

Embryonic Development

***Embryonic development:**

The egg out of mother’s body exposed to lower temp. Than inside body (41.9) °C and that will stop the embryonic development as well as the temp. degree stay under 18-20 °C which is called physiological zero and when the temp. becomes higher than this degree the embryo will continue its development.

***Stages of embryonic development while 21 days of hatchery:**

- 1- First stage (day 1-5) developing internal body systems and main body organs like digestive, nervous, reproductive and circulation systems also formation head, legs, wings and tail.
- 2- Second stage (day 6-14) developing external body organs like beak, feathers and claws.
- 3- Third stage (day 15-21) fast growing embryo or fast completed in all body systems and organs.

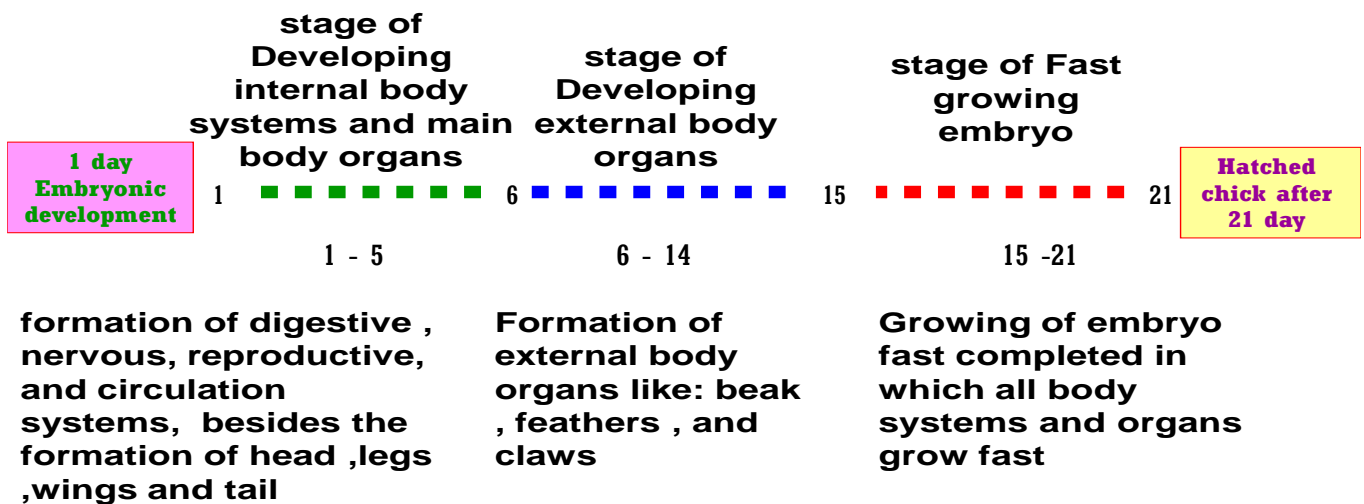


FIGURE : Embryonic Development

Stages of embryonic development (1 – 21)days



Day 1: Appearance of tissue development



Day 2: Tissue development very visible. • Appearance of blood vessels.



Day 3: Heart beats. • Blood vessels very visible.



Day 4: Eye pigmented



Day 5: Appearance of elbows and knees.



Day 6: Appearance of beak. • Voluntary movements begin.



Day 7: Comb growth begins. Egg tooth begins to appear.



Day 8: Feather tracts seen. • Upper and lower beak equal in length.



Day 9: Embryo starts to look bird-like. • Mouth opening appears.



Day 10: Egg tooth prominent. • Toe nails.



Day 11: Comb serrated. Tail feathers apparent.



Day 12 • Toes fully formed. • First few visible feathers.



Day 13 • Appearance of scales. Body covered lightly With feathers.



Day 14 • Embryo turns head towards large end of egg.



Day 15 • Gut is drawn into abdominal cavity.



Day 16 • Feathers cover complete body. Albumen nearly gone.



Day 17 • Amniotic fluid decreases. Head is between legs.



Day 18 • Growth of embryo nearly complete. Yolk sac is still on outside of embryo. Head is under the right wing.



Day 19 • Yolk sac draws into body cavity. Amniotic fluid gone. Embryo occupies most of space within egg (not in the air cell).



Day 20 • Yolk sac drawn completely into body. Embryo becomes a chick (breathing in air cell).• Internal and external pip.

In the third day of egg incubation Extra-embryonic membranes start to appear:

1- Yolk sac. 2- Amnion. 3- Chorion. 4- Allantois.

1- Yolk sac:

The yolk sac is a layer of tissue growing over the surface of the yolk. Its walls are lined with a special tissue that digests and absorbs the yolk material to provide food for the embryo.

2- Amnion:

- a. The amnion is a transparent sac filled with a colorless fluid that surrounds embryo and serves as protection during embryonic development.
- b. This Fluid allows embryo to move, change position, and shape.
- c. This Fluid keeps embryo parts from sticking together.

3- The Chorion:

It's surrounding both amnion and yolk sac

- No function at first, but then joins with allantois to form chorio - allantoic membrane
- Allows calcium re-absorption through capillaries of allantois from the shell.

4- The Allantois:

This sac connects to the embryo navel and extends upward to stick to the inner membrane of the shell where the air sac is. The allantois has four functions:

- 1- It serves as an embryonic respiratory organ.
- 2- It receives the excretions of the embryonic kidneys.
- 3- It absorbs albumen, which serves as protein for the embryo.
- 4- It absorbs calcium from the shell for the structural needs of the embryo.

