

Advanced Exercise Science Foundations

Physical Education And Health · Practice Test · 8 Questions

1. Which specific phase of a muscle contraction involves the sarcomere shortening as actin filaments slide over myosin filaments?

- A) Eccentric contraction
- B) Isometric contraction
- C) Concentric contraction
- D) Isotonic relaxation

2. During aerobic respiration, which organelle within the muscle cell is responsible for the majority of adenosine triphosphate (ATP) production?

- A) Ribosome
- B) Mitochondrion
- C) Lysosome
- D) Golgi apparatus

3. Which term describes the volume of blood pumped from the left ventricle of the heart in one single contraction?

- A) Cardiac output
- B) Heart rate
- C) Stroke volume
- D) Systolic pressure

4. According to the SAID principle (Specific Adaptation to Imposed Demands) in exercise science, what does the body prioritize?

- A) Adapting to the specific type of stress placed upon it
- B) Increasing overall body mass regardless of training
- C) Prioritizing flexibility over muscular strength
- D) Focusing solely on cardiovascular recovery

5. Which type of muscle fiber is characterized by high mitochondrial density and a high resistance to fatigue, making it ideal for endurance activities?

- A) Type IIb (fast-twitch)
- B) Type IIa (fast-oxidative)
- C) Type I (slow-twitch)
- D) Type III (intermediate)

6. What is the primary function of the Golgi tendon organ in the human musculoskeletal system?

- A) To initiate a contraction when a muscle is stretched
- B) To detect changes in muscle tension to prevent injury
- C) To store glycogen for immediate energy use
- D) To regulate blood flow to active muscles

7. Which anatomical plane divides the human body into anterior and posterior sections?

- A) Sagittal plane
- B) Transverse plane
- C) Frontal plane
- D) Oblique plane

8. In the context of energy systems, which substrate is primarily utilized during the initial 10-15 seconds of high-intensity explosive activity?

- A) Stored phosphocreatine
- B) Adipose tissue
- C) Blood glucose
- D) Liver glycogen