What is the primary function of muscle contraction

- A. Digestion
- B. Protection
- C. Sensation
- D. Movement

Answer: D. Movement

What are the two main types of muscle fibers

- A. Cardiac and smooth
- B. Biceps and triceps
- C. Slow-twitch and fast-twitch
- D. Flexor and extensor

Answer: C. Slow-twitch and fast-twitch

What is the role of calcium ions in muscle contraction

- A. Provides energy for muscle movement
- B. Initiates muscle contraction
- C. Regulates body temperature
- D. Causes relaxation of muscles

Answer: B. Initiates muscle contraction

What is the difference between isotonic and isometric muscle contractions

- A. Isotonic involves no movement, Isometric involves movement

• B. Isotonic and isometric are the same thing

• C. Isotonic only happens in weightlifting, Isometric only happens in yoga

• D. Isotonic involves constant tension and changing length, Isometric involves constant length and changing tension

Answer: D. Isotonic involves constant tension and changing length, Isometric involves constant le

What is the sliding filament theory of muscle contraction

• A. Muscle contraction is caused by the sliding of actin and myosin filaments past each other.

• B. Muscle contraction is caused by the lengthening of actin and myosin filaments.

• C. Muscle contraction is caused by the contraction of actin and myosin filaments.

• D. Muscle contraction is caused by the separation of actin and myosin filaments.

Answer: A. Muscle contraction is caused by the sliding of actin and myosin filaments past each oth

What is the role of ATP in muscle contraction

• A. Aids in nerve transmission

• B. Causes relaxation of muscles

• C. Provides energy for muscle contraction

• D. Regulates muscle growth

Answer: C. Provides energy for muscle contraction

What is the neuromuscular junction

• A. A type of muscle fiber

• B. A part of the brain responsible for muscle control

• C. A type of joint in the body

• D. The site where a motor neuron meets a muscle fiber

Answer: D. The site where a motor neuron meets a muscle fiber

What is a motor unit

• A. A type of car engine.

• B. A type of electric scooter.

• C. A motor unit is a motor neuron and all of the muscle fibers it innervates.

• D. A type of household appliance.

Answer: C. A motor unit is a motor neuron and all of the muscle fibers it innervates.

What is the difference between concentric and eccentric muscle contractions

• A. Concentric: no movement. Eccentric: muscle shortens.

• B. Concentric: muscle shortens. Eccentric: muscle lengthens.

• C. Concentric: muscle shortens. Eccentric: no movement.

• D. Concentric: muscle lengthens. Eccentric: muscle shortens.

Answer: B. Concentric: muscle shortens. Eccentric: muscle lengthens.

What is the role of troponin and tropomyosin in muscle contraction

• A. Store energy for muscle movement

• B. Regulate muscle contraction by controlling actin-myosin interaction

• C. Generate ATP for muscle contraction

• D. Control calcium levels in the muscle

Answer: B. Regulate muscle contraction by controlling actin-myosin interaction

What is the role of acetylcholine in muscle contraction

- A. Inhibits muscle contraction
- B. Causes muscle relaxation
- C. Has no effect on muscle contraction
- D. Stimulates muscle contraction

Answer: D. Stimulates muscle contraction

What is the role of the sarcoplasmic reticulum in muscle contraction

- A. Controls muscle movement
- B. Stores and releases calcium ions
- C. Regulates blood flow
- D. Produces ATP for energy

Answer: B. Stores and releases calcium ions

What is the difference between slow-twitch and fast-twitch muscle fibers

- A. Slow-twitch fibers are used for power and speed, while fast-twitch fibers are endurance-based.
- B. There is no difference between slow-twitch and fast-twitch muscle fibers.
- C. Slow-twitch fibers contract slowly and are endurance-based, while fast-twitch fibers contract quickly and are used for power and speed.
- D. Fast-twitch fibers contract slowly and are endurance-based, while slow-twitch fibers contract quickly and are used for power and speed.

Answer: C. Slow-twitch fibers contract slowly and are endurance-based, while fast-twitch fibers co

What is the all-or-none principle in muscle contraction

- A. All muscle fibers in a motor unit contract fully or not at all
- B. Only a few muscle fibers contract at a time
- C. Some muscle fibers contract partially
- D. Muscle fibers contract in a random order

Answer: A. All muscle fibers in a motor unit contract fully or not at all

What is the role of myosin in muscle contraction

- A. Myosin pushes actin filaments away from the center of the sarcomere
- B. Myosin stores energy for muscle contraction
- C. Myosin helps relax the muscle fibers
- D. Myosin pulls actin filaments towards the center of the sarcomere

Answer: D. Myosin pulls actin filaments towards the center of the sarcomere

What is the role of the transverse tubules in muscle contraction

- A. Producing ATP
- B. Transmitting muscle action potentials
- C. Storing calcium ions
- D. Contracting muscle fibers

Answer: B. Transmitting muscle action potentials

What is a twitch contraction

- A. A muscle contraction caused by rapid firing of motor neurons
- B. A sudden involuntary movement
- C. A type of video game streaming platform

• D. A type of bird

Answer: A. A muscle contraction caused by rapid firing of motor neurons

What is the difference between a motor neuron and a muscle fiber

• A. Motor neuron contracts, muscle fiber sends signals

• B. Motor neuron is in the brain, muscle fiber is in the spinal cord

• C. They are the same thing

• D. Motor neuron sends signals, muscle fiber contracts

Answer: D. Motor neuron sends signals, muscle fiber contracts

What is the length-tension relationship in muscle contraction

• A. Shorter muscle length produces maximum force

• B. Longer muscle length produces maximum force

• C. Optimal muscle length produces maximum force

• D. Muscle length does not affect force production

Answer: C. Optimal muscle length produces maximum force

What is the role of the nervous system in initiating muscle contractions

• A. Producing hormones for muscle contractions

• B. Regulating body temperature

• C. Providing nutrients to muscles

• D. Sending signals from the brain to muscles

Answer: D. Sending signals from the brain to muscles