

□ Fetal Development

□ Ovum / Preembryonic Period

Timeframe: Conception to Day 14

- Cellular replication
 - Blastocyst formation
 - Development of embryonic membranes
 - Establishment of primary germ layers
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□ Embryonic Period

Timeframe: Day 15 – 8 Weeks

- Development from **blastocyst** → **germ layers**
 - **Organogenesis** begins
 - High risk for **malformations**
 - Most **vulnerable** period
 - Susceptible to **teratogens**
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□ Fetal Period

Timeframe: 8 - 9 weeks gestation to Birth

- Less vulnerable to teratogens
- Organs and external structures present
- Maturing, refining, perfecting

First Half:

- Continued development
- Slow weight gain

Second Half:

- Rapid weight gain
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□ Trimesters

First Trimester (Weeks 1–12):

This stage includes conception and the early formation of the baby's major organs. Mothers may experience symptoms like nausea, fatigue, and mood swings.

Second Trimester (Weeks 13–26):

Often considered the most comfortable phase, the baby grows rapidly and begins to move. The mother's belly becomes more noticeable, and many early pregnancy symptoms subside.

Third Trimester (Weeks 27–40):

The final stage of pregnancy involves continued growth and development of the baby in preparation for birth. Mothers may feel increased discomfort, and regular medical checkups become more frequent.

□ Milestones in Fetal Development

□ Fetal Development

□ 1 – 4 Weeks

- Implantation
 - Germ layer development
 - Heart: 2 chambers, begins beating
 - Arm/leg buds, C-shaped body
 - Brain visible
 - **Length:** 0.4–0.5 cm
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□ 5 – 8 Weeks

- **Organogenesis complete** by Week 8
 - Heart fully formed, fetal circulation begins
 - Face and limbs recognized
 - **Length:** 2.5–3 cm
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□ 9 – 12 Weeks

- Bone **ossification** begins
 - Sex recognizable
 - Kidneys → **urine**; Intestines → bile
 - Lungs shaping
 - Fetal heart tones via Doppler
 - **Length:** 6–9 cm
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□ 13 – 16 Weeks

- **2nd Trimester begins**
 - Scalp hair forms
 - Transparent skin with visible vessels
 - **Meconium in bowel**
 - Bones and joints visible
 - **Length:** 11.5–13.5 cm
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□ 17 – 20 Weeks

- **Lanugo** appears
 - **Vernix Caseosa** develops
 - Baby sleeps, swallows amniotic fluid, kicks
 - **Quickening** felt by mother
 - Respiratory-like movements
 - **Length:** 16–18.5 cm
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□ 21 – 24 Weeks

- Red, wrinkled skin
 - Alveolar sacs and ducts form
 - Fetus **can hear and respond** to sound
 - **Length:** ~23 cm
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□ 25 – 28 Weeks

- Nails form

□ Fetal Development

- **Lecithin** forms on lungs
 - Eyelids open, pupils respond to light
 - **Length:** ~27 cm
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□ 29 – 32 Weeks

- **Subcutaneous fat** collecting
 - Skin pink, smooth
 - Fetal positioning for birth
 - Responds to music, voices, light
 - **Length:** ~31 cm
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□ 33 – 36 Weeks Rapid weight gain

- Lanugo disappears
 - Muscle tone developing
 - Active movement
 - GI system matures
 - **Length:** ~35 cm
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□ 37 – 40 Weeks

- **Full term**
 - Moderate hair, scant vernix
 - Acquires **maternal antibodies**
 - Strong **suck reflex**
 - **Length:** ~40 cm
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□ Fetal Nervous System

- **First to appear, last to mature**
 - Neural tube → brain and spinal cord
 - Continues developing into childhood
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□ Fetal Respiratory System

- Matures **throughout gestation**
 - Functional for life **after 32 weeks**
 - **Gestational diabetes** can delay maturity
 - Practices breathing in utero
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□ Fetal Urinary System

- Urine excreted into **amniotic fluid**
 - Placenta: excretion + water/electrolyte balance
 - Kidneys fully developed by **term**
 - Newborn usually voids within **24 hrs**
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Fetal Gastrointestinal System

- Mature by **36 weeks**

□ Fetal Development

- **Meconium** (1st stool) forms unless stress triggers early release
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♥ Fetal Circulatory System

- **First system to function**
- Blood vessels and blood cells form to provide O₂ & nutrients by **Week 3**
- Heart starts beating by **end of Week 3**
- 4-chambered heart formed by **Week 5**