

“External Appearance of the Embryo During the Second Month”

The second month marks major external morphogenesis, with the embryo transitioning from a simple tubular structure to a recognizable human form.

1. End of Fourth Week

- Embryo has ~28 somites.
- Main external features: somites and pharyngeal arches.
- Embryo age is expressed in somite number.

Key Concept: Somite count is the primary age indicator during early embryogenesis.

2. Second Month Development

- Somite counting becomes impractical.
- Embryo age measured as Crown-Rump Length (CRL):
 - Distance from vertex of skull to midpoint between the apices of the buttocks.
 - Expressed in millimeters (mm).

3. Major External Changes

- Head enlargement → rapid brain development.
- Formation of limbs, face, ears, nose, eyes.

Flowchart: Second Month External Appearance

End of 4th week → Somites (~28) + Pharyngeal arches

→ Limb buds appear → Forelimbs → Hindlimbs

- Limb growth → Terminal flattening → Digit grooves
 - Facial features → Eyes, ears, nose develop
 - Head enlargement
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4. Limb Development

Fifth Week

- Forelimb buds: appear as paddle-shaped projections.
 - Located dorsal to pericardial swelling, at the level of C4-T1 somites.
 - Innervation: brachial plexus.
- Hindlimb buds: appear slightly later.
 - Located caudal to umbilical stalk, at lumbar-upper sacral somites.

Growth of Limb Buds

- Terminal portions flatten, forming a paddle-like hand/foot plate.
- Circular constriction separates terminal portion from proximal cylindrical segment.

Digit Formation

- Four radial grooves appear on the distal portion of the limb buds.
- Divide the terminal portion into five slightly thicker areas → precursors of digits.

Flowchart: Limb Development

Week 5 → Forelimb buds (C4-T1) → Hindlimb buds (L/S)

→ Limb elongation

→ Terminal flattening → Paddle-shaped buds

→ Circular constriction → separates proximal &

distal segments

→ Radial grooves → foreshadow digits

High-Yield Takeaways

1. CRL replaces somite counting after week 4.
 2. Forelimb buds appear earlier than hindlimbs;
remember C4-T1 level.
 3. Digit formation begins as radial grooves on limb buds.
 4. Head enlarges faster than body → cranial-caudal growth gradient.
 5. External features in the second month include face, ears, eyes, nose, and limb buds.
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-> The End <-