

CONTENTS

Preface	ix
About the Web Study Guide	xv
Acknowledgments	xvii
Credits	xix

Part I Introduction to Motor Development

1 Fundamental Concepts 3

Defining Motor Development	4
Constraints: A Model for Studying Motor Development	6
How Do We Know It Is Change?	9
A Developmental Paradox: Universality Versus Variability	14
Summary and Synthesis	14

2 Theoretical Perspectives in Motor Development 17

Maturational Perspective	18
Information Processing Perspective	21
Ecological Perspective	22
Current Interests	26
Summary and Synthesis	27

3 Principles of Motion and Stability 29

Understanding the Principles of Motion and Stability	31
Using the Principles of Motion and Stability to Detect and Correct Errors	40
Summary and Synthesis	41

Part II Development of Motor Skills Across the Life Span

4 Early Motor Development 45

How Do Infants Move?	47
Why Do Infants Move? The Purpose of Reflexes	53
Motor Milestones: The Pathway to Voluntary Movements	54
Development of Postural Control and Balance in Infancy	60
Summary and Synthesis	62

5 Development of Human Locomotion 65

- The First Voluntary Locomotor Efforts: Creeping and Crawling 67
- Walking Across the Life Span 68
- Running Across the Life Span 73
- Other Locomotor Skills 77
- Summary and Synthesis 96

6 Development of Ballistic Skills 99

- Overarm Throwing 100
- Kicking 112
- Punting 114
- Sidearm Striking 116
- Overarm Striking 121
- Interventions 125
- Summary and Synthesis 125

7 Development of Manipulative Skills 127

- Grasping and Reaching 128
- Catching 136
- Anticipation 139
- Summary and Synthesis 145

Part III Physical Growth and Aging

8 Physical Growth, Maturation, and Aging 151

- Prenatal Development 153
- Postnatal Development 158
- Summary and Synthesis 174

9 Development and Aging of Body Systems 177

- Systems Development During the Prenatal Period 179
- Systems Development During Childhood and Adolescence 183
- Systems Development During Adulthood and Older Adulthood 192
- Summary and Synthesis 196

Part IV Development of Physical Fitness

- 10 Development of Cardiorespiratory Endurance 201**
Physiological Responses to Short-Term Exercise 202
Physiological Responses to Prolonged Exercise 205
Summary and Synthesis 216
- 11 Development of Strength and Flexibility 219**
Muscle Mass and Strength 220
Development of Strength 221
Development of Flexibility 231
Summary and Synthesis 237
- 12 Weight Status, Fitness, and Motor Competence 239**
A Model of Interrelationships 240
Body Composition 241
Obesity 248
Motor Competence, Activity, Fitness, and Body Composition 252
Summary and Synthesis 255

Part V Perceptual-Motor Development

- 13 Sensory-Perceptual Development 259**
Visual Development 261
Kinesthetic Development 268
Auditory Development 274
Intermodal Perception 278
Summary and Synthesis 282
- 14 Perception and Action in Development 285**
The Role of Action in Perception 286
Postural Control and Balance 295
Summary and Synthesis 299

Part VI Functional Constraints in Motor Development

15 Social and Cultural Constraints in Motor Development 303

- Social and Cultural Influences as Environmental Constraints 305
- Other Sociocultural Constraints: Race, Ethnicity, and Socioeconomic Status 318
- Summary and Synthesis 319

16 Psychosocial Constraints in Motor Development 321

- Self-Esteem 323
- The Link Between Perceived and Actual Motor Competence 328
- Motivation 329
- Summary and Synthesis 334

17 Developmental Motor Learning 337

- Unpacking the Definition of Motor Learning 338
- Stages of Learning and the Development of Expertise 340
- Practice and Motor Learning 344
- Augmented Feedback and Motor Learning 347
- Other Factors That Influence Motor Learning 349
- Summary and Synthesis 353

18 Conclusion: Interactions Among Constraints 355

- Using Constraints to Enhance Learning in Physical Activity Settings 357
- Interacting Constraints: Case Studies 366
- Summary and Synthesis 368

Appendix: Skinfold, Body Mass Index, and Head Circumference Charts 369

References 375

Index 411

About the Authors 423