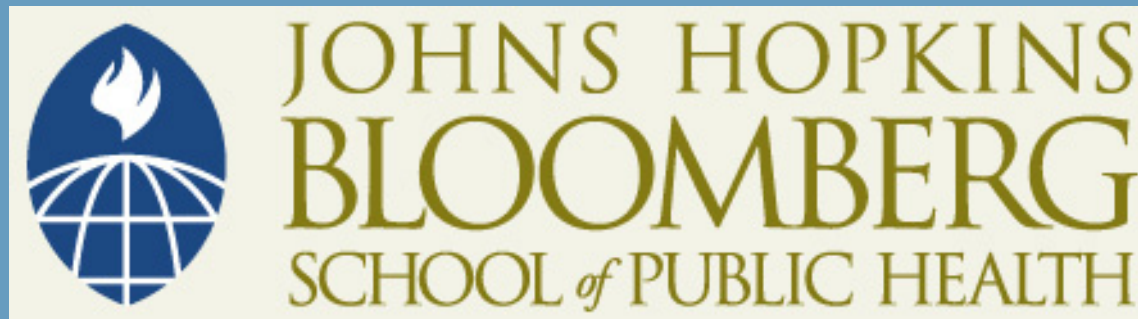


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Fetal Health and Development

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Section A

Overview

The Miracle of Fertilization

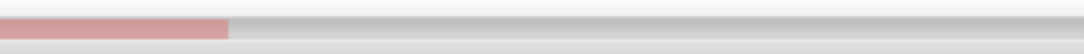
- Fetal development week by week
 - [Click here to watch the video](http://www.youtube.com/watch?v=RS1ti23SUSw): <http://www.youtube.com/watch?v=RS1ti23SUSw>

Fetal Development Video

fetal development



The Moment of Conception



0:02 / 4:31



HQ



Basic Definitions of Growth and Development

- Growth
 - Increase in mass
 - Result of increase in cell size and number

- Development
 - Differentiation of function
 - Increase in complexity

Features of Development

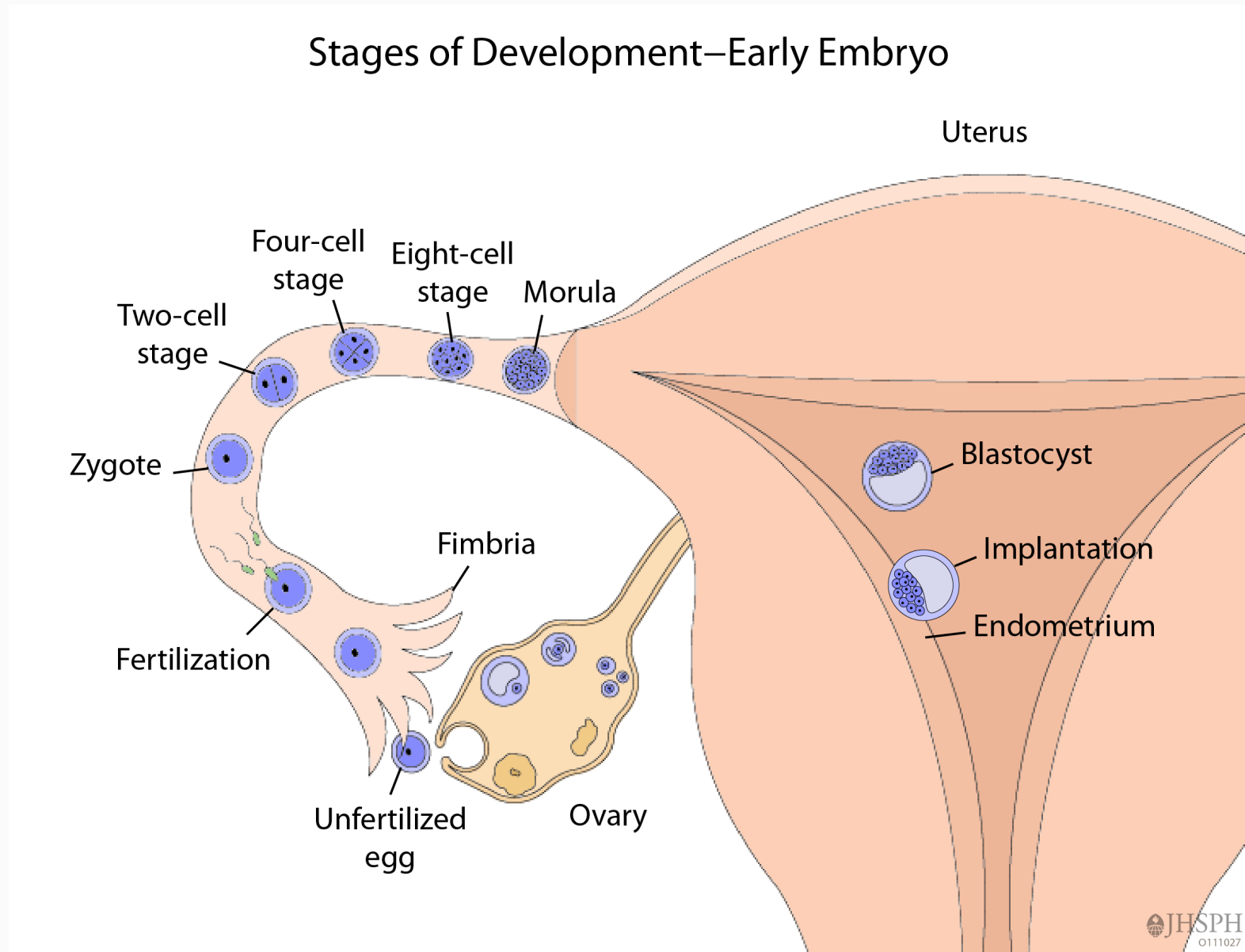
- Developmental milestone
 - Attainment of a skill that typically develops sequentially and is a function of maturation

- Streams of development include ...
 - Motor
 - Cognitive
 - Language
 - Social
 - Emotional/affective



How Long Does It Take a Sperm to Reach an Ovum?

- a) One minute
- b) One hour
- c) One day
- d) One week
- e) One month

Stages of Embryo Formation



Stages

Period of dividing zygote, implantation & bilaminar embryo (weeks 1-2)	Embryonic period (weeks 3-8)	Fetal period (weeks 9-38)
		Continued Growth → Full term
Usually not susceptible to teratogens	Central Nervous System	
	Heart	
	Arms	
	Eyes	
	Legs	
Teeth		
Palate		
External Genitalia		
Ear		
Prenatal Death	Major Morphological Abnormalities	Physiological Defects & Minor Morphological Abnormalities



"Critical periods of human development for teratogen sensitivity" from Public Health Biology. Available at: <http://ocw.jhsph.edu>. Copyright © Johns Hopkins Bloomberg School of Public Health. Creative Commons BY-NC-SA.

Preconception Period

- Physical and mental health
 - Chronic Illnesses
 - Family history of chronic illness
 - Mental Illnesses
 - Prior pregnancy losses

Preconception Period

- Social influences
 - Maternal age
 - Paternal age
 - Parity
 - Prior losses
 - Employment
 - Marital status

Preconception Period

- Exposures
- Environmental: toxins in water, home, workplace
- Medication use
- Domestic violence/abuse

The First Trimester

- Week 6
 - Skeletal formation begins
 - Neural tube closes
 - Limb buds appear
- Week 8
 - Ventricular system of brain elaborates
 - Vertebrae develop
 - Aorta and pulmonary valves present; left and right ventricles present
- Week 9
 - Embryo referred to as fetus (previously conceptus)
- Week 12
 - Circulatory and gastrointestinal systems start functioning
 - Corpus callosum forms, connecting left and right hemispheres of the brain

Early Pregnancy

- Birth defects
 - Genetic anomalies
 - Structural malformations
 - ▶ Chronic disease
 - ▶ Drug use
 - ▶ Environmental exposures
 - ▶ Infections

The Second Trimester

- Week 14
 - Head is half the size of the body
 - Chromosomal abnormalities detectable
 - Limb deformities detectable
- Week 16
 - Heart beat audible
 - Neural tubes defects detectable
 - Kidney functioning
 - All major organs formed
- Week 20
 - Skeletal growth continues
 - Muscle growth (weak kicks)
 - Can respond to loud sounds

Early-Mid Pregnancy

- Miscarriages: prevalence—approximately 13 percent of pregnancies
 - Causes are related to gestation
 - ▶ Genetic
 - ▶ Structural
 - ▶ Hormonal
 - ▶ Recurrence
 - ▶ Trauma
 - ▶ Unknown

The Third Trimester

- Week 24
 - Gaining 6 ounces per week
 - Suck begins
 - Lung development with surfactant production
 - Viability

- Week 28
 - Eyes formed
 - Lungs capable of breathing
 - Hair growing