

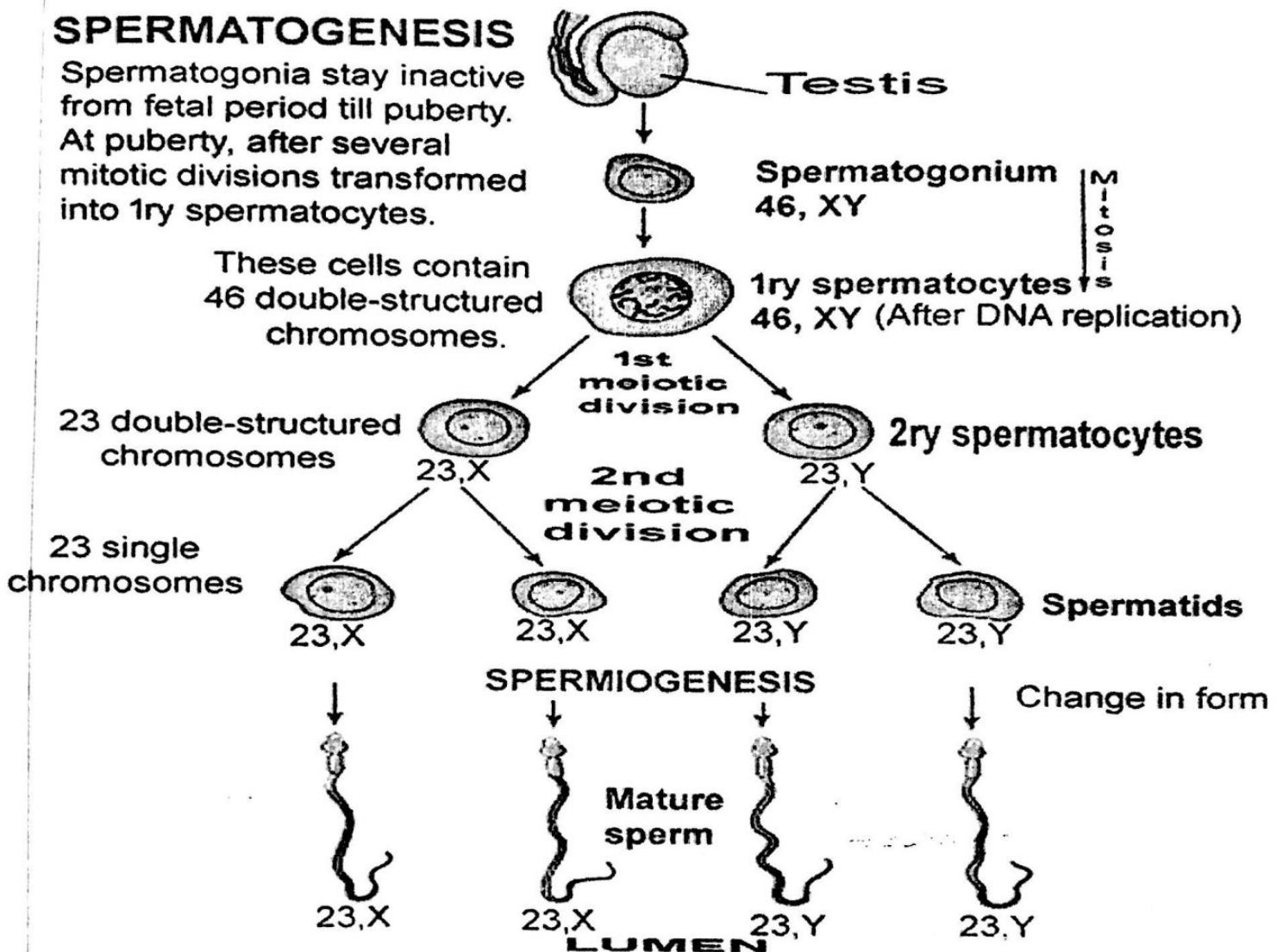
embryo slide (5)

50

SPERMATOGENESIS

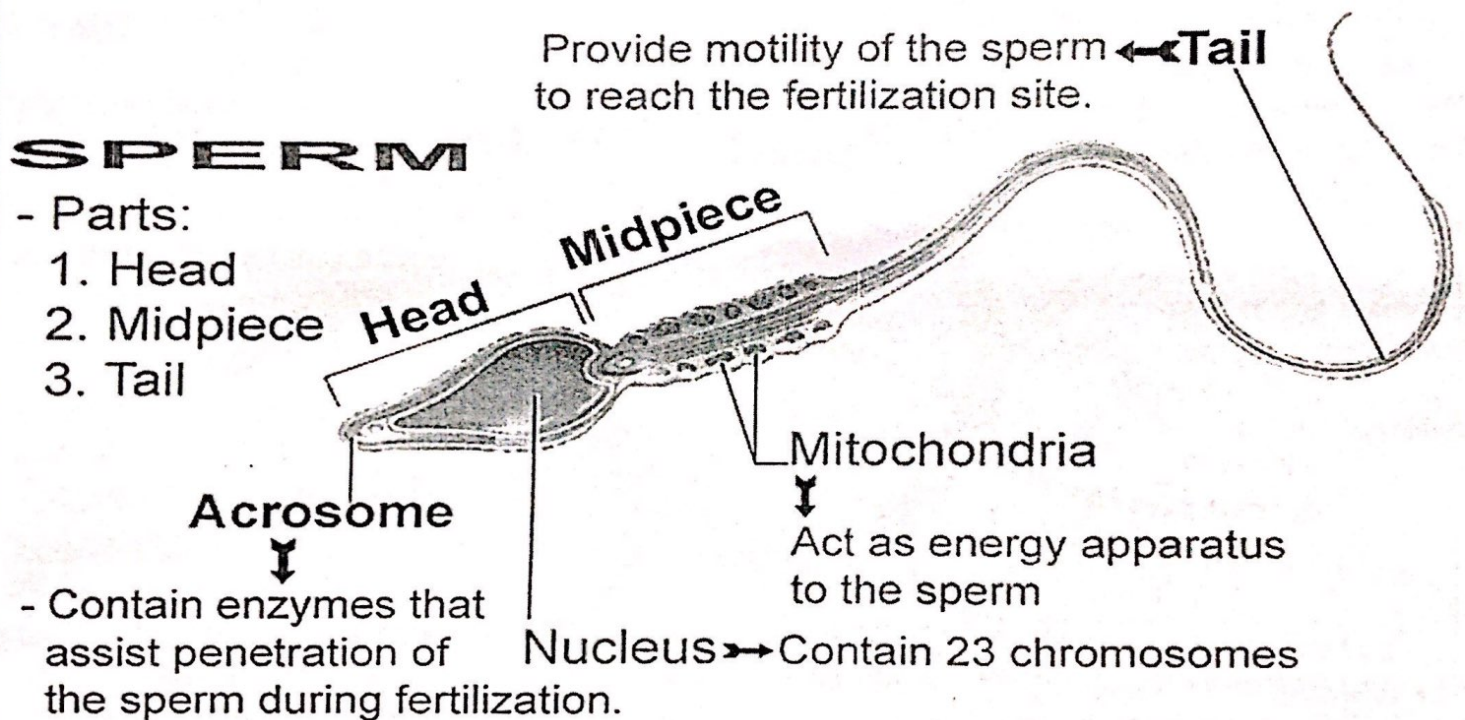
Spermatogonia stay inactive from fetal period till puberty. At puberty, after several mitotic divisions transformed into 1ry spermatocytes.

These cells contain 46 double-structured chromosomes.



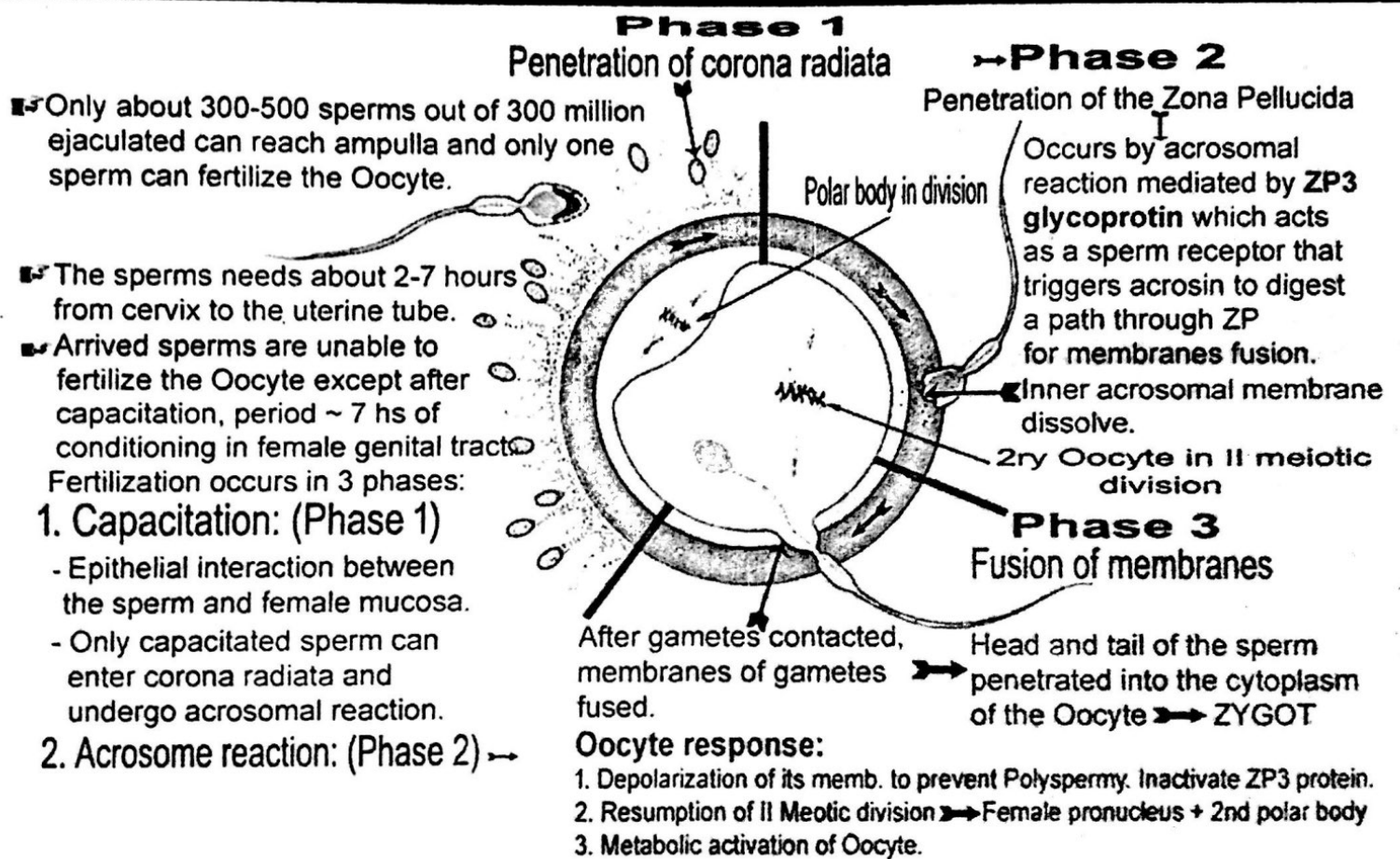
Spermatogenesis

Transformation of Spermatogonia into mature sperm that begins at puberty into old age.



Fertilization

A process by which haploid male gamete fuse with female gamete to give single diploid nucleus. Normally occurs 12-24 hours after ovulation.



Results of fertilization

1. Restores diploid number of chromosomes.
2. Resumes **II (Metaphase II)** meiotic division.
3. **Sex determination:**

The embryo's chromosomal sex is determined at fertilization by the kind of sperm (X or Y) that fertilizes the ovum.

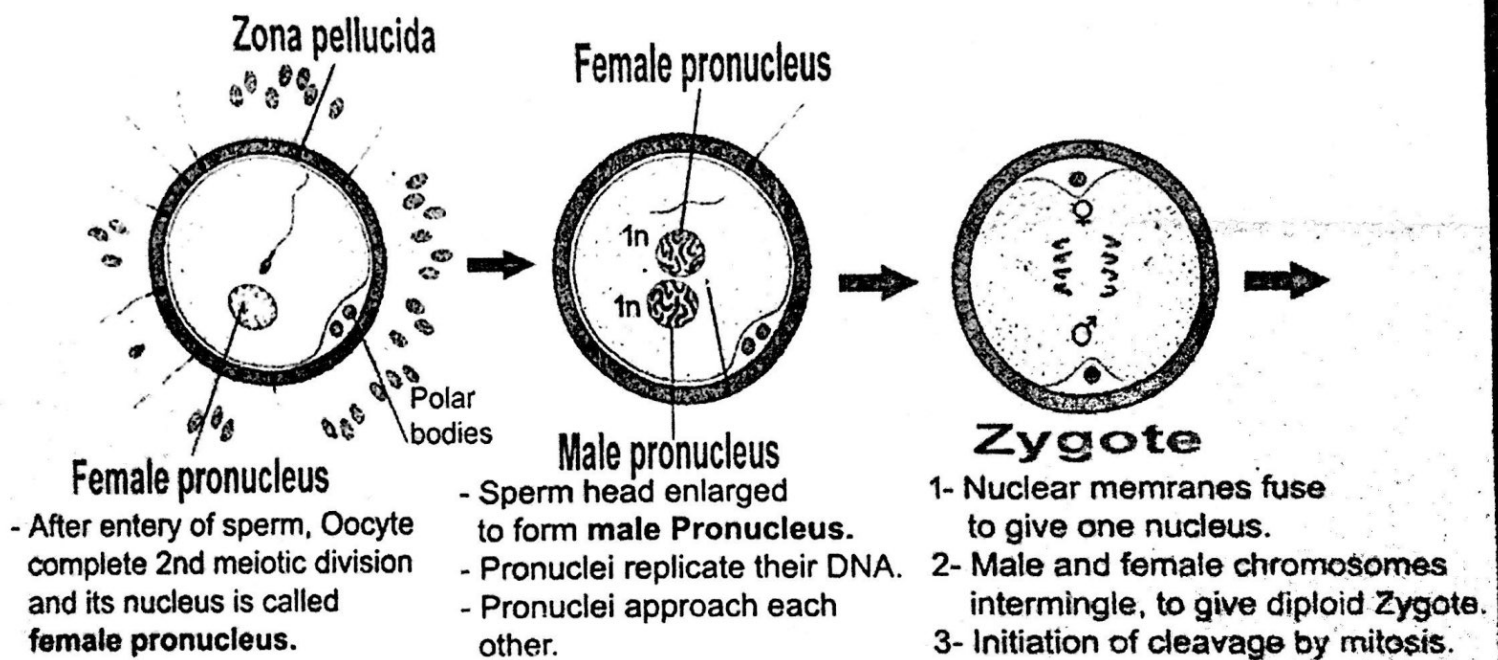
Fertilization by an X- sperm \Rightarrow XX zygote \Rightarrow Female.

Fertilization by an Y- sperm \Rightarrow XY zygote \Rightarrow Male.

➤ Therefore, **father** who determines the sex of the embryo.

4. Initiates **cleavage** (Partitions) ~ 24h after fertilization.

Formation of Zygote

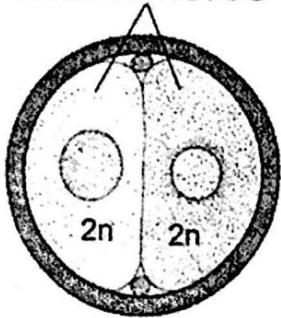


Cleavage

As soon as the zygote formed, it will undergo rapid multiple mitotic divisions that collectively called cleavage.

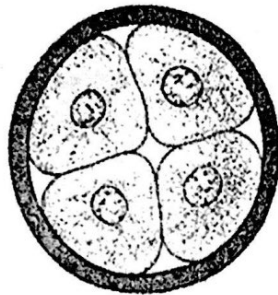
Cleavage occurs as the zygote travels to the uterus and partitions (go halves on) into many identical cells (blastomeres) .

Blastomeres Mere = قسيمي



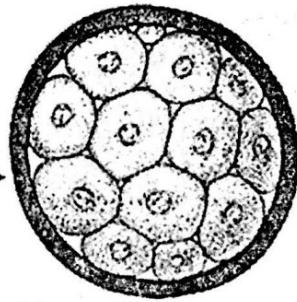
2-cell stage

- Zygote undergo rapid mitosis within its ZP to give 2 halves (2 daughter cells) each called Blastomere.



4-cell stage

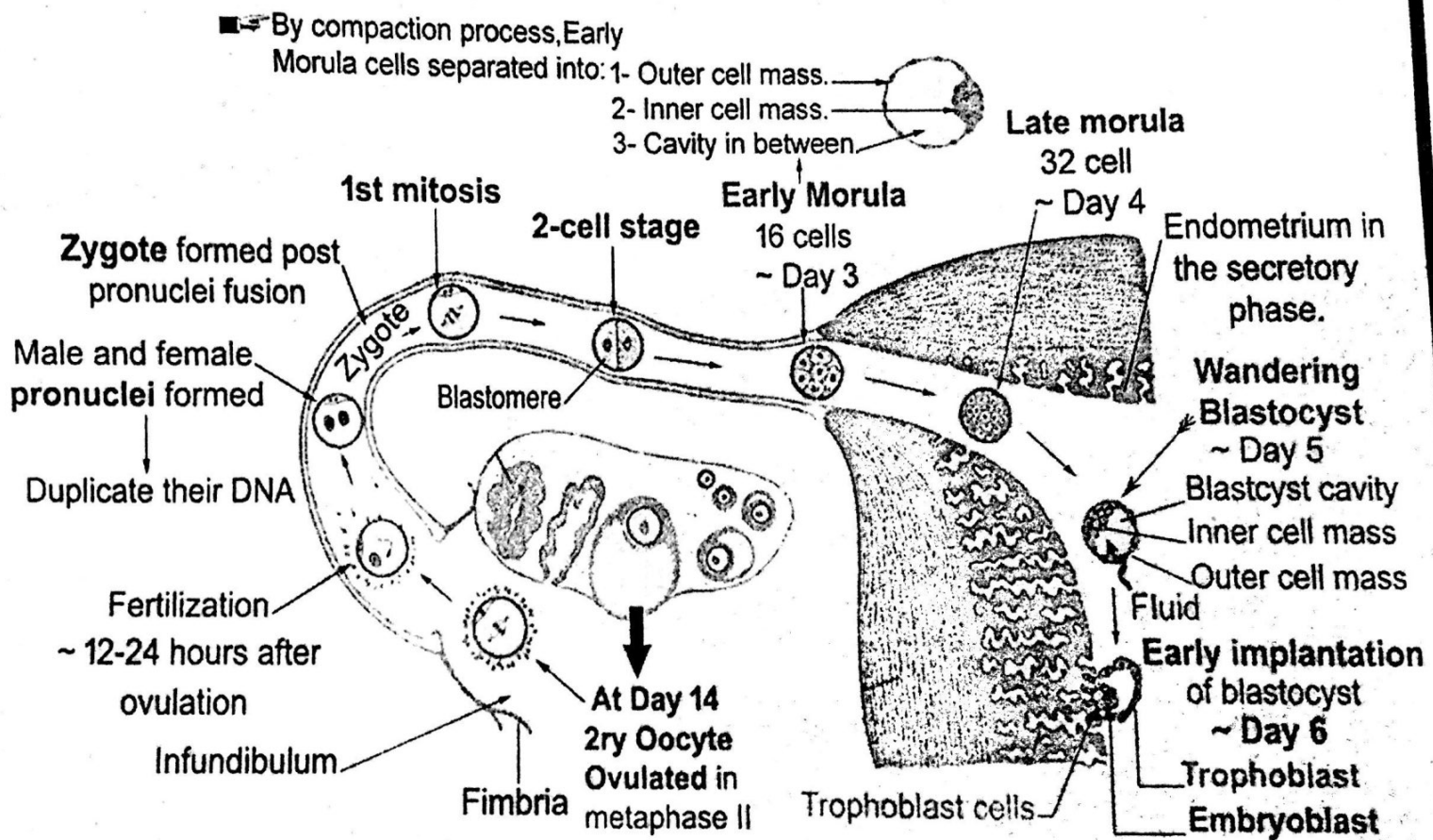
8-cell stage
Cells are loosely connected with each other.



16-cell stage ~ Day 3

Tightly connected cells forms a ball of compacted identical cells called → Early Morula (mulberry)
A spherical structure of identical cells.

Ovulation to implantation



Blastocyst & Implantation

