

Lifespan Development

Chapter 5: Infancy Physical and Cognitive Development

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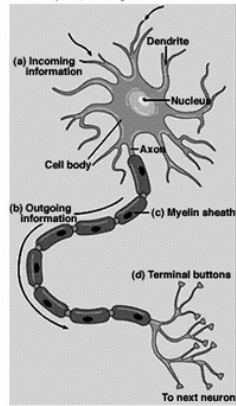
Physical and Cognitive Development in Infancy

- Physical Development
 - Brain Development
 - Neonatal reflexes and abilities
 - Motor development
- Perceptual Development
- Cognitive Development
- Language Development

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Santrock, Child Development, 8e. Copyright © 1998, McGraw-Hill Companies, Inc. All Rights Reserved.

The Neuron



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Dendritic Branching

3.4 Micro-anatomical studies of the human cerebral cortex. Area PG. Crosses of gyrus angularis.
 Left. Newborn infant; camera lucida drawings from Golgi-Cox preparations (1939); right. Infant six months old; drawings from Golgi-Cox preparations (1945).
 From Cowell**

Brain Development

- Growth spurt during prenatal and infancy periods, reaching ½ mature weight by six months
- Role of nutrition (fat / myelin sheath)
- Effects of differential development of brain structures (i.e. auditory and visual cortexes 3 months-1 year)
- Brain behavior interactions
 - Importance of relevant experiences
 - Synaptic pruning – conservation of resources

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Brain maturation

- Late adolescence
- Brain Change – Behavior connection – four patterns
 - Maturation primary
 - Ability present experience required to maintain
 - Partially present – experience to further develop
 - Propensity present – learning dependent on specific experiences

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Perception

- The sorting out, interpretation, analysis and integration of stimuli involving the sense organs and the brain
- Intermodal perception present at birth
- Vision
 - 20 feet at birth
 - Contrast sensitivity/complexity (faces)
 - Depth perception (maturation and experience)

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Infant vision



A

B

Source: Hainline, 1998.

Perception (con't)

- Auditory abilities
 - Begin prenatally
 - Sound localization
 - Infants are more sensitive than adults to high and low pitched sounds

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Perception (con't)

- Smell and taste
 - Present at birth
 - Innate sweet tooth
 - Breastfed newborns can detect mother's smell
- Pain and touch
 - Well developed at birth
 - Touch—especially around mouth, palms and feet
 - Infant pain relief?

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Taste Discrimination



Cognitive Development

- Piaget's sensorimotor period
 - Reflexive schemes
 - First habits (or primary circular reactions)
 - Motivated by basic needs
 - Secondary circular reactions
 - Infant tries to repeat interesting events caused by her actions
 - Coordination of secondary circular actions
 - Object permanence
 - AB error
 - Beginning of goal-directed behavior

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Piaget's Sensorimotor Stage (cont.)

- Tertiary circular reactions
 - Repeat with variation
 - Advanced understanding of object permanence
- Mental representatives
 - Internal representation
 - Deferred imitation
 - Make believe play

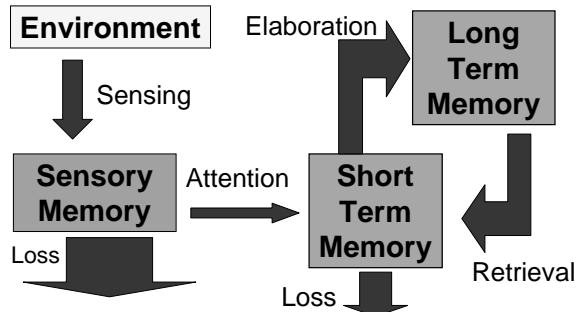
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Information processing model

- Basic structure of mental system doesn't change but capacity does
- Information received is transformed using mental strategies
- Relies on
 - Sensory registers
 - Short-term or working memory
 - Long-term memory

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Atkinson-Shiffrin Model



Information processing model (cont.)

- **Strategies**
 - Attention
 - Memory
 - Categorization
 - Perceptual
 - conceptual
 - Problem-solving

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