

EIGHTH EDITION

HUMAN MOTOR DEVELOPMENT

A LIFESPAN APPROACH



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EIGHTH EDITION

Human Motor Development

A Lifespan Approach

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Human Motor Development

To Linda and Dad—Linda, having you as a life companion makes every stage of development that much better. And, Dad, experiencing life with you as you enter your tenth decade of human development, has made me a more knowledgeable, more sensitive, and more compassionate developmentalist.

It sure has been a pleasure!

— V.G.P. —

To my children, Brooke and Timothy, and my wife, Joy—No words could ever adequately express my love for each of you. To my feline companions, Lucy, Bert, Ernie, Elmo, Ginger, and Oliver, whose motor skills I always observe with amazement. And to the loving memory of my parents, Linwood and Gracie Isaacs.

— L.D.I. —

Preface

In this eighth edition of *Human Motor Development: A Lifespan Approach* we continue our long-standing emphasis on well-founded undergraduate-level information related to human motor development. As in previous editions, our primary mission is to make this information understandable to undergraduate students while maintaining the unique approach described below in our presentation of the fundamental information.

SPECIAL FEATURES AND ORGANIZATION

Traditionally, human motor development has been studied and presented as a process that ceased at the onset of adulthood. Our book approaches the topic as a lifespan proposition recognizing the dramatic changes that are occurring to our population's demographics and the increasing need to engage in what has now become a popular area of research: studying people of all ages, including those in early, middle, and late adulthood.

This book also adheres to the philosophy that human movement has dramatic impacts on social, cognitive, physical, and even moral development. We also believe that these areas of development have similarly powerful effects on motor development. Therefore, separate chapters are allocated to each of these areas of development and how they interrelate with human movement. This includes a new chapter, Chapter 4, entitled "Moral and Motor Development." This chapter was prepared by Drs. Maureen Weiss and Nicole Bolter of the University of Minnesota, Twin Cities. Maureen is an internationally acclaimed expert

on this topic and has served in such prestigious positions as President of the American Academy of Kinesiology and Physical Education, President of the North American Society for the Psychology of Sport and Physical Activity, President of the Association for the Advancement of Applied Sport Psychology, President of the Research Consortium of the American Alliance for Health Physical Education Recreation, and Dance, and Chair of the President's Council on Physical Fitness and Sports Science Board. She also served as Editor of *Research Quarterly for Exercise and Sport* and serves on the editorial boards of *Pediatric Exercise Science*, *Journal of Sport and Exercise Psychology*, and *Sport, Exercise, and Performance Psychology Journal*. Nicole completed her doctorate under Dr. Weiss's supervision.

This eighth edition of *Human Motor Development: A Lifespan Approach* retains the straightforward organization of earlier editions. Part One provides an overview of human development and includes chapters on the relationship between motor development and cognitive, social-emotional, and moral development. Part Two covers factors affecting development, including effects of early stimulation and deprivation. Part Three, Physical Changes Across the Lifespan, and Part Four, Movement Across the Lifespan, present the book's core concepts, including a new chapter, Chapter 16, "Developmental Motor Delays," prepared by Dr. Martin Block of the University of Virginia. Dr. Block is a renowned expert on motor development in individuals with disabilities and has published and presented widely. He served as Chair of the Motor Development Academy and Chair of the Adapted Physical Activity Council of the

American Alliance for Health, Physical Education, Recreation and Dance. He has also served as a consultant for the Special Olympics and as a member of the editorial boards of many journals, including the *Adapted Physical Activity Quarterly* and *Intellectual and Developmental Disabilities*. Most recently, he was elected President of the National Consortium on Physical Education and Recreation for Individuals with Disabilities. Part Five, the culminating section, addresses assessment in motor development.

The new chapters, Chapter 4, “Moral and Motor Development,” and Chapter 16, “Developmental Motor Delays,” in addition to Chapter 15, “Youth Sports,” present information that is rare in traditional motor development texts, but critical to the teaching of undergraduate motor development.

A number of features throughout this book assist both the student and the instructor. For example, the book has been written with the undergraduate student in mind. We have made every effort to explain concepts in a way that is understandable for students who are just beginning their study of motor development. In addition, each chapter concludes with a list of key terms, related Web sites, questions for reflection, and complete references by chapter. This eighth edition includes sidebars, entitled Take Note, to help the student identify and understand the most important concepts in each chapter. New instructor teaching tools and student study aids have been added for the eighth edition.

KEY CHANGES TO THE EIGHTH EDITION

Along with the addition of two new chapters to this eighth edition of *Human Motor Development: A Lifespan Approach*, sidebars have been incorporated throughout the book and all chapters have been updated and modified to reflect contemporary thought and theory and to improve the book's readability for students. Several new photos and illustrations have been added throughout the book to aid in student learning. Following are some of the most significant chapter modifications in this eighth edition.

Chapter 1—Introduction to Motor Development

A significant section on models of motor development was added, with emphasis on the Mountain of Motor Development—a model, or metaphor, of motor development created by Drs. Jane Clark and Jason Metcalfe.

Chapter 2—Cognitive and Motor Development

This chapter has been updated with significant additions. For example, a new section describes the relationship between cognitive and motor development and the importance of practice and physical activity in allaying cognitive decline.

Chapter 3—Social and Motor Development

This chapter has been updated throughout, and now includes a substantial new section on the relationship between self-perceptions and both fine and gross motor development, as well as a new section on parental influence in the socialization of children in sports. Another new section updates and expands our coverage on the perceptions of girls and women in sport in relation to the passage of Title IX.

Chapter 4—Moral and Motor Development

This entirely new chapter examines the relationship between moral development and motor development. Examples of key features of this chapter include sections on sportsmanship and fair play, theories of moral development, recommended approaches to positive youth development, and factors that influence moral development in movement settings.

Chapter 5—Prenatal Development Concerns

In this chapter we have updated our coverage of the Institute of Medicine Guideline for Gestational Weight Gain. Additionally, the section

“Exercise During Pregnancy and the Postpartum Period” has been updated to reflect the latest guidelines from both the American College of Obstetrics and Gynecology and the U.S. Department of Health and Human Services. We have also added new sections that examine the maternal outcomes of exercise during pregnancy and the postpartum period on both the mother and the developing baby.

Chapter 7—Growth and Maturation

This chapter now begins with a discussion entitled “Why Study Human Growth?” This discussion helps the student understand how the changes in structural growth influence the “constraints” to both motor development and motor performance. Throughout the entire chapter we have added references to the motor development models that incorporate the constraints approach. Additionally, the discussions of exercise and skeletal health and the female athlete triad have been expanded.

Chapter 8—Physiological Changes: Health-Related Physical Fitness

This chapter now incorporates discussion of two landmark reports, “The Surgeon General’s Vision for a Healthy and Fit Nation” and “The Physical Activity Guidelines for Americans.” A new section examines the role of interactive technology in promoting physical activity.

Chapter 11—Voluntary Movements of Infancy

In addition to general updates to this chapter, sections have been added on infant rolling and ascending and descending stairs. The section on infant grasping has also been expanded.

Chapter 12—Fine Motor Development

This chapter has been updated thoroughly, and an expanded section on handwriting and drawing has been added.

Chapters 13—Fundamental Locomotion Skills of Childhood, and Chapter 14—Fundamental Object-Control Skills of Childhood

Throughout Chapters 13 and 14, additional sections have been added to describe the influence of constraints on the motor development and motor performance for each of the skills described in the chapters. These changes underscore the connection between the development of these skills and the motor development models described in Chapter 1.

Chapter 15—Youth Sports

This chapter now includes a discussion that addresses the increasing concern about head injuries, particularly concussions, in participants in youth sports.

Chapter 16—Developmental Motor Delays

This entirely new chapter focuses on motor delays—exploring why some children experience these delays, examining various kinds of motor delays, and discussing important theories on the origin of and treatment for motor delays.

Chapter 17—Movement in Adulthood

Chapter 17 was significantly updated and expanded, and several photos are new. The sections on falling, fall prevention, and walking characteristics of fallers versus nonfallers were significantly updated and expanded. New research on typical older adult techniques in crossing obstacles in their paths and vertical stepping has been added. A section discusses older adults’ abilities to undertake the tasks of daily life. The section on reaction time was expanded and updated, and the American College of Sports Medicine and American Heart Association Guidelines on Physical Activity and Public Health were included and summarized.

Chapter 18—Assessment

This assessment chapter now includes a description of the Peabody Developmental Motor Scales–2, as well as The President's Challenge—Adult Fitness Test. The qualifying standards for the Presidential and National Physical Fitness norms have been moved to Appendix C.

SUPPLEMENTS

A comprehensive package of supplementary materials designed to enhance teaching and learning is available with the eighth edition of *Human Motor Development: A Lifespan Approach*. Contact your local McGraw-Hill sales representative to receive these supplements, including the password to access the instructor materials available at the Online Learning Center.

Instructor's Manual to Accompany *Human Motor Development: A Lifespan Approach*

Updated for the eighth edition, the manual includes a sample syllabus; a test bank with more than 500 multiple-choice and short essay questions; suggested assignments for each chapter; and a group of extended assignments. The extended assignments

include such details as expected length, criteria for evaluation, and problems the student may encounter in completing the assignment. These assignments are in a ready-to-use format or are easily adaptable to the instructor's own course or preferences.

PowerPoint Slides

A complete set of PowerPoint slides is available for download from the book's Online Learning Center (see below). Keyed to the major points in each chapter, these slide sets can be modified or expanded to better fit your lectures.

Online Learning Center (www.mhhe.com/payne8e)

The Online Learning Center provides many resources for both instructors and students. For instructors, there are downloadable versions of the Instructor's Manual and PowerPoint slides; in addition, there are links to professional resources. For students, there are a variety of study and learning tools, including:

- Online chapter on "Planning and Conducting Developmental Movement Programs".
- Self-correcting quizzes and crossword puzzles for review of key concepts.
- Assignments and lab activities.
- Links to key motor development Web sites.

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We extend special thanks to Nadia Bidwell, of Barking Dog Editorial. As our editor, she successfully guided us through the process of revising and updating. She was most helpful and pleasant in leading us through the process and ensuring that our book is as useful as it can be to our readers. We also appreciate the reviews that were solicited by McGraw-Hill. The input provided by these conscientious experts was integral in helping us to adjust the quality and content of our book and to update, modify, and generally meet the needs of instructors and students. We are particularly grateful to the following reviewers for this eighth edition:

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University for providing us with research data and supporting studies pertaining to the “total body approach” for describing developmental sequences (presented in Chapters 13, 14, and 17). Dr. Joy

Kiger produced the film tracings for this work. Joy is a former doctoral student at Michigan State University and is currently a member of the faculty at Otterbein College in Westerville, Ohio.

ABOUT THE AUTHORS

Greg Payne is Associate Dean for Research in the College of Applied Sciences and Arts and a Professor in the Department of Kinesiology at San Jose State University. He served as Chair of the Department of Kinesiology from 2000–2006. Greg specializes in human motor development, with interests ranging from aging and physical activity to children’s sports and fitness. He received a BS degree from Western Illinois University. He later received that institution’s Distinguished Alumni Award. He earned an MA from the University of Iowa and a PED from Indiana University. Following his undergraduate degree, Greg worked for the Venezuelan Ministry of Education for two years as a Peace Corps Volunteer in Barinas, Venezuela. Since that time he has produced over 150 publications, including numerous refereed articles and 17 editions of five books. Greg is a fellow of the National Academy of Kinesiology, generally regarded to be the top tier of scholars and leaders in kinesiology. Greg’s books include *The Equation: A Proven Lifestyle and Fitness Plan* (St. Martin’s Press, 2002) and the first motor development book published in China, *An Introduction to Human Motor Development* (People’s Education Press, 2008). Dr. Payne has made over 250 presentations throughout the world and was the first Distinguished Honorary Professor of the Shenyang Sports University in China. He was a member of the task force that developed the NASPE national physical education standards and served on the California State Superintendent of Public Instruction Task Force on Childhood Obesity, Type II Diabetes, and Cardiovascular Disease. He received the Distinguished Service Award from the California Governor’s Council on Physical Fitness and Sports, the Southwest District AAHPERD Scholar

Award, and the AAHPERD Honor Award. He received the prestigious Research Quarterly for Exercise and Sport Research Writing Award for research involving children’s physical activity and cardiovascular endurance. He is a former President of the National Association for Sport and Physical Education (NASPE), former Chair of the National Motor Development Academy of AAHPERD, and former President of the California Association for Health, Physical Education, Recreation and Dance (CAHPERD). He was presented CAHPERD’s 2004 Verne Landreth Award, exemplifying the highest achievement in service, research, teaching, and administration, and was the 2004 SJSU Nominee for the California State University Wang Family Excellence Award for extraordinary commitment and dedication, distinction by exemplary contributions, and achievement in the academic discipline. He is a Fellow of the Research Consortium of AAHPERD, has chaired two editorial boards, and has reviewed for journals, including *Journal of Medicine and Science in Sports and Exercise*; *International Journal of Sports Medicine*; *Research Quarterly for Exercise and Sports*; *Gerontology*; *Strategies*; *Women in Sport and Physical Activity Journal*; *Medicine, Exercise, Nutrition, and Health*; and *Perceptual and Motor Skills*. Dr. Payne lives in San Jose, California, with his wife, Linda, and their crazy dog, Baxter. Baxter is the fastest runner and highest jumper in the family, though his fine motor skills related to eating leave something to be desired.

Larry D. Isaacs is Professor Emeritus and former Director of the Exercise Biology Program, Department of Biological Sciences, College of Science and Mathematics at Wright State University. Dr. Isaacs received his doctorate in 1979 from the University of Maryland. He continues to serve as a

reviewer for many scholarly journals. In addition, he has published numerous scholarly articles and has written 18 textbooks. Most recently he accepted a position on the NASE (National Association of Speed and Explosion) Editorial Review Board. Over the past 35 years his writings have been recognized by many organizations, including the American Alliance for Health, Physical Education, Recreation and Dance, where he was awarded the status of fellow by the Research Consortium. He also received the WSU Presidential Recognition Award for Research. Dr. Isaacs holds international certifications with the American College of Sports Medicine and

with the NASE. Currently his research interests include examining the physiological changes that accompany aerobic exercise and resistance training in cardiac patients. Since retirement from the university, Dr. Isaacs serves part-time as a clinical cardiopulmonary physiologist at Hilton Head Hospital, Department of Cardiovascular Services. Dr. Isaacs currently lives on Hilton Head Island with his wife, Joy. His son Timothy, a paramedic, also resides on Hilton Head Island. His recently married daughter, Brooke, now resides in Savannah, GA. During his leisure time, Dr. Isaacs enjoys playing tennis, golf, and long-distance cycling.

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