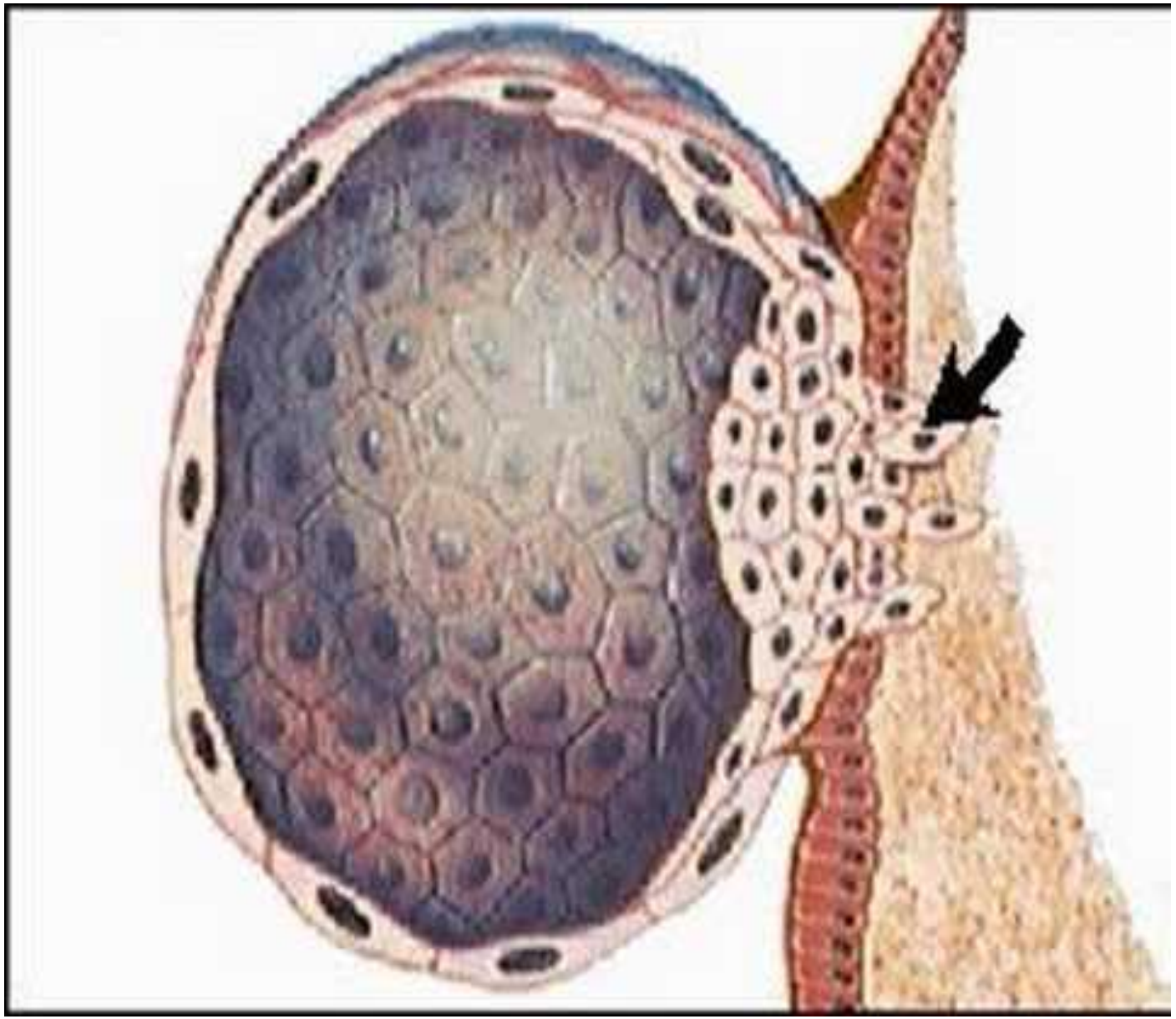
# EVENTS OF THE 1ST WEEK

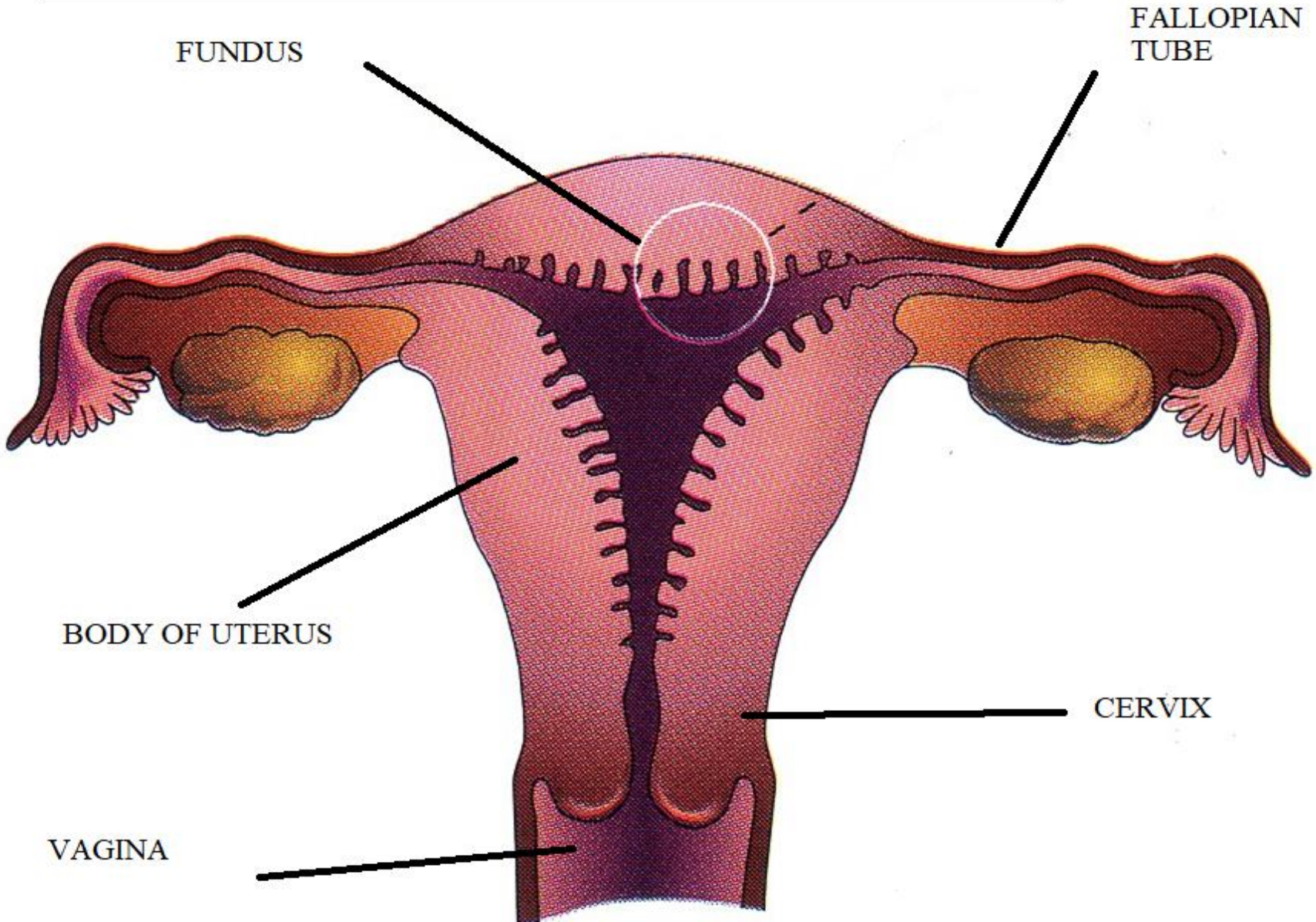



BY

DR ABULMAATY MOHAMED
ASSISTANT PROFESSOR
ANATOMY & EMBRYOLOGY
MUTAH UNIVERSITY

REV.

# FEMALE GENITAL SYSTEM



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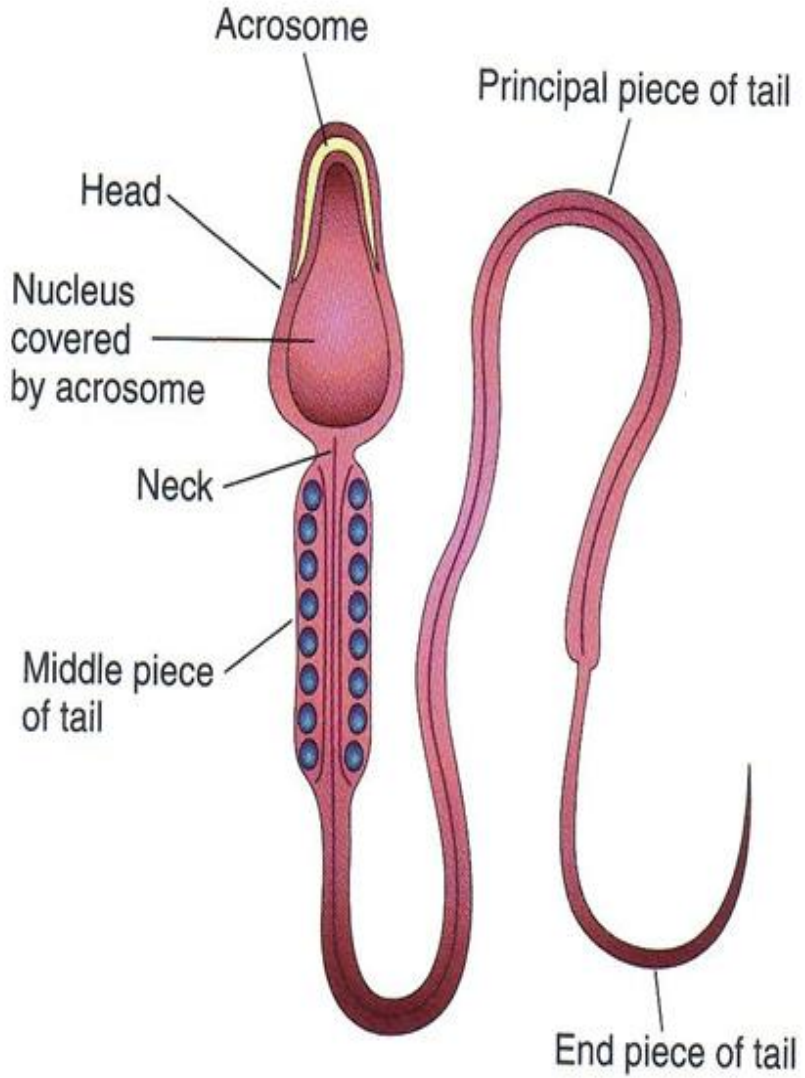
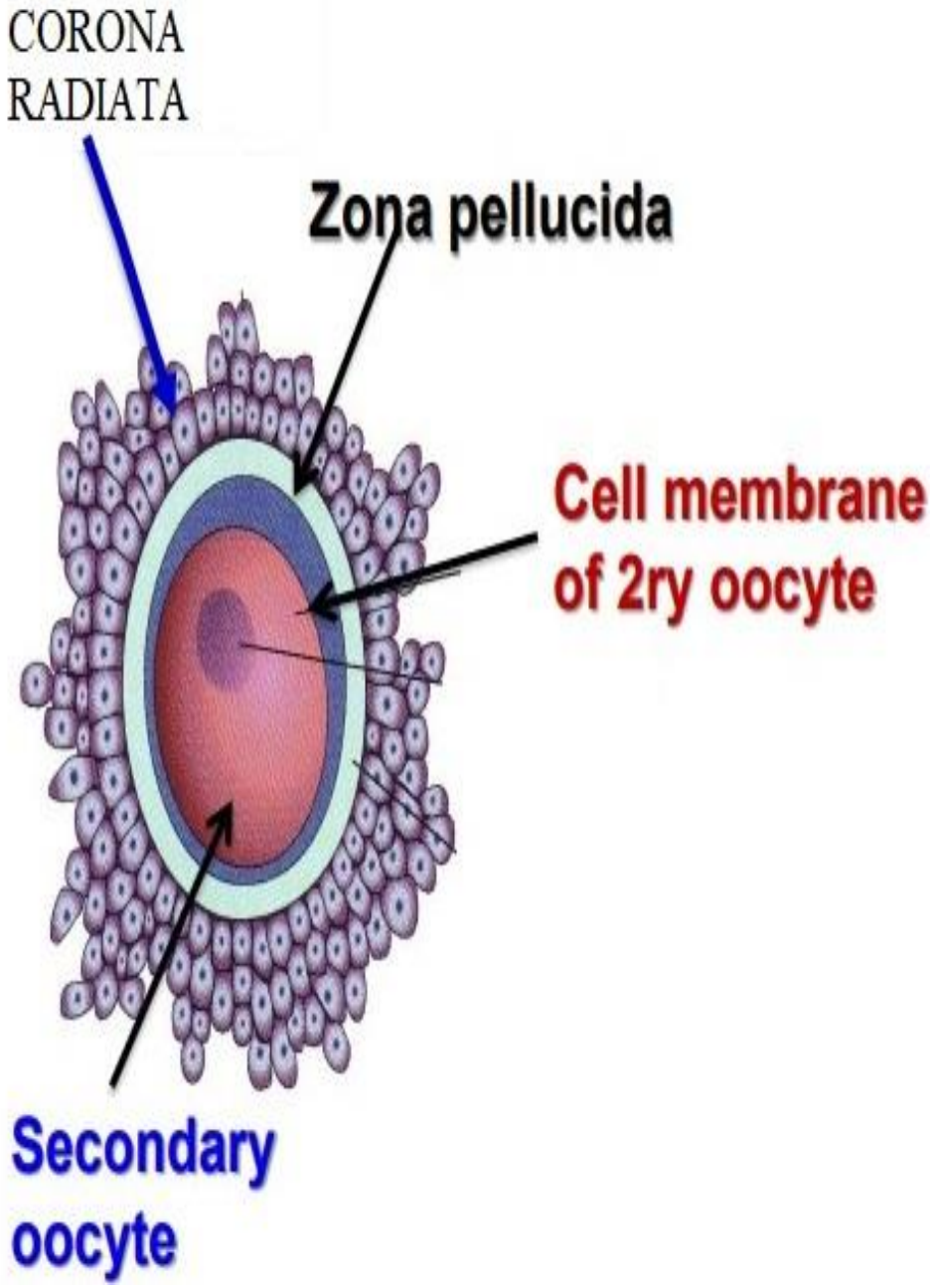

Acrosome
Principal piece of tail
Head
Nucleus
covered
by acrosome
Neck
Middle piece
of tail
End piece of tail

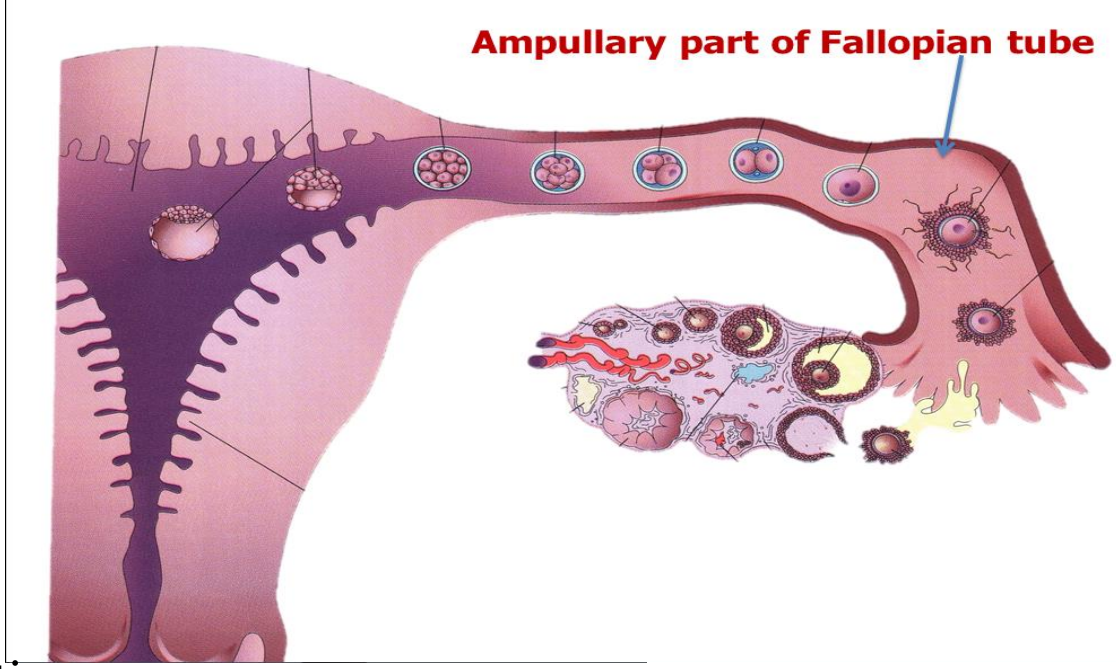

CORONA
RADIATA
Zona pellucida
Cell membrane
of 2ry oocyte
Secondary
oocyte

# FERTILIZATION

**Def.:** Fusion of sperm & ovum to form zygote

**Site:** ampulla of uterine tube

from 200 – 300 million sperms ejaculated in vagina
only about 500 reach Fertilization site
they must undergo 2 processes to be able for fertilization.




## A – Capacitation:

Def.:- Removal of glycoprotein coat & seminal plasma proteins that cover the acrosomal region to Permit acrosomal reaction.

Site:- In ♀ genital tract (isthmus of uterine tube)

Duration:- 7 hours.

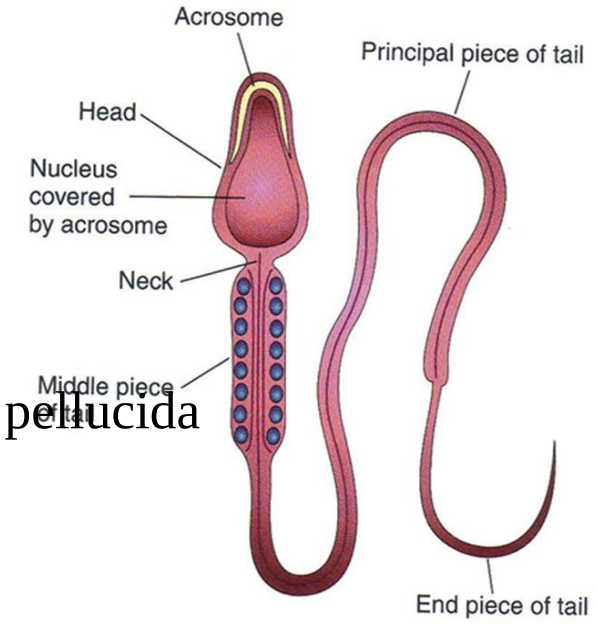
## B- Acrosomal reaction:

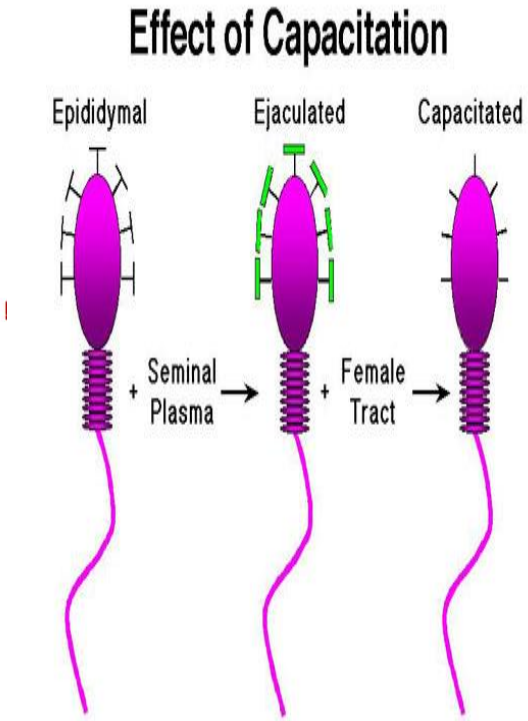
Def.:- release of the enzymes from acrosomal cap which are

**Hyaluronidase:** to penetrate corona radiate.

**Acrosin & trypsin – like substances**: to penetrate zona pellucida

Site:-Very close to secondary oocyte.



# FERTILIZATION

**Phases:**

**1-Penetration of corona radiate by**

Hyaluronidase enzyme (from 500 sperms).

Tubal mucosa enzymes.

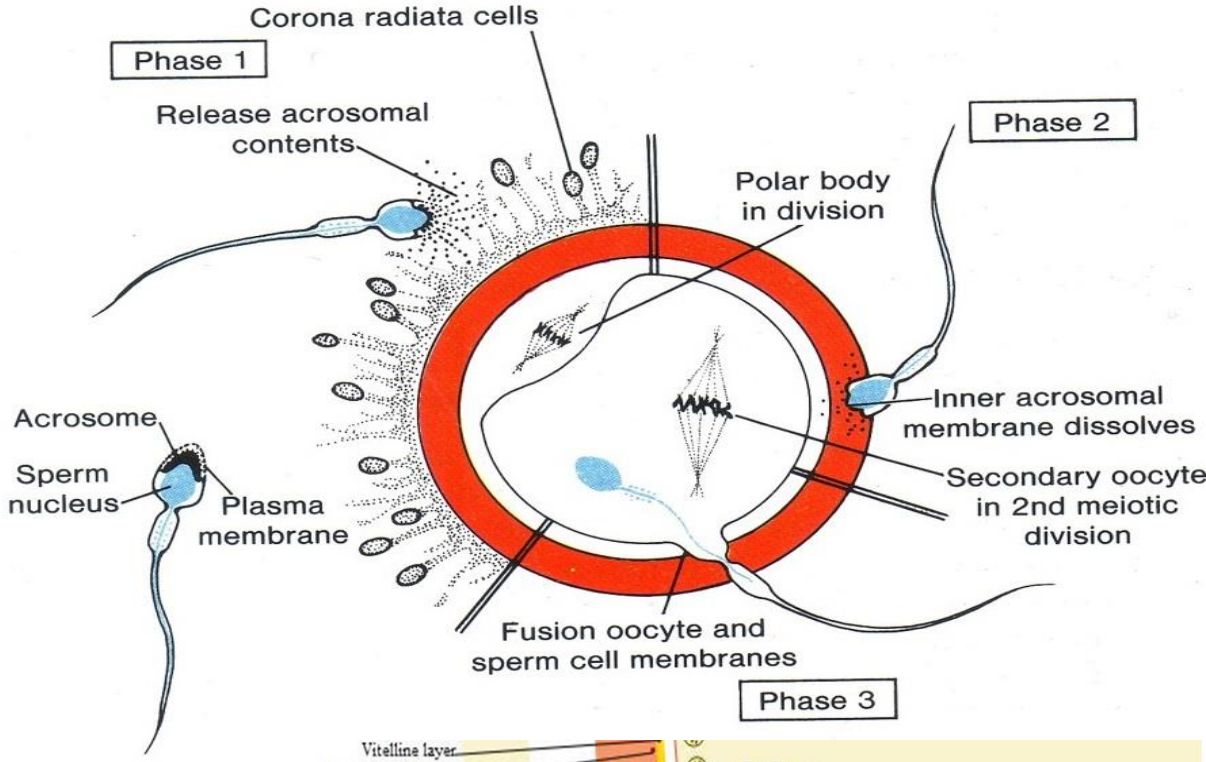
**2-Penetration of zone pellucida by:**

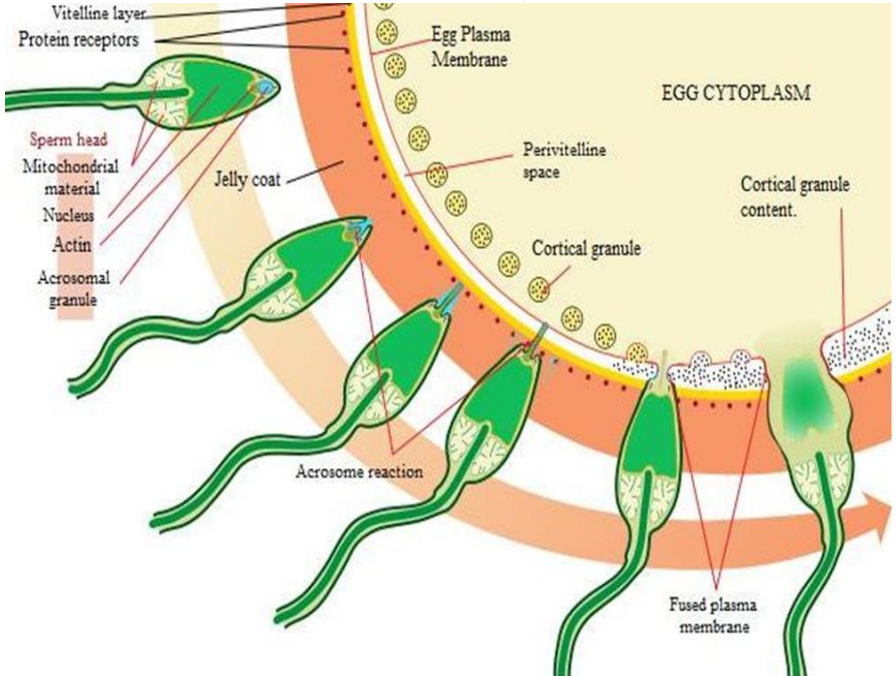
Acrosin & trypsin like substance (from 500 sperms).

The oocyte respond by

Formation of fertilization cone to engulf one sperm

Cortical & zona reaction: - which means release of cortical oocyte granules (containing lysosomal enzymes) these enzymes change the properties of zona pellucida to make it impermeable to other sperms.



# FERTILIZATION

**Phases:**

**3-Fusion of sperm & ovum:**

-Secondary oocyte completes 2nd meiotic division to form♀ pronucleus (mature ova) & 2nd polar body (absorbed)

- Contents of sperm (head, middle piece & tail) enter oocyte

- Middle piece & tail are absorbed by cytoplasm of ovum

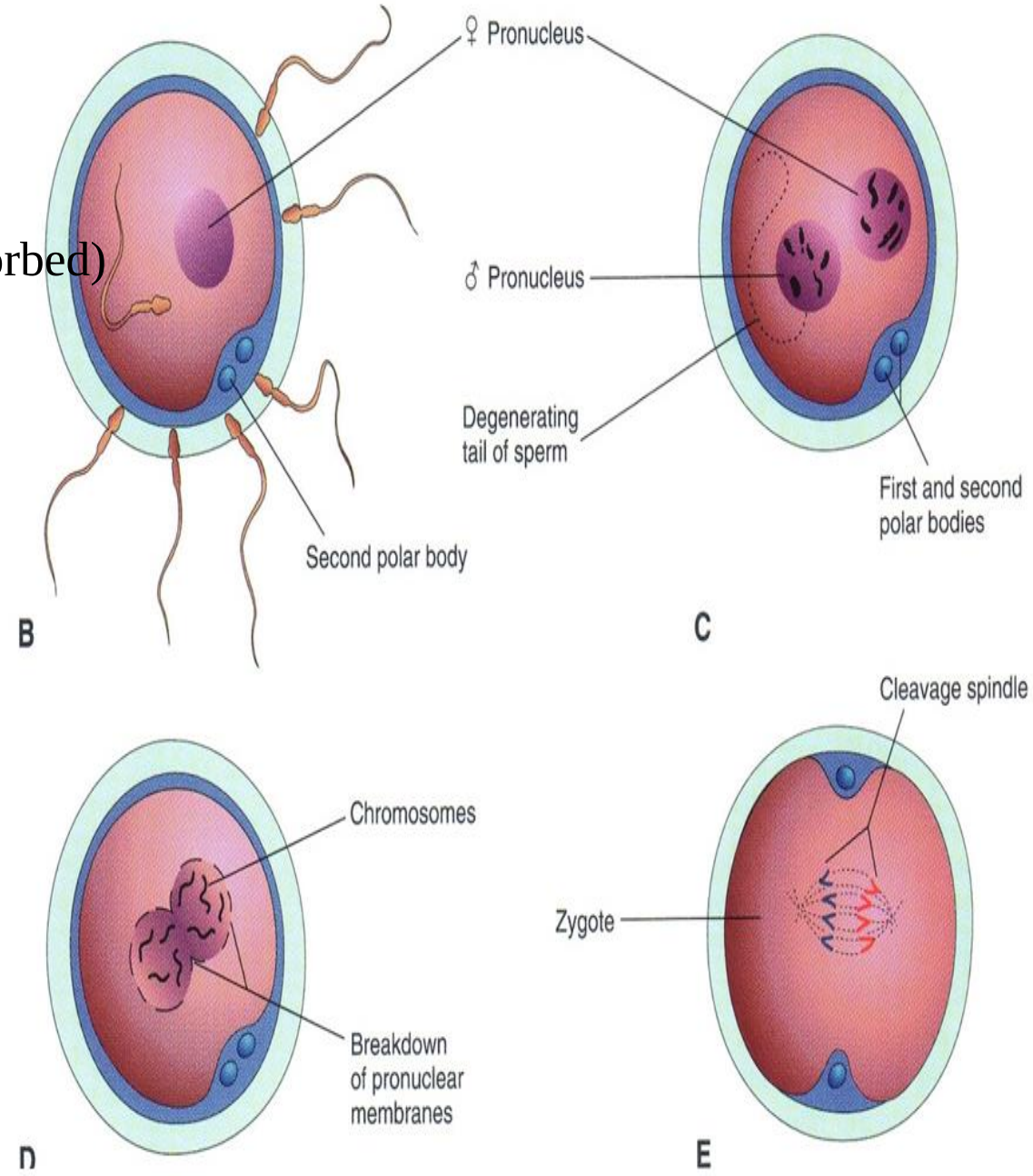
- Sperm nucleus swells to form ♂ pronucleus
The 2 pronuclei fuse in the center of the ova

**Results:**

1-Formation of the zygote (46 chromosome)

2-Determination of sex of embryo.

3-Start of cleavage.



# CLEAVAGE (SEGMENTATION)

**Def:** the zygote inside zona pellucida undergoes (successive mitotic divisions) to form smaller cells called blastomeres.

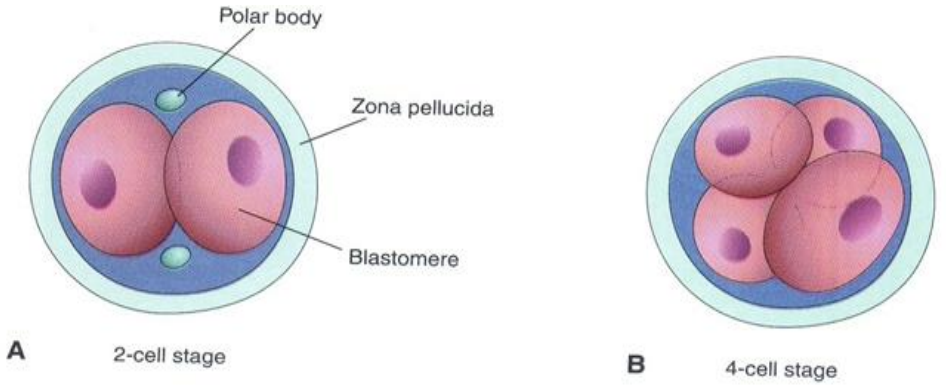
**Steps:** zygote form 2 cell stage in 30 hours

then 4 cell stage in 40 hours

then 8 cell stage

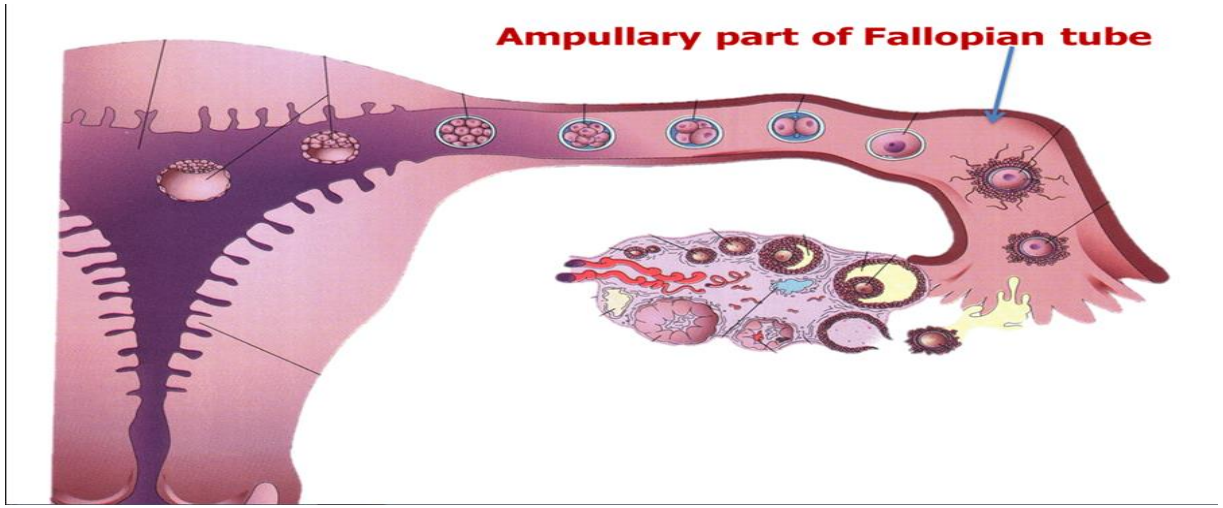
then 16 cell (morula) stage in 3 days

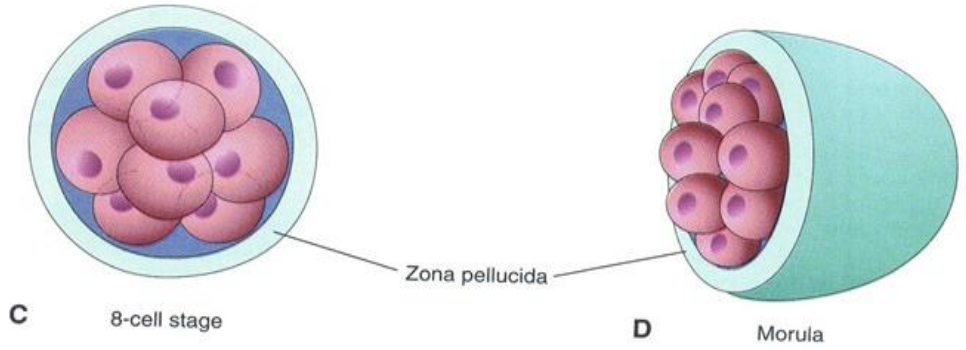
then 32 cell stage & so on.

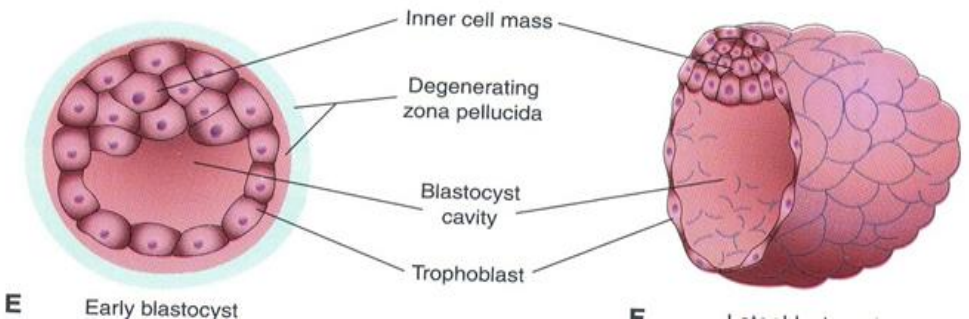



**Morula:**

**Def.:** 16 cell stage, formed at the 3rd day after fertilization & enter uterine cavity at 4th day after fertilization.



# CLEAVAGE (SEGMENTATION)

## Blastocyst

### Formation:

- In uterine cavity at 5th day after fertilization.
- Fluid pass from uterine cavity through Z.P to collect in small spaces, these spaces unite to form single cavity called **blastocele.**

### Structure:

a vesicle surrounded by zona pellucida & formed of

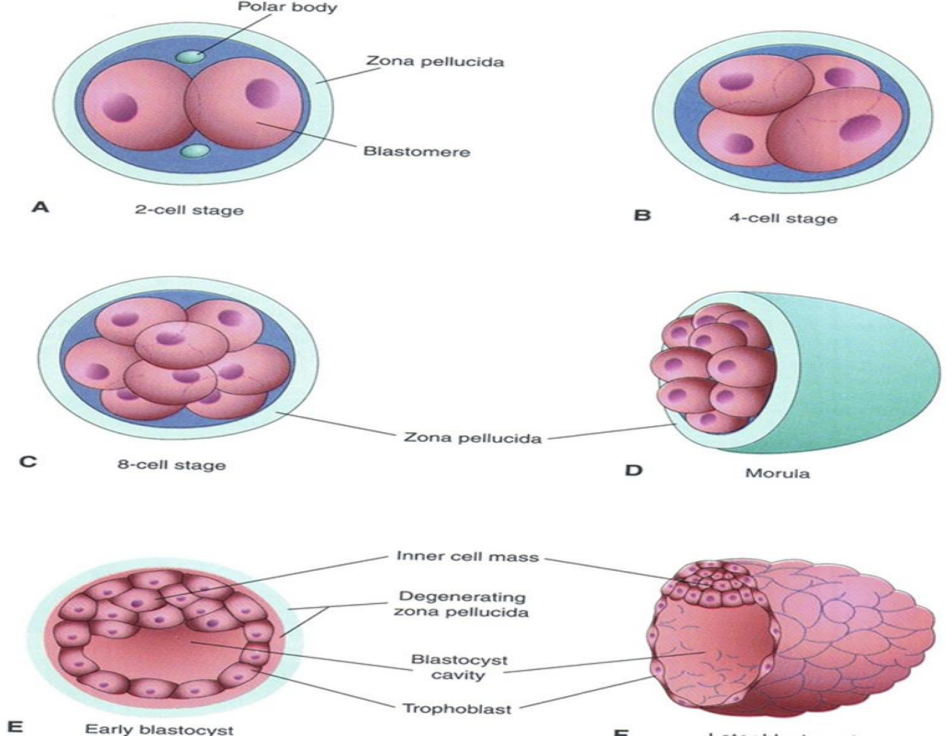
Outer cell mass (trophoblast):-

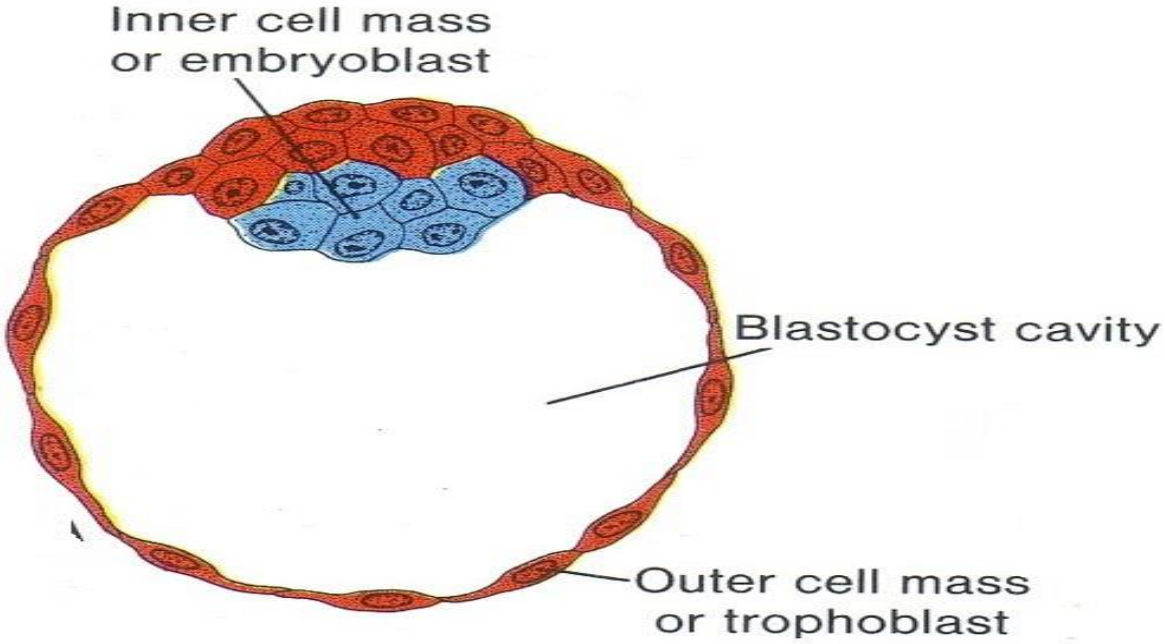
single layer of flat cells which will form the placenta

Inner cell mass (embryoblast):

at one pole of the cyst called embryonic pole & the other pole is called abembryonic pole.

A Cavity: -
filled with fluid called blastocele.



# IMPLANTATION

**Def.:-** embedding of (blastocyst) in endometrium.

**Normal site:**

upper part of post or ant. wall of uterus near fundus.

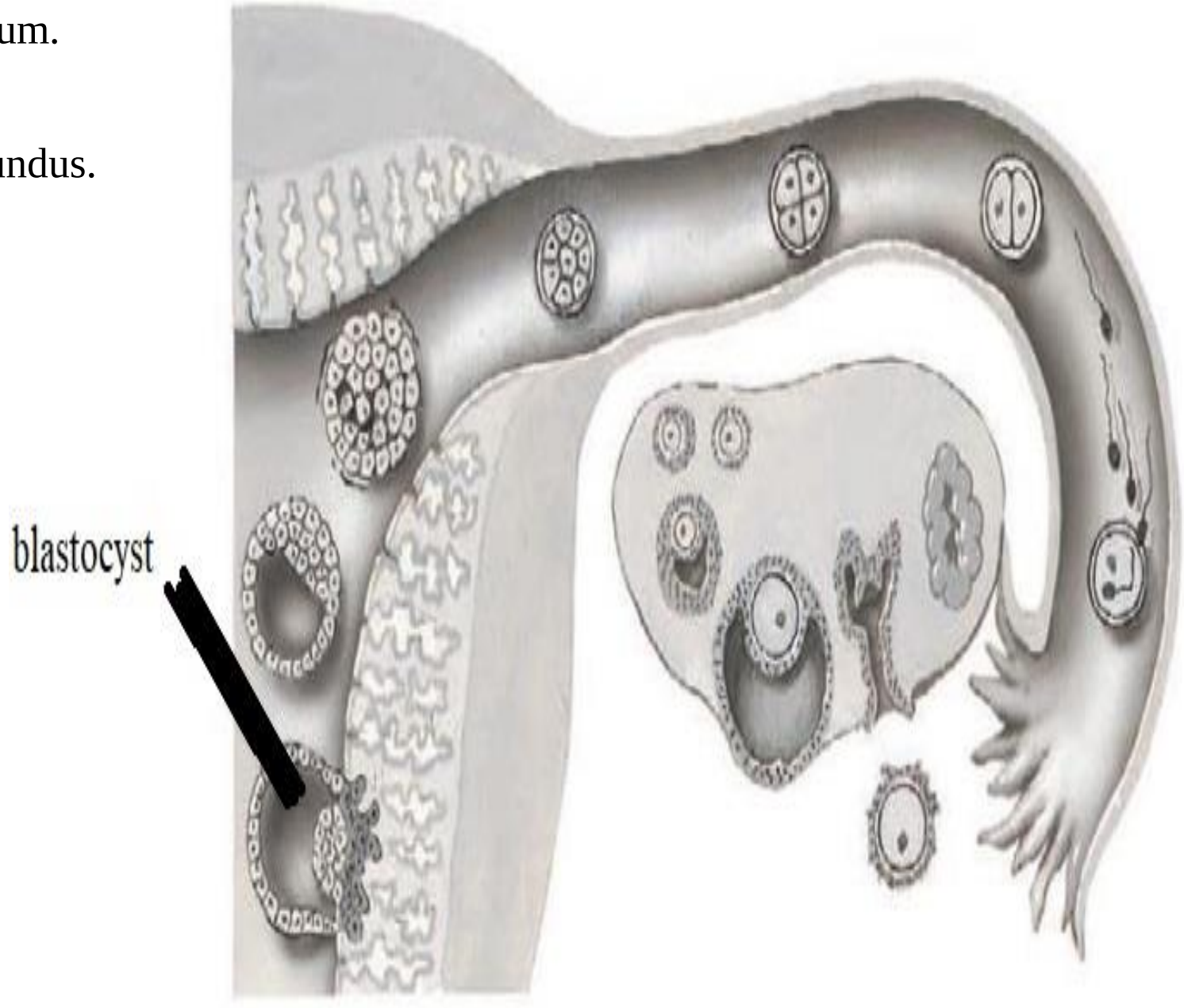
**Preparation for implantation:-** includes

1-by the 4th day after fertilization
the morula reaches the uterine cavity

2-by the 5th day after fertilization
the morula is transformed to blastocyst

3-by the 6th day after fertilization
the blastocyst loses its zona pellucida

**Start:-** by the 7th day after fertilization



# IMPLANTATION

**Steps:-**

1- The trophoblastic cells at embryonic pole of the blastocyst attach the blastocyst to the endometrium

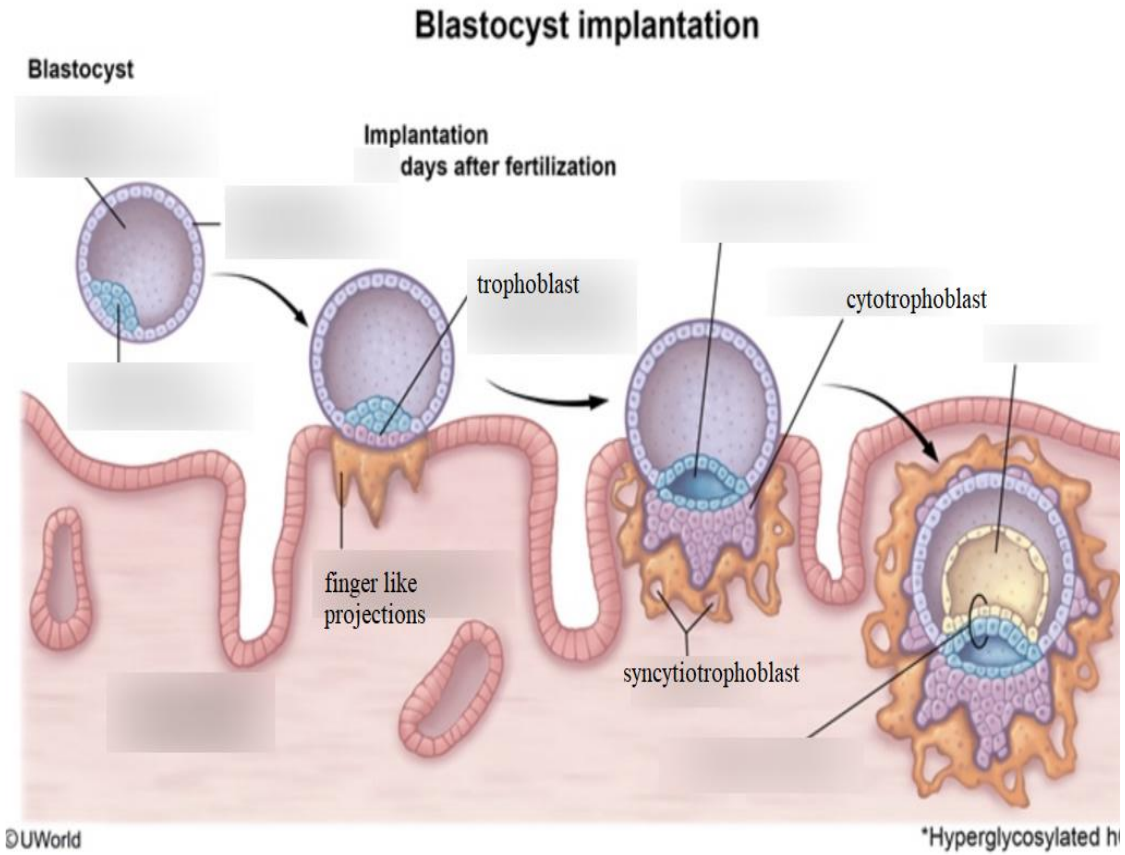
2-The trophoblastic cells at embryonic pole of the blastocyst form finger like projections to penetrate the endometrium

3-the trophoblastic cells at these projections differentiate into

Outer syncytiotrophoblast (has no cell boundaries) which erode the stroma of endometrium

Inner cytotrophoblast (the original trophoblast)

4-by the 11th day the blastocyst is completely embedded in the endometrium




5-the defect of endometrium at the site of implantation is closed by

coagulum of fibrin called operculum & proliferation of adjacent epithelium

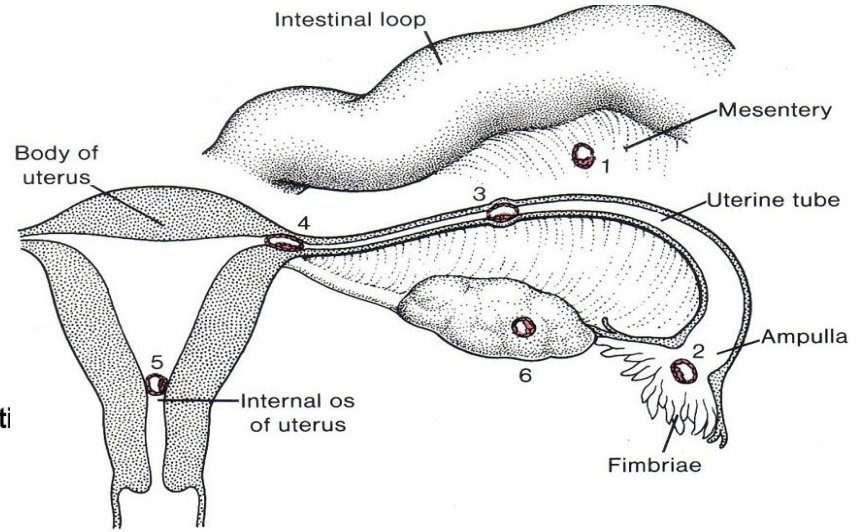
**End: -** by the 11th day after fertilization

# IMPLANTATION

**Abnormal sites:**

**Uterine (placenta praevia)**:- In lateral wall of uterus close to internal OS

**Extra uterine(ectopic pregnancy):** -outside the uterus

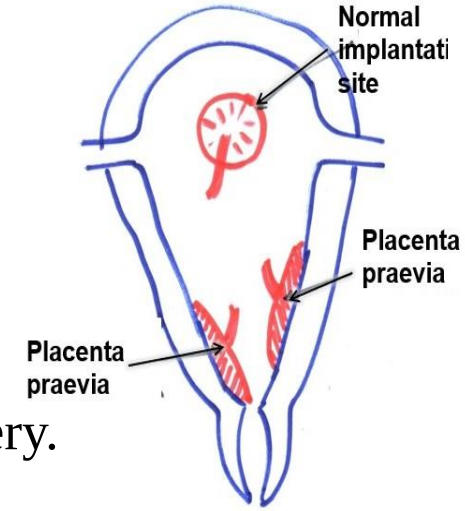



**Types**

1-In uterine tube (tubal preg.)

2-On ovary (ovarian preg.)

3-In abdominal cavity (abd. preg.)




**Decidua:**

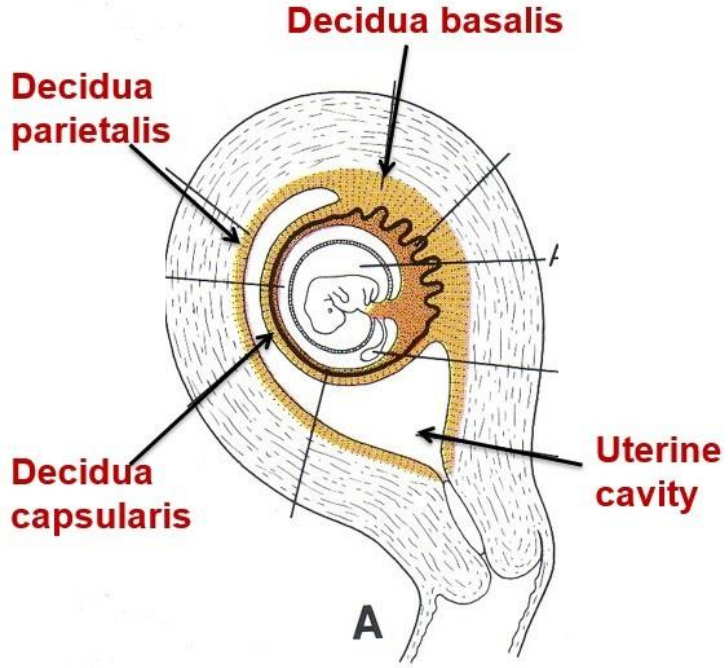
**Def.:** endometrium after implantation, it is shed in delivery.

**Parts:**

Decidua basalis: between implanted blastocyst & uterine wall.

Decidua capsularis: between implanted blastocyst & uterine cavity.

Decidua parietalis: lines wall of uterine cavity.



THANQ