

SPINAL CORD

- The elongated part of the CNS
- Runs from the medulla oblongata to the 1st lumbar vertebrae thus 45cm and thickness of the size of the little finger
- 2nd lumbar vertebrae has sub arachnoid space for lumbar puncture
- links the brain to the rest of the body and cranial nerve
- Spinal reflex are independent of the brain but is due to sensory and motor neurons
- Is divided into two equal part by medial fissure thus anterior and posterior
- Gray mater at the center and white mater on the surface supported by neuroglia

GRAY MATTER

- Arranged like latter H thus two posterior 2 anterior and 2 lateral
- Pierced by central canal an extension of the 4th ventricle with CSF

Nerve cell body

- Sensory neurons receive impulse from the body
- Lower motor neurons transmit impulse to skeletal muscles
- Connector neurons link the two by synaptic cleft

Posterior gray matter

- Cell body stimulated by sensory impulse from the body
- Nerve fibers of this cells form white matter
- Transmit sensory impulse to the brain

Anterior gray matter

- Cell body stimulated by upper motor neurons or connector neurons linking anterior to posterior to form reflex

White matter

- Arranged into anterior, posterior and lateral
- Formed by sensory nerve fibers to the brain
- Motor nerve fibers descending from the brain
- Connector fibers linking them
- Named as from point of origin to distination eg spino thalamus, corticospinous

Sensory nerve

- The skin; cutaneous receptors for pain, heat, cold, touch and pressure, Transmitted by three neurons
- Tendon, muscle and joints; proprioceptors stimulated by stretch to maintain balance by 3 neurons to the brain and 2 neurons to the

cerebrum on the same side of the body

Motor nerve

- Transmit away from the brain, also called efferent or descending neurons
- They help in contraction of skeletal muscle thus voluntarily
- Contraction of smooth muscle thus involuntarily
- Transmit through pyramidal like corticospinal or extrapyramidal
- Lower motor neurons have their cell body in the anterior gray matter

SPINAL REFLEXES

- Reflex action is an involuntary and immediate motor response to sensory stimuli
- It consists of
 1. Sensory neuron
 2. Connector neuron
 3. Lower motor neuron
- Examples are
 - ❖ Stretch reflex of the knee jerk
 - ❖ Micturition and defecation in infant
- The brain is not directly involved but impulses are transmitted to the cerebrum for awareness