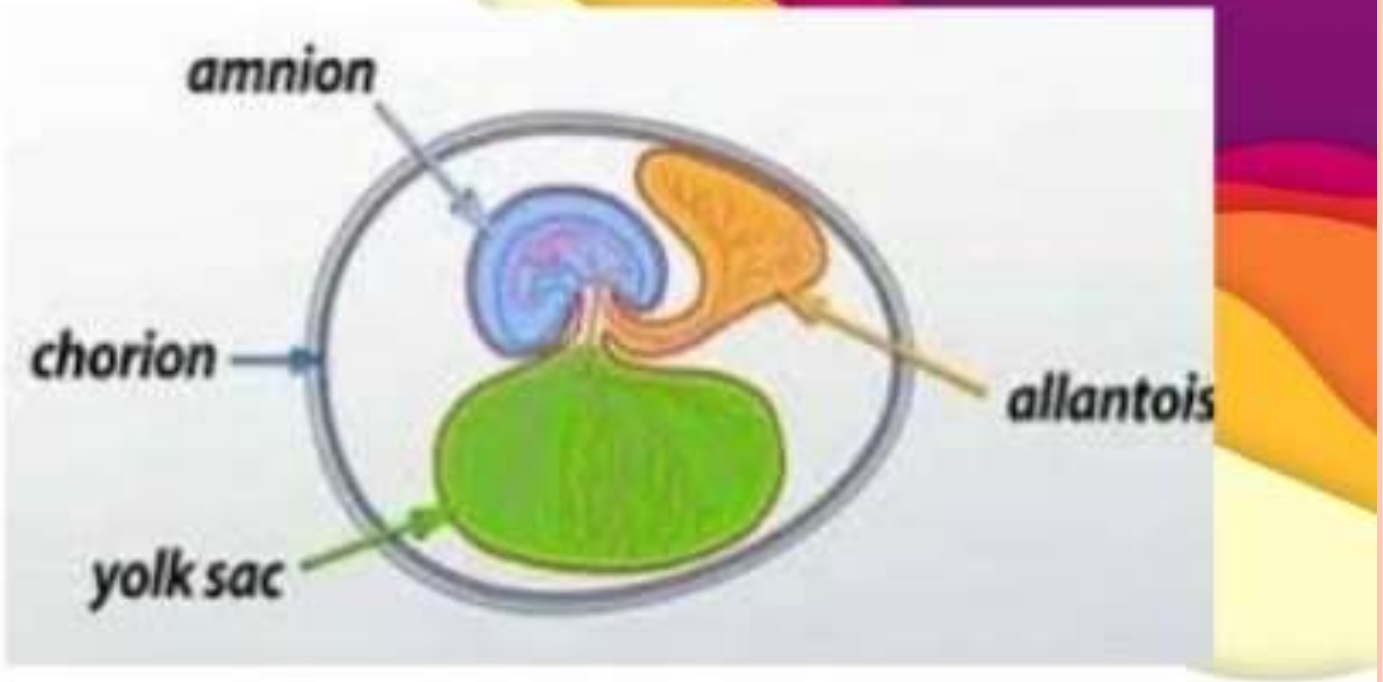
Foetal membranes in chick

DEFINITION

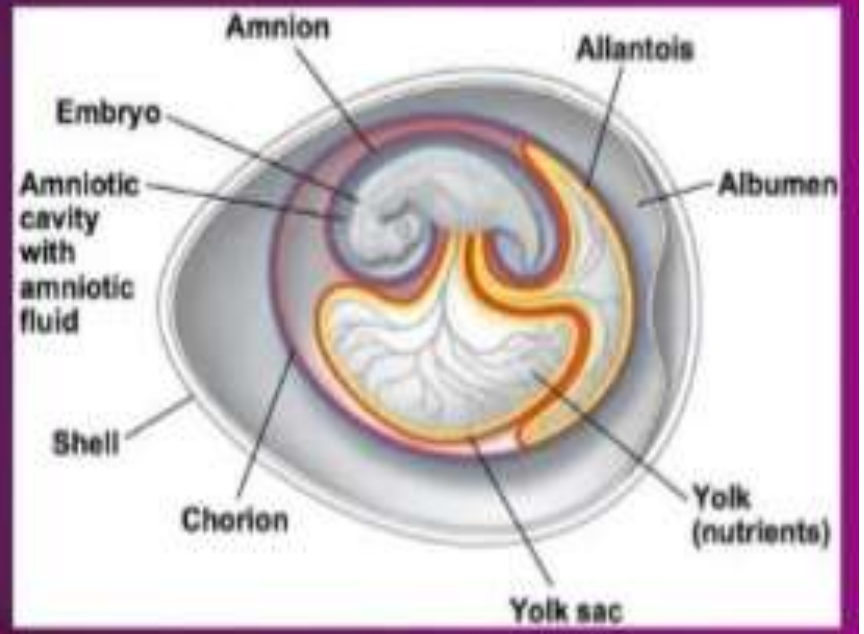
These are the membranes which do not form any part of the embryo proper but performs various functions which **assist in the development of the embryo**. These are discarded at the time of hatching. These membranes formed outside the embryo.

Types of Extra Embryonic Membranes

1. Yolk Sac
2. Amnion
3. Chorion
4. Allantois



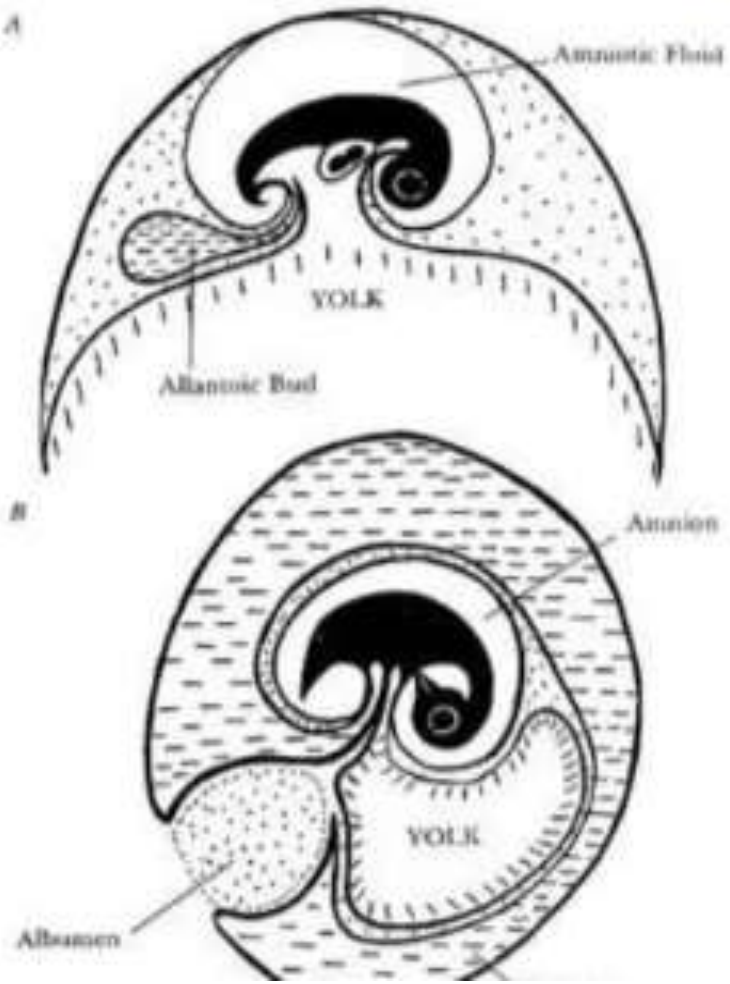
1 Yolk Sac


Amnion
Allantois
Embryo
Albumen
Amniotic cavity with amniotic fluid
Shell
Chorion
Yolk (nutrients)
Yolk sac

Yolk Sac

ORIGIN

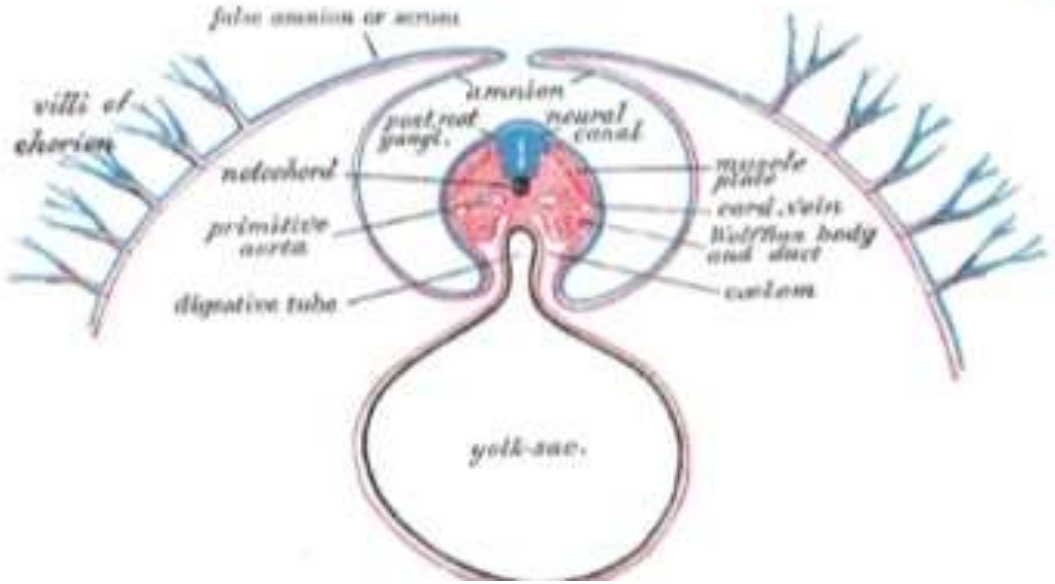
- From the extra embryonic splanchnopleure (endoderm on the inner and splanchnic mesoderm on the outer side)
- It has a wide opening into a midgut.
- As the development proceeds the passages of midgut is reduced to a narrow umbilical stock.
- Passage left on ventral side to absorb albumen.
- On first day mesoderm joins it and on ninth day it is fully formed.



Yolk Sac

FUNCTIONS

- Digest the yolk
- Transfer the products of digestion to the embryo.
- Digestive surface increased by force off the walls of the yolk sacs called yolk sac septa.
- In mammals yolk sac is less nutritive organ then Reptiles & Aves.
- In mammals it functions as embryonic haemopoietic organ (site for blood cells formation).



Yolk Sac

AFTER HATCHING

- Yolk is digested
- Yolk sac becomes small
- It is withdrawn into the intestine and the umbilicus closes

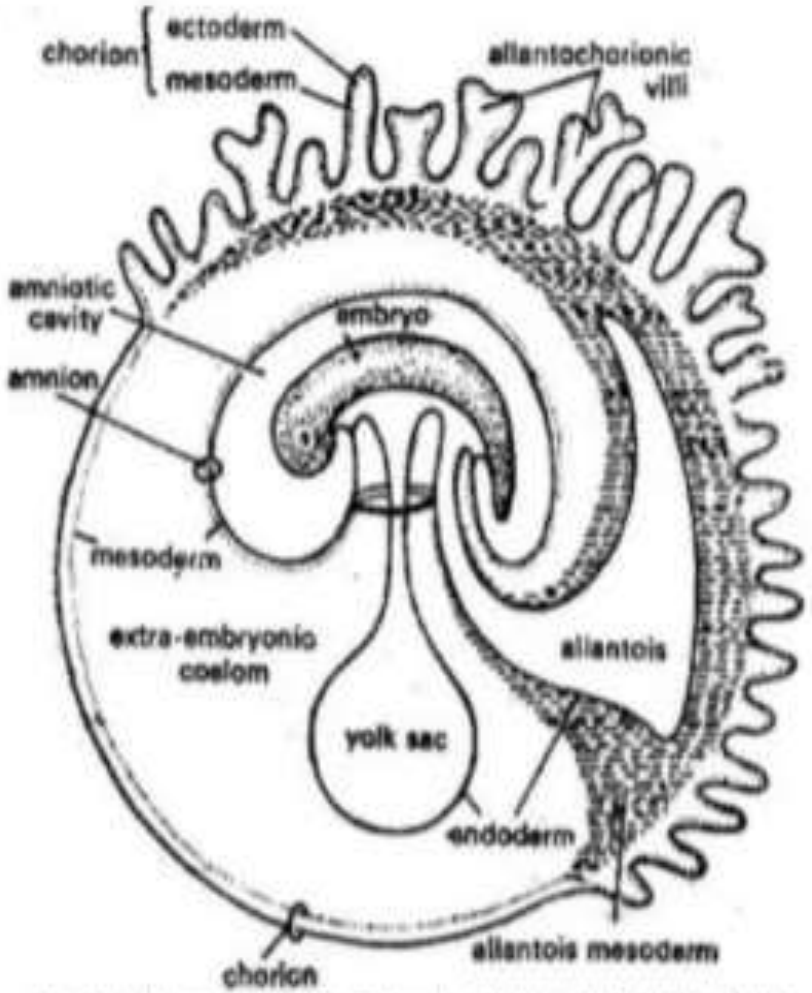
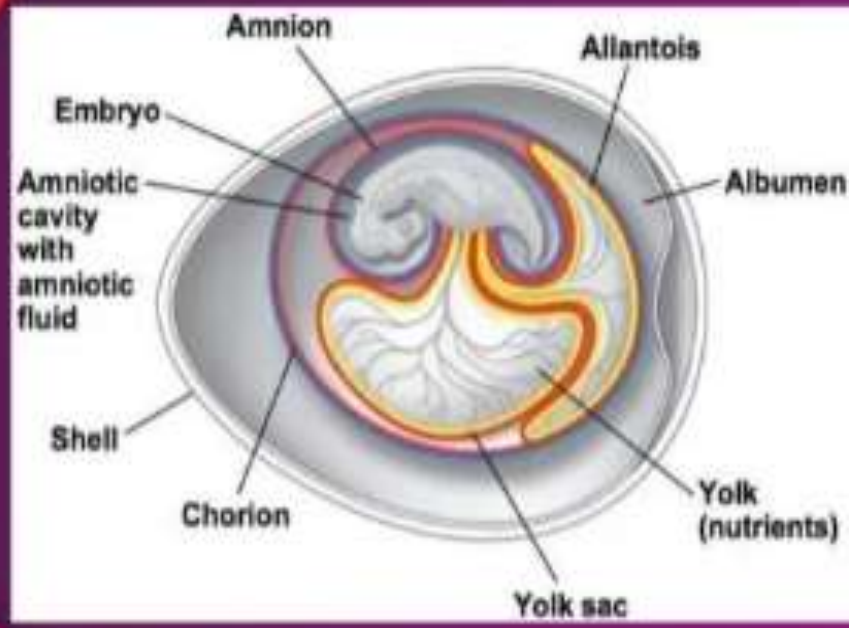


Fig. 38.4 Formation of extra-embryonic development in hen's embryo

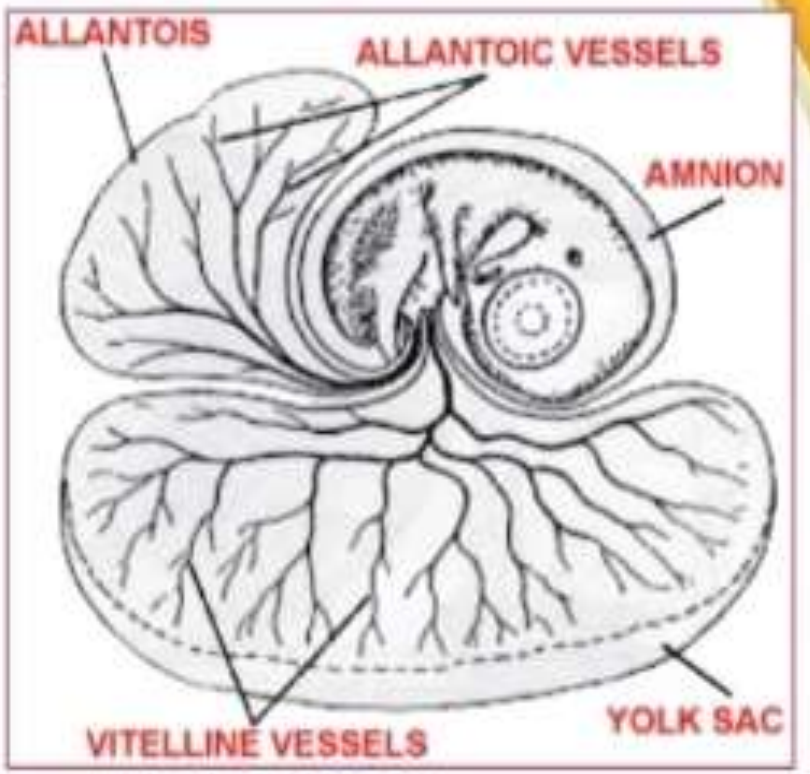
2 Amnion


Amnion
Allantois
Embryo
Amniotic cavity with amniotic fluid
Albumen
Shell
Chorion
Yolk (nutrients)
Yolk sac

Amnion

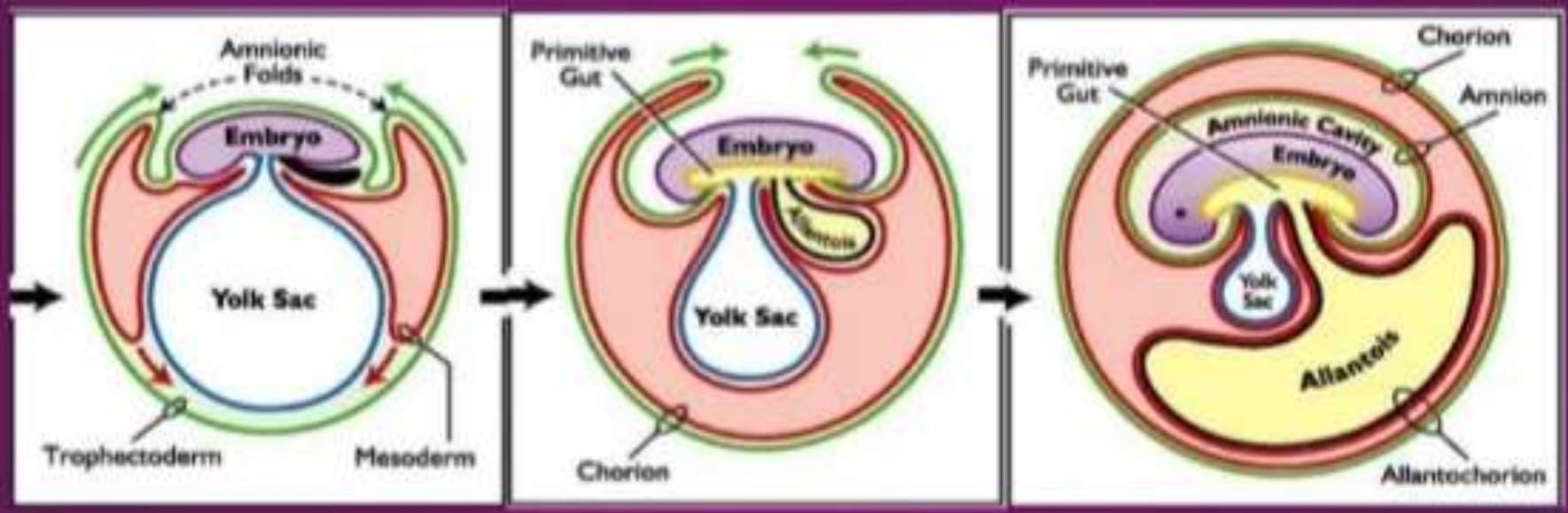
ORIGIN

- From somatopleure (ectoderm + somatic mesoderm)
- Fold over the head of the embryo is called head of the embryo.
- The folds converge above the embryo, meet and fuse.
- The point of fusion is called sero-amniotic connection.
- Fusion results 2 membrane over the embryo: inner membrane = amnion and outer membrane is called Chorion.



Amnion

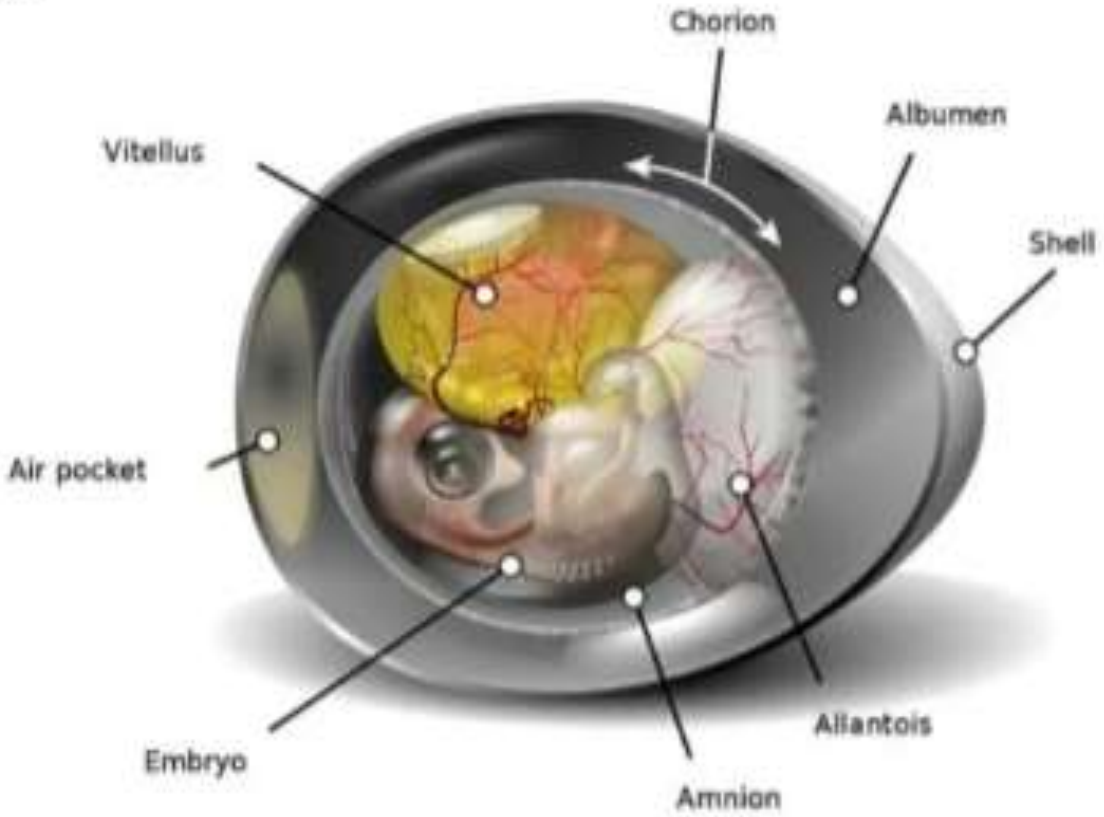
FORMATION



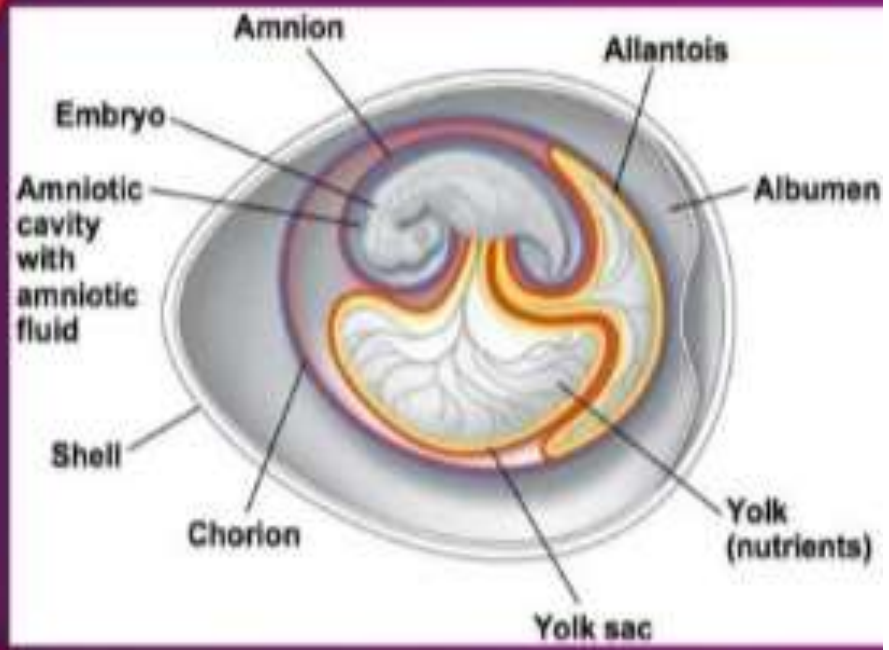
Amnion

FUNCTION

- Amnion protects the embryo from shock and injury.
- Amniotic fluid prevents its desiccation.



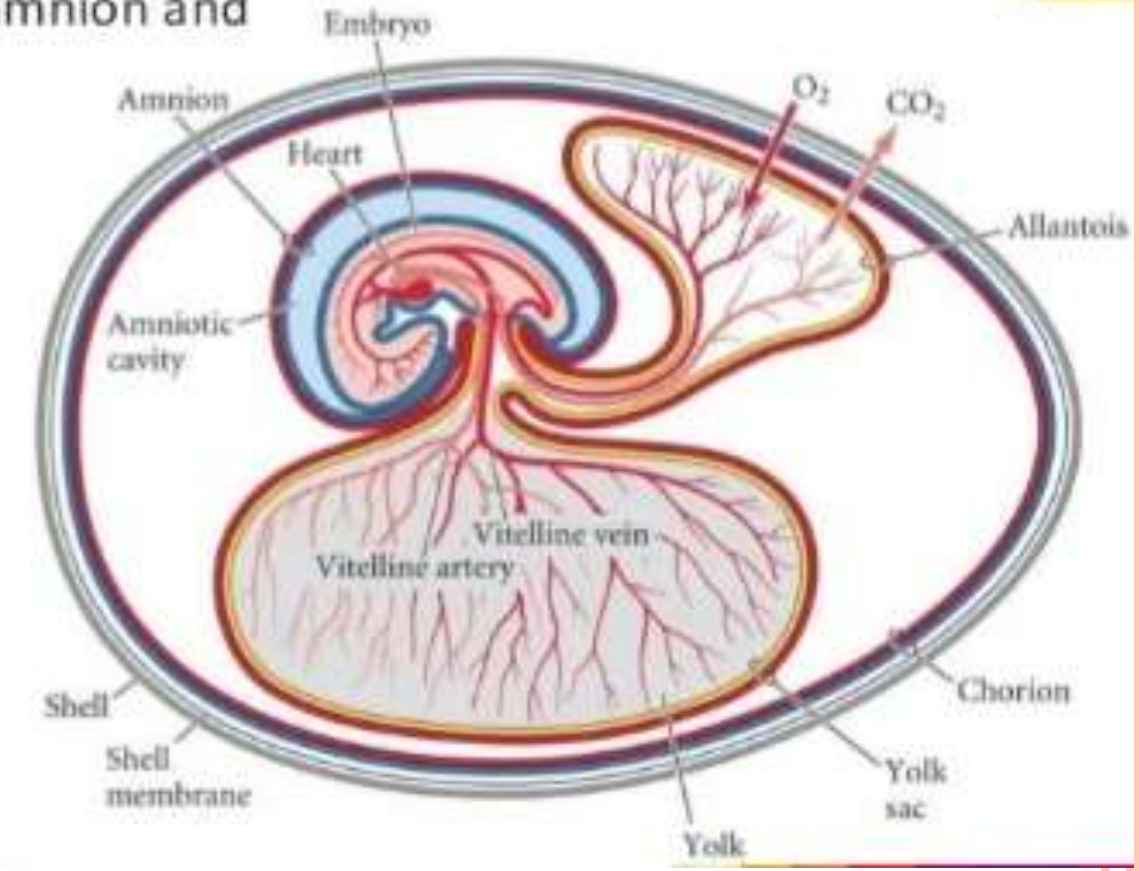
3 Chorion


Amnion
Allantois
Embryo
Albumen
Amniotic cavity with amniotic fluid
Shell
Chorion
Yolk (nutrients)
Yolk sac

Chorion

ORIGIN

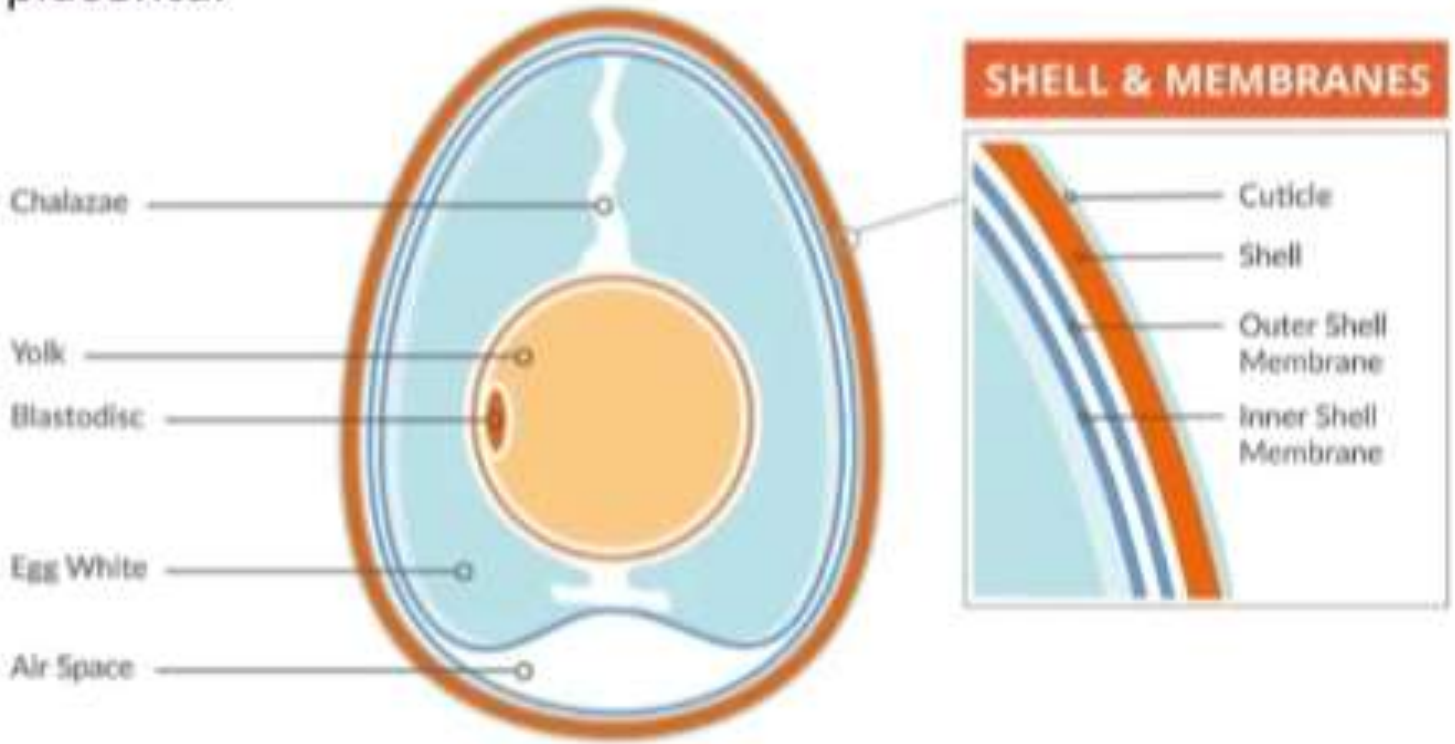
- From somatopleure (ectoderm + somatic mesoderm)
- Fusion of head fold of amnion and tail fold of amnion produces 2 membranes over the embryo. Inner layer is called amnion and outer is called **Chorion.**
- Chorion is also called as **false amnion**.



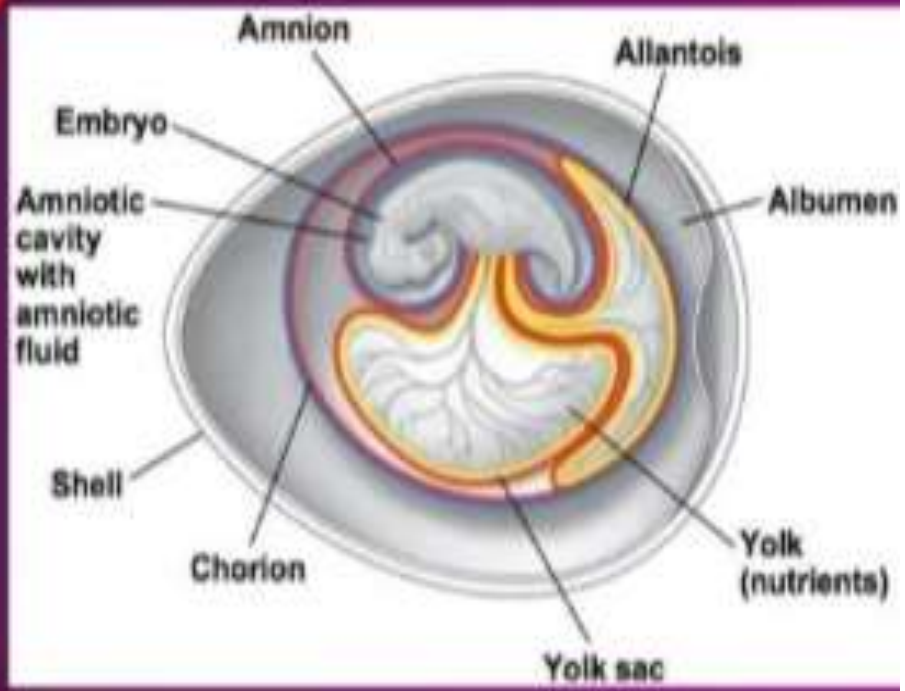
Chorion

FUNCTION

- It protects the foetus.
- Provides place for the growth of allantois.
- Helps in the formation of the placenta.



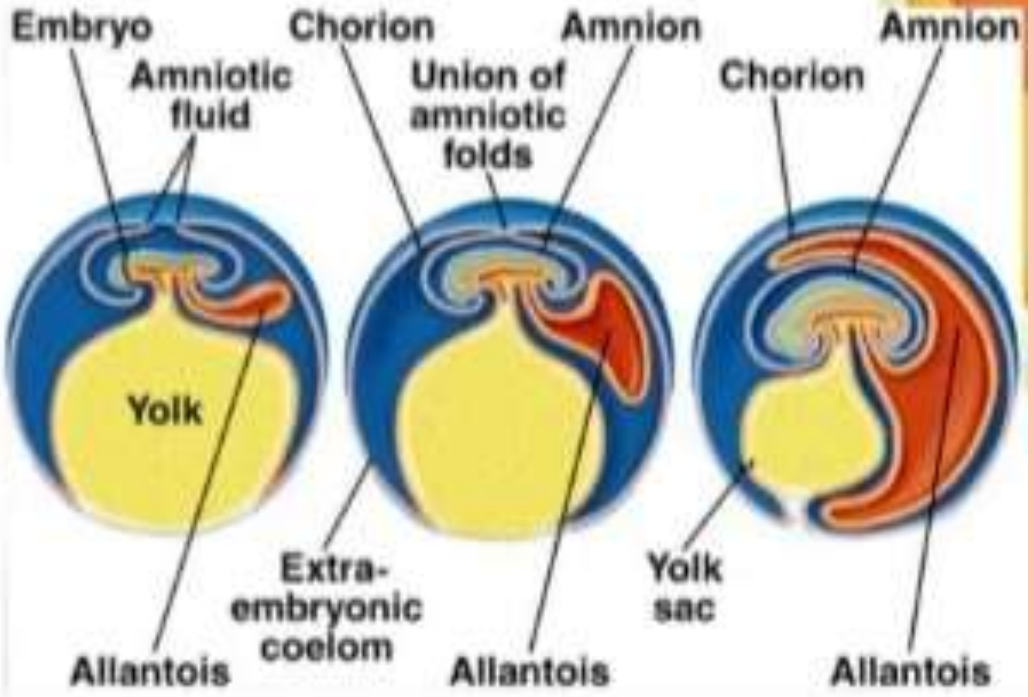
4 Allantois


Amnion
Allantois
Embryo
Albumen
Amniotic cavity with amniotic fluid
Shell
Chorion
Yolk (nutrients)
Yolk sac

Allantois

ORIGIN

- From Splanchnopleure (endoderm on inner side & Splanchnic mesoderm on the outer side).
- It develops from the floor of the hindgut of the foetus.
- It goes into choriotic cavity.
- Allantochorion develops allantoic arteries and veins.
- Allantois stock (connection between allantois and hindgut).
- Umbilical cord(somatopleur surrounds the allantois stock & umbilical stock).
- At hatching time umbilical cord breaks.
- Place of attachment of the umbilical cord to the body heals up.
- Permanent scarp, the umbilicus is formed.



Allantois

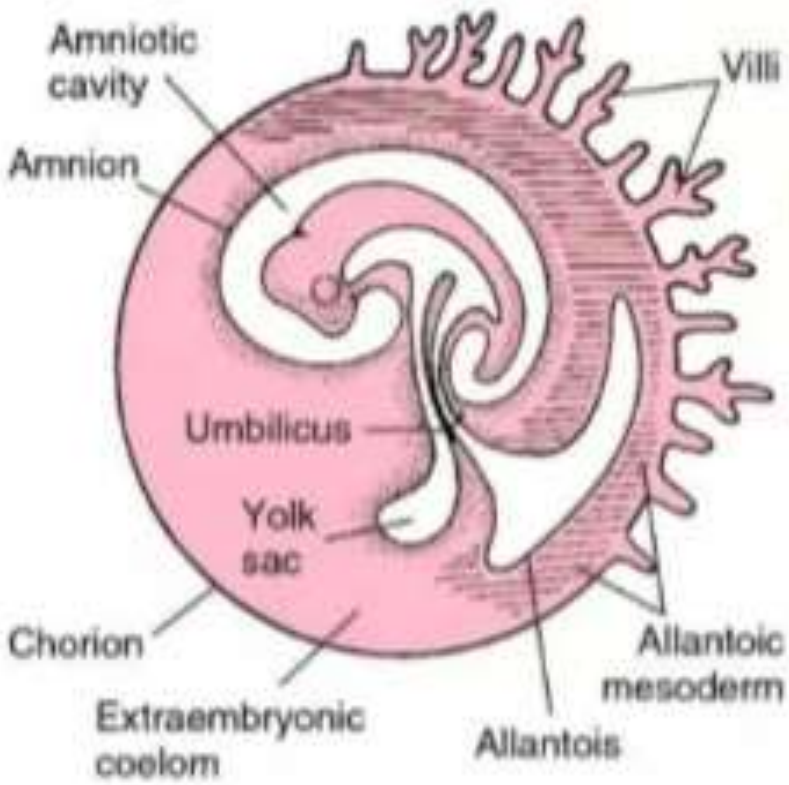
ORIGIN

- Store insoluble nitrogenous waste matter, uric acid.
- Functions as extra embryonic lung.
- Gaseous exchange taking place between blood and external air through it.
- Carries on excretion, respiration and nutrition.
- Allantois functions as soft, elastic cushion for protecting the embryo from shock.
- Allantois helps in the formation of umbilical cord

Amniotic Cavity

Definition: The cavity enclosed between the embryo and amnion is called as amniotic cavity.

- The fluid filled in this cavity is called amniotic fluid.
- The embryo floats in this fluid.



FUNCTONS OF AMNIOTIC CAVITY

- Serves as water cushion to protect the embryo.
- Prevents the desiccation of the embryo.
- Check the stagnation of blood in the embryonic blood vessels.

Thank you