

Contents in Brief

Section 1

Joint Structure and Function: Foundational Concepts 1

Chapter 1

Biomechanical Applications to Joint Structure and Function 2

Samuel R. Ward, PT, PhD, FAPTA

Bahar Shabidi, PT, DPT, PhD

David B. Berry, PhD

Chapter 2

Complexity of Human Joint Design 46

William R. Thompson, PT, DPT, PhD, FASBMR

Chapter 3

Muscle Structure and Function 83

Gary Cbleboun, PT, PhD

Section 2

Axial Skeletal Joint Complexes 111

Chapter 4

The Vertebral Column 112

Diane Dalton, PT, DPT, OCS

Chapter 5

The Thorax and Chest Wall 167

Sean Lowers, PT, DPT, CCS

Dan Cerniglia, PT, DPT

Chapter 6

The Temporomandibular Joint 184

Pamela D. Ritzline, PT, EdD

Jenna York, PT, DPT, OCS

Section 3

Upper Extremity Joint Complexes 203

Chapter 7

The Shoulder Complex 204

Paula M. Ludewig, PT, PhD, FAPTA

John Borstad, PT, PhD

Chapter 8

The Elbow Complex 242

Jane Fedorczyk, PT, PhD, CHT, FAPTA

Chapter 9

The Wrist and Hand Complex 269

Mia Erickson, PT, EdD, CHT

Section 4

Lower Extremity Joint Complexes 309

Chapter 10

The Hip Complex 310

Yongni Zhang, PT, PhD

RobRoy L. Martin, PT, PhD, CSCS

Chapter 11

The Knee 351

Elanna K. Arbos, PT, DPT, PhD

Miriam F. Hazlett, PT, DPT, MBA

Laura C. Schmitt, PT, PhD, FAPTA

Chapter 12

The Ankle and Foot Complex 397

RobRoy L. Martin, PT, PhD, CSCS

Lindsay A. Carroll, PT, DPT, PhD, OCS

Section 5

Integrated Function 441

Chapter 13

Posture 442

Dana Judd, PT, DPT, PhD

Chapter 14

Gait 469

Christopher P. Hurt, PhD

Tara S. Pearce, PT, DHS

Chapter 15

Aquatics: Biomechanical Principles 512

Emily E. Paul, PT, DPT, ATC

Index 525