

Fetal Development

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1 Birth age

Age definitions

- Term birth: 38-40 weeks gestation
- Premature: born prior to 37 weeks gestation
- Gestational age: number of months/days in utero (how long in utero, date of last menstrual period to when baby was born)
- Chronological age: Time since date of birth

- Adjusted age: (40 weeks - gestational age) - chronological age

How to calculate age for premature babies

2 Periods

Broken down into 3 period

1. Germinal period (~2 wk)
2. Embryonic period (3-7wk)
3. Fetal period (wk8-birth)

2.1 Germinal Period

- Time: fertilization to -2 weeks
- Implantation

2.2 Embryonic period

Occurs from Week #3-7

Caution

- Especially vulnerable to teratogens (she says teratogens = can be drugs, malnutrition, radiation, anything that can cause damage)
- Why important: you might not know you're pregnant until this embryonic window has closed
 - This can be an issue!
 - Neural tube defects can occur
 - * Folic acid can help prevent this!
 - Those who are of child bearing age= just take folic acid
 - Even if thinking ur not going to have kids

2.3 Fetal period

- 8 weeks to birth
- Phase of rapid growth

3 Week based development

3.1 First 4 Weeks

- 2-3 weeks: neural plate begins for brain and heart begins as a single tube
- 3 weeks: cell differentiation into 3 layers
 - Ectoderm
 - Mesoderm
 - Endoderm
- 4 weeks- head region differentiated , primitive brain and spinal cord, initial limb buds

3.2 8 Weeks

- Organs become functional
- Limb buds grow and differentiate – muscle , nerves

3.3 12 Weeks

- More activity, moves head and extremities but mvmts not yet felt by pregnant person
- All organs, limbs, bones, mm are present and will continue to develop in order to become fully functional

3.4 16 Weeks

Fetus starts to make sucking motion w mouth, ears, developed enough to hear sounds, voices

3.5 20 Weeks

- Preg person starts to feel mvmt
- Sleep/wake patterns develop
- Heart can be heard w stethoscope
- In weeks 17-20 fetus develops fat and lanugo: peach like fuzz like hair, helps keep fetus warm and provides layer of protection

3.6 23 Weeks

- If born now, potentially viable if received specialized medical care
- The baby should begin to excrete Surfactant by the alveoli which is essential for lung function

i Surfactant information

Surfactant, which is essential to lung function, is starting to be excreted by alveoli cells (1) Lowering surface tension at the air-liquid interface and thus preventing alveolar collapse at end-expiration, (2) interacting with and subsequent killing of pathogens or preventing their dissemination, and (3) modulating immune responses.

3.7 24 Weeks

Lungs fully developed but not well enough to function independently outside uterus

3.8 28 Weeks

Brain developing rapidly

3.9 32 Weeks

- Hears sounds and responds w mvmt
- Suck swallow reflex developing
- Lanugo falling off
- Organs well developed, except lungs and brain

3.10 36 Weeks

- CNS greater control over body functions
- Increasing levels of surfactant production

3.11 40 Weeks

- Movement more confined
- Adequate surfactant levels
- Physiological flexion developed (bc they run out of space in womb, but super important bc that is how u develop proprioception and kinesthetic awareness) (especially in hands and feet)