Skeletal Muscle Anatomy & Muscle Tissue

Muscle Tissue

*Identify function, locations, and characteristics of each

Skeletal muscle:

Sketch View of Muscle Tissue Under High Power



Cardiac muscle:

Smooth muscle:

Muscle	Origin	Insertion	Action
1. Temporalis [mastication]	temporal bone	Coronoid process of mandible	closes jaw
2. Orbicularis oris [facial expression]	maxilla, mandible	Lips	Closes and protrudes lips for speaking, kissing, whistling
3. Lateral rectus [extrinsic eye muscle]	tendinous ring of eye orbit	lateral eyeball	moves eye laterally
4.Sternocleidomastoid [neck]	sternum and clavicle	mastoid process	flexes neck forward (if both contract)
5. Deltoid [shoulder joint]	acromion process & spine of scapula, clavicle	deltoid tuberosity (humerus)	flexion, abduction & extension of arm
6. Trapezius [posterior shoulder]	occipital bone, spinous processes- thoracic vert.	clavicle, scapula (acromion process and spine)	elevate, retract, depress scapula
7. Triceps Brachii [posterior arm]	scapula, inferior to glenoid cavity; posterior surface of humerus	Olecranon process of ulna	extension of forearm
8. Rectus abdominis [abdominal wall]	pubic symphysis	Xiphoid process; costal cartilges of ribs 5-7	Flexion of vertebral column
9. Gluteus maximus [gluteal region]	ilium, sacrum, coccyx	Gluteal tuberosity of femur	hip extension (climb stairs)
10. Gastrocnemius [leg muscle]	condyles of femur	Calcaneus (via calcaneal tendon)	Plantar flexion of foot; flexion of knee

Muscle Questions:

- 1. Which of the above muscles is a muscle of mastication?
- 2. Name the muscle that abducts the eyeball?
- 3. Which muscles originate on the sternum and clavicle?
- 4. Which muscle is used in kissing?
- 5. Name the muscle used to lower the head:
- 6. What is the action of the "six-pack"?
- 7. Which muscle is used to walk upstairs?
- 8. Which muscle is involved with plantar flexion?
- 9. Which muscle is involved with extension of the forearm?
- 10. Which muscle inserts on the elbow?
- 11. Name the muscle that moves the scapula.

The Eve

Locate the following structures on models, charts, and *sheep eye:

*Extrinsic Muscles *Conjunctiva Lacrimal Gland Nasolacrimal duct Fibrous tunic: { *Cornea *Sclera Vascular tunic: { *Iris *Pupil *Ciliary body *Choroid Sensory (Neural) tunic: *Retina Rods Cones Macula lutea Fovea centralis Optic nerve (CN II) *Lens *Optic disk *Aqueous humor

*Vitreous humor

Visual Tests:

Blind Spot: Near-Point Accommodation: Visual Acuity (Snellen Chart): Color Blindness (Ishihara color plates):

<u>The Ear</u>

Locate the following structures on models and charts:

External Ear

Auricle (Pinna)

External acoustic canal

Tympanic membrane

Middle Ear

Ossicles (Malleus, Incus, Stapes)

Oval window

Auditory (Eustachian) tube

Inner Ear

Semicircular canals

Vestibule

Cochlea

Organ of Corti (Spiral organ) Vestibulocochlear (Auditory) Nerve (CN VIII)

Hearing & Equilibrium Tests:

Weber Test:

Rinne Test:

Romberg Test:

Special Senses Questions

- 1. What is the function of the structure known as the auricle or pinna?
- 2. Which organ helps to maintain balance and equilibrium?
- 3. Which of the ossicles is attached directly to the "eardrum"?
- 4. Which structure contains the spiral organ of Corti?
- 5. Which cranial foramina does this vestibulocochlear nerve pass through?
- 6. This nerve is cranial nerve CN____. (Remember to use Roman numerals!)
- 7. Where is the anterior chamber located and what does it contain?
- 8. The image is perceived in which lobe of the brain?
- 9. Which layer of the eyeball helps to prevent scattering of light rays?
- 10. Which structure protects the anterior part of the eye?
- 11. Which structure regulates the thickness of the lens?
- 12. Muscles within the _____regulate the size of the pupil.
- 13. The optic nerve is CN _____.
- 14. The crossing of the optic nerves in the brain is called_____.
- 15. Where is the "blind spot" located?
- 16. The photoreceptors are located in the_____.

LAB 11: Nerve Tissue, Nerves, Spinal Cord, and Brain

<u>Giant Multipolar Neuron slide</u>: cell body or soma processes Motor Neuron model: cell body or soma dendrites axon Schwann cell nodes of Ranvier

Spinal Cord slide:

gray matter white matter central canal <u>Spinal Cord model</u>: gray matter white matter central canal dorsal (posterior) root ganglion ventral (anterior) root

Brain (human brain model and sheep brain) meninges (dura mater, arachnoid, pia mater) cerebrum hemispheres (right & left) longitudinal fissure lobes (frontal, parietal, temporal, occipital) sulci (valleys) gyri (hills)

olfactory bulbs and tracts optic chiasma

cerebellum arbor vitae pons medulla oblongata

corpora quadrigemina superior colliculi inferior colliculi corpus callosum pineal gland thalamus hypothalamus infundibulum pituitary gland

LAB 12: Cranial Nerves

Name	Test for Nerve Function	Major Function	
I. OLFACTORY		S only: Smell	
II. OPTIC		S only: Vision	
III. OCULOMOTOR		S: Receptors that influence pupil size	
		M: Muscles that move eye (<i>except</i> sup. oblique, lat. rectus), open eyelids, change lens and pupil shape	
IV. TROCHLEAR		S: Muscle sense (eye muscles) M: Superior oblique eye muscle	
V. TRIGEMINAL		S: Sensations of head, face M: Muscles of mastication	
VI. ABDUCENS		S: Muscle sense (eye muscles) M: Lateral rectus eye muscle	
VII. FACIAL		S: Tastebuds (ant. 2/3 tongue) M: Muscles for facial expressions	
VIII. VESTIBULOCOCHLEAR (or AUDITORY)		S only: Hearing & equilibrium	
IX. GLOSSOPHARYNGEAL		S: Tastebuds (post. 1/3 tongue) Detects BP in the carotid a. M: Salivary glands & muscles for swallowing	
X. VAGUS		S: Pharynx, thoracic & abdominal viscera M: Major PSN nerve to thoracic & abdominal viscera, speech	
XI. ACCESSORY (SPINAL)		S: Proprioception from head, neck, shoulder muscles M: Head & shoulder movements	
XII. HYPOGLOSSAL		S: Proprioception from tongue	
S = Sensory		swallowing	

S = SensoryM = Motor