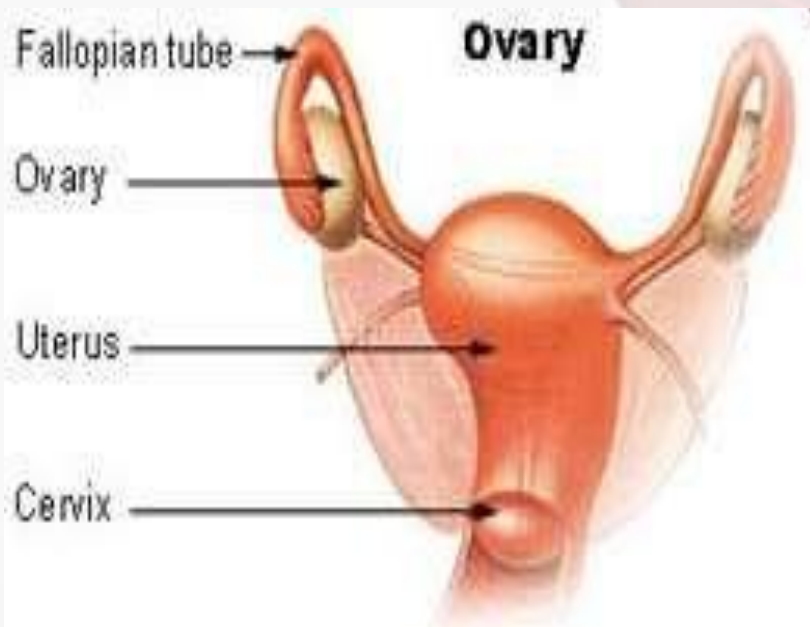


FETAL DEVELOPMENT & CONCEPTION

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NATURAL FERTILIZATION

Fertilization refers to the fusion of the egg (ovum) and sperm and usually takes place in the upper third of the fallopian tubes.



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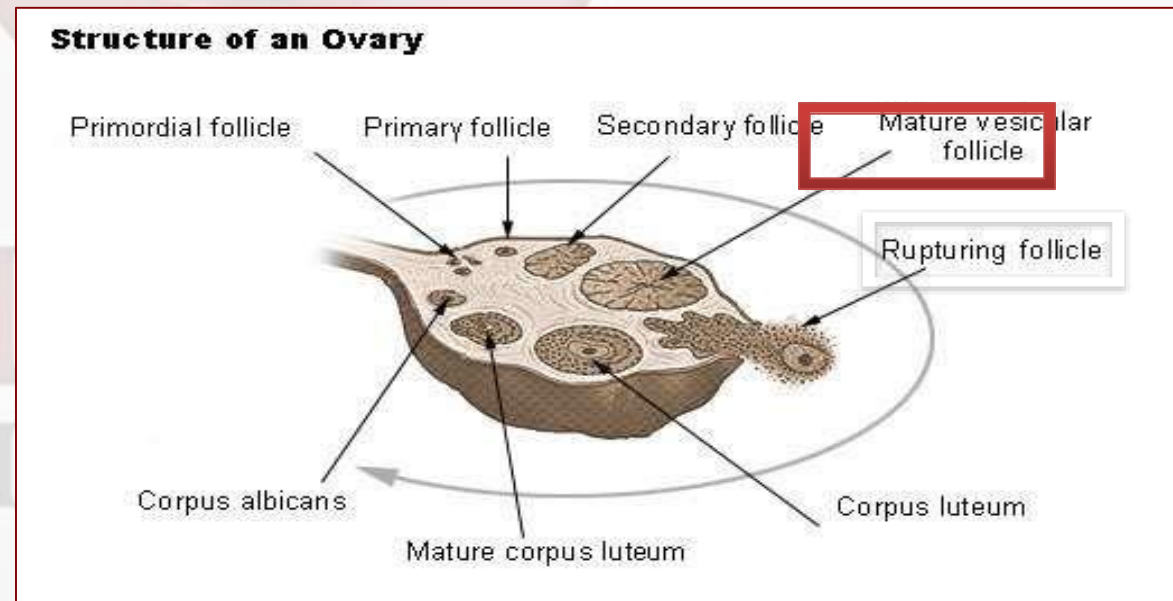
Course Code : BSCN3004

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Once a month, a woman releases an egg during the process of ovulation, which is part of the menstrual cycle.

Ovulation is triggered by the release of two hormones by the pituitary gland (a gland of the endocrine/hormonal system) and usually occurs during day 14 of an average 28-day cycle.

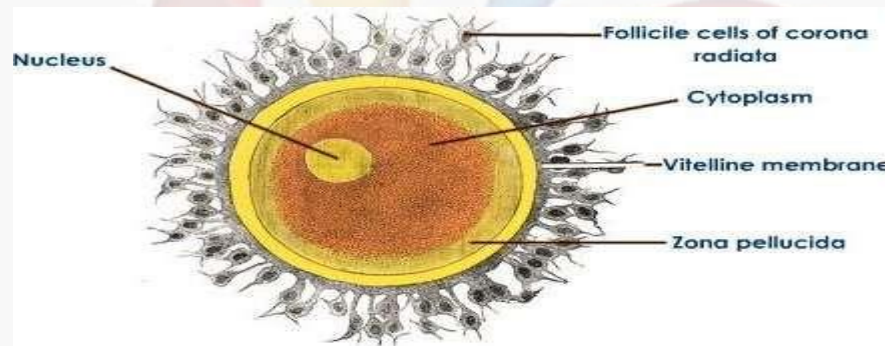
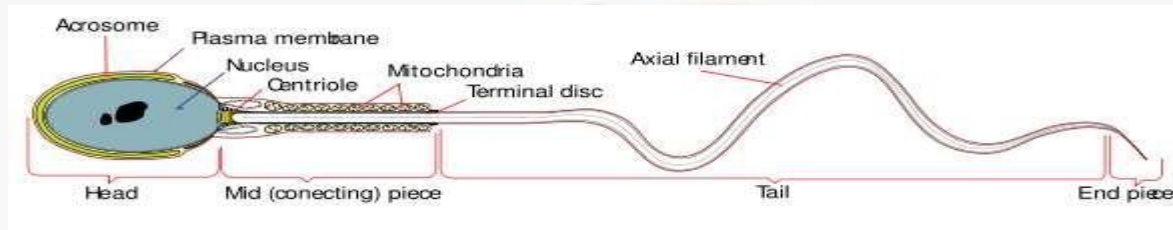
In humans, the fertile phase, or time during which a woman can become pregnant, occurs during the few days near ovulation.



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Following intercourse during this fertile phase, millions of sperm travel from the vagina to the uterus and into the fallopian tubes.

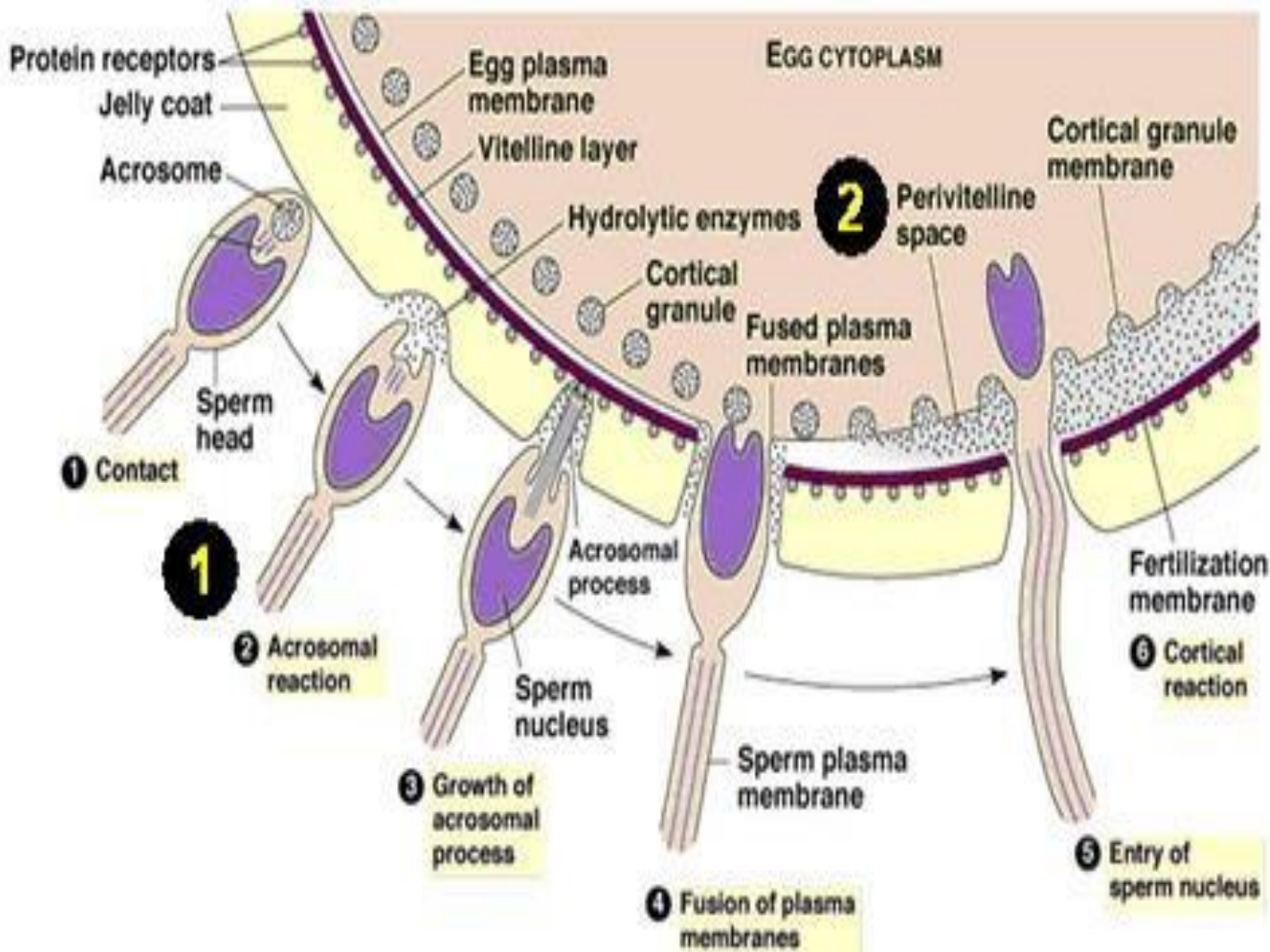
Several thousand sperm reach the egg and one will fertilize it.

When the sperm fuses with the egg it initiates a series of chemical changes that prevent any other sperm from entering.

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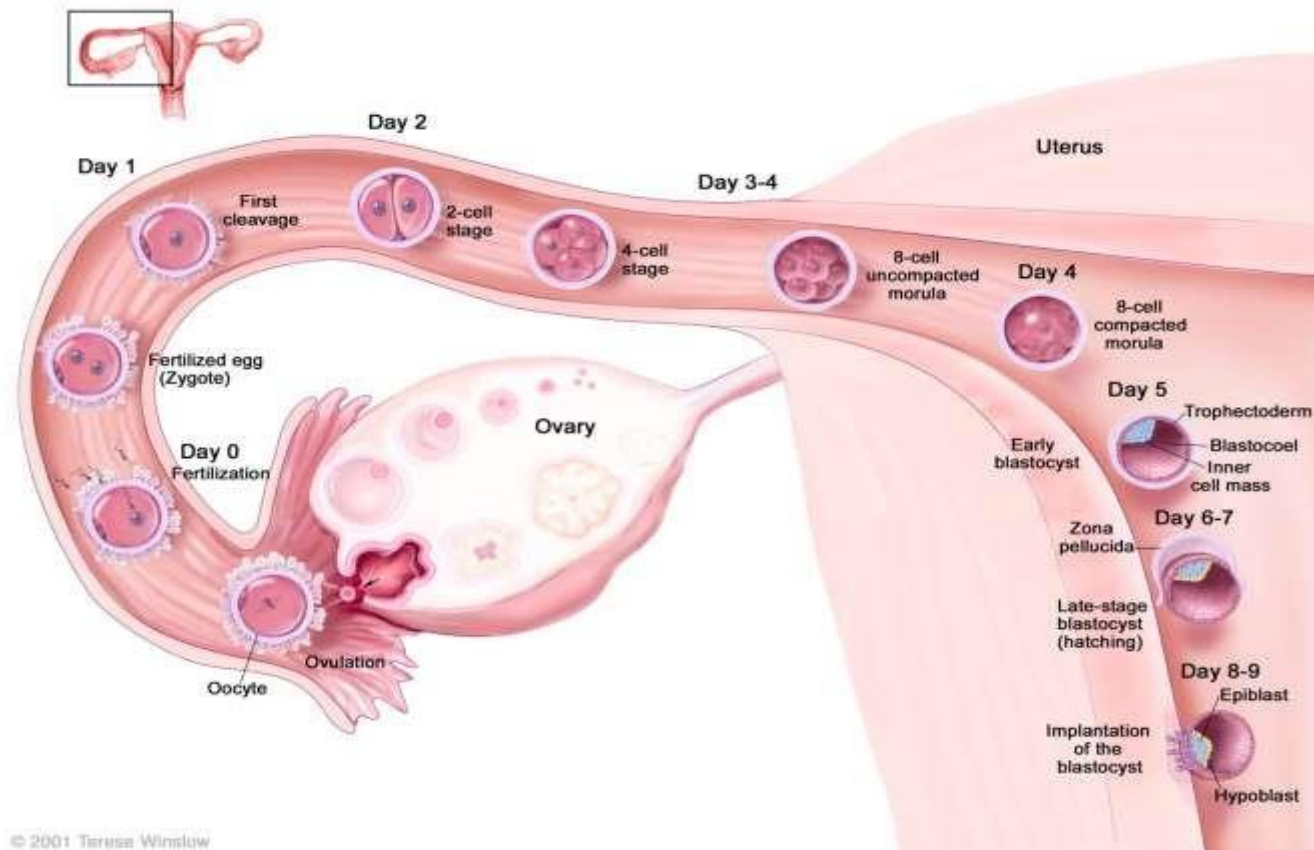
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As early as 12 hours after fertilization you can see the two bundles of genetic material (two pronuclei), one from each parent.

By 18-20 hours after fertilization, these pronuclei fuse, and what starts out as two cells becomes one (called a zygote)

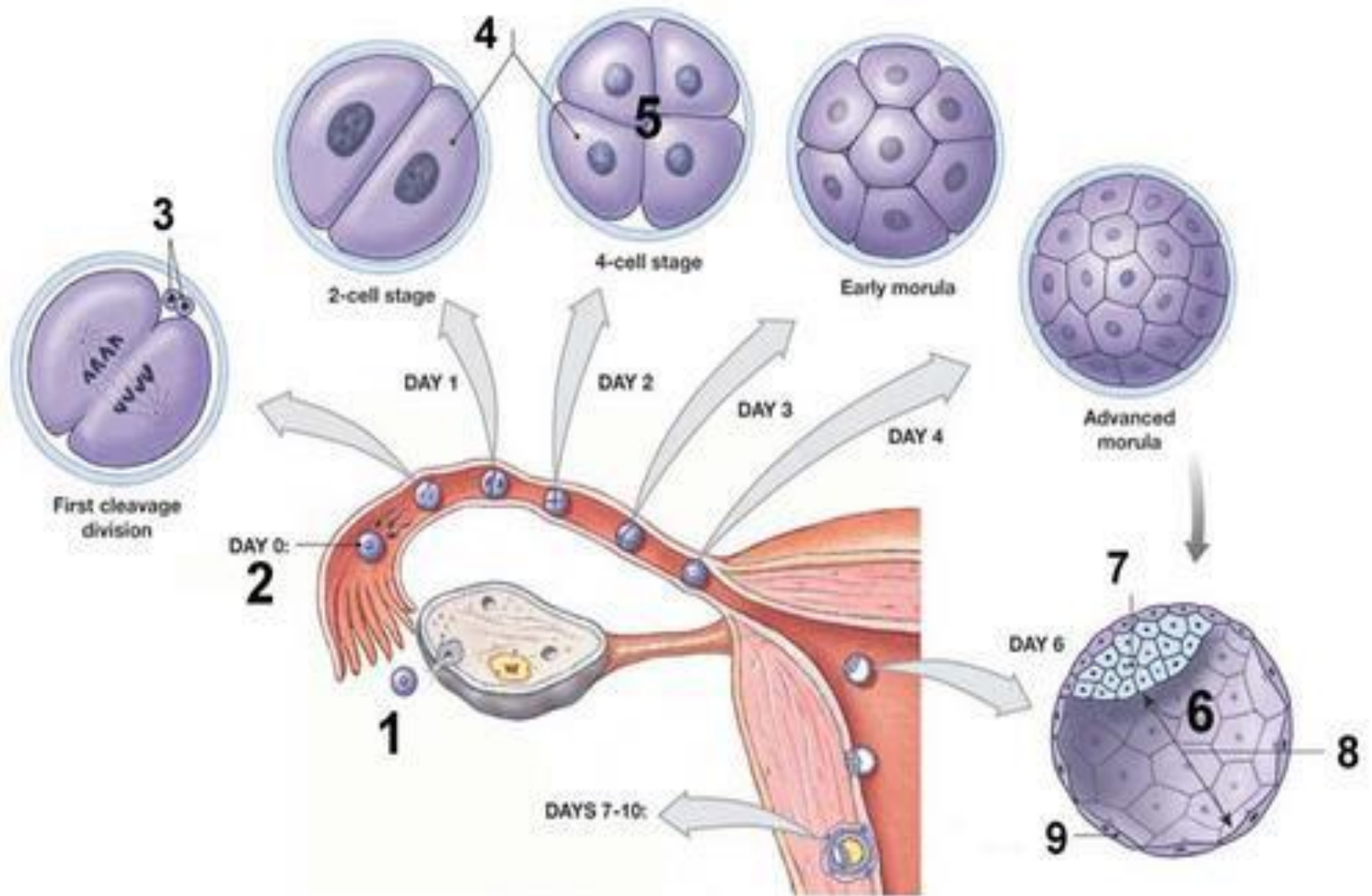
As the zygote travels down the fallopian tube towards the uterus, it begins a series of cell divisions:



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Program Name: B.Sc. Nursing

Embryo.



On day 2, the zygote has divided into two identical cells. At this stage it is called a 2-cell

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And then into four identical cells (also on day 2)



4-Cell Embryo

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By day 3, each of those four cells has divided again, making eight identical cells. This is the early **morula** (“**berry-like**” shape).



8-Cell Embryo

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The morula undergoes several more cell divisions (16, 32, 64-cells) and the individual cells are now indistinct.

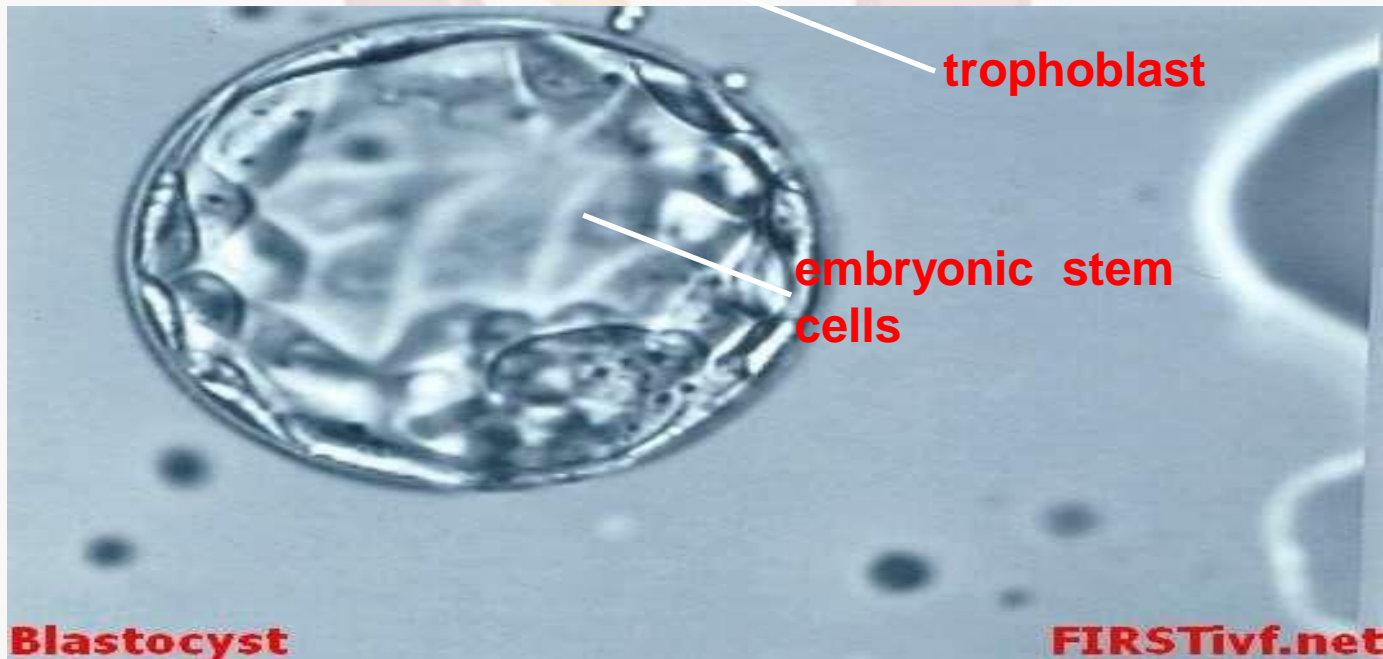


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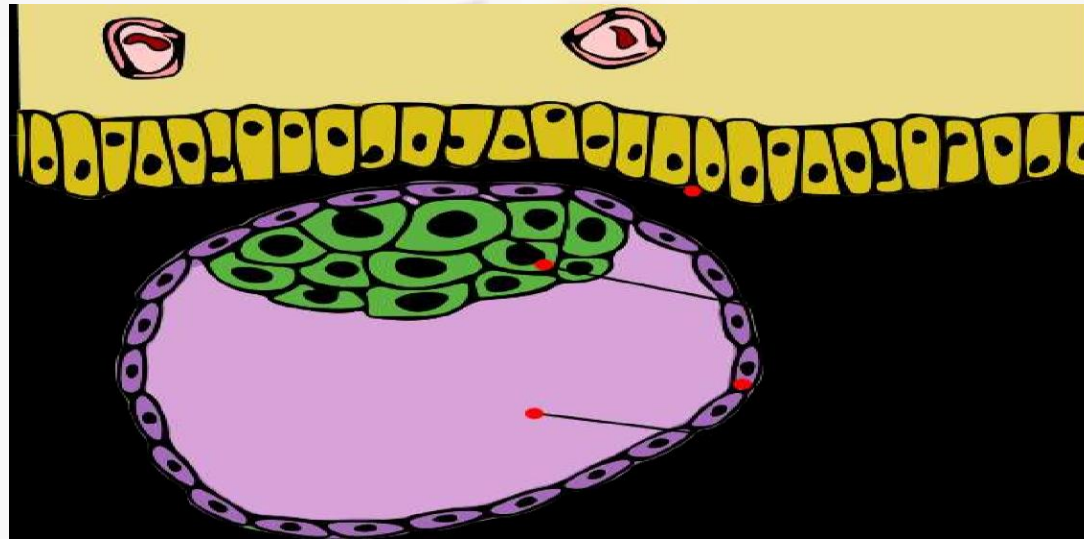
On day 5 fluid builds up inside the ball of cells making it hollow. This is the blastocyst.



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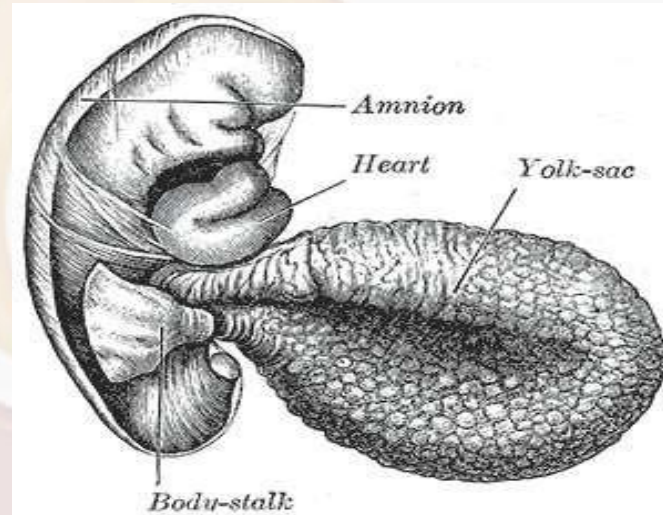
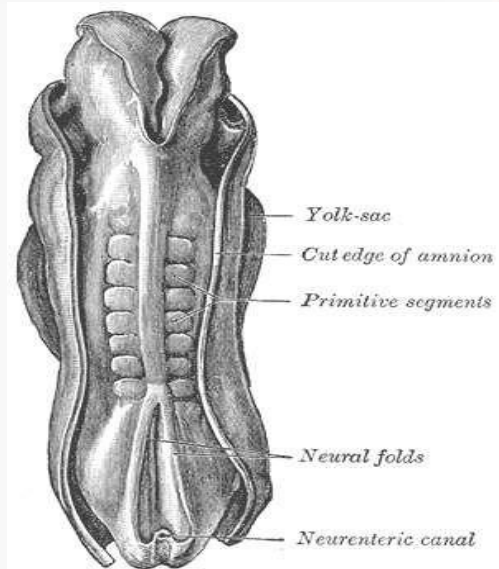


- Between days 6 and 14, implantation (the adhering of the blastocyst to the wall of the uterus) occurs.
- The placenta also begins to form.
- At this stage, there are no more embryonic stem cells.

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- Between days 14 through 21, neurulation – the beginning of future nervous system – takes place.
- By day 24, the beginnings of the future face, neck, mouth, and nose occur.

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5 weeks



7 weeks



- Organogenesis, or organ formation, occurs during weeks 3 through 8. The primitive heart starts beating at 4 weeks.
- By week 8 the developing embryo has become a FETUS (although definitions of this timepoint vary, up to 10 weeks).

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- At 20 weeks, the fetus is roughly 11 inches long and weighs about 1 lb 10 oz.
- It can suck its thumb, yawn and stretch.
- The mother can now feel it moving (called “quickenings”).

BIRTH

A full-term pregnancy lasts 9 months, or 38 weeks.

After 22 weeks the fetus is considered viable. This means it could survive outside the uterus if there is a premature birth.



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