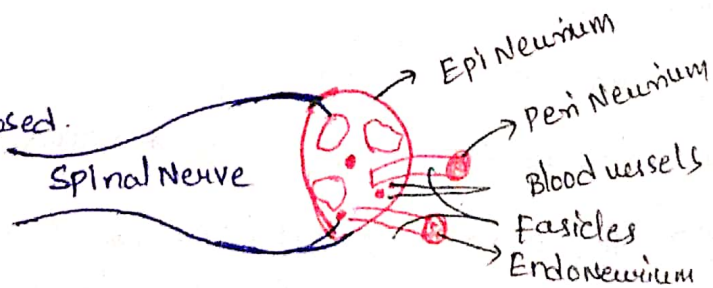


SPINAL NERVES:-

- 31 pairs of spinal Nerves that arise from either side of spinal cord form a part of **PNS**.
- Spinal Nerves are named based on the region & level of Vertebral column from which they originated.
 1. 8 pairs of Cranial Nerves ($C_1 - C_8$)
 2. 12 pairs of Thoracic Nerves ($T_1 - T_{12}$)
 3. 5 pairs of Lumbar Nerves ($L_1 - L_5$)
 4. 5 pairs of Sacral Nerves ($S_1 - S_5$)
 5. 1 pair of Coccygeal nerves (Co_1)
- Spinal cord possess an Anterior & posterior root
 - Motor Axons
 - Sensory Axons
- Both Anterior & posterior roots combine again to form a spinal Nerve.
- So, as a spinal nerve consists of both Sensory & Motor Axons it is termed as a **Mixed Nerve**.

COVERINGS:-

- Each Nerve is composed of numerous Axons of Neurons.



- Each Nerve is Enclosed in basically three connective tissue coverings.

- (1) Endoneurium:- It is Innermost connective tissue covering of spinal Nerve.
- (2) Perineurium:- A collection of Axons covered by perineurium is known as Fascicle. Perineurium forms middle connective tissue covering of a spinal Nerve.

Epineurium:- It is outermost CT covering of a nerve which encloses numerous fascicles.

BRANCHES:- The spinal nerve formed by the union of posterior and anterior root.

After existing through Intervertebral Foramen gives off numerous branches termed as Rami.

Posterior (dorsal) ramus - Serves the deep muscles of skin of posterior surface of trunk.

Anterior (ventral) ramus - Serves muscles & structure of upper & lower limbs and skin of lateral & anterior surface of trunk.

Meningeal Branch - This branch reenters the vertebral cavity through Intervertebral Foramen.

Supplies the vertebrae, vertebral ligaments, Blood vessels of spinal cord and meninges.

Rami communicans - These constitute preganglionic sympathetic Neurons of ANS.

PLEXUSES:- Axons of the anterior rami join with other axons from anterior rami of neighbouring nerves to form plexus.

Plexuses so formed innervate skin, muscles, joints and bones of structures supplied by them.

Thoracic spinal nerve do not form plexuses.

(1) Cervical plexus:- Formed by anterior rami of first four.

Cervical nerves C₁₋₄ innervate skin & muscles of head, neck, chest as well as superior aspects of shoulders.

Phrenic Nerves Arise from cervical plexuses

1,

Supplied Area are diaphragm, muscles of neck, superior aspects of shoulders.

2) Brachial plexus :- It is formed by anterior roots of lower cervical nerves (C5-C8) as well as First Thoracic Nerve (T1).

Nerves Arise from brachial plexus are:

Axillary Nerve → Deltoid muscle of shoulder

Radial Nerve → Triceps, muscles of Forearm

Median Nerve → Muscles on the Anterior Aspects of Forearm

Musculocutaneous Nerve → Anterior flexor muscles of Arm

Ulnar Nerve → predominant hand muscles.

(3) Lumbar plexus :- (L1-L4) spinal nerve form lumbar plexus.

- It is associated with Anterior and lateral Aspects of the Abdominal wall, External genitalia & some regions of lower limbs.

- Nerves Arises from lumbar plexus are:-

Femoral nerve →

Flexor muscles of Hips, Muscles of knee, Anterior regions of thigh, skin of thigh and leg.

Obturator Nerve →

Adductor muscles of Hip, skin covering medial region of thigh.

(4) Sacral plexus :-

sacral plexus made of two lumbar nerves (L4-L5) and first four sacral nerves (S1-S4).

plexus involved in supplying buttocks, Penineum (Area from Anus to urethra) and lower limbs.

- Nerves arise from Sacral plexus are:-

Sciatic Nerve. (largest Nerve of Body) Further divided into

(i) Common Fibular Nerve - lateral region of leg & feet.

(ii) Tibial Nerve - posterior regions of leg and feet.

(5) Coccygeal plexus:-

- coccygeal plexus is composed of last two sacral nerves

- Being small it is able to innervate only a small portion of skin near coccygeal region. (S4-S5)

CRANIAL NERVES

- The brain communicates with the body through the spinal cord and twelve pairs of cranial nerves.

- Ten of the twelve pairs of Cranial Nerves that control Hearing, Eye Movement, Facial Sensations, taste, Swallowing and movement of the face, neck, shoulder and tongue muscles originate in the brain stem. The cranial nerves for smell & vision originate in the cerebrum.

No.	Name	FUNCTION
I	Olfactory	Smell
II	Optic	Sight
III	Oculomotor	Moves eye, Pupil
IV	Trochlear	Moves Eye.
V	Trigeminal	Face sensation
VI	Abducens	Moves eye
VII	Facial	Moves Face, salivate

VIII

Vestibulocochlear

Hearing, Balance

IX

Glossopharyngeal

Taste, Swallow

X

Vagus

Heart rate, Digestion

XI

Accessory

Moves Head

XII

Hypoglossal

Moves Tongue