Chapter 4-5

BIRTH AND THE NEWBORN CHILD
Learning Objectives

• LO 4.1 Explain the gains in height and weight, the two basic principles of physical growth, and the growth of teeth in this period
• LO 4.2 Identify the different parts of the brain and describe how the brain changes in the first few years of life
• LO 4.3 Describe how infant sleep changes in the course of the first year and evaluate the risk factors for SIDS, including the research evidence regarding cosleeping
• LO 4.4 Describe how infants’ nutritional needs change during the first year of life and identify the reasons and consequences for malnutrition in infancy
• LO 4.5 List the major causes and preventive methods of infant mortality and describe some cultural approaches to protecting infants
• LO 4.6 Describe the major changes during infancy in gross and fine motor development
• LO 4.7 Describe when and how infants develop depth perception and intermodal perception
• LO 4.8 Describe the first four sensorimotor substages
• LO 4.9 Explain how object permanence develops over the course of the first year
Learning Objectives

- LO 4.10 Summarize the major critiques of Piaget’s sensorimotor theory.
- LO 4.11 Explain how attention and habituation change during infancy.
- LO 4.12 Explain how short-term and long-term memory expand during infancy.
- LO 4.13 Describe the major scales used in measuring infant development and explain how habituation assessments are used to predict later intelligence.
- LO 4.14 Evaluate the claim that educational media enhance infants’ cognitive development.
- LO 4.15 Describe the course of language development over the first year of life.
- LO 4.16 Describe how cultures vary in their stimulation of language development.
- LO 4.17 Define infant temperament and describe three ways of conceptualizing it.
- LO 4.18 Explain how the idea of goodness-of-fit pertains to temperament on both a family level and a cultural level.
Learning Objectives

- **LO 4.19** Identify the primary emotions and describe how they develop during infancy.
- **LO 4.20** Describe infants’ emotional perceptions and how their emotions become increasingly social over the first year.
- **LO 4.21** List the main features of infants’ social worlds across cultures.
- **LO 4.22** Compare and contrast the two major theories of infants’ social development.
Learning Objectives

- **LO 5.1** Describe the typical changes in physical growth that take place in toddlerhood and explain the harmful effects of nutritional deficiencies on growth.
- **LO 5.2** Describe the changes in brain development that take place during toddlerhood, and identify the two most common methods of measuring brain activity.
- **LO 5.3** Describe the changes in sleeping patterns and sleeping arrangements that take place during toddlerhood.
- **LO 5.4** Describe the advances in motor development that take place during toddlerhood.
- **LO 5.5** Compare and contrast the process and timing of toilet training in developed countries and traditional cultures.
- **LO 5.6** Distinguish the weaning process early in infancy from weaning later in toddlerhood.
- **LO 5.7** Outline the cognitive achievements of toddlerhood in Piaget’s theory.
- **LO 5.8** Explain Vygotsky’s sociocultural theory of cognitive development and contrast it with Piaget’s theory.
Learning Objectives

• LO 5.9  Summarize the evidence for the biological and evolutionary bases of language
• LO 5.10  Describe the milestones in language development that take place during the toddler years
• LO 5.11  Identify how parents’ stimulation of toddlers’ language varies across cultures and evaluate how these variations relate to language development
• LO 5.12  Describe how emotional development advances during toddlerhood and identify the impact of culture on these changes
• LO 5.13  Describe the changes in self-development that take place during toddlerhood
• LO 5.14  Distinguish between sex and gender and summarize the evidence for the biological basis of gender development
• LO 5.15  Describe the essential features of attachment theory and identify the four classifications of attachment
• LO 5.16  Identify the key factors influencing the quality of toddlers’ attachment to their mothers, and explain what effect attachment quality has on development
Learning Objectives

• LO 5.17 Summarize the major critiques of attachment theory, including the cultural critique
• LO 5.18 Compare and contrast the typical patterns of father involvement with infants and toddlers in traditional cultures and developed countries
• LO 5.19 Describe relationships with siblings, peers, and friends during toddlerhood
• LO 5.20 Identify the characteristics of autism spectrum disorders and recognize how they affect prospects for children as they grow to adulthood
• LO 5.21 Identify the typical rates of television use in toddlerhood and explain some consequences of toddlers’ TV watching
Physical Development
Motor and Sensory Development

• Cultural practices emphasize the role of environment on gross motor skills
• Swaddling is common practice which can be restrictive to infants
• Other cultures encourage gross motor skills
• Long-term effects tend to minimally impact gross motor development

LO 4.6 Gross and Fine Motor Development
Physical Development
Motor and Sensory Development

• Fine motor skills are the more precise motor abilities
• Major accomplishments include reaching and grasping
• By 9-12 mos., learn pincer grasp that allows feeding of themselves

LO 4.6 Gross and Fine Motor Development
Physical Development
Motor and Sensory Development

• Depth perception is influenced by development of binocular vision at 2-3 months of age
  ▪ Important when children become mobile

• Intermodal perception
  ▪ One-month-olds match things in mouth to things they touch
  ▪ By eight months can match unfamiliar faces with correct voice and gender

LO 4.7 Depth Perception and Intermodal Perception
Cognitive Development
Piaget’s Theory of Cognitive Development

• Sensorimotor Substages:  
  ▪ (0-1 month) Simple reflexes- Sucking and grasping.  
  ▪ (1-4 months) First habits & primary circular reactions- Learn to repeat bodily movements.  
  ▪ (4-8 months) Secondary circular reactions- The repetition of movements that originally occurred by chance.  
  ▪ (8-12 months) Coordination of secondary schemes- Are now movements of intention.

LO 4.8 Sensorimotor Substages
Object Permanence

LO 4.9 Object Permanence

- Object permanence - objects continue to exist even when not aware of them
  - Under 4 months no understanding
  - 4-8 months - uncertainty about existence of object when dropped (babies look only briefly)
  - 8-12 months - Developing awareness
    - Will still make A not B error - Babies believed they appeared the object under blanket A and if under blanket B they believe the object has disappeared. Limited understanding of object permanence.
Evaluating Piaget’s Sensorimotor Theory

• Criticisms:
  ▪ Underestimating infants’ ability, especially regarding object permanence—
    Piaget’s came up with his Sensorimotor theory by just observing his own 3
    children. Since then it has been researched and they found he was correct. But
    maybe not when it came to Object permanence.
  ▪ Baillargeon and colleagues tested infant abilities using the “violation of
    expectations method” Infants look longer at something that violates their
    understanding. For example, a baby will look longer for a toy they have seen
    hidden at one spot in the sandbox it emerges in a different spot.
  ▪ Object permanence may reflect memory development— When considering the A-
    not B error method, depending on how long the object was moved may have
    contributed to the baby not being interested in where the object was placed.

LO 4.10 Critiques of Piaget’s Theory
Information Processing in Infancy

LO 4.11 Attention and Habituation Changes

• Information processing approach- Views cognitive change as continuous. Which means the change is gradual and steady.

• Historically, computer analogy was used, but awareness that brain is more complex has led to other models.

• Human thinking divided into capacities for attention, processing and memory. Their experiences develops the brain.
Information Processing in Infancy
LO 4.11 Attention and Habituation Changes

Figure 4.7 Information Processing Model
The components of the model operate simultaneously.
Attention/Habituation

LO 4.11 Attention and Habituation Changes

- Attention studied using habituation and dishabituation
- Habituation—gradual decrease in attention after repeated presentation.
- Dishabituation—revival of attention with a new stimulus. If you show a child a toy continually but then show them another toy, they lose interest in the old toy.
Attention/Habituation

LO 4.11 Attention and Habituation Changes

- Neonates- several minutes before dishabituation
- 4-5 month-olds- only several seconds
- Infants become better at perceiving and processing stimuli
- End of first year- joint attention highlights social attention
Memory
LO 4.12 Short-term and Long-term Memory

• Short Term memory improves during first year of life
  ▪ Object permanence tasks show infants can remember more locations of hidden objects

• Long Term memory increases as well

• Difference between recognition memory and recall memory
Assessing Infant Development

• Arnold Gesell – four subscale assessment tool determines child’s development in the following categories.
  ▪ Motor skills- fine and gross motor skills
  ▪ Language Use- measures the use of language and understanding
  ▪ Adaptive behavior- Exploring
  ▪ Personal-Social behavior- using a spoon
• Development Quotient (DQ)- The method of the overall measurement of development.
Assessing Infant Development
LO 4.13 Assessing Infant Development

• No longer use Gesell’s assessment tool but it has influenced the Bayley Scales of Infant Development tool which measures infants development

• 3 main scales:
  ▪ Cognitive
  ▪ Language
  ▪ Motor

• Not predictive of later IQ, but can be used as a screening tool
• Information processing model uses habituation (adjust) to assess intelligence
• Infants with short habituation time, process information more quickly
• Longitudinal studies have shown a connection between habituation time and IQ and higher achievement
Media Stimulation
LO 4.14 Educational Media

• “Mozart” effect led to creation of educational videos and DVDs in the 1990’s
  ▪ Most studies have not supported the effectiveness of education CDs and videos

• Effective ways to encourage cognitive interaction includes talking, reading, responding and patience. Talk, Read, Sing Campaign by First Five of California.
### TABLE 4.2 Milestones of Infant Language Development

<table>
<thead>
<tr>
<th>Age</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 months</td>
<td>Cooing (preverbal and gurgling sounds)</td>
</tr>
<tr>
<td>4–10 months</td>
<td>Babbling (repetitive consonant–vowel combinations)</td>
</tr>
<tr>
<td>8–10 months</td>
<td>First gestures (such as “bye-bye”)</td>
</tr>
<tr>
<td>10–12 months</td>
<td>Comprehension of words and simple sentences</td>
</tr>
<tr>
<td>12 months</td>
<td>First spoken word</td>
</tr>
</tbody>
</table>

**Note:** For each milestone there is a normal range, and babies who are somewhat later in reaching the milestones may nevertheless have normal language development.
Many cultures use infant-directed speech to speak to infants:
- Higher Pitch with simplified grammar
- Exaggerated intonation and phrases repeated

Infants seem to prefer this speech and is common in many cultures.
Emotional and Social Development
Temperament

LO 4.17 Infant Temperament

• Temperament-innate tendencies that are the raw material of personality
  ▪ Composed of activity level, adaptability, intensity of reactions and quality of mood
  ▪ Classified as:
    - Easy
    - Difficult
    - Slow to warm up

• Current research adds self-regulation or sociability
Goodness of Fit

LO 4.18 Goodness-of-fit

• Goodness-of-fit - match between temperament and environmental demands
  ▪ Babies with negative temperamental qualities did better with tolerant parents

• Cultures value different traits leading to cultural goodness of fit
  ▪ Asian babies less active as this is culturally important
<table>
<thead>
<tr>
<th>Quality</th>
<th>Description</th>
<th>Quality</th>
<th>Description</th>
<th>Quality</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity level</td>
<td>Ratio of active time to inactive time</td>
<td>Activity level</td>
<td>Frequency and intensity of gross motor activity</td>
<td>Activity</td>
<td>Overall activity level</td>
</tr>
<tr>
<td>Attention span</td>
<td>Length of time devoted to an activity before moving on to the next</td>
<td>Attention span/persistence</td>
<td>Duration of attention to a single activity</td>
<td>Attention span</td>
<td>Duration of attention to a single activity</td>
</tr>
<tr>
<td>Intensity of reaction</td>
<td>Emotional expressiveness, e.g., crying, laughing</td>
<td>Fearful distress</td>
<td>Fear/distress in response to novel or intense stimulation</td>
<td>Emotionality</td>
<td>Emotional reactivity</td>
</tr>
<tr>
<td>R rhythmicity</td>
<td>Regularity of physical functions such as feeding and sleeping</td>
<td>Irritable distress</td>
<td>Expression of distress when frustrated</td>
<td>Soothability</td>
<td>Responsiveness to attempts to soothe when distressed</td>
</tr>
<tr>
<td>Distractibility</td>
<td>Extent to which new stimulation stops current behavior, e.g., when crying</td>
<td>Positive affect</td>
<td>Frequency of expression of happiness and other positive emotions</td>
<td>Sociability</td>
<td>Degree of interest in others, positive or negative responses to social Interactions</td>
</tr>
<tr>
<td>Approach/Withdrawal</td>
<td>Response to new object or person</td>
<td>Self-regulation</td>
<td>Ability to suppress an initial response to a situation and execute a more adaptive response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptability</td>
<td>Adjustment to changes in routines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold of responsiveness</td>
<td>Stimulation required to evoke a response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of mood</td>
<td>General level of happy versus unhappy mood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Based on: Buss & Plomin (1984); Rothbart et al. (2000); Thomas & Chess (1977).
Infant Emotions

LO 4.19 Primary Emotions

- Primary emotions are basic emotions we share with other animals
- Secondary emotions develop later and are called socio-moral emotions—sense of self like embarrassment, shame or guilt. This learning happens in social settings.
- Primary emotions—distress, interest and pleasure in first weeks of life
  - Becomes anger, sadness, fear, surprise and happiness
Infant Emotions
LO 4.19 Primary Emotions

- Anger as being separate from crying occurs by 7 months of age
- Sadness is rare unless mothers are depressed
- Fear - by 6 months of age
  - Fear seems to occur with stranger anxiety
- Surprise - about 6 months of age
- Happiness - 2 to 3 months
Infants’ Emotional Perceptions

LO 4.20 Infants’ Emotional Perceptions

- Emotional contagion: crying in response to hearing another cry
- At first, infants perceive emotions better by hearing than seeing
- Still-face paradigm shows infants quickly learn to expect certain emotional reactions
- By 7 months, can match auditory to visual emotions
- By 9-10 months, show social referencing
1. Infants are with their mothers for the early months of life
2. After 6 months, most daily care done by older girls rather than the mother
3. Infants are among many other people in the course of the day

LO 4.21 Infants’ Social Worlds
4. Infants are held or carried almost constantly
5. Fathers are usually remote or absent during first year

LO 4.21 Infants’ Social Worlds
Erikson’s First stage focuses on trust versus mistrust

Centers around the emotional and social bond and not the biological bond

Developing trust in infancy provides foundation for future social development
• Bowlby’s attachment theory focused on early quality relationships as well
• Focused on primary caregiver being sensitive and responsive
• Origins in evolutionary theory and research on mother-offspring relationships in animals
Physical Development
Bodily Growth

LO 5.1 Changes in Physical Growth

- Children lose baby fat and become leaner
- About 6 months of age solid food could become part of diet
- Deficiencies can occur
  - Kwashiorkor—Protein deficiency
  - Micronutrient deficiency—Lack of crucial vitamins and minerals
Figure 5.1  Growth Chart for American Girls From Birth Through Age 3  Growth slows from infancy to toddlerhood but remains rapid. Source: Based on National Center for Health Statistics
Brain Development
LO 5.1 Changes in Physical Growth

• Early brain development is marked by two key developments
  ▪ Synaptic density—increase of synaptic connections among neurons
    - Frontal cortex heavily impacted
  ▪ Synaptic pruning—connections between neurons become fewer, but more efficient
    - Increases efficiency by allowing unused synapses to wither away
Figure 5.2  Changes in Synaptic Density From Birth to Age 2  Synaptic connections increase throughout the first 2 years, with the greatest density occurring at the end of toddlerhood. Source: Conel, 1930/1963
Toddlerhood marks time period during which most methods of measuring brain activity can be used

- EEG (Electroencephalogram)—measures electrical activity of cerebral cortex
- FMRI (Functional Magnetic Resonance Imaging)—uses a magnetic field to record changes in blood flow and oxygen
Figure 5.3 • fMRI Machine It is not until after toddlerhood that most children can lie still long enough to have an fMRI.
Sleep and Teething
LO 5.3 Changes in Sleeping Patterns

• Sleep declines from 16–18 hours as newborn to about 12–13 hours by second birthday

• Sleeping through the night can be impacted by several things including
  ▪ Resurgence of teething
  ▪ Awareness of separate sleeping arrangements
Motor Development: Gross Motor Development

• 11 months—walk without support
• 15 months—stand and begin to climb
• 18 months—some running
• 24 months—kicks with more dexterity
• Developed and developing countries may show some slight age range differences, but development progresses comparably

LO 5.4 Motor Development
<table>
<thead>
<tr>
<th>Age (Months)</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-16</td>
<td>Stand alone</td>
</tr>
<tr>
<td>9-17</td>
<td>Walk without support</td>
</tr>
<tr>
<td>11-19</td>
<td>Stand on one leg</td>
</tr>
<tr>
<td>11-21</td>
<td>Climb onto chairs, beds, up stairs, etc.</td>
</tr>
<tr>
<td>13-17</td>
<td>Walk backward</td>
</tr>
<tr>
<td>14-22</td>
<td>Run</td>
</tr>
<tr>
<td>17-30</td>
<td>Jump in place</td>
</tr>
<tr>
<td>16-30</td>
<td>Walk on tiptoes</td>
</tr>
<tr>
<td>22-36</td>
<td>Walk up and down stairs</td>
</tr>
</tbody>
</table>

Source: Based on Adolph & Berger (2006); Rayley (2005); Coovadia & Willenbery (2004); Hrankenburg et al. (1992); Murkoff et al. (2006).

Note: The range shown is the age period at which 90% of toddlers achieve the milestone.
Motor Development: Fine Motor Development

- Substantial gains in fine motor skills in toddlerhood.
- At 12 months can show left or right preference for eating.
- Learns to hold cup, scribble with a pencil, and turn pages of a book.
- Second year expands previous fine motor skills.

LO 5.4 Motor Development
### TABLE 5.2 Milestones of Fine Motor Development in Toddlerhood

<table>
<thead>
<tr>
<th>Age (Months)</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-15</td>
<td>Hold writing instrument (e.g., pencil, crayon)</td>
</tr>
<tr>
<td>8-16</td>
<td>Coordinate actions of both hands</td>
</tr>
<tr>
<td>10-19</td>
<td>Build tower of 2 blocks</td>
</tr>
<tr>
<td>10-21</td>
<td>Scribble vigorously</td>
</tr>
<tr>
<td>12-18</td>
<td>Feed self with spoon</td>
</tr>
<tr>
<td>15-23</td>
<td>Build tower of 3–4 blocks</td>
</tr>
<tr>
<td>20-28</td>
<td>Draw straight line on paper</td>
</tr>
<tr>
<td>24-32</td>
<td>Brush teeth</td>
</tr>
<tr>
<td>26-34</td>
<td>Build tower of 8–10 blocks</td>
</tr>
<tr>
<td>29-37</td>
<td>Copy circle</td>
</tr>
</tbody>
</table>

**Source:** Based on Adolph & Berger (2006); Rayley (2005); Coovadia & Willenbery (2004); Hrankenburg et al. (1992); Murkoff et al. (2006).

**Note:** The range shown is the age period at which 90% of toddlers achieve the milestone.
Socializing Physical Functions: Toilet Training

• 4 ways to identify it is time for toilet training
  ▪ Staying dry for hour or two during the day
  ▪ Regular bowel movements
  ▪ Increased anticipation of the event
  ▪ Directly asking to use the toilet or wear underwear

LO 5.5 Process and Timing of Toilet Training
Socializing Physical Functions: Weaning

- Breastfeeding for 2–3 years has been typical human custom
- Transition from infancy to toddlerhood varies from different cultures
- The Bali approach can be a mix of gentle and harsh
- The Fulani people separate infants from their mothers during weaning
Map 5.1 Cultural Variations in the Length of Breastfeeding Which countries and regions have the highest rates of breast feeding at 20-23 months, and which the lowest? What cultural and economic differences might explain these variations?