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## Embryology Lab



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### Pre-natal maturation -

1 - **proliferation**: during early fetal life, oogonia proliferate by mitosis giving daughter oogonia each contains diploid number of chromosomes (44 autosome + 2 x)

2 - **Growth**: each daughter oogonium increases in size to form primary oocyte which contains 2N chromosomes (44 autosome + 2 x)

The primary oocyte, together with its surrounding flat epithelial cells is known as **primordial follicle**. When flat surrounding cells become cuboidal the follicle is now known as **primary follicle**.

### Important Notes: -

\* All oogonia enlarge to form primary oocytes before birth -

\* Primary oocytes begin first meiotic division before birth, but the completion of prophase doesn't occur till adolescence

post-natal maturation :

-- **At birth:** all 1 ry oocytes have reached 1<sup>st</sup> meiotic division & remain dormant till puberty under the effect of **oocyte maturation inhibitor** which is a substance secreted by the follicular cells

-- **At puberty:** :

1-1<sup>st</sup> meiotic division is completed shortly before ovulation. :

The 1 ry oocyte divide by meiosis to give 2 ry oocyte (N) and 1<sup>st</sup> polar body that degenerates at the perivitelline space

2-2<sup>nd</sup> meiotic division, occur **after ovulation and only if fertilization occurs**. The the 2ry oocyte divide by second meiosis to give mature haploid ovum and 2<sup>nd</sup> polar body

## OVULATION

- It is the process of discharge of secondary oocytes from the mature graffian follicle in the ovary.
- -hormone responsible for ovulation LH from anterior pituitary gland.
- -after ovulation, the follicle changes in to corpus luteum.



## Egg types according to yolk amount and distribution

### Function of the yolk

Form of storage of food

Influences the differentiation of ooplasm and cleavage

Determines the size of egg

Influences morphogenetic movements of blastomeres during gastrulation

It's amount governs the nature of development in egg

- Direct, eg level stage
- Indirect, eg yolkless stage

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