

# Muscle System Specialist® Course

## Prerequisites

In order to register for the Muscle System Specialist Course an applicant must necessarily possess one of the following:

1. At least an undergraduate degree in a science field and from #2 thru #4 below  
(#1 AND #2, #6, #7, #8) **OR** (#1 AND #3, #6, #7, #8) **OR** (#1 AND #4, #6, #7, #8)
2. A current certification in good standing with one of the following NCCA accredited certifying agencies:
  1. American Council on Exercise i. Personal Trainer  
ii. Medical Exercise Specialist
  2. National Academy of Sports Medicine  
i. Personal Trainer
  3. National Strength and Conditioning Association  
i. Personal Trainer  
ii. Strength and Conditioning Specialist
  4. Resistance Training Specialist i. Specialist
  5. American College of Sports Medicine i. Personal Trainer  
ii. Exercise is Medicine Credential  
iii. Exercise Physiologist (EP-C)  
iv. Clinical Exercise Physiologist (CEP or RCEP)
  6. Cooper Institute  
i. Personal Trainer
  7. International Sports Sciences Institute i. Personal Trainer
3. A current Personal Training certification/diploma in good standing with one of the following non-NCCA accredited certifying agencies:
  - a. CanFitPro (Canada)
  - b. AFLCA - Alberta Fitness Leadership Certification Association
  - c. CYQ, TQ, Active IQ, or YMCA Awards Level 2 (UK)
  - d. National Personal Training Institute
4. A current license in good standing in any state or country for one of the following:
  - a. Physical Therapy
  - b. Occupational Therapy c. Athletic Training
  - d. Chiropractic
  - e. Medical Doctor
  - f. Osteopathic Doctor g. Naturopathic Doctor h. Massage Therapy
5. If no certification/license by a recognized agency (from #2, #3, and #4 above): a. A Master's Degree in an Exercise Science Related Field\* or a Doctorate Degree in an Exercise Science Related Field\*
6. A current CPR/AED certification
7. Prove current liability insurance
8. Practicing for at least 2 years (of 15 hours per week average) providing exercise programming to individuals and/or small groups.
9. If there is a credential not listed that you would like to submit for an **Exception Review**, please provide any relevant documentation and a statement for why you think it should be considered with your application. Send to [info@exerciseproed.com](mailto:info@exerciseproed.com) - Please note that your application may still be rejected.

\*Exercise Science Related Fields: Biology, Physiology, Neurology, Myology, Sports Performance, Human Performance, Kinesiology, Cardiac Rehabilitation, Biomechanics.

# Muscle System Specialist® Course

It is strongly recommended that the applicant possess a working knowledge of the following content domains:

1. Musculoskeletal Anatomy
  - a. The names of all anatomical muscles and their normative attachment sites on the skeleton
  - b. The structure of skeletal muscle and its relationship to function
    - i. Length: Tension
    - ii. Force: Velocity
    - iii. Energy Substrate Utilization and Recovery Rates
  - c. The names and locations of all the skeletal bones
  - d. The structure of a synovial joint and its relationship to function
2. Nervous System Anatomy
  - a. The Central Nervous System Structure and Function
  - b. The Peripheral Nervous System Structure and Function
  - c. The Motor and Sensory Systems and the relationship between the two
3. Basic Mechanics (Statics)
  - a. Motion (Linear and Angular)
  - b. Momentum and Force
  - c. Lever Systems
  - d. Torque
4. Philosophy
  - a. Philosophy of Science
  - b. Epistemology
  - c. Worldview
5. The English Language

# Muscle System Specialist® Course

Here is a voluntary screening examination on the content of the knowledge domains listed above so an applicant can get a read on their readiness to engage the coursework:

1. Which best describes the attachments of the Triceps Lateral Head?
  - a. Posterior Tubercle of Glenoid and Posterior Proximal Ulna
  - b. Posterior Tubercle of Glenoid and Posterior Proximal Radius
  - c. Posterior Lateral Proximal Surface of Humerus and Posterior Olecranon Process
  - d. Anterior aspect of acromion and posterior aspect of radial head of radius
2. What definition fits the sarcoplasmic reticulum the best?
  - a. the specialized endoplasmic reticulum of cardiac muscle and skeletal striated muscle that functions especially as a storage and release area for calcium.
  - b. the specialized endoplasmic reticulum of cardiac muscle and skeletal striated muscle that functions especially as a storage and release area for ATP.
  - c. The fascial tissue surrounding a myofibril
  - d. None of the above
3. Which is not a component of a synovial joint?
  - a. Cruciate Ligament
  - b. Synovium
  - c. Joint Space
  - d. Cartilage
4. Which time interval is anaerobic glycolysis typically associated with?
  - a. 0 seconds to 10 seconds
  - b. 10 seconds to 120 seconds
  - c. 120 seconds to 480 seconds
  - d. 0 seconds to 3600 seconds
5. Which bones make up the coxa-femoral joint?
  - a. The innominate and the head of the femur
  - b. The tibia and the femur
  - c. The femur and the sacrum
  - d. None of the above
6. What is the function of the synovium?
  - a. To remove synovial fluid
  - b. To produce synovial fluid
  - c. Both a and b
  - d. None of the above
7. Which best describes the attachments of the Gastrocnemius
  - a. The posterior-lateral aspect of the medial and lateral femoral condyles and the Achilles tendon
  - b. The posterior upper 1/3 of the tibia and fibula and the posterior superior calcaneus
  - c. The posterior fascial sheath of the soleus and the Achilles tendon
  - d. The posterior distal femur and the inferior posterior aspect of the calcaneus

# Muscle System Specialist® Course

8. Which of the following are considered part of the 7 divisions of CNS?
  - a. The Diencephalon
  - b. The Cerebellum
  - c. The Mid Brain
  - d. All of the above
  
9. What does afferent mean in terms of neurology?
  - a. Carrying sensory information toward a central organ or part
  - b. Carrying sensory information away from a central organ or part
  - c. The posterior aspect of a neuronal dendrite
  - d. Carrying motor information away from a central organ or part
  
10. What is the definition of momentum?
  - a. Inertia
  - b. The quantity of motion of a moving body
  - c. The product of a body's mass and velocity
  - d. Both b and c
  
11. Which best describes torque?
  - a. The amount of force that causes an object to rotate
  - b. The amount of force that causes an object to move along a straight path
  - c. The compressive force that breaks an object
  - d. None of the above
  
12. Which best defines the Z-Line of a muscle sarcomere?
  - a. The borders that separate and link sarcomeres within skeletal muscle
  - b. The attachment site for thick filaments
  - c. The attachment site for thin filaments
  - d. A pale band across striated muscle fiber that consists of actin
  
13. What is the definition of a lever?
  - a. A wrench
  - b. The straight-line distance between an applied force and an axis
  - c. A simple machine consisting of a rigid bar pivoted on a fixed point and used to transmit force, as in raising or moving a weight at one end by pushing down on the other.
  - d. All of the above
  
14. Which best describes the definition of science?
  - a. A system of acquiring knowledge. This system uses observation and experimentation to describe and explain natural phenomena
  - b. An organized body of knowledge gained by experimentation
  - c. Any systematic field of study or the knowledge gained from it
  - d. All of the above
  
15. What is the relationship between muscle force and contraction velocity?
  - a. As muscle contraction velocity increases its force producing capabilities decrease
  - b. As muscle contraction velocity decreases its force producing capabilities remain the same
  - c. As muscle contraction velocity decreases its force producing capabilities decrease
  - d. As muscle contraction velocity increases its force producing capabilities increase

# Muscle System Specialist® Course

16. What is a worldview?
  - a. The visual images gained from an orbiting satellite
  - b. The overall perspective from which one sees and interprets the world
  - c. A collection of beliefs about life and the universe held by an individual or a group
  - d. Both b and c
  
17. What is the role of hyaline cartilage?
  - a. Provide support
  - b. Provide a smooth surface
  - c. Transmit energy into the bone
  - d. All of the above
  
18. Where is the middle phalange of the second finger?
  - a. Between the metacarpal and the distal phalanges
  - b. Between the proximal and distal phalanges
  - c. Between the scaphoid and the metacarpal
  - d. There is no such thing
  
19. Which are components of a motor neuron?
  - a. A soma
  - b. An axon
  - c. A dendrite
  - d. All of the above
  
20. What does the Length: Tension plot of a muscle show?
  - a. That as sarcomere length changes the amount of tension produced changes
  - b. That muscle stretching increases its force production
  - c. That muscle stretching decreased its force production
  - d. None of the above

Answer Key: 1c, 2a, 3a, 4b, 5a, 6c, 7a, 8d, 9a, 10d, 11a, 12a, 13d, 14d, 15a, 16d, 17d, 18b, 19d, 20a

If you got 14 correct that's great.

Anything less - don't worry - now you have an idea on what to work on.

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## IMPORTANT

Additional information about participating in the course:

Once you have chosen a payment plan and registered for the course you will have access to the course contents.

You are strongly encouraged to participate in the course with a cohort on a designated start date (and all subsequent weekly reviews) but this is not mandatory.

If you initially choose NOT to participate in a formal cohort but at a later date do want to participate in a cohort, please email that request to [info@exerciseproed.com](mailto:info@exerciseproed.com).

Following the completion of the last weekly review you will have access to the course content for a full year, after which your account will be terminated. So, make sure you download everything from each section that is downloadable.

There is a file of all relevant documents that is sent to each participating cohort member after the completion of Section 14. If you have chosen not to participate in a cohort then please send a request for that document file to [info@exerciseproed.com](mailto:info@exerciseproed.com).

If you choose to get certified as a Muscle System Specialist then you will have lifetime access to the course content along with other benefits.

Following the completion of Section 14 all cohort members will be allowed to participate in the Muscle System Specialist Private FB Page.

If you choose not to participate in a formal cohort, but would like to participate in the Muscle System Specialist community Facebook Private Page, then please send a request to [info@exerciseproed.com](mailto:info@exerciseproed.com).