

CONTENTS

List of Plates

- Plate 1 Flexion and Extension of the Head and Neck 23
- Plate 2 Cardinal Planes of the Scapula 80
- Plate 3 Cross Sections of Arm Muscles in Chest 108
- Plate 4 Cross Sections of the Arm and Forearm 151
- Plate 5 Motions of the Thumb 187
- Plate 6 Cross Sections of the Thigh 219
- Plate 7 Cross Sections of the Leg 257
- Plate 8 Motor Distribution of Facial and Trigeminal Cranial Nerves 289

Introduction

- Brief History of Muscle Testing xi
- How to Use This Book xiii
- Names of the Muscles xiii
- Anatomical Authorities xiii
- The Convention of Arrows in the Text xiii

Chapter 1

- Principles of Manual Muscle Testing 1**
- The Grading System 2
- Overview of Test Procedures 2
- Criteria for Assigning a Muscle Test Grade 3
- Screening Tests 5
- Preparing for the Muscle Test 6

Chapter 2

- Relevance and Limitations of Manual Muscle Testing 11**
- Introduction 12
- The Examiner and the Value of the Muscle Test 12
- Influence of the Patient on the Test 13
- Use of Manual Muscle Testing in Various Clinical Settings 13
- Limitations of Manual Muscle Testing 16

Chapter 3

- Testing the Muscles of the Neck 19**
- Capital Extension 20
- Cervical Extension 24
- Combined Neck Extension 27
- Capital Flexion 29

Cervical Flexion 32

- Combined Cervical Flexion 36
- Combined Flexion to Isolate a Single Sternocleidomastoid 38
- Cervical Rotation 39

Chapter 4

Testing the Muscles of the Trunk and Pelvic Floor 41

- Trunk Extension 42
 - Lumbar Spine 44
 - Thoracic Spine 46
 - Lumbar and Thoracic Spine 47
- Elevation of the Pelvis 49
- Trunk Lateral Endurance 52
- Trunk Flexion 53
- Trunk Rotation 58
- Quiet Inspiration 63
 - The Diaphragm 66
 - The Intercostals 67
- Forced Expiration 68
- Pelvic Floor 72

Chapter 5

- Testing the Muscles of the Upper Extremity 79**
- Scapular Abduction and Upward Rotation 81
- Scapular Elevation 88
- Scapular Adduction 92
- Scapular Depression and Adduction 96
- Scapular Adduction and Downward Rotation 99
- Scapular Depression 104**
 - Introduction to Shoulder Muscle Testing 107
- Shoulder Flexion 109
- Shoulder Extension 113
- Shoulder Abduction 116
- Shoulder Horizontal Abduction 121
- Shoulder Horizontal Adduction 124
- Shoulder External Rotation 129
- Shoulder Internal Rotation 133
- Elbow Flexion 138
- Elbow Extension 142
- Forearm Supination 147
- Forearm Pronation 152
- Wrist Flexion 156
- Wrist Extension 161

Finger MP Flexion	165
Finger PIP and DIP Flexion	169
PIP Tests	171
DIP Tests	173
Finger MP Extension	174
Finger Abduction	177
Finger Adduction	180
Thumb MP and IP Flexion	183
Thumb MP and IP Flexion Tests	185
Thumb IP Flexion Tests	186
Thumb MP and IP Extension	188
Thumb MP Extension Tests	190
Thumb IP Extension Tests	191
Thumb Abduction	193
Abductor Pollicis Longus Test	194
Adductor Pollicis Brevis Test	195
Thumb Adduction	196
Opposition (Thumb to Little Finger)	199
Chapter 6	
Testing the Muscles of the Lower Extremity 203	
Hip Flexion	204
Hip Flexion, Abduction, and External Rotation with Knee Flexion	209
Hip Extension	212
Hip Extension Test to Isolate Gluteus Maximus	216
Hip Extension Tests Modified for Hip Flexion Tightness	218
Supine Hip Extension Test	220
Hip Abduction	222
Hip Abduction from Flexed Position	226
Hip Adduction	229
Hip External Rotation	233
Hip Internal Rotation	237
Knee Flexion	240
Hamstring Muscles in Aggregate	242
Medial Hamstring Test (Semitendinosus and Semimembranosus)	242
Lateral Hamstring Test (Biceps Femoris)	243
Knee Extension	246
Ankle Plantar Flexion	251
Gastrocnemius and Soleus Test	253
Foot Dorsiflexion and Inversion	258
Foot Inversion	261
Foot Eversion with Plantar Flexion	264
Hallux and Toe MP Flexion	268
Hallux MP Flexion	269
Toe MP Flexion	270
Hallux and Toe DIP and PIP Flexion	271
Hallux and Toe MP and IP Extension	275

Chapter 7	
Assessment of Muscles Innervated by Cranial Nerves 279	
Jacqueline Montgomery	
Introduction to Testing and Grading	280
Extraocular Muscles	281
Muscles of the Face and Eyelids	286
Nose Muscles	294
Muscles of the Mouth and Face	296
Muscles of Mastication	302
Muscles of the Tongue	308
Muscles of the Palate	315
Muscles of the Pharynx	321
Muscles of the Larynx	323
Swallowing	327
Muscle Actions in Swallowing	327
Testing Swallowing	328
Preliminary Procedures to Determine Clinically the Safety of Ingestion of Food or Liquids 330	

Chapter 8	
Alternatives to Manual Muscle Testing 333	
Introduction	334
Equipment-based Testing	336
Unilateral Knee Extension Test	336
Leg Press Test	337
Latissimus Dorsi Pull-down Test	339
Free Weights Testing	339
Isokinetic Testing	342
Hand-held Muscle Dynamometry	342
Elastic Band Testing	344
Cable Tensiometry Testing	346
Specialized Testing	347
The Perineometer Test	347
Grip Strength Test	348
Power Testing	350
Body-weight Testing	354
Cyriax Method of Testing Contractile Lesions	357

Chapter 9	
Testing Functional Performance 361	
Introduction	362
Chair Stand	364
Gait Speed	368
Short Physical Performance Battery	371
Physical Performance Test	379
Modified Physical Performance Test	387
Timed Up and Go	395
Stair Climb	397

Floor Rise 398

Gait 400

Chapter 10

Case Studies 405

Introduction 406

Case 1. Shoulder Pain 406

Case 2. Compromised Gait and Function
Secondary to Muscle Weakness 407

Case 3. Fatigue Secondary to Muscle
Weakness 408

Case 4. Muscle Weakness Following Nerve
Injury 409

Case 5. Muscle Weakness Following Hip
Surgery 410

Case 6. Muscle Weakness Following
Childbirth 410

Chapter 11

Ready Reference Anatomy 413

Using this Ready Reference 414

Part 1. Alphabetical List of Muscles 414

Part 2. List of Muscles by Region 417

Part 3. Skeletal Muscles of the Human Body 420

Part 4. Myotomes 488

Index 499