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
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
Brain Development

LO 5.2 Changes in Brain Development

- 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
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.

LO 5.6 The Weaning Process
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?
Cognitive Development
Piagetian Theory
LO 5.7 Cognitive Achievements According to Piaget

• Piaget’s sensorimotor stage continues into toddlerhood
  ▪ Stage 5: Tertiary Circular Reactions—Intentionally try out different behaviors
    – Little scientists
  ▪ Stage 6: Mental Representations—Think about possibilities and select actions
    – Symbolic thought
Further cognitive advancements during toddlerhood according to Piaget:

- **Object Permanence**
  - A-not-B error is avoided—now look for objects where they last saw it hidden.

- **Deferred Imitation**
  - Piaget suggested 18 months, but shown to begin sooner

- **Categorization**
Lev Vygotsky viewed cognitive development as both a social and cultural process.

- Social - children learn through interaction with others.
- Cultural - what children need to know is determined by the culture in which they live.
Vygotsky’s Sociocultural Theory

Two influential ideas are Zone of Proximal Development and Scaffolding

- Zone of Proximal Development (ZPD)—range of skills child can perform IF guided, but can’t accomplish alone
- Scaffolding—Degree of assistance provided

Led to extension of theory

- Guided Participation—Teaching interaction between two people
Many evolutionary biologists believe language developed for its social functionality.

Important distinguishing feature of human language is

- Infinite Generativity—Combine symbols in infinite ways.
Language Development: Biology and Evolution

- Biologically humans are built for uniqueness in language
  - Unique vocal apparatus
  - Broca’s and Wernicke’s area
  - Genes
- Evolutionary advantage over our predecessors

LO 5.9 Biological and Evolutionary Bases of Language
Figure 5.4 • Illustration of the Brain Lobes Showing Location of Broca’s Area and Wernicke’s Area
Language Development: Milestones

• Begins slowly then begins to rise sharply during toddlerhood
• 12–18 months called the slow expansion
• First 50 words or so part of toddler routine
Slow Expansion

- Holophrases
- Overextensions
- Underextensions
Language Development: Milestones

- During naming explosion pace of learning new words doubles
- Begin to see the process of fast mapping and use of telegraphic speech
Naming Explosion

- Fast Mapping
- Telegraphic Speech
Language Development: Milestones

- During third year toddler becomes more adept at language
- Diminished frequency of overextension and underextension
- Show understanding of rules of language
- Show overregularization - applying grammatical rules in cases that call for exception.

LO 5.10 Language Development Milestones
Language Development: Parenting

• Research on U.S. children and parents focuses on how language is fostered
  ▪ Sex differences & Social class differences
    – Which sex is typically more talkative? Why?
    – Which group showed better vocabulary? Why?
  ▪ Maternal responsiveness
    – Affirmations and expansions correlated positively with early milestones

LO 5.11 Parents’ Stimulation of Toddler’s Language
Some believe parent-child interaction is most important for language development.

Cultural differences suggest that social environment is also important.

Cultural beliefs dictate the importance of conversation with parents, mixed age groups become more important.
Emotional and Social Development
Self-Development in Toddlerhood
LO 5.12 Emotional Development

• This is the stage of life when a distinct sense of self first develops
• Self-awareness reflects an understanding of the distinction between self and the external world
  ▪ Self-recognition—recognizing image of self
  ▪ Self-reflection—think about themselves as they would think about others
Emotional Regulation

LO 5.12 Emotional Development

• Emotional regulation advances in 4 ways
  ▪ Behavioral development
  ▪ Use of language
  ▪ Social demands (external requirements)
  ▪ Development of sociomoral emotions

• “Terrible twos” may occur because of increased sense of self
Emotional Development
LO 5.12 Emotional Development

• Primary emotions develop in infancy
• Social emotions develop in toddlerhood
• They include
  ▪ Guilt
  ▪ Shame
  ▪ Embarrassment
  ▪ Envy
  ▪ Pride
Emotional Development

LO 5.12 Emotional Development

- Known as sociomoral emotions
- Empathy is an extremely important sociomoral emotion
Gender Identity

LO 5.14 Gender Development

- Children begin to identify as male or female during toddlerhood
  - Sex—Biological status of being male or female
  - Gender—Cultural categories of male and female

- Culture communicates gender expectations to boys and girls
Gender Identity
LO 5.14 Gender Development

- Adults asked to play with the same infant; some told it was a girl, some told it was a boy, some given no information
- Male child—50% men, 80% women chose football
- Female child—89% men, 73% women used doll
- Sidorowicz & Lunney (1998)
Attachment Theory

LO 5.15 Attachment Theory

• Thought to be driven by reduction of a distressing physical state and pleasure of feeding
• Three important research findings
  ▪ Rene Spitz—emotional delays developed even when infants’ physical needs met
Harry Harlow—baby monkey spent more time with cloth monkey even if being fed by a wire monkey

Ethologists showed that bonding occurred immediately after birth. Konrad Lorenz-imprinting
Attachment: John Bowlby
LO 5.15 Attachment Theory

- Bowlby concluded that attachment is based on the need for protection and survival, not nourishment
  - Primary attachment figure
  - Attachment has an evolutionary base
  - As the child gets older stranger anxiety will develop
  - Separation anxiety
<table>
<thead>
<tr>
<th>Age</th>
<th>African Bushman (n=25)</th>
<th>Antigua, Guatemala (n=36)</th>
<th>Israeli Kibbutz (n=122)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 months</td>
<td>0</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>9 months</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>14 months</td>
<td>100</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>20 months</td>
<td></td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>25 months</td>
<td>80</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>35 months</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on data from Kagan et al., 1978.
Mary Ainsworth devised a procedure to evoke attachment behavior. The strange situations devised to assess attachment by going through 8 vignettes led to the development of four attachment classifications.
Figure 5.5 The strange situation. The Strange Situation features a series of episodes in which (a) the mother leaves the room, (b) the toddler is alone with the stranger, and (c) the mother returns to the room and is reunited with the toddler.
Variations in Attachment
LO 5.15 Attachment Theory

• Secure attachment—Mom is secure base, cry upon separation, return to mom upon return

• Insecure avoidant attachment—No interaction with mom, no response upon separation or return
Variations in Attachment
LO 5.15 Attachment Theory

• Insecure resistant attachment—less likely to return, show distress upon separation, show ambivalence upon return

• Disorganized-disorientated—extremely unusual behavior, dazed when mom leaves and fear upon return
Attachment Quality and Later Development

• Attachment theory suggests quality influenced by
  ▪ Maternal Sensitivity—what a child needs at any given time
  ▪ Maternal Responsiveness—quick to assist or soothe when needed

LO 5.16 Quality of Attachment
Attachment Quality and Later Development

- Bowlby suggested that “internal working model of attachment” can apply to later relationships.
- Research is mixed but the disorganized attachment does seem to be predictive of later problems.

LO 5.16 Quality of Attachment
Many American children live in households in which both parents are working. Which states have the highest percentage of working parents? How will this influence the need for early child care in these states?
Critiques of Attachment Theory

LO 5.17 Critique of Attachment

• Child effect critique
  ▪ Children are born with different temperaments
  ▪ Influence is bidirectional

• Cultural critique
  ▪ Attachments are recognizable across cultures
  ▪ May vary based on care giving styles encouraging interdependence vs. independence
Figure 5.7 Cultural Variations in the Strange Situation Across cultures, most toddlers exhibit secure attachment in response to the Strange Situation. In this study toddlers in Japan were more likely to be classified as insecure-resistant and less likely to be classified as insecure-avoidant than toddlers in other countries. Source: Based on van IJzendoorn & Kroonenberg, 1988
The Social World of the Toddler
The Role of Fathers

• Fathers in traditional cultures
  ▪ Provider and disciplinarian (but can be warm)
    - Some contrasts are the Warlpiri (aboriginal Australia) who have unique bond with daughter and the Manus (New Guinea) who become primary attachment figure by toddlerhood.

LO 5.18 Father Involvement
The Social World of the Toddler
The Role of Fathers

• Fathers in developed countries
  ▪ Provider and interact less with more play than care
    – Change to more egalitarian in recent years
    – Parenting learned, not innate

LO 5.18 Father Involvement
The Social World of the Toddler
Siblings: Younger and Older

• In traditional cultures older siblings may be responsible for the care of the younger sibling
• Older sibling can provide emotional comfort and security if primary not around

LO 5.19 Relations With Siblings, Peers, & Friends
The Social World of the Toddler

Siblings: Younger and Older

• Younger siblings can lead to negative consequences including attachment changes, increased aggressiveness

• Parents can help but conflict is more common in siblings than any other relationship

LO 5.19 Relations With Siblings, Peers, & Friends
Peer interaction can be understood by types of play

- Solitary play—all by themselves
- Parallel play—same activity but not with each other
- Simple social play—talking, smiling, sharing
The Social World of the Toddler
Peers and Friends

• Toddlers in day care exhibit social play sooner
• Friendships can develop as in later ages: Companionship, mutual affection, and emotional closeness

LO 5.19 Relations With Siblings, Peers, & Friends
Autism: A Disruption in Social Development

• Features for diagnosis include
  ▪ Lack of interest in social relations
  ▪ Abnormal language development
  ▪ Repetitive behaviors

LO 5.20 Autism Spectrum Disorders
Toddlers with autism have deficits in their social and language development. Here, a boy plays alone at a school for children with autism in Beijing, China.
Autism: A Disruption in Social Development

- 1:500 children affected by autism
- 4:100 have features (Autistic Spectrum Disorder)
- Origins are unclear
- Although diagnosed between 18–30, it can be seen in infancy
- May never develop language
- As adults, may live with parents or in sponsored group homes
The Social World of the Toddler
Media Use in Toddlerhood

• 58% of children under 3 watch TV every day
• Toddlers understand images are not real although it is not completely clear
• Can encourage pro-social behavior
• Displacement effect is a concern
• It is suggested that children watch no more than 2 hours of television per day

LO 5.21 Television Use in Toddlerhood