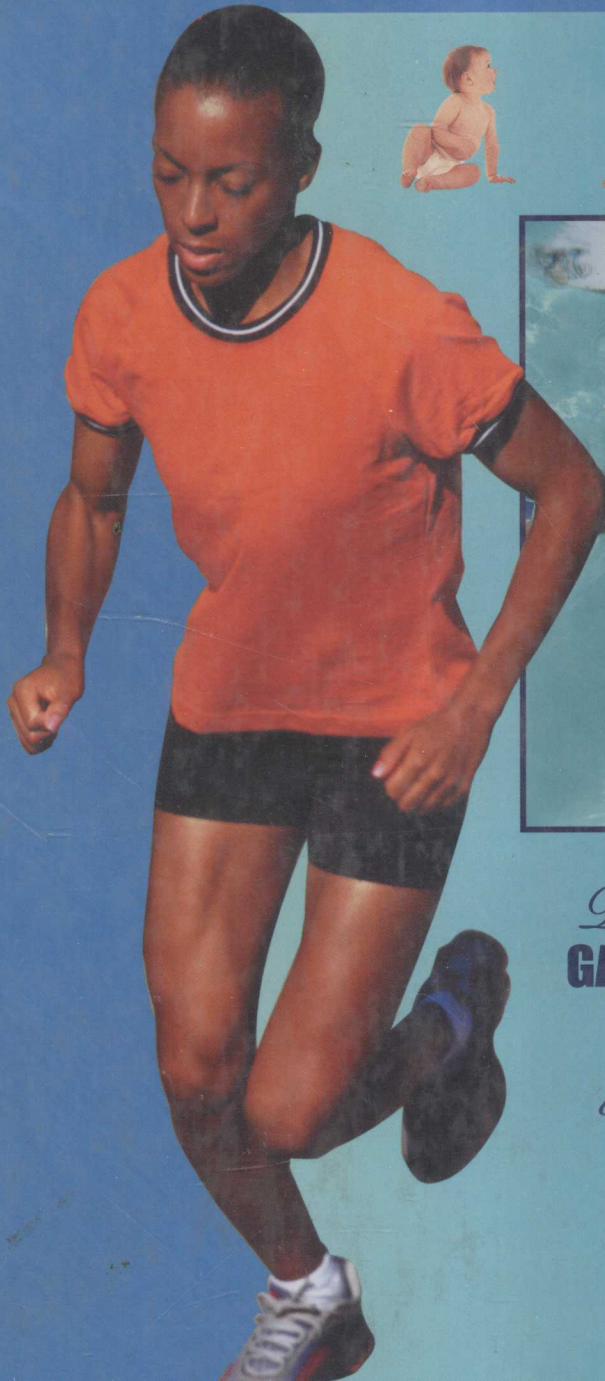


Understanding **MOTOR DEVELOPMENT**

Infants, Children, Adolescents, Adults



FIFTH EDITION

David L.
GALLAHUE

John C.
OZMUN



Fifth Edition

UNDERSTANDING MOTOR DEVELOPMENT

Infants, Children, Adolescents, Adults

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As always, *To the Sunshine of My Life:*
Ellie, David Lee, Jennifer, and Dan

DAVID L. GALLAHUE

To the Treasures of My Heart:
Ruth, Chet, Gus, Johnny, and Ray

JOHN C. OZMUN

PREFACE

AUDIENCE

Understanding Motor Development is written for students taking a first course in motor development. It is presented in an easy-to-understand and easy-to-use manner to be of significant value to educators from a variety of disciplines, including kinesiology, physical and occupational therapy, special education, early childhood education, and elementary and secondary education. This text provides both descriptive and explanatory profiles of the individual from conception through adulthood.

APPROACH

Development is a process that begins at conception and continues throughout life. This text discusses motor development from conception through adulthood. Also, we have chosen to include primary cognitive and affective markers that affect motor development during each of these periods and have expanded coverage of these topics. By incorporating dynamic systems theory along with the hourglass model of the phases and stages of motor development we provide the reader with both an explanatory and descriptive basis for the processes and products of motor development.

CONTENT

Organization

Unit I: Background, provides the reader with essential introductory information on the study of motor development. Chapter 1, "Understanding Motor Development: An Overview," examines the history, methods of study, research problems, and terminology used in the study of motor development. Chapter 2, "Models of Human Development," offers a discussion of developmental models of child development. Particular attention is given to dynamic systems theory as well as the works of Jean Piaget, Erik Erikson, and Urie Bronfenbrenner and the implications of each for motor development. In chapter 3, "Motor Development: A Theoretical Model," a theoretical framework for studying the process of motor development is presented. The phases and stages of this life span model, as well as the subsystems of the task, the individual, and the environment serve as the organizational framework for the remainder of the text. In chapter 4, "Selected Factors Affecting Motor Development," there is an important discussion of critical factors within the individual, environment, and movement tasks that influence the process of development throughout life.

Unit II: Infancy, deals with a variety of important developmental topics of infancy.

Chapter 5, "Prenatal Factors Affecting Development," is devoted to discussion of those factors prior to birth that may affect later motor development. "Prenatal and Infant Growth" is the topic of chapter 6. This chapter provides the reader with a descriptive profile of early growth processes. Chapter 7 examines "Infant Reflexes and Rhythmical Stereotypies" in the neonate and young infant. Particular attention is given to the integration of both into the expanding movement repertoire of the young child. Chapter 8, "Rudimentary Movement Abilities," discusses the rapidly expanding movement repertoire of infants. The major stability, locomotor, and manipulative tasks of this period are outlined and summarized. An extensive discussion of "Infant Perception" in chapter 9 concludes the section on infancy. This chapter relates perceptual development to the motor behavior of infants.

Unit III: Childhood, provides the reader with a wealth of important information about childhood motor development. Chapter 10, "Childhood Growth and Development," offers a general overview of cognitive, affective, and motor characteristics during early and later childhood. This sets the stage for the three chapters that follow. Chapter 11, "Fundamental Movement Abilities," provides a practical, easy-to-use, three-stage approach (initial, elementary, mature) to observing and assessing the fundamental movement patterns of childhood. Mechanically correct line drawings provide a visual description that coincides with a brief verbal description of each stage, along with frequently encountered developmental difficulties. "Physical Development of Children" is the topic of chapter 12. A review of the latest information on children's health-related fitness and motor fitness is presented along with information on fitness training for children. "Childhood Perception and Perceptual-Motor Development" is the topic of chapter 13. Important information on both of these topics is reviewed and synthesized with a view toward their complex interaction with the motor behavior of the individual. Chapter 14 concludes the section on childhood with a discussion of "Childhood Self-Concept Development." The

latest information on self-esteem is reviewed along with the role of movement as an important facilitator of a positive self-concept.

Unit IV: Adolescence, examines a number of important topics. Chapter 15, "Adolescent Growth, Puberty, and Reproductive Maturity," opens this section with a wealth of important and useful information about physical change during this critical developmental period. Chapter 16, "Specialized Movement Abilities," centers on the topics of specialized movement skill development, fostering improvement, and the developmental sequence of specialized movement skills. This is followed by a discussion of the "Fitness Changes During Adolescence" in chapter 17 with a view toward their rapidly changing health-related and performance-related fitness. Chapter 18 concludes the section on adolescence with a discussion of "Adolescent Socialization." Particular attention is given to the role of physical activity in the process of positive socialization.

Unit V: Adulthood, provides the latest information available on the rapidly developing area of adult motor development. Chapter 19, "Physiological Changes in Adults," attempts to answer the question: Why do we age? A lively discussion is offered concerning changes in the adult musculoskeletal system, central nervous system, circulatory and respiratory systems, and sensory systems. Chapter 20, "Motor Performance in Adults," examines reaction time, balance and postural control, falls, gait, activities for daily living, and the elite performer. Chapter 21, "Psychosocial Development in Adults," examines a variety of psychological and social factors that influence and are influenced by the motor development and movement abilities of the aging adult.

Unit VI: Programming, synthesizes information from the preceding sections. Chapter 22, "Assessing Motor Behavior," takes a critical look at selected motor assessment instruments for infants and children, adolescents, and adults with a view to their utility in a variety of settings. It is important for the reader to appreciate that all developmentally based programming begins with assessment as a means of ensuring individually

appropriate educational experiences. Chapter 23, “Programming for Developmental Physical Activity,” may be the most important to the field professional. This chapter presents a developmental approach to systematic movement skill acquisition throughout life. Numerous diagrams are used to synthesize the concepts presented in this chapter. This practical application chapter forms the basis for a companion text, *Developmental Physical Education For Today’s Children* (Gallahue and Cleland, 2003), which puts the concepts and principles described here to practical use through the implementation of developmentally appropriate movement programs.

NEW TO THIS EDITION

Expert Commentaries

Introducing the units on infancy, childhood, adolescence, and adulthood, the Expert Commentaries highlight key questions related to motor development at each of these periods of growth. Experts in the field offer thought-provoking answers to questions such as:

- Why is it valuable to study infant motor development?
- What is one of the most important findings related to childhood motor development?
- Recent studies suggest that puberty is beginning earlier among children than in past years. How does this affect motor development?
- What do you expect to be notable future research directions in the area of adult development and aging?

Web Resources

Each chapter includes Web Resources, a listing of websites that students can explore to find chapter-related information on the Internet. This feature allows students to expand their knowledge according to their abilities and goals and offers a springboard for independent learning.

New or Expanded Topics

This new edition has been significantly revised and updated. The following list is a sampling of topics that are either new to this edition or greatly expanded since the last edition.

Chapter 1: Understanding Motor Development: An Overview

- One- and two-dimensional means of classifying movement skills
- Environmental aspects of movement

Chapter 2: Models of Human Development

- “Defining events” related to Erikson’s stages of psychosocial development and Piaget’s phases of cognitive development
- Updated references and readings

Chapter 3: Motor Development: A Theoretical Model

- General updating of chapter content
- Updated references and readings

Chapter 4: Selected Factors Affecting Motor Development

- Infant bonding, stimulation and deprivation, prematurity and low birth weight, and eating disorders
- Risk factors associated with overweight and obesity and with eating disorders

Chapter 5: Prenatal Factors Affecting Development

- Prepregnancy visit with health care provider
- Factors influencing the prenatal environment

Chapter 6: Prenatal and Infant Growth

- New Centers for Disease Control (CDC) figures on stature for age and weight for age in boys and girls during infant and toddler years
- Characteristic changes during the neonatal period

Chapter 7: Infant Reflexes and Rhythmical Stereotypes

- Dynamic systems approach
- Primary stepping reflex

Chapter 8: Rudimentary Movement Abilities

- Programming for developmentally delayed or at-risk infants and toddlers
- Recommendations for infant aquatic programs

Chapter 9: Infant Perception

- Perceptual and motor development
- Updated references and readings

Chapter 10: Childhood Growth and Development

- New CDC figures on stature for age and weight for age in both boys and girls during childhood
- Dietary deficiencies and excesses

Chapter 11: Fundamental Movement Abilities

- Recent research in fundamental movements
- Environmental and task constraints
- Future of fundamental movement research
- Updated theoretical and application-oriented critical readings

Chapter 12: Physical Development of Children

- Use of accelerometers for assessing physical activity levels
- “Trigger hypothesis” for aerobic trainability in children

Chapter 13: Childhood Perception and Perceptual-Motor Development

- New figures and tables to enhance learning
- Increased attention to practical application
- Present and future state of perceptual-motor programming
- Updated theoretical and application-oriented critical readings

Chapter 14: Childhood Self-Concept Development

- Self-concept and peer relationships in youth sports
- Updated theoretical and application-oriented critical readings

Chapter 15: Adolescent Growth, Puberty, and Reproductive Maturity

- Early puberty in females
- Distinction between puberty and reproductive maturity

Chapter 16: Specialized Movement Abilities

- Levels and stages of movement skill learning focusing on the Fitts and Posner, Gentile, and combined models
- Cognitive state of the learner, learner’s goals, and role of instructor at each level and stage of learning a new movement skill

Chapter 17: Fitness Changes During Adolescence

- Completely updated research
- Health-related fitness
- Comparison of abdominal strength in females and males
- Body-fat changes in females and males

Chapter 18: Adolescent Socialization

- Values formation and moral growth through physical activity during adolescence
- Exploration and experimentation as lifelong influencing factors
- Connection between self-esteem and achievement

Chapter 19: Physiological Changes in Adults

- Aging theories and strategies to slow the aging process
- New population figures and discussion
- Updated theoretical and application-oriented critical readings

Chapter 20: Motor Performance in Adults

- Multiple aspects of motor performance factors in adults
- Environmental and task factors
- Instructional strategies for teaching older adults new skills
- Updated theoretical and application-oriented critical readings

Chapter 21: Psychosocial Development in Adults

- Influence of exercise and physical activity on various psychological factors
- Ageism
- Successful aging
- Future needs in aging research
- Updated theoretical and application-oriented critical readings

Chapter 22: Assessing Motor Behavior

- New approach to existing testing instruments
- New assessment tools

Chapter 23: Programming for Developmental Physical Activity

- Completely rewritten chapter content
- Critical thinking core of developmental program
- Instructor's role in facilitating learning
- Revised developmental program models
- New revisions of assessment instruments
- Updated theoretical and application-oriented critical readings

SUCCESSFUL FEATURES

Throughout the text, you will find numerous pedagogical aids that enhance application and understanding of the content:

- **Chapter Competencies** begin each chapter and outline what students should master by the conclusion of the chapter.
- A list of **Key Terms** at the beginning of each chapter provides a convenient reference of important terms used in the chapter.

- A brief **Introduction** highlights the chapter's content and sets the stage for an up-to-date research-based discussion.
- **Key Concepts** appear throughout the text and are identified by the key icon. These help the reader focus more clearly on the key issues being discussed and reinforce the importance of obtaining a conceptual grasp of the process of motor development.
- The **Summary** found at the end of each chapter provides the reader with a concise overview and delineation of the major points discussed.
- **Critical Readings** conclude each chapter and refer the reader to additional sources of up-to-date information.
- A comprehensive **Bibliography** is found at the end of the text.
- A **Glossary of Terms** at the end of the book aids the reader in understanding important terms.
- Each chapter contains a wealth of **Tables, Figures, and Line Drawings** designed to synthesize information and provide the reader with a clear understanding of the topic being discussed.

ANCILLARIES

Brownstone's Diploma/Exam IV Computerized Testing

Brownstone's Diploma Computerized Testing is the most flexible, powerful, easy-to-use electronic testing program available in higher education. The Diploma system allows the test maker to create a print version, an online version (to be delivered to a computer lab), or an Internet version of each test. Diploma includes a built-in instructor gradebook, into which student rosters and files can generally be imported. Diploma is for Windows users, and the CD-ROM includes a separate testing program, Exam IV, for Macintosh users. This computerized testing is available for use with this edition of *Understanding Motor Development*.

PowerWeb

This edition of *Understanding Motor Development* has been packaged with PowerWeb, a valuable learning tool. PowerWeb is an easy-to-use online resource from McGraw-Hill that provides current articles, curriculum-based materials, weekly updates with assessment, informative and timely world news, related web links, research tools, student study tools, interactive tools, and more.

Access to PowerWeb also offers these resources:

- Study tips with self-quizzes
- Links to related sites
- Weekly updates
- Current news
- Daily newsfeed of related topics
- Web research guide

PowerWeb is a password-protected website. Your McGraw-Hill sales representative can guide you in creating a student package with PowerWeb. Preview this website at: www.dushkin.com/powerweb.

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