A&P Key Terms 10 Muscle Tissue Key Terms

Author: OpenStax College

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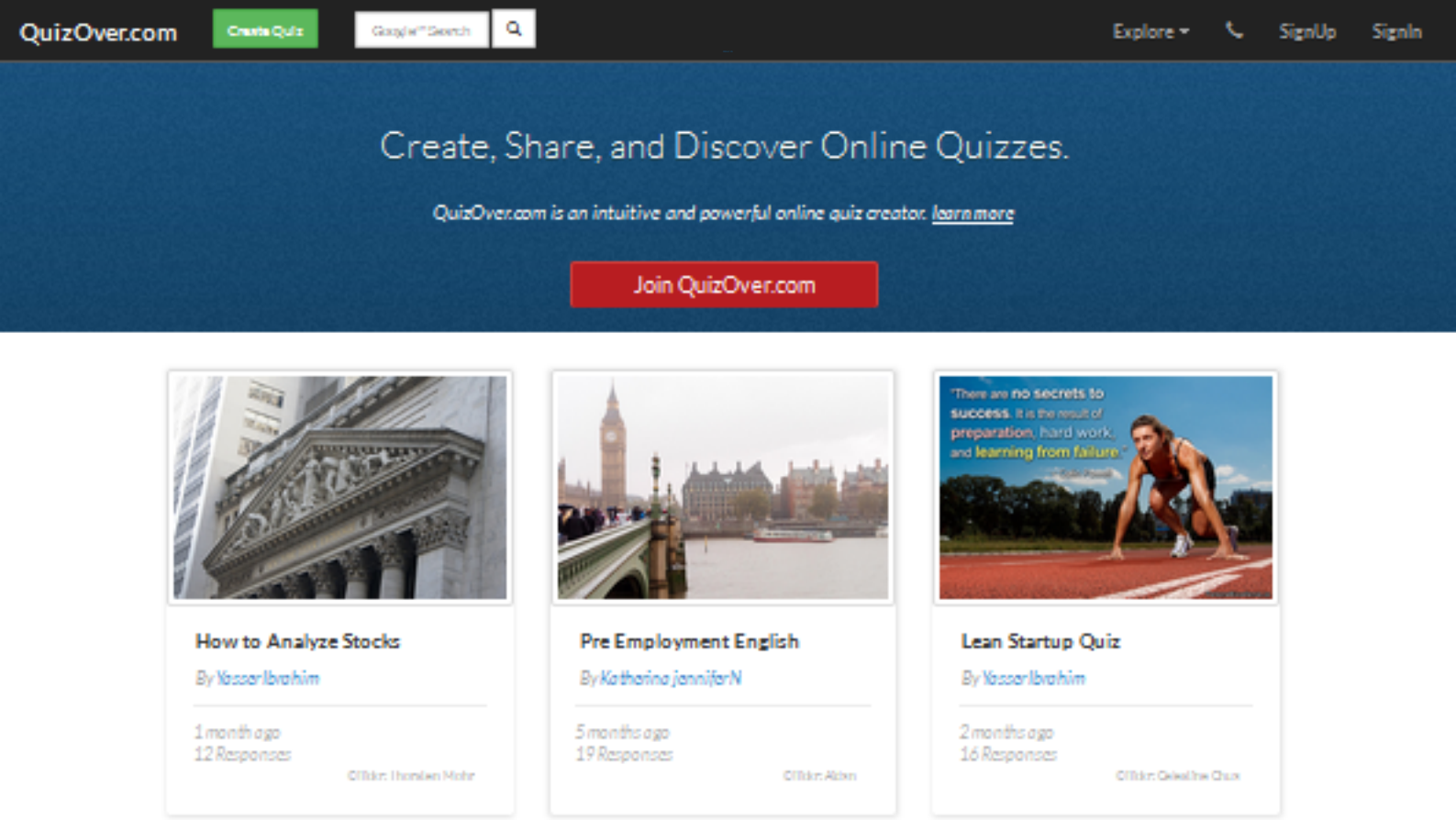

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4. Chapter: A&P Key Terms 10 Muscle Tissue Key Terms

1. A&P Key Terms 10 Muscle Tissue Key Terms Questions

ATPase	enzyme that hydrolyzes ATP to ADP
acetylcholine (ACh)	neurotransmitter that binds at a motor end-plate to trigger depolarization
actin	protein that makes up most of the thin myofilaments in a sarcomere muscle fiber
action potential	change in voltage of a cell membrane in response to a stimulus that results in transmission of an electrical signal; unique to neurons and muscle fibers
aerobic respiration	production of ATP in the presence of oxygen
angiogenesis	formation of blood capillary networks
aponeurosis	broad, tendon-like sheet of connective tissue that attaches a skeletal muscle to another skeletal muscle or to a bone
atrophy	loss of structural proteins from muscle fibers
autorhythmicity	heart's ability to control its own contractions
calmodulin	regulatory protein that facilitates contraction in smooth muscles
cardiac muscle	striated muscle found in the heart; joined to one another at intercalated discs and under the regulation of pacemaker cells, which contract as one unit to pump blood through the circulatory system. Cardiac muscle is under involuntary control.
concentric contraction	muscle contraction that shortens the muscle to move a load
contractility	ability to shorten (contract) forcibly
contraction phase	twitch contraction phase when tension increases
creatine phosphate	phosphagen used to store energy from ATP and transfer it to muscle
dense body	sarcoplasmic structure that attaches to the sarcolemma and shortens the muscle as thin filaments slide past thick filaments
depolarize	to reduce the voltage difference between the inside and outside of a cell's plasma membrane (the sarcolemma for a muscle fiber), making the inside less negative than at rest

desmosome	cell structure that anchors the ends of cardiac muscle fibers to allow contraction to occur
eccentric contraction	muscle contraction that lengthens the muscle as the tension is diminished
elasticity	ability to stretch and rebound
endomysium	loose, and well-hydrated connective tissue covering each muscle fiber in a skeletal muscle
epimysium	outer layer of connective tissue around a skeletal muscle
excitability	ability to undergo neural stimulation
excitation-contraction coupling	sequence of events from motor neuron signaling to a skeletal muscle fiber to contraction of the fiber's sarcomeres
extensibility	ability to lengthen (extend)
fascicle	bundle of muscle fibers within a skeletal muscle
fast glycolytic (FG)	muscle fiber that primarily uses anaerobic glycolysis
fast oxidative (FO)	intermediate muscle fiber that is between slow oxidative and fast glycolytic fibers
fibrosis	replacement of muscle fibers by scar tissue
glycolysis	anaerobic breakdown of glucose to ATP
graded muscle response	modification of contraction strength
hyperplasia	process in which one cell splits to produce new cells
hypertonia	abnormally high muscle tone
hypertrophy	addition of structural proteins to muscle fibers
hypotonia	abnormally low muscle tone caused by the absence of low-level contractions
intercalated disc	part of the sarcolemma that connects cardiac tissue, and contains gap junctions and desmosomes
isometric contraction	muscle contraction that occurs with no change in muscle length

isotonic contraction	muscle contraction that involves changes in muscle length
lactic acid	product of anaerobic glycolysis
latch-bridges	subset of a cross-bridge in which actin and myosin remain locked together
latent period	the time when a twitch does not produce contraction
motor end-plate	sarcolemma of muscle fiber at the neuromuscular junction, with receptors for the neurotransmitter acetylcholine
motor unit	motor neuron and the group of muscle fibers it innervates
muscle tension	force generated by the contraction of the muscle; tension generated during isotonic contractions and isometric contractions
muscle tone	low levels of muscle contraction that occur when a muscle is not producing movement
myoblast	muscle-forming stem cell
myofibril	long, cylindrical organelle that runs parallel within the muscle fiber and contains the sarcomeres
myogram	instrument used to measure twitch tension
myosin	protein that makes up most of the thick cylindrical myofilament within a sarcomere muscle fiber
myotube	fusion of many myoblast cells
neuromuscular junction (NMJ)	synapse between the axon terminal of a motor neuron and the section of the membrane of a muscle fiber with receptors for the acetylcholine released by the terminal
neurotransmitter	signaling chemical released by nerve terminals that bind to and activate receptors on target cells
oxygen debt	amount of oxygen needed to compensate for ATP produced without oxygen during muscle contraction
pacesetter cell	cell that triggers action potentials in smooth muscle
pericyte	stem cell that regenerates smooth muscle cells

perimysium	connective tissue that bundles skeletal muscle fibers into fascicles within a skeletal muscle
power stroke	action of myosin pulling actin inward (toward the M line)
pyruvic acid	product of glycolysis that can be used in aerobic respiration or converted to lactic acid
recruitment	increase in the number of motor units involved in contraction
relaxation phase	period after twitch contraction when tension decreases
sarcolemma	plasma membrane of a skeletal muscle fiber
sarcomere	longitudinally, repeating functional unit of skeletal muscle, with all of the contractile and associated proteins involved in contraction
sarcopenia	age-related muscle atrophy
sarcoplasmic reticulum (SR)	specialized smooth endoplasmic reticulum, which stores, releases, and retrieves Ca++
sarcoplasm	cytoplasm of a muscle cell
satellite cell	stem cell that helps to repair muscle cells
skeletal muscle	striated, multinucleated muscle that requires signaling from the nervous system to trigger contraction; most skeletal muscles are referred to as voluntary muscles that move bones and produce movement
slow oxidative (SO)	muscle fiber that primarily uses aerobic respiration
smooth muscle	nonstriated, mononucleated muscle in the skin that is associated with hair follicles; assists in moving materials in the walls of internal organs, blood vessels, and internal passageways
somites	blocks of paraxial mesoderm cells
stress-relaxation response	relaxation of smooth muscle tissue after being stretched
synaptic cleft	space between a nerve (axon) terminal and a motor end-plate
T-tubule	projection of the sarcolemma into the interior of the cell
tetanus	a continuous fused contraction

thick filament	the thick myosin strands and their multiple heads projecting from the center of the sarcomere toward, but not all to way to, the Z-discs
thin filament	thin strands of actin and its troponin-tropomyosin complex projecting from the Z-discs toward the center of the sarcomere
treppe	stepwise increase in contraction tension
triad	the grouping of one T-tubule and two terminal cisternae
tropomyosin	regulatory protein that covers myosin-binding sites to prevent actin from binding to myosin
troponin	regulatory protein that binds to actin, tropomyosin, and calcium
twitch	single contraction produced by one action potential
varicosity	enlargement of neurons that release neurotransmitters into synaptic clefts
visceral muscle	smooth muscle found in the walls of visceral organs
voltage-gated sodium channels	membrane proteins that open sodium channels in response to a sufficient voltage change, and initiate and transmit the action potential as Na+ enters through the channel
wave summation	addition of successive neural stimuli to produce greater contraction