Contents of Aquatic Exercise for Rehabilitation and Training

Chapter 1. Introduction and Historical Overview
Lori Thein Brody, PT, PhD, and Jean Irion, PT, EdD, SCS, ATC
History of Aquatic Healing and Rituals
Modern Origins of Aquatic Therapy
Current Status of Aquatic Rehabilitation
Indications and Advantages of an Aquatic-Based Program
Contraindications and Precautions for an Aquatic-Based Program
Aquatics programs
Summary

Chapter 2. Aquatic Service Providers
Charlotte Norton, DPT, MS, ATC, CSCS, and Lynette Jamison, MOT, OTR/L, CPO
Lyon Model for the Aquatic Team
Licensure, Registration, Certification and Title Acts
Function of Each Team Member in the Aquatic Continuum
Summary

Chapter 3. Aquatic Properties and Therapeutic Interventions
Jean M. Irion, PT, EdD, SCS, ATC
Physical Properties of Water
Fluid Dynamic Properties of Water
Summary

Chapter 4. Physiological Responses to Immersion and Aquatic Exercise
Dawn T. Gulick, PT, PhD, ATC, CSCS, and Paula Richley Geigle, PT, PhD
Pulmonary System
Renal System
Musculoskeletal System
Neuromuscular System
Summary

Part II. Philosophy and Technique Elements

Chapter 5. The Halliwick Concept
Johan Lambeck, PT, and Urs N.Gamper, PT
Historical Overview
Treatment Classification
Halliwick and ICF
Learning Stages
Function Level Applications
Activity Level Applications
Participation Level Applications
Specific Skill Training
Summary
Chapter 6. The Bad Ragaz Ring Method
Urs N. Gamper, PT, and Johan Lambeck, PT
Physiotherapeutic and Mechanical Principles
Proprioceptive Neuromuscular Facilitation
Indications
Treatment Goals
Application of Techniques
Treatment Time
Exercise Progression
Movement Patterns
Patterns of the Lower Extremities
Patterns of the Trunk
Patterns of the Upper Extremities
Summary

Chapter 7. Ai Chi
Ruth Sova, MS, ATRIC
Historical Overview
Breathing Patterns
Movement Principles
Stance and Movement Patterns
Ai Chi Benefits
Applications in Patient Populations
Summary

Chapter 8. Watsu
Lynette Jamison, MOT, OTR/L, CPO
History and Philosophy
Treatment Progression
Training and Certification
Physiological Effects
Psychological Effects
Treatment Applications
Precautions and Contraindications
Summary

Chapter 9. Swim Stroke Training and Modification for Rehabilitation
Emily Dunlap, PT
Swim Training in an Aquatic Therapy Treatment Plan
Swim Training Progression
Recovery Skills
Static Floating Control
Basic Water Safety Skills
Swim Training Equipment
Swim Strokes and Modification
Part III. Client Elements

Chapter 10. Assessment and Evaluation
Paula Richley Geigle, PT, PhD
Clinical Decision Making
Initial Assessment and Evaluation
Medical Clearance
Informed Consent
Water Safety Screening
Vital Sign Baseline Data
Documenting Aquatic Programming and Progression
Discharge from Aquatic Programming

Chapter 11. Specialized Aquatic Cardiovascular Training
Dawn T. Gulick PT, PhD, ATC, CSCS
Monitoring Cardiovascular Performance
Cerebral Palsy
Brain Injury & Stroke
Multiple Sclerosis
Rheumatoid Arthritis
Pregnancy
Cardiopulmonary Disease
Fibromyalgia
Obesity
Older Populations
Injured Athletes

Chapter 12. Neuromuscular Training
David M. Morris PT, PhD, and Paula Richley Geigle, PT, PhD
Rehabilitation of Individuals with Neurological Disorders
General Guidelines for Treatment Design
Aquatic Techniques for Neurorehabilitation Application
Balance and Postural Control
Aquatic Wellness Programs

Chapter 13. Core Musculoskeletal Training
Lori Thein Brody, PT, PhD
Functional Anatomy
Activities to Improve Mobility
Activities to Increase Muscle Performance
Core Emphasis Cardiorespiratory Training
Specific Exercise Recommendations
Summary

Chapter 14. Upper-Quarter Musculoskeletal Training
Lori Thein Brody, PT, PhD
Functional Anatomy
Indications for Aquatic Therapy
Activities to Improve Mobility
Activities to Improve Muscle Performance
Upper Quarter Focus Cardiorespiratory Training
Specific Exercise Recommendations
Summary

Chapter 15. Lower-Quarter Musculoskeletal Training
Lori Thein Brody, PT, PhD
Functional Anatomy
Indications for Aquatic Therapy
Activities to Increase Mobility
Activities to Improve Muscle Performance
Cardiorespiratory Training with a Lower Extremity Emphasis
Specific Exercise Progressions
Summary
References

Chapter 16. Case Scenarios of Individuals with Specific Needs
Paula Richley Geigle, PT, PhD
Traumatic Brain Injury and Postpartum
Spina Bifida
Femur Fracture in a Man with a Diagnosis of Cerebral Palsy