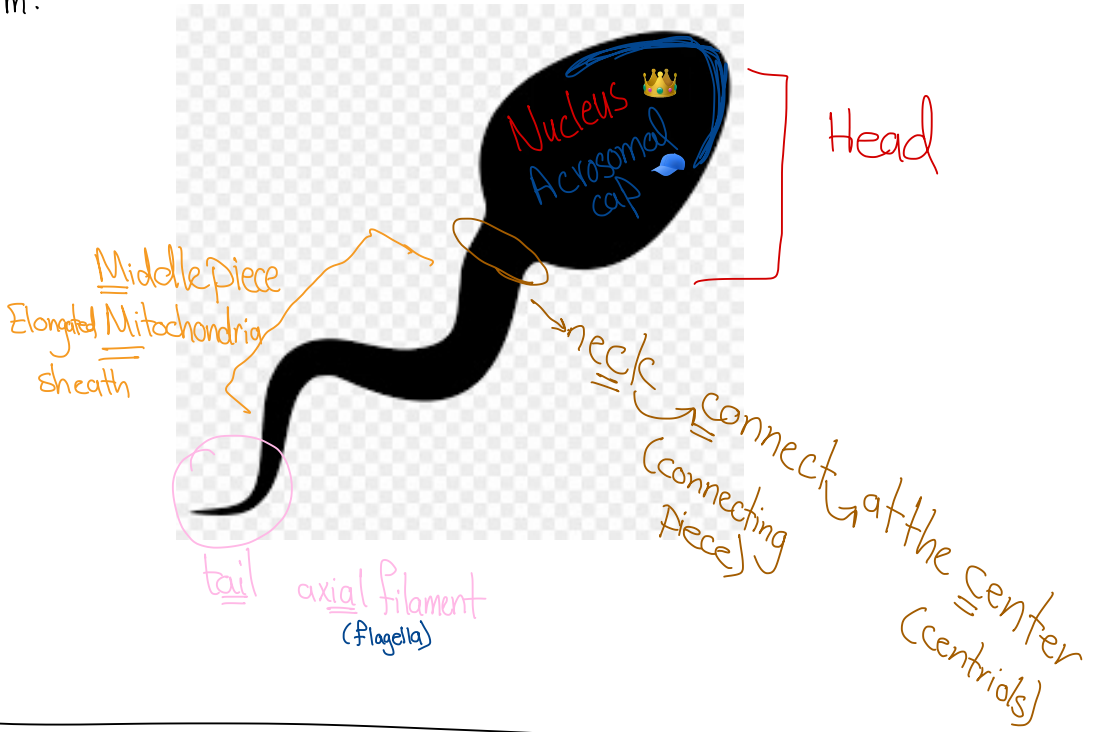
undergo meiotic division??
to ↓ no. of chromosomes

SPERMATogenesis (♂)

The aim of this 4 phase-process is having a sperm, occurs in seminiferous tubules of the testis from puberty till old age.



sperm:



Abnormalities X of sperms.

- ① **Shape**
- x2 → heads
 - tails
 - LARGE → heads
 - pin → head
 - dwarf → sperm
 - Tapered → head

- ② **motility**
- ↓
- less active

- ③ **count**
- less than 20 million/ml (oligospermia)
 - 0 Absence of sperms in semen (Azospermia)
 - xx dead sperms in semen (Necro) Spermia

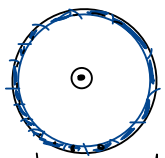
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اللحم قبل وسلم كالمشيمة

Oogonium (Proliferation) mitosis $2n$ daughter oogonia

Increase in size (growth) $2n$ primary oocyte

Primary cells are called Primordial Follicle



Primary oocyte is surrounded by flat epithelial cells called follicular cells

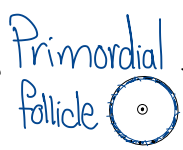
Before Birth

meiosis I

Rest. STARTS AT PROPHASE I (OMI)

After Puberty

Complete meiosis I



Primordial follicle (primary oocyte surrounded by flat epithelial cells)

grows



Primary follicle (FSI) flat cells cuboid cells

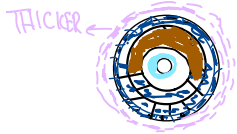
Connective tissue: Theca cells

The blue layer is called zona pellucida (glycoprotein) secreted by granulosa cells



more layers of cuboid follicular cells → granulosa cell

Transformed into Secondary follicle



Granulosa cells secrete fluid called liquor folliculi collected at the middle in follicular antrum

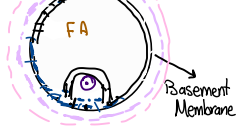
First polar body (degenerates)

uterine tube

Secondary oocyte (1n)

Second polar body (1n) Second Polar body (1n)

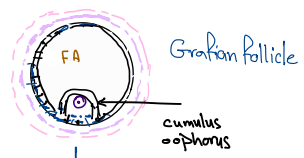
Transformed into mature graafian follicle



Theca cells make 2 layers → Theca internal (vascular) layer → Theca externa (fibrous layer)

The multi layer of granulosa cells pushes the secondary oocyte while being surrounded by

AT THE TIME OF OVULATION, The graafian follicle will rupture and transform into corpus luteum



corpus luteum

REST at metaphase II
Complete at Fertilization

No fertilization

fertilization

Degenerate

corpus luteum of pregnancy

corpus albicans of menstruation

secretes Progesterone + relaxin hormone

stops functioning

Involution's converts into corpus albicans



Second Polar body
↓
degenerate

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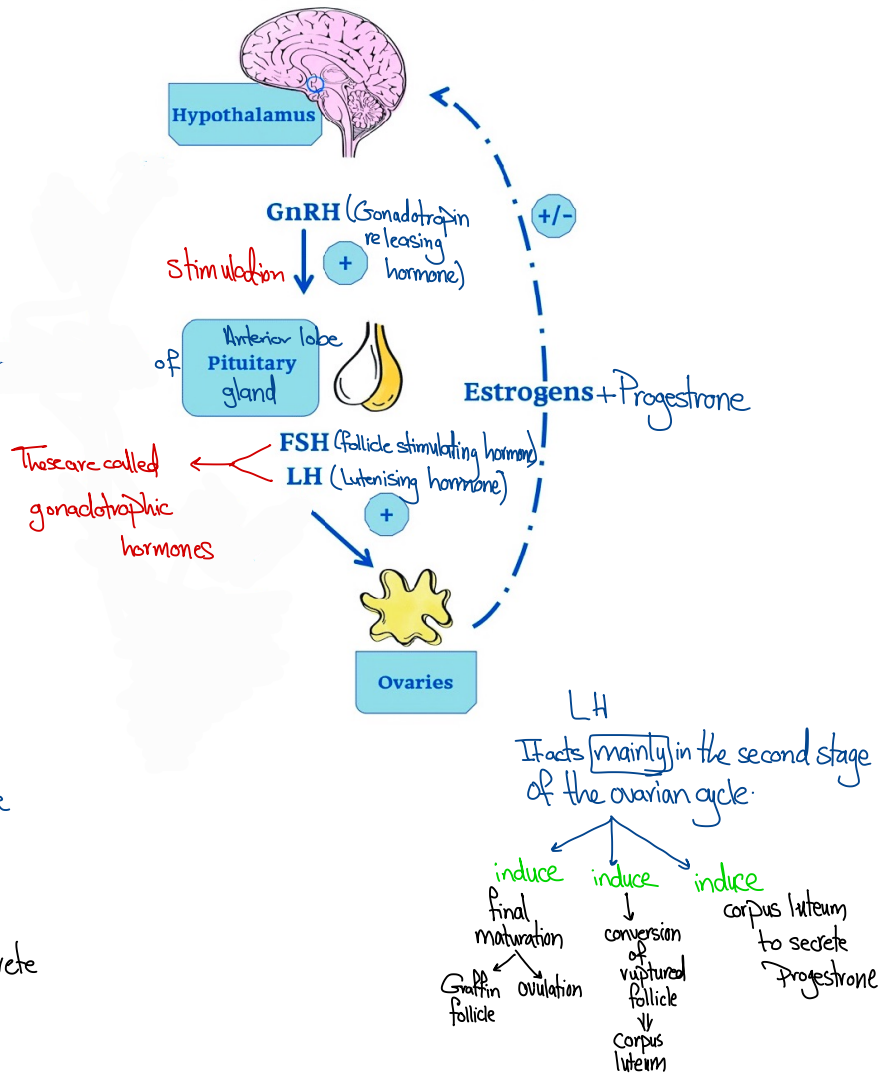
OVARIAN CYCLE

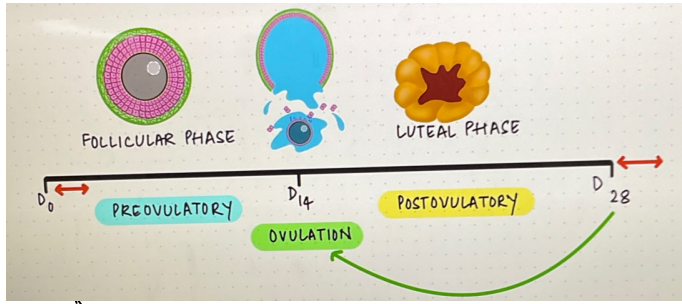
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- Not pregnant ✓
- Every 28 days ✓
- Fertile period ✓

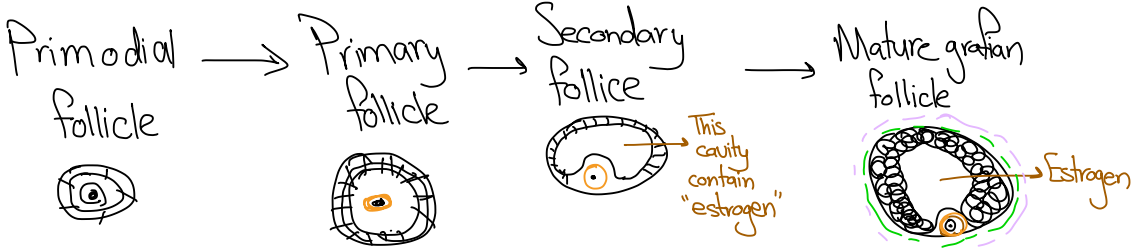
- Divides into 3 stages
- **Pre**ovulatory (Follicular)
 - ovulation
 - **Post**ovulatory (Luteal)

This process requires hormonal controls



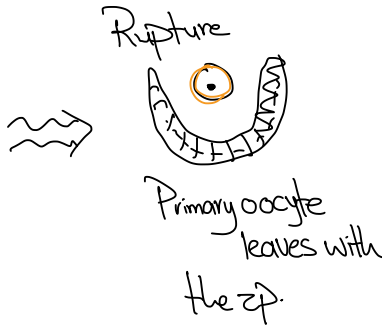
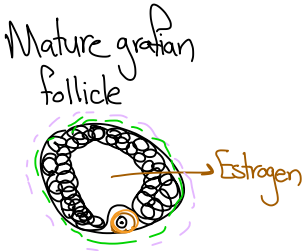


Preovulatory (FSH)



The estrogen sends feedback to the pituitary gland $\times \Rightarrow$ to inhibit FSH and stimulate the LH

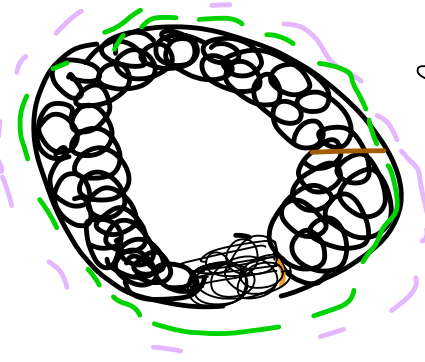
Ovulation (LH)



LH \uparrow collagenase activity to Distruct the collagen fibers surrounding the graafian follicle

\uparrow prostagland activity to increase the ^{ovarian} contraction to push the primary oocyte out the ovary

3 Postovulatory (LH)



change into
⇒

corpus luteum secretes
progesterone
with inhibits
LH.



No Pregnancy
(LH)

live 10-18 days

degenerate

corpus albicans

Pregnancy
(HCG)

corpus
luteum of
pregnancy

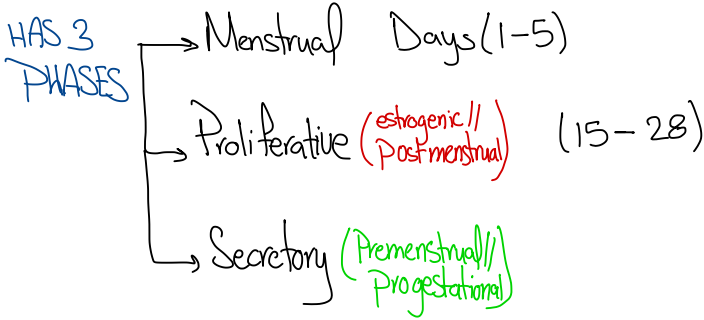
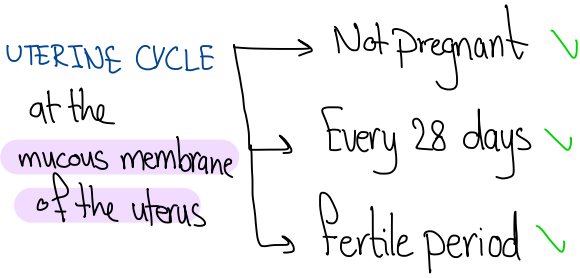
take
over the
hormonal
control

4-5 months

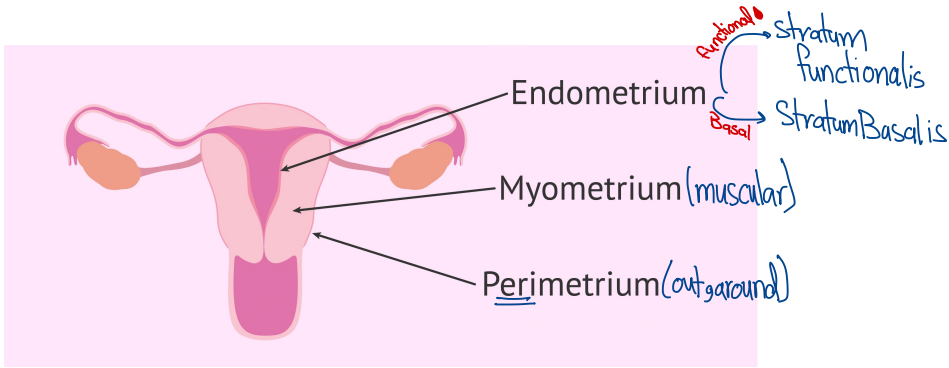
degenerate

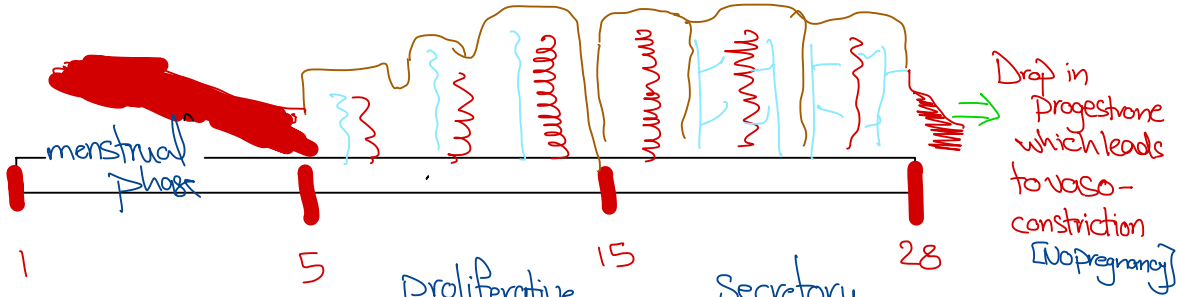
corpus albicans

UTERINE CYCLE



* stratum functionalis: sheds in the menstrual cycle
* stratum basalis: regenerates the stratum functionalis





The first 5 days of Preovulatory Phase

Proliferative phase
The last 10 days of Preovulatory Phase

Secretory Phase = corresponds to Postovulatory Phase (last 14 days)

Progesterone drops

estrogen secondary follicle

progesterone corpus luteum

↳ vaso constriction

↳ increase in the size of endometrium

↳ increase the thickness of the endometrium

↳ bleeding

↳ increase of the blood supply + spiral arteries

↳ arteries → more spiral and elongated

↳ destruction of stratum functionalis

↳ increase in the glands of the endometrium

↳ gland increase in size + full of secretion

functionalis

↳ stratum basalis

generation of eggs

If pregnancy occurs, corpus luteum ^{transform} corpus luteum of pregnancy $\xrightarrow{\text{continue}}$ Progesterone

As a result, the endometrium ^{transform} decidua of pregnancy?? to receive blastocyst (which reaches the uterine cavity) after fertilization 6 days.

C. The decidua has three parts :

-Decidua is the endometrium of pregnancy which is divided into three parts:

- 1. Decidua basalis:** between the fetus and myometrium. It will form the maternal part of the placenta
- 2. Decidua capsularis:** covers the rest of the fetus.
- 3. Decidua parietalis:** lines the uterine cavity.

