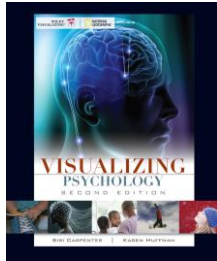




# CHAPTER 9

## Life Span Development I



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### Lecture Overview

- Studying Development
- Physical Development
- Cognitive Development



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### Studying Development



- **Developmental Psychology:** studies age-related changes in behavior & mental processes from conception to death

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### Life Span Development

Stage	Approximate Age
Prenatal	Conception to birth
Infancy	Birth to 18 months
Early childhood	18 months to 6 years
Middle childhood	6–12 years
Adolescence	12–20 years
Young adulthood	20–45 years
Middle adulthood	45–60 years
Later adulthood	60 years to death




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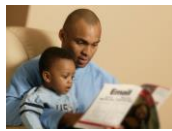
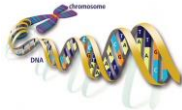
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### Studying Development— Key Theoretical Debates

- **Nature vs. Nurture:** heredity vs. environment
- **Plato:** Born with innate knowledge & abilities
- **Aristotle:** Learning occurs through the senses




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### Nature vs. Nurture

- **Maturation:** Development governed by genetically predetermined signals
- **Critical period:** A period of special sensitivity to specific types of learning that shapes the capacity for future development
  - **Imprinting**
- **Tabula rasa:** Blank slate




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## Studying Development

• **Continuity vs. Stages:**  
 continuous & gradual  
 vs.  
 periods of abrupt change  
 followed by periods of little  
 change



• **Stability vs. Change:**  
 characteristics maintained  
 vs.  
 characteristics vary over time

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## What are the Key Theoretical Debates?



- Nature vs. Nurture
- Continuity vs. Stages
- Stability vs. Change

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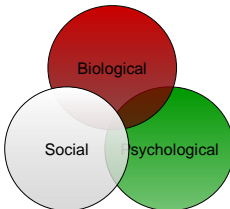
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## Studying Development (Continued)

• What position on these three debates is most correct? Most psychologists support the **interactionist perspective**, which recently evolved into the **biopsychosocial model**.




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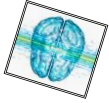
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**Pause & Reflect:  
Critical Thinking**

- Behaviorist John **Watson** said: "Give me a dozen healthy infants, well-formed, & my own specified world to bring them up in, & I'll guarantee to take anyone at random & train them to become any type of specialist I might select-- doctor, lawyer, artist, merchant-chief, &, yes, even beggar man & thief, regardless of his talents, penchants, tendencies, abilities, vocations, & race of his ancestors." (Boakes, 1984, pp. 226) **Do you agree? Why or why not?**

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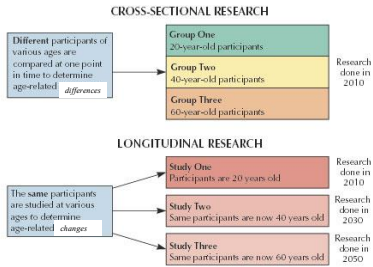
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**Studying Development:  
Research Methods**




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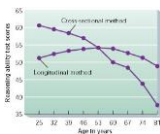
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**Which results are "true"? FIGURE 9.2**

Cross-sectional studies have shown that reasoning and intelligence reach their peak in early adulthood and then gradually decline. In contrast, longitudinal studies have found that a marked decline does not begin until about age 60. (Adapted from Schaie, 1994, with permission.)



cohort effects

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## Studying Development: Research Methods

	Cross-Sectional	Longitudinal
<b>Advantages</b>	Gives information about age differences Quick Less expensive Typically larger sample	Gives information about age changes Increased reliability More in-depth information per participant
<b>Disadvantages</b>	Cohort effects are difficult to separate  Restricted generalizability (measures behaviors at only one point in time)	More expensive Time consuming  Restricted generalizability (typically smaller sample and dropouts over time)

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## Pause & Reflect: Assessment

1. Briefly describe the three key areas of debate in **developmental psychology**.
2. What are the key differences between **cross-sectional & longitudinal research**?




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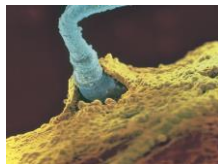
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## Physical Development: The Moment of Conception




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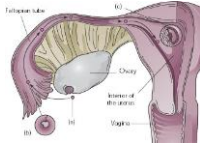
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### Physical Development: Three Stages of Prenatal Development



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### Physical Development: Three Stages of Prenatal Development

1. **Germinal Period:**  
conception to uterine  
implantation
2. **Embryonic Period:**  
uterine implantation  
through the eighth week
3. **Fetal Period:** eighth  
week until birth



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### Physical Development: Hazards to Prenatal Development

- **Teratogens:** environmental agents that  
cause damage during prenatal  
development
- **Categories of teratogens:**
  - Legal & illegal drugs
  - Diseases & malnutrition
  - Exposure to X-rays & stress



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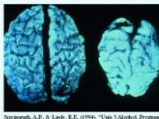
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# Physical Development: Hazards to Prenatal Development

Maternal Factors	Possible Effects on Embryo, Fetus, Newborn, or Young Child
<b>Malnutrition</b>	Low birth weight, malformations, less developed brain, greater vulnerability to disease
<b>Stress exposure</b>	Low birth weight, hyperactivity, irritability, feeding difficulties
<b>Exposure to X-rays</b>	Malformations, cancer
<b>Legal and illegal drugs</b>	Inhibition of bone growth, hearing loss, low birth weight, fetal alcohol syndrome, mental retardation, attention deficit in childhood, and death.
<b>Diseases</b>	Blindness, deafness, mental retardation, heart and other malformations, brain infection, spontaneous abortion, premature birth, low birth weight, and death.



Serpantsev, A. M., & Levin, E. L. (2014). "The Fetal Alcohol Spectrum and the Fetal Alcohol Syndrome: Search for the Brain"



**Fetal alcohol syndrome:** In addition to facial abnormalities and stunted growth, children suffering from fetal alcohol syndrome (FAS) also have brains that are smaller and underdeveloped compared to those of normal children.

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# Physical Development: Early Childhood

- Three key areas of early childhood development:
  - Brain
  - Motor
  - Sensory/perceptual




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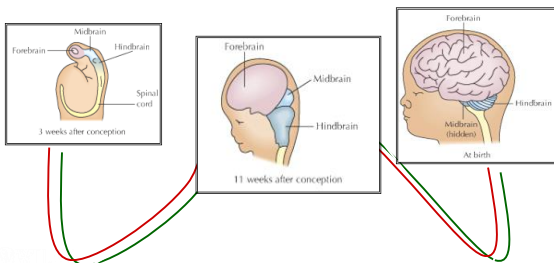
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# Physical Development: Prenatal Brain Development




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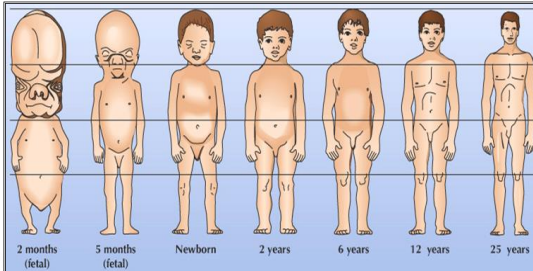
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### Physical Development: Lifespan Changes in Body Proportions



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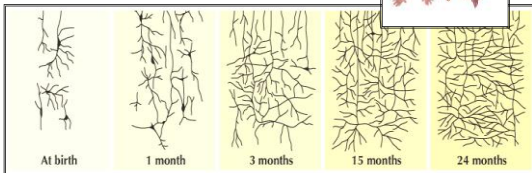
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### Physical Development: Brain Development



- As a child develops, his or her neurons grow in size & the number of dendrites & axons increase.

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### Physical Development: Sensory & Perceptual Development

- Smell, taste, touch, & hearing are well developed at birth.
- Vision is poorly developed at birth.



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# Prenatal Development



Touch & sense of pain highly developed

Taste & smell well developed

During the last few months, the child can hear sounds outside the womb.

Newborns can easily recognize mothers' voices

Preference for stories that were read to them in utero

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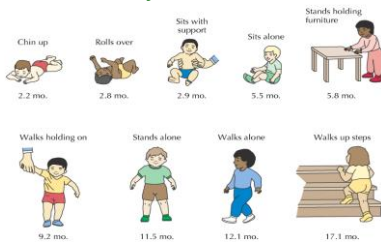
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# Physical Development: Early Childhood



- Milestones in motor development

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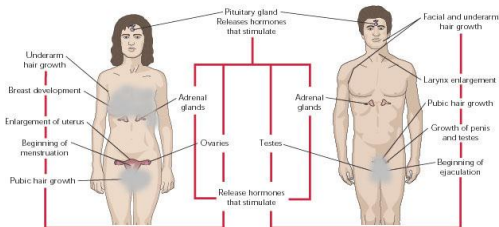
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# Physical Development: Adolescence & Puberty



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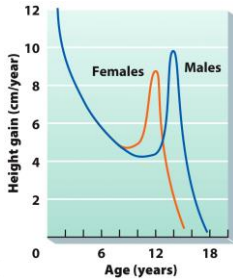
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### Physical Development: Adolescent Growth Spurt



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### Physical Development: Adulthood

- Middle Age:
- Female Menopause
- Male Climacteric



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### Physical Development: Adulthood

- Late Adulthood:
- Primary Aging: gradual, inevitable changes
- Secondary Aging: changes due to disease, disuse, or neglect



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## Physical Development: Adulthood

- Alzheimer's disease
- Information processing
  
- Theories on aging & death
  - Programmed theory
  - Damage theory




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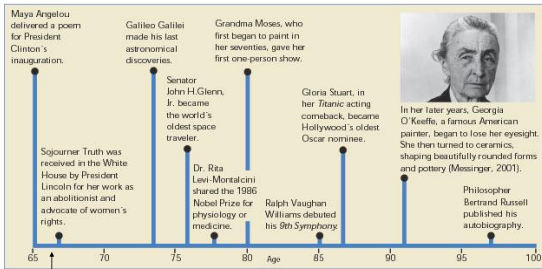
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Frank McCourt publishes *Angela's Ashes*

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### Pause & Reflect: Assessment

1. Teratogens are environmental agents that may lead to birth defects.
  
2. The senses of Smell, taste, touch & hearing & \_\_\_\_\_ are all well developed at birth.




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### Cognitive Development

- **Jean Piaget** believed infants begin at a cognitively “primitive” level & progress in distinct stages.
- Piaget’s **schemas** are the most basic unit of intellect, which act as patterns that organize interactions with the environment.




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### Cognitive Development (Continued)

- Schemas grow & change due to:
  - **Assimilation:** absorbing new information into existing schemas
  - **Accommodation:** adjusting old schemas or developing new ones to better fit with new information




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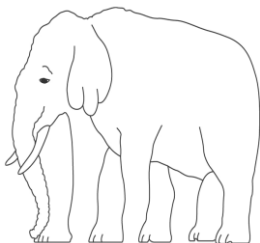
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### Cognitive Development (Continued)



- Can you draw this “impossible figure”? If not, it’s likely that you have not developed the required artistic **schema**.

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## Pause & Reflect: Assessment

1. **Schemas** as patterns that organize interactions with the environment.  
Absorb new info into existing
2. **Assimilation** occurs when \_ schemas whereas **accommodation** involves Adjusting old schemas or developing new ones

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## Cognitive Development: Piaget's Four Stages



- **Sensorimotor:** birth-2 years
- **Preoperational:** 2-7 years
- **Concrete Operational:** 7-11 years
- **Formal Operational:** 11 years & up

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<p><b>1 Sensorimotor stage</b> (birth to age 2)</p>	<p><b>Abilities:</b> Uses senses and motor skills to explore and develop cognitively.</p>	<p><b>Limits:</b> Beginning of stage lacks object permanence (understanding that things continue to exist even when not seen, heard, or felt).</p>
<p><b>2 Preoperational stage</b> (ages 2 to 7)</p>	<p><b>Abilities:</b> Has significant language and thinks symbolically.</p>	<p><b>Limits:</b> - Cannot perform "operations." - Egocentric thinking (inability to consider another's point of view). - Animistic thinking (believing all things are living).</p>
<p><b>3 Concrete operational stage</b> (ages 7 to 11)</p>	<p><b>Abilities:</b> - Can perform "operations" on concrete objects. - Understands conservation (realizing that changes in shape or appearance can be reversed).</p>	<p><b>Limits:</b> Cannot think abstractly and hypothetically.</p>
<p><b>4 Formal operational stage</b> (age 11 and over)</p>	<p><b>Abilities:</b> Can think abstractly and hypothetically.</p>	<p><b>Limits:</b> Adolescent egocentrism at the beginning of this stage, with related problems of the personal fable and imaginary audience.</p>

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Sensory-motor stage (birth to age 2)

- Limits**
- Beginning of stage lacks object permanence (understanding that things continue to exist even when not seen, heard, or felt)
- Abilities**
- Uses senses and motor skills to explore and develop cognitively
- Example**
- Children at this stage like to play with their food.



The Copyright Group, Inc./iStockphoto

### Testing Object Permanence



Preoperational stage (ages 2 to 7)

- Limits**
- Cannot perform "operations" (lacks reversibility)
  - Intuitive thinking versus logical reasoning
  - Egocentric thinking (inability to consider another's point of view)
  - Animistic thinking (believing all things are living)
- Abilities**
- Has significant language and thinks symbolically
- Example**
- Children at this stage often believe the moon follows them.



© Jper-Dimitrius/istockphoto

- Operations
- Egocentrism
- Animism



Concrete operational stage (ages 7 to 11)

- Limits**
- Cannot think abstractly and hypothetically
  - Thinking tied to concrete, tangible objects and events
- Abilities**
- Can perform "operations" on concrete objects
  - Understands conservation (realizing that changes in shape or appearance can be reversed)
  - Less egocentric
  - Can think logically about concrete objects and events
- Example**
- Children at this stage begin to question the existence of Santa.



Image: iStockphoto.com/Photo: Chris Wedel/istockphoto/Getty Images, LLC

### Testing Conservation



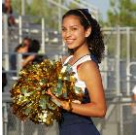


Formal operational stage (age 11 and over)

Limits  
• Adolescent egocentrism at the beginning of this stage, with related problems of the personal fable and imaginary audience

Abilities  
• Can think abstractly and hypothetically

Example  
• Children at this stage show great concern for physical appearance.



- Adolescent egocentrism
- Personal fable
- Risk taking
- Imaginary audience

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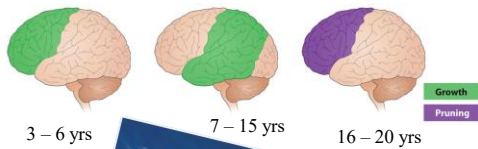
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### Brain Changes in Adolescence




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### Pause & Reflect: Critical Thinking

- Can you explain how this type of risk taking may be an example of the “adolescent personal fable”?




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# Cognitive Development: Assessing Piaget's Theory

Two Major Criticisms

- *Underestimated abilities* (e.g., newborns can imitate facial expressions)
- *Underestimated genetic & cultural influences*




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# Piaget




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## Pause & Reflect: Assessment

- Fill-in-the-blanks with the correct label for each of Piaget's four stages of cognitive development.

 sensorimotor

 preoperational

 concrete operational

 formal operational




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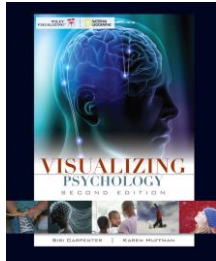
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# End of CHAPTER 9

## Life Span Development I



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