Lab 10: Muscle Tissue, Selected Muscles, Eye and Ear

**Skeletal Muscle Anatomy & Muscle Tissue**

**Muscle Tissue**

*Identify function, locations, and characteristics of each

**Skeletal muscle:**

**Cardiac muscle:**

**Smooth muscle:**
### MUSCLE LIST

Locate these muscles on models and charts.  
**Know the origin, insertion and action for each of the following muscles:**

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

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

*Extrinsic Muscles
*Conjunctiva
Lacrical 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):
The Ear

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

### Giant Multipolar Neuron slide:
- 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

### Spinal Cord model:
- 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Test for Nerve Function</th>
<th>Major Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. OLFACTORY</td>
<td>S only: Smell</td>
<td></td>
</tr>
<tr>
<td>II. OPTIC</td>
<td>S only: Vision</td>
<td></td>
</tr>
</tbody>
</table>
| III. OCULOMOTOR       | S: Receptors that influence pupil size  
                        | **M**: Muscles that move eye *(except 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  
                        | **M**: Tongue movement & swallowing |

*S = Sensory  
M = Motor*