CONTENTS

Cervical Extension, 26

Capital Flexion (Chin Tuck), 30

List of Plates Cervical Flexion, 34 Flexion to Isolate a Single Sternocleidomastoid, 38 Plate 1 Flexion and Extension of the Head and Cervical Rotation, 39 Neck, 25 Plate 2 Cardinal Planes of the Scapula, 90 Chapter 4 Plate 3 Cross Sections of the Arm Muscles in Testing the Muscles of the Trunk and Pelvic Chest, 116 Floor, 41 Plate 4 Cross Sections of the Arm and Forearm, 164 Trunk Extension, 42 Plate 5 Motions of the Thumb, 200 Lumbar Spine, 45 Plate 6 Cross Sections of the Thigh, 241 Thoracic Spine, 46 Plate 7 Cross Sections of the Leg, 282 Elevation of the Pelvis, 49 Trunk Flexion, 53 Introduction Trunk Rotation, 59 Brief History of Muscle Testing, xi Core Tests, 64 How to Use This Book, xii Core Strength, Stability, and Endurance, 64 Quiet Inspiration, 71 Names of the Muscles, xiii Diaphragm, 75 Anatomical Authorities, xiii Intercostals, 77 The Convention of Arrows in the Text, xiii Forced Expiration, 78 Chapter 1 Pelvic Floor, 81 Principles of Manual Muscle Testing, 1 Chapter 5 Grading System, 2 Testing the Muscles of the Upper Extremity, 89 Overview of Test Procedures, 2 Introduction to Shoulder Girdle Strength Criteria for Assigning a Muscle Test Grade, 3 Testing, 91 Screening Tests, 6 Scapular Abduction and Upward Rotation, 94 Preparing for the Muscle Test, 6 Scapular Elevation, 98 Exercises, 9 Scapular Adduction (Retraction), 101 Prime Movers, 10 Scapular Depression and Adduction, 104 Chapter 2 Scapular Adduction (Retraction) and Downward Rotation, 107 Relevance and Limitations of Manual Muscle Testing, 11 Latissimus Dorsi, 112 Introduction to Testing the Deltoid, 117 Introduction, 12 Shoulder Flexion, 118 The Examiner and the Value of the Muscle Shoulder Extension, 122 Test, 12 Shoulder Abduction, 126 Influence of the Patient on the Test, 13 Shoulder Horizontal Abduction, 131 Use of Manual Muscle Testing in Various Clinical Settings, 13 Shoulder Horizontal Adduction, 134 Limitations of Manual Muscle Testing, 16 Introduction to the Rotator Cuff, 138 Shoulder External Rotation, 139 Chapter 3 Shoulder Internal Rotation, 144 Testing the Muscles of the Neck, 19 Elbow Flexion, 150 Capital Extension, 21 Elbow Extension, 155

Forearm Supination, 160

Forearm Pronation, 165

Wrist Flexion, 169

Wrist Extension, 174

Introduction to Testing the Muscles of the

Hand, 179

Extrinsic Muscles, 179

Finger PIP and DIP Flexion, 180

Combined DIP and PIP Tests, 182

PIP Tests, 183

DIP Tests, 185

Finger MCP Extension, 186

Intrinsic Muscles, 189

Finger MCP Flexion, 190

Finger Abduction, 195

Finger Adduction, 197

Thumb Muscles, 199

Thumb MCP and IP Flexion, 201

Thumb IP Flexion, 204

Thumb MCP and IP Extension, 205

Thumb Abduction, 209

Abductor Pollicis Longus, 210

Abductor Pollicis Brevis, 211

Thumb Adduction, 212

Opposition (Thumb to Little Finger), 215

Grip Strength, 218

Chapter 6

Testing the Muscles of the Lower Extremity, 225

Hip Flexion, 226

Hip Flexion, Abduction, and External Rotation

With Knee Flexion, 231

Hip Extension, 234

Hip Extension Test to Isolate Gluteus Maximus, 238

Hip Extension Tests Modified for Hip Flexion

Tightness, 240

Supine Hip Extension Test, 242

Hip Abduction, 244

Hip Abduction From Flexed Position, 249

Hip Adduction, 252

Hip External Rotation, 257

Hip Internal Rotation, 261

Knee Flexion, 264

Hamstring Muscles in Aggregate, 266

Medial Hamstring Test (Semitendinosus and

Semimembranosus), 266

Lateral Hamstring Test (Biceps Femoris), 267

Knee Extension, 270

Ankle Plantar Flexion, 276

Gastrocnemius and Soleus Test, 278

Foot Dorsiflexion and Inversion, 283

Foot Inversion, 286

Foot Eversion With Plantar Flexion, 289

Hallux and Toe MP Flexion, 293

Hallux MP Flexion, 295 Toe MP Flexion, 296

Hallux and Toe DIP and PIP Flexion, 297

Hallux and Toe MP and IP Extension, 300

Chapter 7

Alternatives to Manual Muscle Testing, 307

Introduction, 308

One-repetition Maximum Test, 309 Multiple-repetition Maximum Test, 310

Equipment-Based Strength Testing, 311

Sitting Unilateral Knee Extension Test, 311

Leg Press Test, 312

Latissimus Dorsi Pull-Down Test, 314

Free Weights Testing, 315

Isokinetic Testing, 317

Elastic Band Testing, 318

Isometric Cable Tensiometry Testing, 320

Power Testing, 321

Body-Weight Testing, 327

Cyriax Method of Testing Contractile Lesions, 329

Chapter 8

Testing Functional Performance, 331

Introduction, 332

Chair Stand, 334

Gait Speed, 337

Physical Performance Test and Modified Physical

Performance Test, 340

Timed Up and Go, 351

Stair Climb, 353

Floor Rise, 355

Gait, 357

Chapter 9

Handheld Muscle Dynamometry, 361

Introduction, 362

Shoulder Flexion, 364

Shoulder Extension, 365

Shoulder Abduction, 366

Shoulder External Rotation, 367

Shoulder Internal Rotation, 368

Elbow Flexion, 369

Elbow Extension, 370

Wrist Extension, 371

Hip Flexion, 372

Hip Extension, 373

Hip Abduction, 374

Hip External Rotation, 375

Hip Internal Rotation, 376

Knee Flexion, 377

Knee Extension, 378

Foot Dorsiflexion and Inversion, 379

Chapter 10

Case Studies

- Case 1. Shoulder Pain, 384
- Case 2. Compromised Gait and Function Secondary to Muscle Weakness, 385

- Case 3. Fatigue Secondary to Muscle Weakness, 386
- Case 4. Muscle Weakness Following Nerve Injury, 387
- Muscle Weakness Following Hip Case 5. Surgery, 388
- Case 6. Muscle Weakness Following Childbirth, 388

Index, 391