

## **Chapter 13**

### **The Peripheral Nervous System and Reflex Activity**

#### **I. Sensory receptors**

##### **A. Function**

##### **B. Classification**

###### **1. Classification according to type of stimulus**

- a. Mechanoreceptors**
- b. Thermoreceptors**
- c. Photoreceptors**
- d. Chemoreceptors**
- e. Nociceptors**

###### **2. Classification according to location**

- a. Exteroreceptors**
- b. Interoreceptors**
- c. Proprioceptors**

###### **3. Classification according to complexity of receptor structure**

###### **a. Simple receptors**

###### **i. Unencapsulated dendritic endings**

- A. Free nerve endings**
- B. Merkel discs**
- C. Hair follicle receptors**

###### **ii. Encapsulated dendritic endings**

- A. Meissner's corpuscles**
- B. Pacinian corpuscles**
- C. Ruffini endings**
- D. Muscle spindles, Golgi tendon organs, and joint kinesthetic receptors**

###### **b. Complex receptors**

#### **II. Nerves**

##### **A. General structure**

###### **1. Nerves**

- a. Epineurium**

###### **2. Fascicles**

- a. Perineurium**

###### **3. Axons**

- a. Endoneurium**

##### **B. General classification**

###### **1. Sensory nerves**

###### **2. Motor nerves**

###### **3. Mixed nerves**

##### **C. Cranial nerves**

###### **1. Cranial nerves I – olfactory**

- a. Location**
- b. Function**

###### **2. Cranial nerves II – optic**

- a. Location**
- b. Function**

3. Cranial nerves III – oculomotor
    - a. Location
    - b. Function
  4. Cranial nerves IV – trochlear
    - a. Location
    - b. Function
  5. Cranial nerves V – trigeminal
    - a. Location
    - b. Function
  6. Cranial nerves VI – abducens
    - a. Location
    - b. Function
  7. Cranial nerves VII – facial
    - a. Location
    - b. Function
  8. Cranial nerves VIII – vestibulocochlear
    - a. Location
    - b. Function
  9. Cranial nerves IX – glossopharyngeal
    - a. Location
    - b. Function
  10. Cranial nerves X – vagus
    - a. Location
    - b. Function
  11. Cranial nerves XI – accessory
    - a. Location
    - b. Function
  12. Cranial nerves XII – hypoglossal
    - a. Location
    - b. Function
- D. Spinal nerves**
1. Regions
    - a. Cervical nerves
    - b. Thoracic nerves
    - c. Lumbar nerves
    - d. Sacral nerves
    - e. Coccygeal nerve
  2. General structure
    - a. Dorsal roots
    - b. Ventral roots
    - c. Rootlets
    - d. Dorsal ramus
    - e. Ventral ramus
    - f. Nerve plexuses
  3. Innervation of the back
  4. Innervation of the thorax
    - a. Intercostal nerves

- 5. Cervical plexus
  - a. Location
  - b. Phrenic nerve
- 6. Brachial plexus
  - a. Location
  - b. Axillary nerve
  - c. Musculocutaneous nerve
  - d. Median nerve
  - e. Ulnar nerve
  - f. Radial nerve
- 7. Lumbar plexus
  - a. Location
  - b. Femoral nerve
  - c. Obturator nerve
- 8. Sacral plexus
  - a. Location
  - b. Sciatic nerve
  - c. Tibial nerve
  - d. Common fibular nerve

### **III. Motor endings**

- A. Neuromuscular junctions
- B. Innervation of cardiac muscle, smooth muscle, and glands