

EDU 306
Infancy

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Outline

- ▶ Physical Development of Infants
 - ▶ Physical Growth
 - ▶ Development of Physical Senses
 - ▶ Motor Skills (Movement)
 - ▶ Reflexes
 - ▶ Learned Motor Skills
- ▶ Cognitive Development of Infants
 - ▶ Memory
 - ▶ Abstract Thinking: Symbolism (Object Permanence)
 - ▶ Mathematics
 - ▶ Language
- ▶ Social and Emotional Development of Infants
 - ▶ Form Social Relationships

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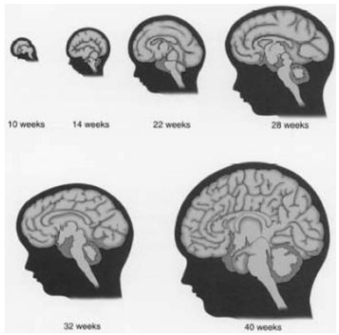
Physical Development: Growth

- ▶ Newborns typically lose about 5% of their birth weight in the first 2 weeks
 - ▶ Double birth weight by 5 months
 - ▶ Triple birth weight by 12 months
- ▶ Legs and arms grow faster than the trunk
- ▶ Head is 25% of adult size at birth and 75% of adult size by 12 months

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Physical Development: Brain Growth

- ▶ When a baby is born, their brain is 25% of the size of the adult brain
 - ▶ The brain **more than doubles** in size during infancy
- ▶ By the age of 3, the child's brain is 80% of its adult size
- ▶ By the time a child enters Primary I, the brain is 90% of its adult size

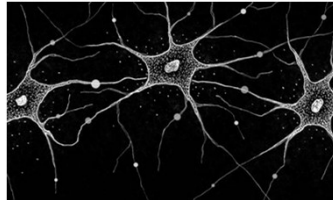


The diagram illustrates the growth of a human brain from 10 weeks to 40 weeks. It shows six cross-sectional views of the brain, each labeled with its corresponding week: 10 weeks, 14 weeks, 22 weeks, 28 weeks, 32 weeks, and 40 weeks. The brains increase in size and complexity, with the 40-week brain being significantly larger and more developed than the 10-week brain.

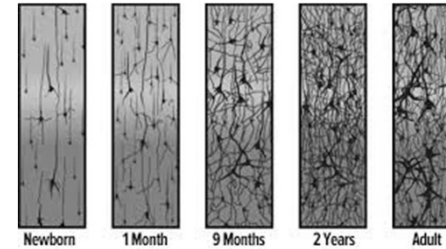
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Physical Development: Brain Growth

- ▶ **Neuron:** Brain cell
- ▶ **Synapse:** Connection between neurons
- ▶ Synapses make the brain work
 - ▶ More synapses means better thinking, moving, communicating, and learning



Physical Development: Brain Growth



- ▶ In the early years, 1 million synapses are made per second
 - ▶ Billions of synapses are developed **in the early years**
 - ▶ After 3 years, synapses that are **not used** are **pruned** (lost)
- ▶ Synapses are developed through:
 - ▶ Experiences
 - ▶ Exposure to language
- ▶ Positive interactions with caregivers

Physical Development: Fostering Brain Growth

- ▶ Good nutrition
- ▶ Warm physical contact
- ▶ Exposure to:
 - ▶ Visual stimuli
 - ▶ Language/singing
 - ▶ Music



Physical Development: Senses

- ▶ **Visual abilities:** Newborns have very fuzzy vision that gradually develops until 2 years of age



Physical Development:
 Senses

- ▶ **Auditory abilities:** Well functioning at birth
 - ▶ Newborns prefer adult female voices
 - ▶ Prefer musical to non-musical sounds
 - ▶ Prefer their native language to other languages
- ▶ **Taste and smell:** Well developed
 - ▶ Prefer breast milk to formula
 - ▶ Turn away from bad odors



Physical Development:
 Reflexes

- ▶ **Reflex:** Automatic response triggered by specific stimuli
 - ▶ **Rooting Reflex:** Stroke the cheek and the baby will open its mouth and turn its head in the direction of the stroke
 - ▶ **Sucking Reflex:** Place any object in the baby's mouth, and it will suck.
 - ▶ **Grasping Reflex:** Touch the palm of the hand, and the baby will grasp the object, sometimes strong enough to hold the entire weight of the baby
- ▶ Most reflexes disappear within the first year



Physical Development:
 Milestones of Infant Motor Development

Motor Skill	Months when 50% of infants achieve	Months when 90% of infants achieve
Lift head when laying flat	1-2	3
Grasp an object	4-5	7
Sits without support	6-7	8
Crawls on hands and knees	7-8	11
Walks holding onto objects	9-10	13
Stands alone well	11	15
Walks alone	11-12	17
Jumps in place	23-24	30



There is cause for concern in a baby's development if...

Age	Key Milestones
By 3 months	Does not respond to loud noises
	Does not follow moving objects with eyes
By 7 months	Seems very floppy like a cloth doll
	Cannot sit with help
By 12 months	Drags one side of body while crawling for more than 2 weeks
	Does not point to objects or pictures
By 24 months	Cannot walk
	Walks only on toes



Physical Development: Physical Needs of Infants

- ▶ Adequate nutrition is vital, which is achieved by breastfeeding from a mother who is well nourished.
 - ▶ Compared to Formula-fed babies, Breastfed babies are:
 - ▶ Healthier
 - ▶ May be more intelligent
- ▶ Malnutrition leads to:
 - ▶ Physical under-development
 - ▶ Slow motor development
 - ▶ Attention problems
 - ▶ Lower intelligence



Physical Development: Nurturing Physical Health in Infancy

- ▶ Meet primary health needs of food, sleep, and comfort
- ▶ Give immunizations before 2 years of age
- ▶ Provide safety from accidents such as falls, burns, and poisoning



Cognitive Development: Memory

- ▶ Memory can last as long as:
 - ▶ 1 day by age 2 months
 - ▶ 1 week by 3 months
 - ▶ Longer than 2 weeks by 6 months



Cognitive Development: Abstract Thinking

- ▶ **Object Permanence:** Object exists even when one cannot sense it → Mental symbolism
 - ▶ Phase 1: If an object disappears, will not search for it
 - ▶ Phase 2: Only search for object if partially hidden or the object is taken while the child was engaged
 - ▶ Phase 3: Will search for an object in its first hiding spot
 - ▶ Phase 4: Continue to search for an object until it is found



Cognitive Development: Mathematics

- ▶ Infants understand very basic maths
 - ▶ Infants correctly demonstrate confusion when one object is added to another object, but only one object remains



Cognitive Development: Language

- ▶ **3 months:** Baby begins to coo (“ooh, aah”)
- ▶ **6-7 months:** Babbling, consists of repeated consonant-vowel combinations
 - ▶ Playing with language is a way of practicing speaking
- ▶ **9 months:** 1) Understand about 20-30 words
 - ▶ 2) Use gestures to communicate
- ▶ **12-14 months:** 1) Says first word
 - ▶ 2) Respond to simple verbal requests
- ▶ **18-24 months:** Word spurt, when children’s vocabulary begins to rapidly increase
- ▶ **24 months:** Uses 2 to 4 word sentences



Cognitive Development Nurturing Language Development

- ▶ **Language Nutrition:** The most important factor in a child’s language development is the quality and quantity of language that child is exposed to.
 - ▶ Talk to infants
 - ▶ Sing to infants
 - ▶ Read to infants
 - ▶ Children whose parents read out loud to them:
 - Show more interest in reading
 - Have larger vocabularies
 - Learn to read faster
 - ▶ *National Centre for Education in Maternal and Child Health* recommends beginning to read to children at 2 months old.
- ▶ Respond to infants’ attempts at language



Cognitive Development: Fostering Cognitive Development in Infants

- ▶ Develop a positive, caring relationship with the infant
 - ▶ Relationships with caregivers is the foundation for healthy cognitive development
- ▶ Create an environment that is safe for the child to explore
 - ▶ Exploration helps the child learn about the world
- ▶ Allow the infant to imitate your behavior and speech
 - ▶ Children’s imitation leads to the development of important skills
- ▶ Talk and read to the infant
- ▶ Expose the infant to music



Social Development: Attachment Theory

- ▶ A child has an innate need to form a secure relationship with an adult (called an “attachment”)
 - ▶ **Secure Attachment:** Baby is relaxed and confident with their caregiver, knowing they can depend on their caregiver for comfort and protection when needed
- ▶ If this attachment is disrupted in the first two years of life, then the child can suffer permanent damage socially, emotionally, and cognitively



Social Development: Attachment Theory

- ▶ The quality of attachment to caregivers in infancy influences the quality of later relationships
 - ▶ A secure attachment is important for positive relationships in future life
 - ▶ Children with secure attachments are more sociable, less aggressive, and more empathetic with other children
 - ▶ Adolescents with secure attachments have more intimate friendships, have higher self esteem, and better grades



Social Development: Fostering a Secure Attachment

- ▶ Understand the baby’s cues that signal what the baby needs
- ▶ Try to always meet the baby’s need for food and rest.
- ▶ Talk, laugh, and play with the baby



Revision

- ▶ Describe the importance of brain development in infancy/toddlerhood
- ▶ Explain what caregivers should do to meet the physical needs of infants.
- ▶ Explain the process of language development in infancy, and what caregivers can do to improve language development.
- ▶ Explain what caregivers can do to nurture cognitive development in infancy
- ▶ Describe Attachment Theory and how parents can foster a secure attachment in their children.

