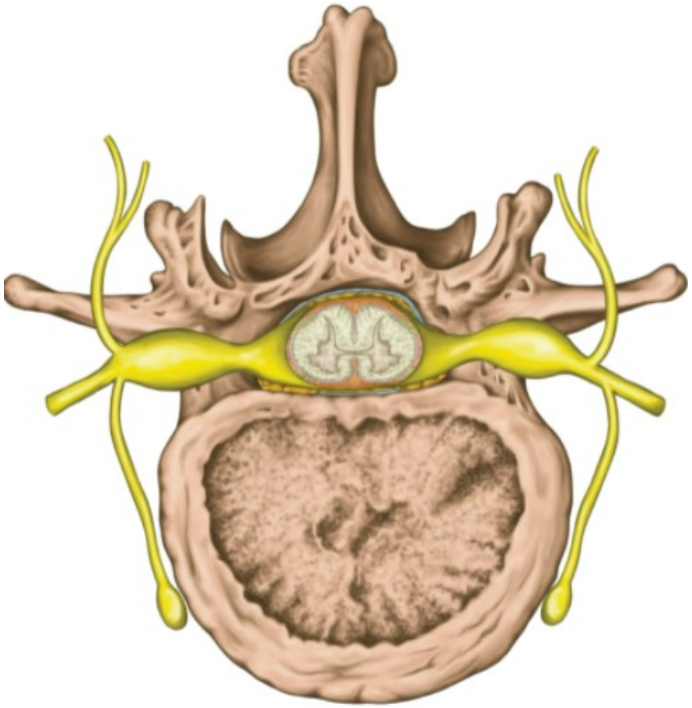
FORMATION OF SPINAL NERVE



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SPINAL NERVES

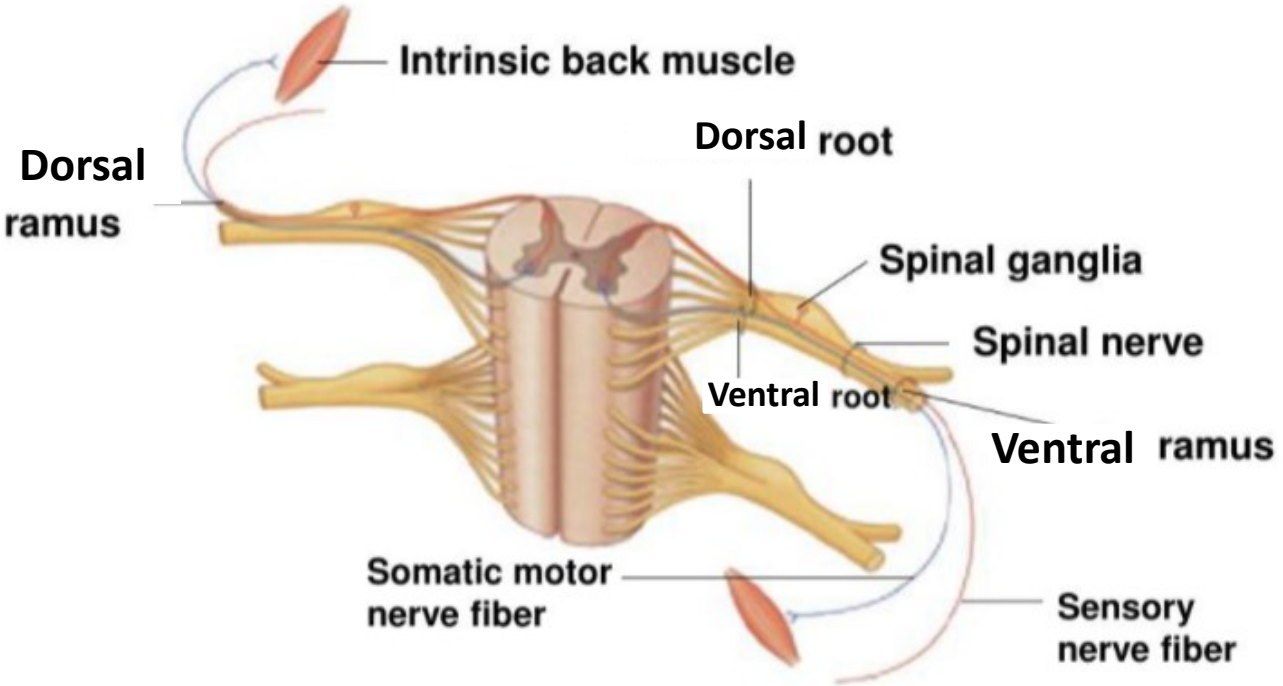
- There are generally 37 pairs of spinal nerves in ox

	C	T	L	S	Ccy	Total
Ox	8	13	6	5	5	37
Horse	8	18	6	5	5	42
Dog	8	13	7	3	4	35
Pig	8	15	6-7	4	5	39
Rabbit	8	12	7	4	6	37
Fowl	15	7	14 (L+S)			36

SPINAL NERVES

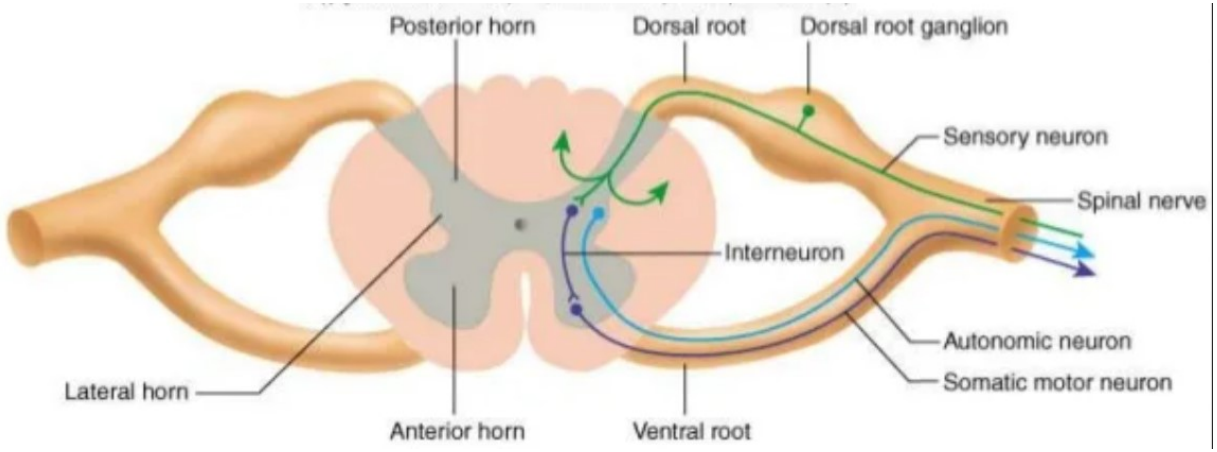
- There is a general pattern of arrangement in the origin and distribution of all the spinal nerves in the body. However, variation are there in the distribution part in different regions of the body.
- Each spinal nerve is formed by the union of **dorsal and ventral roots** just outside the **intervertebral foramen**.
- It divides again into a **dorsal and a ventral ramus**.

- The roots are formed by the union of **several rootlets** arising from the corresponding aspect of the spinal cord.



SPINAL NERVES

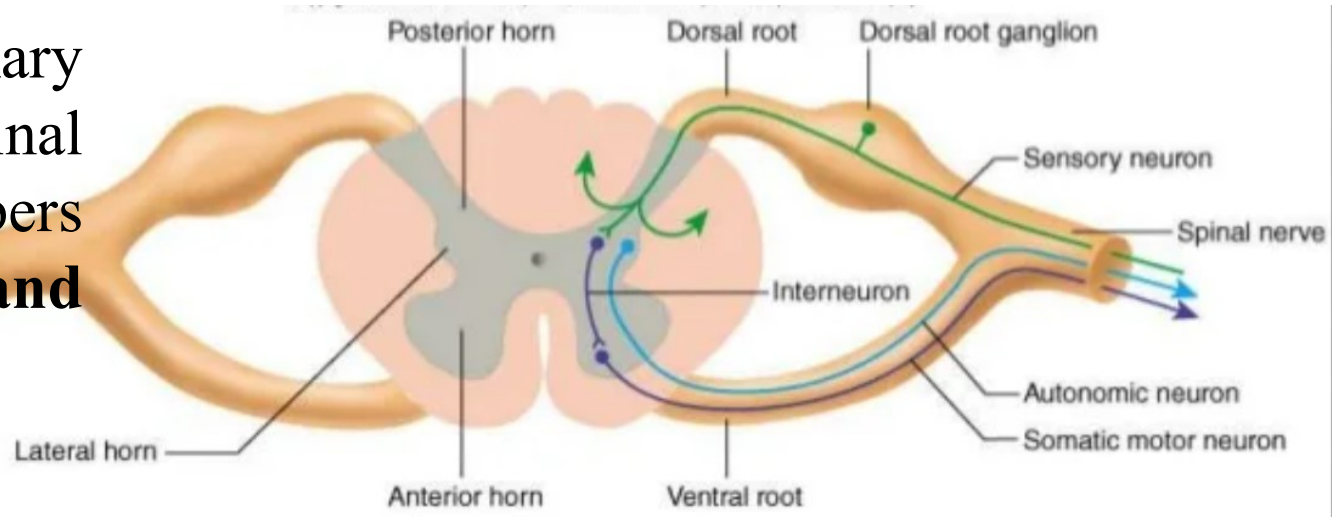
- The **dorsal root** is **sensory** in function and presents a spinal ganglion which is known as **dorsal root ganglion**.
- These ganglia contain **unipolar neurons**. Generally the ganglions are encapsulated by connective tissues.
- The constituent neurons are arranged in groups and are separated by bundles of nerve fibers and intraganglionic connective tissue.
- The neurons are **round or oval** in shape.
- Each of these neurons has a single **dendro-axonal process** which is divided into a **peripheral affarent** part and a **central part**.



SPINAL NERVES

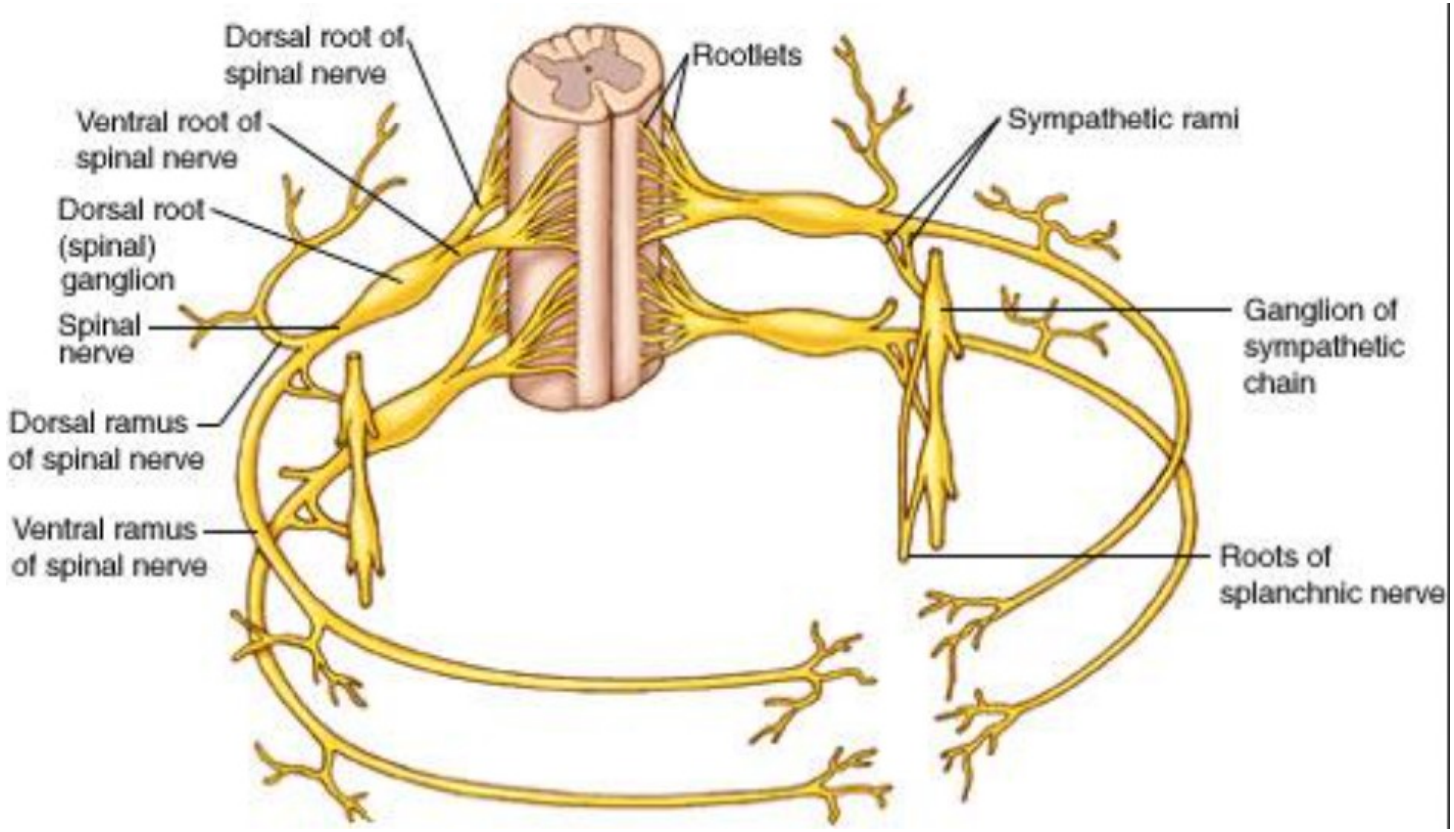
- The peripheral process is **very long** and conducts sensation forwards the cell body and therefore considered functionally as an **elongated dendron.**
- But this peripheral process has all the structural characteristics of an axon.
- **The ventral roots** of the spinal nerves are **motor in function.**
- These are formed by the **axons** of the neurons whose cell bodies are generally situated at the ventral horn of the spinal grey matter.

➢Each ramus (primary branch of a spinal nerve), consists of fibers from both **dorsal and ventral roots.**



SPINAL NERVES

- **Dorsal ramus-** It passes **upward** between the transverse processes, reaches the **muscles of the back** and divides into **lateral and medial** branches to innervate the muscles and skin of the dorsal aspect of the body. These rami are segmentally disposed and are **smaller than ventral rami.**



SPINAL NERVES

- **Ventral ramus-** It is **larger** than the dorsal. It divides to innervate **skin and muscles of trunk** as well as those of limbs by forming **plexuses** with similar branches of other spinal nerves. The ventral branches of thoracic and lumbar spinal nerves are connected with the fibers of autonomic nervous system.