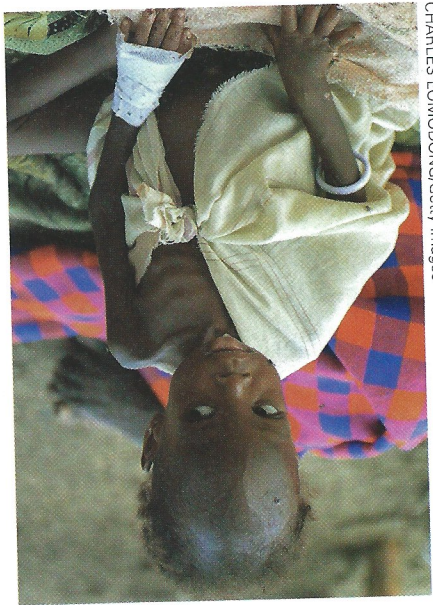
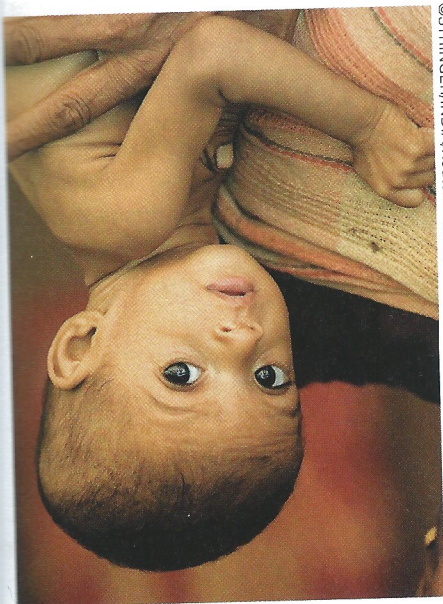


**Same Situation, Far Apart: Children Still Malnourished** Infant malnutrition is still common in some nations. The 16-month-old at the left is from South Sudan, a nation suffering from civil war for decades. The 7-month-old boy in India on the right is a twin—a risk for malnutrition. Fortunately, they are getting medical help, and their brains are somewhat protected because of head-sparing.



CHARLES LOMODONG/Getty Images



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breast-feeding, and then supplemental iron and vitamin A stop malnutrition before it starts. Once malnutrition is apparent, highly nutritious formula (usually fortified peanut butter) often restores weight—but not always. A combination of factors—genetic susceptibility, poor nutrition, infection, and abnormal bacteria in the digestive system (the microbiome)—may be fatal (M. Smith et al., 2013). Giving severely ill children an antibiotic to stop infection saves lives—but always, prevention is best (Gough et al., 2014).

### WHAT HAVE YOU LEARNED?

1. Why is polio still a problem in some nations?
2. Why do doctors worry about immunization rates in the United States?
3. What are the reasons for and against breast-feeding until a child is at least 1 year old?
4. When is it advisable that a woman not breast-feed?
5. What is the relationship between malnutrition and disease?
6. Which is worse, stunting or wasting? Why?

### SUMMARY

#### Body Changes

1. In the first two years of life, infants grow taller, gain weight, and increase in head circumference—all indicative of development. On average, birthweight doubles by 4 months, triples by 1 year, and quadruples by 2 years.
2. By age 2, the average well-nourished child weighs about 28 pounds (12.7 kilograms) and has gained more than a foot in height since birth, reaching about one-half of adult height.
3. Medical checkups in the first months of a child's life focus especially on weight, height, and head circumference because

4. The amount of time a child sleeps decreases over the first two years. Variations in sleep patterns are normal, caused by both nature and nurture. Bed-sharing is the normal in many developing nations, although it increases the risk of SIDS. Co-sleeping is increasingly common in developed nations.
  5. Brain size increases dramatically, from about 25 to about 75 percent of adult brain weight in the first two years. Complexity
- early detection of slow growth can halt later problems. Percentile changes can signify difficulties.



as well, with cell growth, development of dendrites, and of synapses.

Stimulation is experience-expectant, needed for normal development. Both exuberant growth and pruning aid as the connections that are experience-dependent are refined.

Stimulation is vital for brain development. An infant who is neglected, overstressed, or deprived of stimulation may be delayed.

## Learning and Moving

The senses already respond to stimuli. Prenatal experiences hearing the most mature sense. Vision is the least mature at birth, but it improves quickly with experience. Infants use their senses to strengthen their early social interactions.

Senses of smell, taste, and touch are present at birth, and infants respond to their social world. Pain is experienced; infant pain is not identical to adult pain.

Infants gradually improve their motor skills as they begin to walk. Motor maturation continues. Control of the body progresses from the head downward (cephalocaudal) and from the center to the extremities (proximodistal).

Motor skills are mastered throughout infancy, depending on practice, motivation, and maturation. Major advances are

sitting up (at about 6 months), walking (at about 1 year), and running (before age 2).

12. Fine motor skills also improve, as infants learn to grab, aim, and manipulate almost anything within reach. Development of the senses and motor skills are mutually reinforcing.

## Surviving in Good Health

13. About 2 billion infant deaths have been prevented in the past half-century because of improved health care. One major innovation is immunization, which has eradicated smallpox and almost eliminated polio and measles.

14. Public health workers are concerned that some regions of the world, and some states of the United States, have immunization rates that are below herd immunity. Young infants may be most vulnerable to viruses, although deaths from childhood diseases can occur at any age.

15. Breast milk helps infants resist disease and promotes growth of every kind. Most babies are breast-fed at birth, but rates over the first year vary depending on family and culture. Pediatricians now recommend breast milk as the only nourishment for the first four to six months.

16. Severe malnutrition stunts growth and can cause death, both directly through marasmus or kwashiorkor and indirectly if a child becomes sick. Stunting and wasting are both signs of malnutrition, which has become less common worldwide except in some nations of sub-Saharan Africa.

## MS

136) neurotransmitter (p. 140)  
 movement) myelin (p. 140)  
 cortex (p. 140)  
 138) prefrontal cortex (p. 140)  
 138) limbic system (p. 140)  
 139) amygdala (p. 141)  
 hippocampus (p. 141)  
 hypothalamus (p. 141)  
 cortisol (p. 141)  
 pituitary (p. 141)

transient exuberance (p. 142)  
 pruning (p. 142)  
 experience-expectant (p. 142)  
 experience-dependent (p. 142)  
 shaken baby syndrome (p. 146)  
 self-righting (p. 146)  
 sensation (p. 147)  
 binocular vision (p. 148)  
 motor skill (p. 150)  
 gross motor skills (p. 150)  
 fine motor skills (p. 151)  
 sudden infant death syndrome (SIDS) (p. 154)  
 immunization (p. 156)  
 protein-calorie malnutrition (p. 159)  
 stunting (p. 159)  
 wasting (p. 159)

## ATIONS

regulations and practices vary, partly for social reasons. Ask at least two faculty or administrative staff members about immunizations the students at your college receive. If you hear "It's a law," ask why.

Observe infants (whom you do not know) in public places, playground, or bus. Look closely at body posture, especially how much control each baby has over legs and hands. From that, estimate the

baby's age in months. Then ask the caregiver how old the infant is. Explain your accuracy.

3. This project can be done alone, but it is more informative if several students pool responses. Ask 3 to 10 adults whether they were bottle-fed or breast-fed and, if breast-fed, for how long. If someone does not know, or expresses embarrassment, that itself is worth noting. Do you see any correlation between adult body size and infant feeding?

**SUMMARY**

**Sensorimotor Intelligence**

1. Piaget realized that very young infants are active learners who seek to understand their complex observations and experiences. The six stages of sensorimotor intelligence involve early adaptation to experience.

2. Sensorimotor intelligence begins with reflexes and ends with mental combinations. The six stages occur in pairs, with each pair characterized by a circular reaction; infants first react to their own bodies (primary), then respond to other people and things (secondary), and finally, in the stage of tertiary circular reactions, infants become more goal-oriented, creative, and experimental as “little scientists.”

3. Infants gradually develop an understanding of objects. According to Piaget’s classic experiments, infants understand object permanence and begin to search for hidden objects at about 8 months. Newer research, using brain scans and other new methods, finds that Piaget underestimated infant cognition.

**Information Processing**

4. Another approach to understanding infant cognition involves information-processing theory, which looks at each step of the thinking process, from input to output. The perceptions of a young infant are attuned to the particular affordances, or opportunities for action, that are present in the infant’s world.

5. From a baby’s perspective, the world is filled with exciting affordances, and babies are eager to experience all of the opportunities for learning available to them. Adults are more cautious, and perhaps less perceptive.

6. Infant memory is fragile but not completely absent. Reminders sessions help trigger memories, and young brains learn motor sequences and respond to repeated emotions (their own and those of other people) long before explicit memory, using words.

**WHAT HAVE YOU LEARNED?**

1. What communication abilities do infants have before they talk?
2. What aspects of early language development are universal, apparent in every them?
3. What is typical of the first words that infants speak and the rate at which they learn?
4. What are the early signs of grammar in infant speech?
5. According to behaviorism, how do adults teach infants to talk?
6. According to sociocultural theory, why do infants try to communicate?
7. What is the language acquisition device?
8. What does the idea that child speech results from brain maturation imply for caregivers?

7. Memory is multifaceted; infant amnesia is At about 9 months, many aspects of implicit memory. One-year-olds can apply what they have learned in situations.

**Language: What Develops in the First Two Years?** Language learning, which distinguishes the human species from other animals, is an amazing accomplishment. Researchers try to explain how language develops.

9. Attempts to communicate are apparent in the first months, beginning with noises, facial expressions, and gestures by 10 months, and speak their first words at about 1 year. Deaf infants make their first signs before 1 year.

10. Vocabulary builds slowly until the infant knows about 50 words. Then the naming explosion begins. Evidence in the first holophrases, and combining words proper sequence is further evidence that babies learn as well as vocabulary.

11. Toward the end of the second year, toddlers wishes and emotions in short sentences. Variation in part because of caregiver attention. Some babies are bilingual.

12. Various theories explain how infants learn language. Major theory emphasizes different aspects of learning: must be taught, that their social impulses foster learning, and that their brains are genetically attuned to language soon as the requisite maturation has occurred.

13. Each theory of language learning is confirmed by developmental scientists find that many parts of and many strategies for learning, result in early accomplishments.



## WHAT HAVE YOU LEARNED?

- According to Freud, what might happen if a baby's oral needs are not met?
- How might Erikson's crisis of "trust versus mistrust" affect later life?
- How do behaviorists explain the development of emotions and personality?
- What does a "working model" mean within cognitive theory?
- What is the difference between proximal and distal parenting?
- How does evolution explain the parent-child bond?
- Why is allocare necessary for survival of the human species?
- Why do cultures differ on the benefits of infant nonmaternal care?
- What aspects of infant care are agreed on by everyone?

**Answer to Observation Quiz** (from p. 215): The children in Bangladesh, unlike the U.S. children, are close in age, with close-cropped hair and standard, cotton uniforms. All focus on the same collection of balls, while the Wyoming teacher seems to appreciate the girl who does not want to look at the book.

## SUMMARY

### Emotional Development

Emotions, contentment and distress, appear as soon as an infant is born. Smiles and laughter are evident in the early months. Between 4 and 8 months of age, anger emerges in reaction to frustration and frustration, and it becomes stronger by age 1.

Selective fear is apparent in very young infants. Fear of some things is specific, including fear of strangers and of separation, typically appearing in the second half of the first year, and it is strong by age 1.

In the second year, social awareness produces more selective anger, and joy. As infants become increasingly self-aware, emotions emerge that encourage an interface between the self and the world—specifically, pride, shame, and affection. Self-recognition (measured by the mirror/rouge test) emerges at about 18 months.

Temperament is inborn, but the expression of temperament is influenced by the context, with evident plasticity. At least in the United States, parents tend to encourage exuberance and discourage fear.

### Development of Social Bonds

By 2 months, and clearly by 6 months, infants become responsive and social, and synchrony is evident. Caregivers and infants engage in reciprocal interactions, with split-second

Interactions are disturbed by a still face because they expect and demand social interaction. Babies of depressed or rejecting parents are depressed or disturbed themselves.

Attachment is the relationship between two people who try to connect to each other (proximity-seeking and contact-maintenance) measured in infancy by a baby's reaction to the caregiver's absence, departure, and return in the Strange Situation.

Secure attachment provides encouragement for infant exploration and it may influence the person lifelong. Some infants seem to have an insecure attachment (type A—insecure-avoidant attachment) or overly dependent attachment (type C—insecure-resistant/ambivalent attachment) or a secure attachment (type B). Disorganized attachment (type D) is the most worrisome.

9. As they become more mobile and engage with their environment, toddlers use social referencing (looking to other people's facial expressions and body language) to detect what is safe, frightening, or fun. Fathers help toddlers become more adventurous.

10. Infants frequently use fathers as partners in synchrony, as attachment figures, and as social references, developing emotions and exploring their world. Contemporary fathers often play with their infants.

### Theories of Infant Psychosocial Development

11. According to all major theories, caregivers are especially influential in the first two years. Freud stressed the mother's impact on oral and anal pleasure; Erikson emphasized trust and autonomy. Both believed that the impact of these is lifelong.

12. Behaviorists focus on learning. They note that parents teach their babies many things, including when to be fearful or joyful, and how much physical and social distance (proximal or distal parenting) is best.

13. Cognitive theory holds that infants develop working models based on their experiences. Interpretation is crucial, and that can change with maturation.

14. Evolutionary theorists recognize that both infants and caregivers have impulses and emotions that have developed over millennia to foster the survival of each new member of the human species. Attachment is one example.

15. Sociocultural theory notes that infant care varies tremendously from one culture or era to another. The impact of nonmaternal care depends on many factors that change from one nation, one family, and even one child to another. For example, attitudes about infant day care vary a great deal, with the impact dependent on the quality of care (responsive, individualized, stable).

16. All theories agree with one conclusion from research in many nations: The relationship between the infant and caregiver is crucial. All aspects of early development are affected by policy and practice.

SUMMARY

1. Well-nourished children gain weight and height during early childhood at a lower rate than infants do. Proportions change, allowing better body control.

2. Culture, income, and family customs all affect children's growth. Worldwide, an increasing number of children are eating too much unhealthy food, which puts them at risk for many health problems.

3. Although obesity has increased in every nation, in the United States, fewer young children are overweight than a decade ago. However, many young children consume too much sugar, which harms their teeth.

4. The brain continues to grow in early childhood, reaching about 75 percent of its adult weight at age 2 and 90 percent by age 6. Much of the increase is in myelination, which speeds transmission of messages from one part of the brain to another.

5. Maturation of the prefrontal cortex allows more reflective, coordinated thought and memory, better planning, and quicker responses. All of this is part of executive function. Many young children gradually become less impulsive and less likely to persevere, although that process continues for many years.

6. The expression and regulation of emotions are fostered by better connections within the limbic system and between that system and other parts of the brain. Childhood trauma may create a flood of stress hormones (especially cortisol) that damage the brain and interfere with learning.

Advancing Motor Skills

7. Gross motor skills continue to develop; clumsy 2-year-olds become 6-year-olds who move their bodies well, guided by their peers, practice, motivation, and opportunity—all varying by culture. Playing with other children helps develop skills that benefit children's physical, intellectual, and social development.

8. Urbanization and chemical pollutants are two factors that hamper development. More research is needed for many elements, but lead is now a proven neurotoxin, and many chemicals increase asthma, decrease oxygen, and impair the brain.

Child Maltreatment

13. Child maltreatment includes ongoing abuse usually by a child's own parents. Each year, about 3 million children are substantiated, and rates of substantiation have decreased in the past decade.

14. Physical abuse is the most obvious form of maltreatment; neglect is more common and more harmful. Health, intellectual skills are all impeded by abuse and neglect, not social skills are also decades later.

15. Primary prevention is needed to stop child maltreatment before it starts. Secondary prevention should begin when first notices a possible problem.

16. Tertiary prevention may include placement of a child in foster care, including kinship care. Permanency planning because frequent changes are harmful to children.

Injuries and Abuse

10. Accidents cause more child deaths than do young children more likely to suffer a serious injury or death than older children. Close supervision and safeguards can protect young children from their impulsive curiosity.

11. In the United States, various preventive measures reduced the rate of serious injury, but medical advances reduced disease deaths even faster. Four times as many children die of injuries than of cancer, the leading cause of death in childhood.

12. Injury control occurs on many levels, including and immediately after each harmful incident. Primary prevention focuses on the conditions and people, and tertiary prevention occurs after All three are needed.

WHAT HAVE YOU LEARNED?

1. Why did few people recognize childhood maltreatment 50 years ago?
2. Why is childhood neglect considered more harmful than abuse?
3. Why is it difficult to know exactly how often child maltreatment occurs?
4. What are the long-term consequences of childhood maltreatment?
5. What are the trends in child maltreatment in the United States?
6. When is foster care a good strategy?
7. Why does permanency planning rarely result in adoption?