

PRE-NATAL DEVELOPMENT

Unit -1

EDU-HE-5026

B.A 5thsem(Hons)

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WHAT WE WILL LEARN

- PRE-NATAL DEVELOPMENT
- STAGES OF PRE-NATAL DEVELOPMENT

Pre-natal Development

- The stage before birth of the baby is known as
Pre-natal stage
- The duration of this stage is 280 days(9 months
10 days/ 10 lunar months)

Pre-natal Development

Definition

- Prenatal development refers to the process in which a baby develops from a single cell after conception into an embryo and later a fetus.

Stages of Prenatal Development

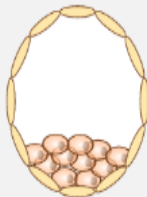
- The stage of prenatal development is broadly classified into
- Germinal stage(conception till 2nd week)
- Gestation stage(3rd week till birth of the baby)



High school biology

4. Fetal stage: Once the formed features of the embryo begin to grow and develop, the organism is considered a fetus. Differentiation and specialization of structures happens during this time

Human development overview



ZYGOTE

BLASTOCYST

EMBRYO

FETUS

Fertilization and development

Differentiation and apoptosis

During development, the number of cells must increase through division so that body axes, tissues, organs, and structures must form. Individual cells

Stages of Prenatal Development

Germinal stage/Period of zygote



Embryonic stage/ Period of Embryo



Fetal stage/ Period of Fetus

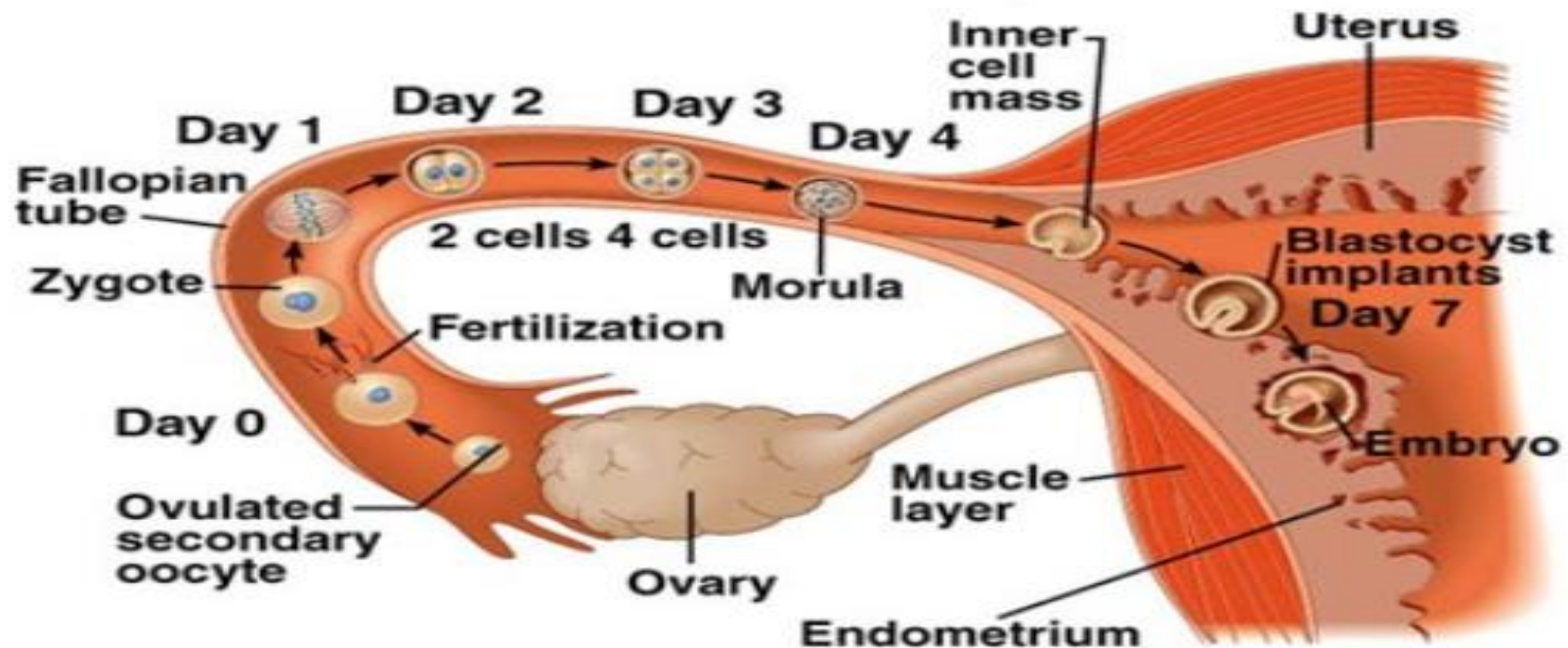


GERMINAL STAGE/PERIOD OF ZYGOTE

The Germinal Stage

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From ovulation to implantation

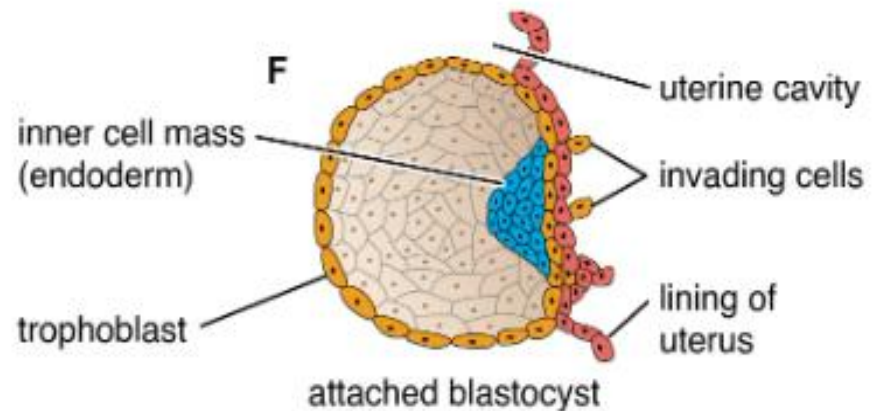
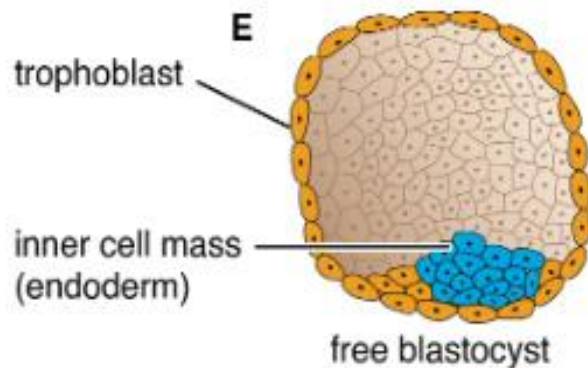


Germinal stage/Period of zygote

Cleavage of ovum



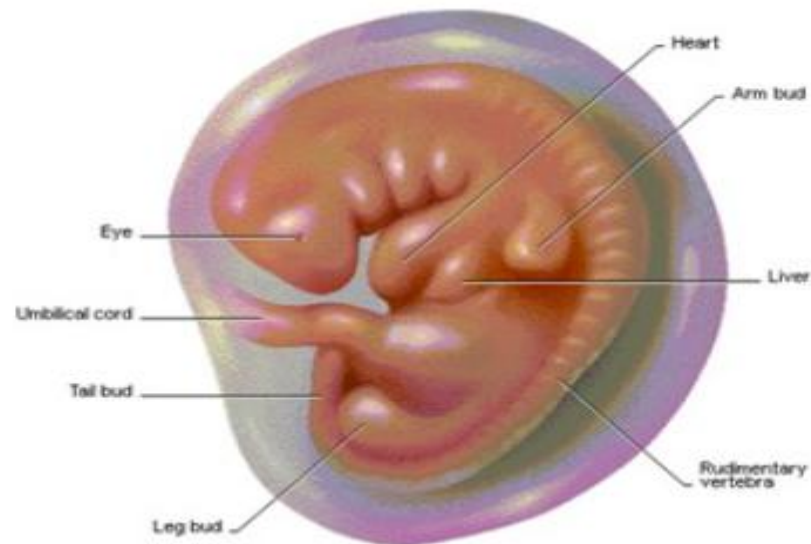
Blastocyst development



EMBRYONIC STAGE/ PERIOD OF EMBRYO

The Embryonic Stage

- The second Stage of Development
- 3rd – 8th week
- Amniotic Sac
 - Sac filled with amniotic fluid forms around the embryo in the uterus
- Placenta
 - Absorbs oxygen and nourishment from the mother to give to the baby
- Umbilical Cord
 - A long tube that connects the placenta and the baby (feels like a garden hose) carries nourishment to the baby and waste away to the placenta and then the mother's blood stream



EMBRYONIC STAGE/ PERIOD OF EMBRYO

Embryonic Development (weeks 4-8)

- Heart begins to beat
- Arm buds appear
- Week 4**
 - Liver, pancreas, and gall bladder start to form
 - Spleen appears
- Eyes start to form
- Leg buds appear
- Week 5**
 - Hands appear as paddles
 - Blood begins to circulate
 - Facial features start to develop
- Lungs start to form
- Week 6**
 - Fingers and toes form
- Hair follicles start to form
- Week 7**
 - Elbows and toes are visible
- Face begins to look human
- Week 8**
 - External ears start to form



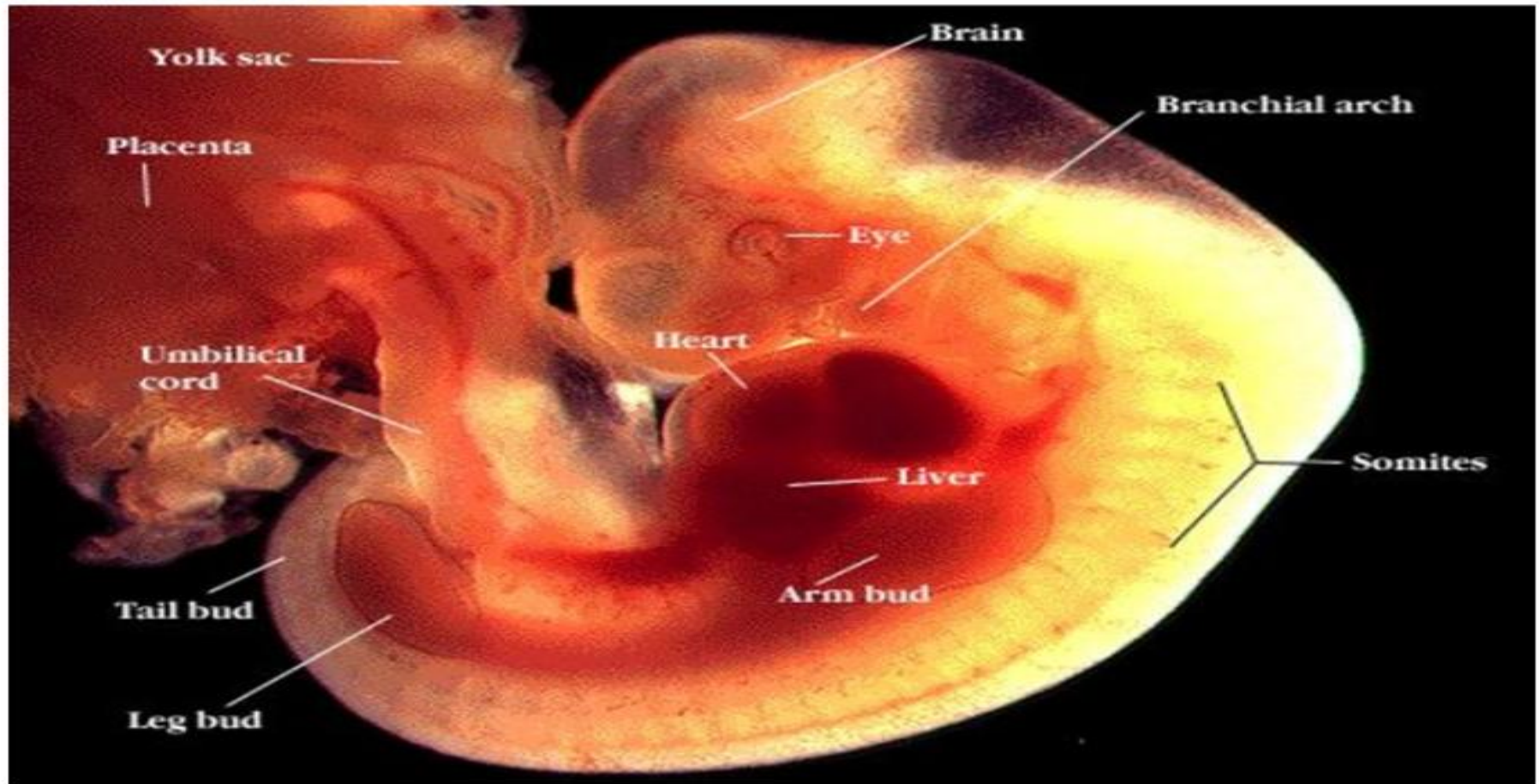
Embryo at 4 weeks



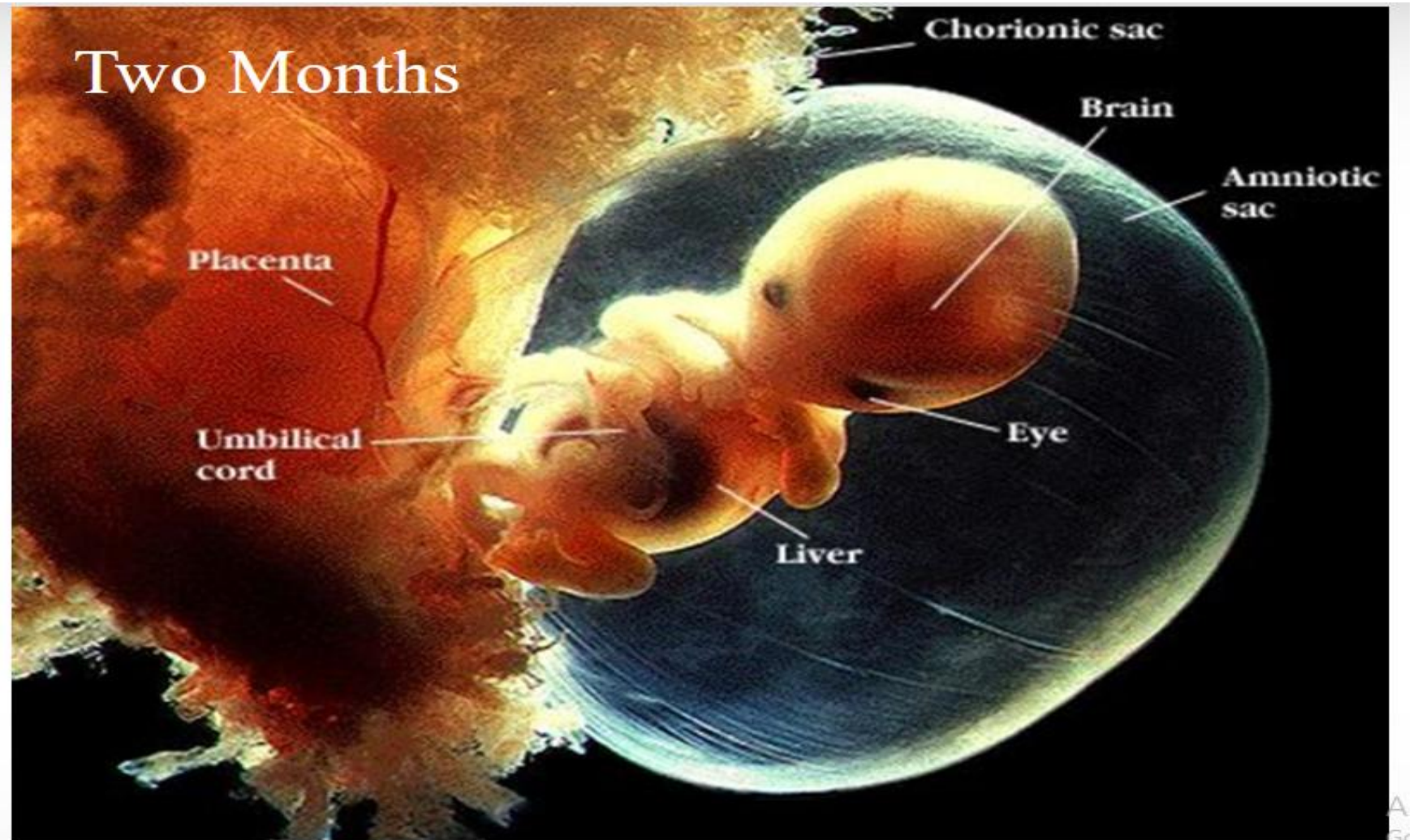
Embryo at 8 weeks

Embryonic stage/ Period of Embryo

First Month



Embryonic stage/ Period of Embryo



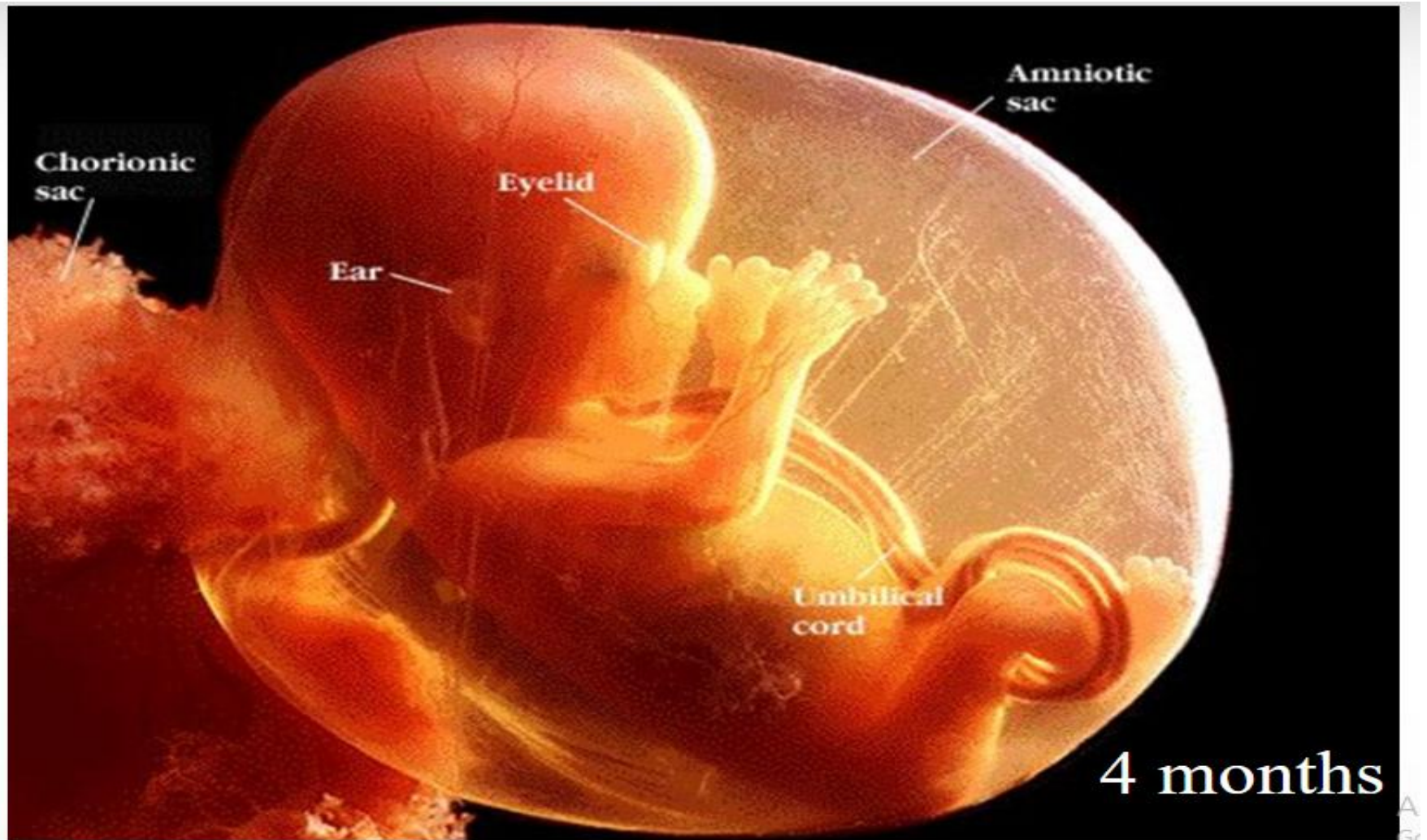
Fetal stage/ Period of Fetus

- Weeks 9–12: The fetus reaches approximately 8 cm. (3.2 in.) in length; the head is approximately half the size of the fetus. External features such as the face, neck, eyelids,

Fetal stage/ Period of Fetus

- Weeks 13–15: The fetus reaches approximately 15 cm. (6 in.) in length. Fine hair called lanugo first develops on the head; structures such as the lungs, sweat glands, muscles, and bones continue to develop. The fetus is able to swallow and make sucking motions.

Fetal stage/ Period of Fetus



Fetal stage/ Period of Fetus

- Weeks 16–20: The fetus reaches approximately 20 cm. (8 in.) in length. Lanugo begins to cover all skin surfaces, and fat begins to develop under the skin. Features such as finger and toenails, eyebrows, and eyelashes appear. The fetus becomes more active, and the mother can sometimes begin to feel fetal movements at this stage.

Fetal stage/ Period of Fetus

- Weeks 21–24: The fetus reaches approximately 28.5 cm. (11.2 in.) in length and weighs approximately 0.7 kg . Hair grows longer on the head, and the eyebrows and eye lashes finish forming. The lungs continue to develop with the formation of air sac (alveoli); the eyes finish developing. A startle reflex develops at this time.

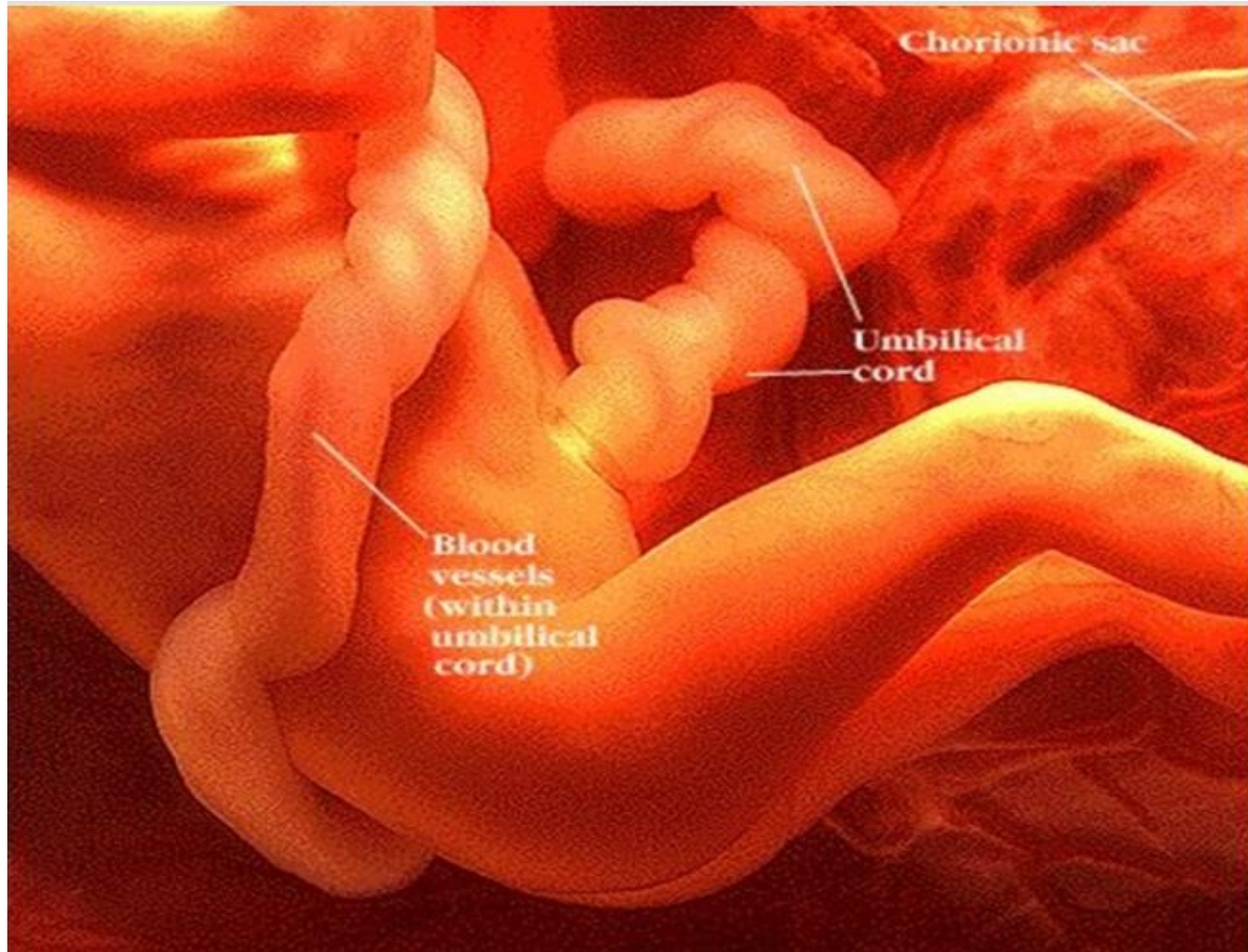
Fetal stage/ Period of Fetus



Fetal stage/ Period of Fetus

- Weeks 25–28: The fetus reaches approximately 38 cm. (15 in.) in length and weighs approximately 1.2 kg. The next few weeks mark a period of rapid brain and nervous system development. The fetus gains greater control over movements such as opening and closing eyelids and certain body functions. The lungs have developed sufficiently that air breathing is possible.

Fetal stage/ Period of Fetus



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Fetal stage/ Period of Fetus

- Weeks 29–32: The fetus reaches approximately 38–43 cm. (15–17 in.) in length and weighs approximately 2 kg (4 lb. 6 oz.). Fat deposits become more pronounced under the skin. The lungs remain immature but breathing movements begin. The fetus's bones are developed but not yet hardened.

Fetal stage/ Period of Fetus

- Weeks 33–36: The fetus reaches approximately 41–48 cm. (16–19 in.) in length and weighs . Body fat continues to increase, lanugo begins to disappear, and fingernails are fully grown. The fetus has gained a high degree of control over body functions. Weeks

Fetal stage/ Period of Fetus

- 36–38: The fetus reaches 48–53 cm. (19–21 in.) in length is considered to be full-term by the end of this period. Lanugo has mostly disappeared and is replaced with thicker hair on the head. Fingernails have grown past the tips of the fingers. In a healthy fetus, all organ systems are functioning.

VIDEO ON THE STAGE OF PRE-NATAL DEVELOPMENT

- <https://www.youtube.com/watch?v=S-IQOooYAs8>

THANK YOU