



AEA Aquatic Fitness Professional Learning Objectives

GENERAL CATEGORIES

Categories correspond to chapters of the Aquatic Fitness Professional Manual, Seventh Edition

PART I: Foundations of Fitness and Exercise

- Physical Fitness
- Exercise Anatomy
- Exercise Physiology
- Movement Analysis
- Exercise Motivation and Behavior

PART II: The Aquatic Environment

- The Physical Laws as Applied to the Aquatic Environment
- The Pool Environment and Design

PART III: Instruction and Programming

- Shallow-Water Exercise
- Deep-Water Exercise
- Aquatic Exercise Leadership
- Exercise Programming
- Special Populations

PART IV: Safety, Scope of Practice, and Legal

- Safety, Emergencies, Injuries, and Instructor Health
- Basic Nutrition and Weight Management
- Business Issues and Legal Considerations

CHAPTER 1 Physical Fitness

1. Understand the difference between physical activity, exercise and physical fitness.
2. Define the major health-related components and skill-related components of physical fitness.
3. Recognize how ballistic, static and dynamic stretching differ.
4. Understand the 2018 American College of Sports Medicine guidelines regarding frequency, intensity, time, type, volume and progression (FITT-VP) of exercise.
5. Understand common methods for monitoring exercise intensity, including the application of the Kruel Aquatic Heart Rate Deduction.
6. Explain the difference between continuous, interval and circuit training formats.
7. Recognize the physiological and psychological benefits of regular exercise, as well as the specific benefits associated with aquatic-based exercise.

CHAPTER 2 Exercise Anatomy

8. Recognize the structural organization of the human body.
9. Understand the five systems of the body that are most pertinent to fitness instructors.
10. Explain how bones grow, including the influence of exercise and nutrition.
11. Differentiate between the axial skeleton and the appendicular skeleton.
12. Define the four principle characteristics of muscle tissue.
13. Describe how muscles are arranged in the human body.
14. Identify and locate the major muscles, including the joints moved.
15. Describe how the nervous system works with the muscular system to create movement.
16. Explain how oxygen and carbon dioxide are exchanged within the respiratory system.
17. Describe the role of the cardiovascular system during exercise.
18. Explain the flow of blood through the body.

CHAPTER 3 Exercise Physiology

19. Define the eight physiological principles required to improve fitness level.
20. Understand the three metabolic systems the body uses to produce ATP and how they work together during exercise.
21. Recognize the difference between fast-twitch and slow-twitch muscle fibers.
22. Differentiate between isometric, isotonic, and isokinetic muscle actions and contractions.
23. Understand the importance of maintaining muscle balance, and how muscle balance is promoted in the aquatic environment.
24. Understand the acute physiological responses to both aerobic and anaerobic exercise.

CHAPTER 4 Movement Analysis

25. Define and describe anatomical position and understand key anatomical reference terms.
26. Describe the difference between center of gravity and center of buoyancy, and how each influences posture, alignment, and balance in the water.
27. Explain the three planes of motion and joint actions that occur in each.
28. Understand basic structure of synovial joints most involved with exercise design and recognize movements that occur at each joint.
29. Recognize the interaction between the skeletal and the muscular systems in producing movement.
30. Understand how movement in water differs from movement on land, and how different types of aquatic equipment influences the muscle actions.

CHAPTER 5 Exercise Motivation and Behavior

31. Understand the three key principles regarding the complexity of behavior change for exercise participants.
32. Explain and apply the three strategies for motivating exercise participants for sustained change.
33. Define the terms of autonomy, competence and relatedness as they relate to the theory of self-determination.
34. Understand the process of motivational interviewing to assist individuals with motivation and exercise adherence.
35. Explore two case scenarios that give insight into exercise motivation for a group setting and assisting individuals through exercise barriers.

CHAPTER 6 The Physical Laws as Applied to the Aquatic Environment

36. Recognize the physiological benefits of water immersion and how these are influenced by individual differences of participants, environmental concerns, and programming.
37. Explain how buoyancy affects individual participants differently, and how this property of water can influence vertical water exercise outcomes.
38. Understand how water's resistance is influenced by viscosity, and differentiate between streamline and turbulent flow.
39. Define drag, hydrostatic pressure and surface tension and explain how each influences aquatic exercise.
40. Understand Newton's Laws of Motion (Inertia, Acceleration, and Action and Reaction) as they relate to aquatic exercise program design.
41. Recognize how to apply the principles of levers, frontal resistance, and speed of movement to alter aquatic exercise intensity.

CHAPTER 7 The Pool Environment and Design

42. Understand the recommended guidelines for water temperature, air temperature, and humidity levels to ensure a safe pool environment for aquatic exercise.
43. Understand how the pool environment influences heat dissipation during aquatic fitness programs and how to adjust programs accordingly.
44. Recognize water temperature ranges for programs that target specific populations and health conditions.
45. Be aware of the importance of maintaining water and air quality for pool safety.
46. Explain the influence of pool design – pool slope and depth, surfaces of the pool bottom and pool deck, gutters, designated entry and exit areas, and acoustic concerns – on safe and effective program design.
47. Recognize the need for adequate pool space at the appropriate water depth and the value of wearing shoes in and around the pool area.

CHAPTER 8 Shallow-Water Exercise

48. Define shallow water exercise.
49. Learn evidence-based benefits of shallow water exercise.
50. Learn variations to the three lower body base moves utilized in shallow-water exercise.
51. Understand the five methods to create safe and effective movements for the upper body.
52. Discover impact options to accommodate the variety of fitness levels of participants in your classes.
53. Understand the benefits of using land, water, and half-water tempos, as well as cadence, to add variety and aid in safe transitions in your aquatic programming.
54. Recognize how the aquatic environment influences posture and alignment, and understand the importance of proper demonstration and cueing to maintain neutral alignment.

CHAPTER 9 Deep-Water Exercise

55. Define deep-water and transitional depth training.
56. Understand current deep-water training research relating to cardiorespiratory effects, effort and energy expenditure, and form.
57. Learn variations to the three lower body base moves used in deep water, and how these differ from shallow-water exercise
58. Understand the various methods for incorporating safe and effective deep-water upper body movements.
59. Recognize non-impact exercise variations achieved through body positioning.
60. Define and apply the various deep-water tempo options.
61. Recognize the key concepts that set deep-water, non-impact training apart from shallow-water exercise.
62. Recognize the importance of participant evaluation for deep-water safety and understand how to teach vertical recovery techniques.

CHAPTER 10 Aquatic Exercise Leadership

63. Recognize the importance of demonstrating, teaching, and reinforcing proper posture and alignment.
64. Explain the purpose of form and safety, motivational, transitional, imagery, feedback and relaxation cues, and differentiate between the various types of transitional cues.
65. Understand the three methods for delivering cues in your class: audible, visual, and tactile.
66. Understand the differences and similarities between the three primary categories of transitions for shallow-water and deep-water exercise.
67. Define the common terms associated with choreography, as well as the various choreography styles.
68. Understand how to use music effectively in aquatic programming, including the recommended tempo for various class formats.
69. Explain the advantages and disadvantages of teaching from in the water, on the pool deck, or with a combination of both locations.
70. Recognize the attributes associated with professionalism for aquatic fitness instructors.

CHAPTER 11 Aquatic Exercise Programming

71. Understand the purpose for the main class components (warm-up, conditioning, cool-down and stretch), and recognize how to adapt each for the aquatic environment.
72. Understand how to create variations of the conditioning phase of class to achieve various goals and accommodate the needs and abilities of your participants.
73. Learn how to incorporate general recommendations for class components into numerous programming formats that provide training variety and motivate a wide range of participants.
74. Recognize movements in the aquatic environment that may require greater consideration to use them safely and effectively in class.

CHAPTER 12 Special Populations

75. Define special populations.
76. Recognize your limitations as a fitness professional and when to refer participants to a more qualified instructor, trainer or health professional as necessary.
77. Be aware of how the specific properties of water, including hydrostatic pressure, buoyancy and drag, allow for the adaptations associated with aquatic exercise programs.
78. Identify special populations that are most commonly encountered in an aquatic exercise setting and understand general characteristics, exercise guidelines, and programming considerations for each.

CHAPTER 13 Safety, Emergencies, Injuries, and Instructor Health

79. Know the required and recommended safety training for aquatic fitness professionals.
80. Understand risk management strategies to reduce the occurrence of injury, illness, or drowning in your aquatic programs.
81. Define emergency action plan (EAP) and assessment procedures for responsive and unresponsive individuals.
82. Recognize the difference between a distressed person and a drowning situation, and understand how to make a safe assist based upon your level of training.
83. Understand the emergency first aid procedures for sudden illnesses common to aquatic fitness classes.
84. Differentiate between acute and chronic injuries; know basic first aid for acute injuries and aquatic program strategies to help prevent chronic injuries.
85. Recognize both the potential danger of electrical shock in the aquatic environment and how to minimize its risk.
86. Be aware of health considerations relevant to aquatic fitness professionals.

CHAPTER 14 Basic Nutrition and Weight Management

87. Understand the six essential nutrients required for normal growth and function, and differentiate between macronutrients and micronutrients.
88. Define simple and complex carbohydrates, soluble and insoluble fiber, essential and non-essential amino acids, complete and incomplete proteins, unsaturated, saturated and trans fat, and water-soluble and fat-soluble vitamins.
89. Explain how carbohydrates, fats and proteins work together to provide energy for the body's needs including resting metabolic rate (RMR), activities of daily living, and exercise.
90. Recognize how the information provided on packaged food nutrition labels is one way to better understand food quality and make healthier choices.
91. Learn how the *Dietary Guidelines for Americans* offer science-based advice to promote health and reduce risk for major chronic diseases through diet and physical activity.
92. Explain the three ways that the body burns calories – Thermic Effect of Food, Thermic Effect of Physical Activity and Resting Metabolic Rate – and how they can be manipulated to assist in weight management.
93. Understand the signs of common eating disorders so that you can identify participants that may be at risk of developing these conditions and provide professional referrals as needed.

CHAPTER 15 Business Issues and Legal Considerations

94. Recognize the difference in employment status for employees and independent contractors, and understand various options for setting up your own fitness business
95. Define the most common types of insurance applicable to fitness professionals.
96. Understand the concept of risk management and specific examples of risks associated with the aquatic environment.
97. Define standard of care and be aware of two key sets of standards provided by AEA - *AEA's Certified Aquatic Fitness Professional Code of Ethics and Conduct* and *AEA's Standards and Guidelines for Aquatic Fitness Programming*.
98. Recognize the five general factors that influence liability and the four factors that must be present to demonstrate professional negligence.
99. Understand the importance of proper documentation within the legal aspect of the fitness industry, including informed consent, waiver or liability, injury reports, and recommendations for identifying clients who would benefit from obtaining medical clearance prior to initiating an exercise program.
100. Understand the legalities of music use within the fitness industry and how you can remain in compliance.
101. Be aware of the responsibilities of fitness facilities and swimming pools under the Americans with Disabilities Act (ADA).