

Unit Objectives:

- ❓ Describe the structure and function of the skeletal system and joints
- ❓ Describe the structure and function of the muscular system
- ❓ Describe the structure and function of the nervous system

Relevant Topics in Textbook:

Chapter 7 Skeletal System
Chapter 8 Muscular System
Chapter 9 Nervous System
Chapter 10 The Senses

Lecture Exam Review Questions: Lectures 12 and 13

The Spinal Cord

1. Describe the basic structure (where does it begin and end) and functions of the spinal cord.

❓ **Structure (where does it begin and end):**

❓ **Functions:**

- **Conduction** –
- **Locomotion** –
- **Reflexes** –

a. Describe the location and role of the 3 meninges.

- ❓ Dura mater –
- ❓ Arachnoid mater –
- ❓ Pia mater –

b. What is the epidural space? (between what 2 structures?)

❓

i. Why might someone receive an epidural?

○

2. What is a nerve?

❓

- a. **Describe the connective tissue wrappings of a nerve, including the endoneurium, perineurium and epineurium.** Take note of the similarities of this organization, which is similar to skeletal muscle.

- **Endoneurium** –
- **Perineurium** –
- **Epineurium** –

3. When looking at the spinal cord in cross section, you will notice a dark, gray matter section that resembles the letter “H”. **Be able to identify the dorsal and ventral horns and roots (and the dorsal root ganglion); describe the type of signal (afferent or efferent) that would be carried within these. Are they entering or leaving the spinal cord? Where are they coming from or going to?**

🔍 **Horns**

- Ventral –
- Dorsal (posterior) –

🔍 **Roots**

- Ventral –
- Dorsal –

- 🔍 Dorsal root ganglion –

4. **What types of stimuli can trigger an action potential within the nervous system?**

🔍

5. **What is a graded potential?**

🔍

6. **How does the brain (or spinal cord) know what type of signal it is receiving?**

- a. **Do sensory neurons detect more than one stimulus?**

🔍

- b. **How does the brain (or spinal cord) know where the stimulus is coming from?**

🔍

7. How does degree of myelination impact how fast sensory signals reach the brain?

8. Why is the sensation of pain LEAST likely to adapt (go away)?

a. What is pain supposed to tell us?

?

9. What is a reflex?

?

a. Why are they important?

?

10. What is referred pain?

?

Special Senses

1. List the full sequence of events (from nose to where it is perceived in the brain) that leads to our perception of smell:

?

2. What is the role of our olfactory ensheathing cells?

a. How do they aid in olfactory neuron regeneration?

?

b. Why is this unique for a neuron?

?

3. List the full sequence of events (from tongue to where it is perceived in the brain) that leads to our perception of taste upon binding depolarization of taste cells:

4. **What accounts for our ability to smell or taste different odorants or tastants?** (i.e. what do we need to be able to perceive a smell or a taste?)

?

5. **List the full sequence of events (from ear to where it is processed in the brain) that leads to our perception of sound:**

?

6. **Do all of the cells within the cochlea respond to all sound frequencies?**

7. **What structure within the ear is responsible for our sense of balance?**

?

8. **Compare and contrast the photoreceptors, rods and cones. What type of light do they require? What do they allow us to see?**

? Rods –

? Cones –

9. **List the pathway of light through the eye (structures the light passes through as it goes from **cornea to retina**)**

?

10. **List the full sequence of events that leads to our perception of visual stimuli (from **retina to occipital lobe**):**

?

11. What are opsins?

?

a. Why is color blindness more common in males?

?

12. Describe the following conditions: myopia, hyperopia, presbyopia.? **Myopia** –? **Hyperopia** –? **Presbyopia** –