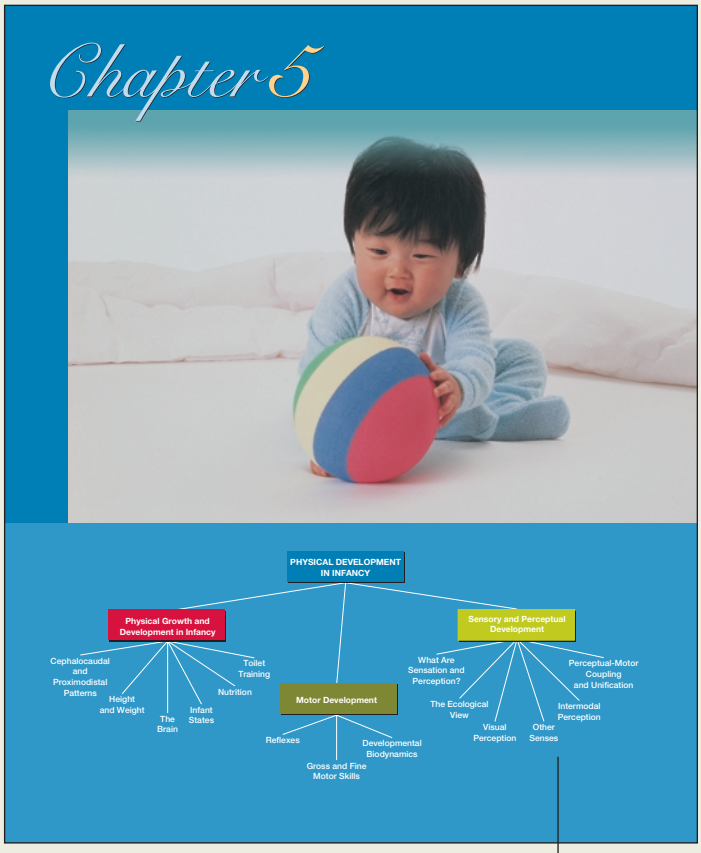
Unique, Student-Driven Pedagogy



Quotations

These appear at the beginning of the chapter and occasionally in the margins to stimulate further thought about a topic.

Cognitive Map

This provides students with a visual overview of the entire chapter.

Introduction

"Each time you look at your child you see something mysterious and contradictory—bits and pieces of other people—grandparents, your mate, yourself, all captured in a certain stance, a shape of the head, a look in the eye, combined with something very precious—a new human soul rich in individuality and possibility. That's immortality."

Joan Sutton
Contemporary Canadian Writer

Images of Life-Span Development

A Tale of Two Citizens

Two legends, awarded both the highest honour of Canada and that of hockey, left marks on Canadians' collective psyche. They are 15 years apart in age, but even farther apart in the respect they have earned. One has fallen from prominence to disgrace; the other stands tall with dignity. One is Robert Alan Eagleson; the other is Robert Gordon Orr.

A lawyer by training, Eagleson was born in 1933 to a low-income family. While in school, Eagleson was notable for his small stature and great intellect. His desire for an upper-class lifestyle contributed to his decision to study law at the University of Toronto. During his school years, Eagleson demonstrated an aptitude for business, managing the logistics for local and university varsity teams. At the same time, his tendency for aggressive behaviour and profane language also became part of his persona.

Not long after his legal career began, Eagleson started representing hockey players. One of his first clients was Bobby Orr. When the National Hockey League Players Association (NHLPA) was founded in 1967, Eagleson became its first executive director. His main duty was to help players negotiate contracts with club owners. Nevertheless, in the eyes of players and fans, Eagleson's most significant achievement was the Canada-USSR series that he orchestrated in 1972. His sport and his country paid tribute to him with a position in the Hockey Hall of Fame and an appointment as Officer of the Order of Canada—both in 1989. A few years later, an indictment in the U.S. revealed a different image of Eagleson. Accusations surfaced of questionable business practices, misuse of union funds, and racketeering, among others. Eagleson's downfall culminated in an 18-month jail sentence and the retraction of his Hall of Fame and Order of Canada honours, both in 1998.


Bobby Orr


Alan Eagleson

3

Images of Life-Span Development

Each chapter opens with a high-interest story that is linked to the chapter's content. Many of the chapter-opening stories are new to the First Canadian Edition.

OLC: www.mcgrawhill.ca/college/santrock/lifespan

Mini Cognitive Maps

These mini maps appear three to five times per chapter and provide students with a more detailed, visual image of the organization of the chapter.

Key Terms Definitions

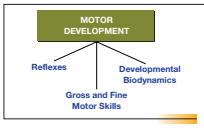
Key terms appear in boldface type with their definitions immediately following in italic type. They also appear nearby in the margin.

Web icons

Web icons appear a number of times in each chapter. They signal students to go to the OLC for *Life-Span Development*, First Canadian Edition, where they will find connecting links that provide additional information on the topic discussed in the text.

Cross-Linkage

This system refers students to the primary discussion of all key concepts. A specific page reference appears in the text with a backward-pointing arrow each time a key concept occurs in a chapter subsequent to its initial coverage.



Motor Development

The study of motor development has seen a renaissance in the past decade, resulting in new insight into the ways in which infants acquire motor skills.

Reflexes

The newborn is not an empty-headed organism. Among other things, it has some basic reflexes, which are genetically carried survival mechanisms. For example, the newborn has no fear of water, naturally holding its breath and contracting its throat to keep water out. Reflexes can serve as important building blocks for subsequent purposeful motor activity.

Reflexes govern the newborn's movements, which are automatic and beyond the newborn's control. They are built-in reactions to stimuli. In these reflexes, infants have adaptive responses to their environment before they have had the opportunity to learn. The **sucking reflex** *occurs when newborns automatically suck an object placed in their mouth. The sucking reflex enables newborns to get nourishment before they have associated a nipple with food.* The sucking reflex is an example of a reflex that is present at birth but later disappears. The **rooting reflex** *occurs when the infant's cheek is stroked or the side of the mouth is touched. In response, the infant turns its head toward the side that was touched in an apparent effort to find something to suck.* The sucking and rooting reflexes disappear when the infant is three to four months old. They are replaced by the infant's voluntary eating. The sucking and rooting reflexes have survival value for newborn mammals, who must find the mother's breast to obtain nourishment.

Sucking is an especially important reflex: It is the infant's route to nourishment. The sucking capabilities of newborns vary considerably. Some newborns are efficient at forceful sucking and obtaining milk; others are not as adept and get tired before they are full. Most newborns take several weeks to establish a sucking style that is coordinated with the way the mother is holding the infant, the way milk is coming out of the bottle or breast, and the infant's sucking speed and temperament.

A study by pediatrician T. Berry Brazelton (1956) involved observation of infants for more than a year to determine the incidence of their sucking when they were nursing and how their sucking changed as they grew older. Over 85 percent of the infants engaged in considerable sucking behaviour unrelated to feeding. They sucked their fingers, their fists, and pacifiers. By the age of one year, most had stopped the sucking behaviour.

Parents should not worry when infants suck their thumb, their fist, or even a pacifier. Many parents, though, do begin to worry when thumb sucking persists into the preschool and elementary school years. Up to 40 percent of children continue to suck their thumbs after they have started school (Kessen, Haith, & Salapatek, 1970). Most developmentalists do not attach a great deal of significance to this behaviour and are not aware of parenting strategies that might contribute to it. Individual differences in children's biological makeup may be involved to some degree in the continuation of sucking behaviour.

sucking reflex
A newborn's built-in reaction of automatically sucking an object placed in its mouth. The sucking reflex enables the infant to get nourishment before it has associated a nipple with food.

rooting reflex
A newborn's built-in reaction that occurs when the infant's check is stroked or the side of the mouth is touched. In response, the infant turns its head toward the side that was touched, in an apparent effort to find something to suck.

The **Moro reflex** *is a neonatal startle response that occurs in response to a sudden, intense noise or movement. When startled, the newborn arches its back, throws back its head, and flings out its arms and legs. Then the newborn rapidly closes its arms and legs to the centre of its body.* The Moro reflex is a vestige of our primate ancestry, and it also has survival value—it leads the newborn to grab for support while falling. This reflex, which is normal in all newborns, also tends to disappear at three to four months of age. Steady pressure on any part of the infant's body calms the infant after it has been startled. Holding the infant's arm flexed at the shoulder will quiet the infant.

Some reflexes present in the newborn—coughing, blinking, and yawning, for example—persist throughout life. They are as important for the adult as they are for the infant. Other reflexes, though, disappear several months following birth, as the infant's brain functions mature, and voluntary control over many behaviours devel-

Moro reflex
A neonatal startle response that occurs in reaction to a sudden, intense noise or movement. When startled, the newborn arches its back, throws its head back, and flings out its arms and legs. Then the newborn rapidly closes its arms and legs to the centre of the body.

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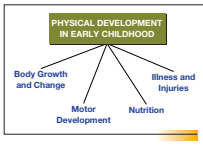
When the parents returned, the babysitter remarked how energetic and intelligent Alex and Chris were. Alex, two years into early childhood, ran fast, played creatively with toys, and—using his fluent speech—made jokes, refused to eat, argued with and comforted his brother, and described the Disney movies to the babysitter. Chris, just about to enter early childhood, ran more slowly than Alex and imitated his older brother's behaviour throughout the day. His speech was somewhat jumbled, but he exhibited reasoning skills when he asked to play with the train when his older brother was asleep.

In this chapter, we will discuss the physical and cognitive development of children in the same age group as these two brothers, examining questions such as: How does the body grow and develop? What are young children's motor skills like? What are the theories and findings pertaining to children's cognitive abilities? We will also talk about early childhood education in Canada. As you are reading, you might be able to envision Alex and Chris running, playing, thinking, and talking.



Physical Development in Early Childhood

Recall from chapter 5 that an infant's growth in the first year is rapid and follows cephalocaudal and proximodistal patterns P. 120. Around their first birthday, most infants begin to walk. During an infant's second year, the growth rate begins to slow down, but both gross and fine motor skills progress rapidly. The infant develops a sense of mastery through increased proficiency in walking and running. Improvement in fine motor skills—such as being able to turn the pages of a book one at a time—also contributes to the infant's sense of mastery in the second year. The growth rate continues to slow down in early childhood. Otherwise, we would be a species of giants.

Preschool Growth and Development

Body Growth and Change

Body growth and change in early childhood involve height and weight, as well as the brain.

Height and Weight The average child grows about 6.35 cm in height and gains between 2.2 and 3.2 kg a year during early childhood. As the preschool child grows older, the percentage of increase in height and weight decreases with each additional year. Girls are only slightly smaller and lighter than boys during these years, a difference that continues until puberty. During the preschool years, both boys and girls slim down as the trunks of their bodies lengthen. Although their heads are still somewhat large for their bodies, by the end of the preschool years most children have lost their top-heavy look. Body fat also shows a slow, steady decline during the preschool years. Girls have more fatty tissue than boys; boys have more muscle tissue.

The bodies of five-year-olds and two-year-olds are different. Notice how the five-year-old not only is taller and weighs more, but also has a longer trunk and legs than the two-year-old. *What might be some other physical differences in two- and five-year-olds?*

Growth patterns vary individually. Think back to your preschool years. This was probably the first time you noticed that some children were taller than you, some shorter; some were fatter, some thinner; some were stronger, some weaker. Much of the variation is due to heredity, but environmental experiences are involved to some extent. A review of the height and weight of children around the world concluded that the two most important contributors to height differences are ethnic origin and nutrition (Meredith, 1978). Urban, middle-socio-economic status, and first-born children were taller than rural, lower-socio-economic status, and later-born children. The children whose mothers smoked during pregnancy were 1.3 cm shorter than children whose mothers did not smoke during pregnancy.

Why are some children unusually short? The culprits are congenital factors (genetic or prenatal problems), physical problems that

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The soft rise and fall of the unconscious sleeper's breast is a miracle. It is a binding symbol of our humanity. The child in the lost attitude of sleep is all children, everywhere, in all time.

Ethel Wilson
Contemporary Canadian novelist

attractive object or gazes intently at a face, tiny bursts of electricity shoot through the brain, knitting together neurons into circuits. The results are some of the behavioural milestones we discuss in this and other chapters. For example, at about two months of age, the motor-control centres of the brain develop so that infants can suddenly reach out and grab a nearby object. At about four months, the neural connections necessary for depth perception begin to form. And, at about 12 months the brain's speech centres are poised to produce one of infancy's magical moments: when the infant utters its first word.

In sum, neural connections are formed early in life. The infant's brain literally is waiting for experiences to determine how connections are made (Greenough, 1999, 2001; Johnson, 1999, 2000, 2001). Before birth, it appears that genes mainly direct how the brain establishes basic wiring patterns. Neurons grow and travel to distant places awaiting further instructions. After birth, environmental experiences are important in the brain's development. The inflowing stream of sights, sounds, smells, touches, language, and eye contact help shape the brain's neural connections.

To this point we have studied a number of ideas about cephalocaudal and proximodistal patterns, height and weight, and the brain. A review of these ideas is presented in summary table 5.1.

Infant States

Just as developmentalists chart infants' height and weight patterns, they also examine the infant states, or states of consciousness, the levels of awareness that characterize individuals.

Classification Using classification schemes, researchers have identified many aspects of infant development. One such aspect is the sleeping-waking cycle (Henderson & France, 1999; Ingersoll & Thoman, 1999). When we were infants, sleep consumed

Summary Table 5.1
Cephalocaudal and Proximodistal Patterns, Height and Weight, and the Brain

Concept	Processes/ Related Ideas	Characteristics/Descriptions
Cephalocaudal and Proximodistal Patterns	Cephalocaudal	• Growth from the top down.
	Proximodistal	• Growth from the centre out.
Height and Weight	Nature of Changes	• The average North American newborn is 50.8 centimeters long and weighs 3.5 kilograms. • Infants grow about 2.5 centimeters per month in the first year and nearly triple their weight by their first birthday. • Infants' rate of growth slows in the second year.
The Brain	Development	• Dendritic spreading is dramatic in the first two years. • Myelination continues to develop in infancy and childhood.
	Hemispheres	• The cerebral cotex has two hemispheres (left, right). • Lateralization refers to specialization of function in one hemisphere or the other.
	Early Experience and the Brain	• The brains of animals growing up in enriched early environments develop better than those living in standard or isolated early environments.
		• Neural connections are formed early in life. Before birth, genes mainly direct neurons to locations. After birth, the inflowing stream of sights, sounds, smells, touches, language, and eye contact help shape the brain's neural connections.

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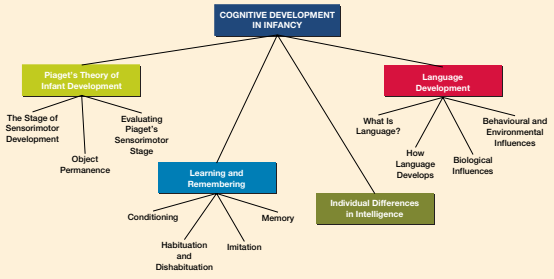
Summary Tables

Several times in each chapter, we review what has been discussed so far in that chapter by displaying the information in summary tables. This learning device helps students get a handle on material several times a chapter, providing a visual cue to reflect and review.

Chapter Review

The chapter review consists of a cognitive map of the entire chapter and a bulleted list of the summary tables, which are page-referenced with a backward-pointing arrow.

Chapter Review



TO OBTAIN A DETAILED REVIEW OF THIS CHAPTER, STUDY THESE THREE SUMMARY TABLES:

OLC: www.mcgrawhill.ca/college/santrock/lifespan