

There are 31 PAIRS OF SPINAL NERVES!

- 8 pairs of cervical nerves
- 12 pairs of thoracic nerves
- 5 pairs of lumbar nerves
- 5 pairs of sacral nerves
- 1 pair of coccygeal nerves

All but the cervical exit BELOW the vertebra of the same name.

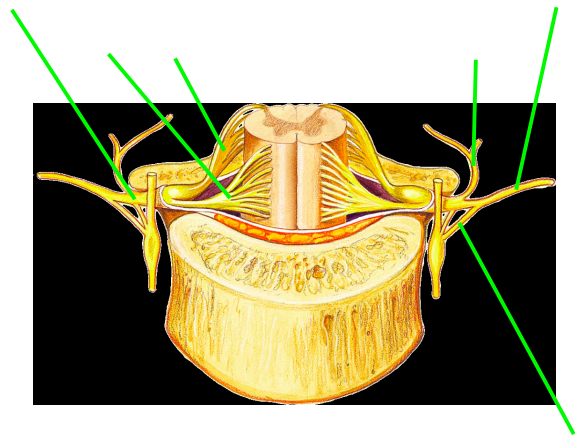
Cervical exit ABOVE the vertebrae

CN 8
exits
above
T1

PERIPHERAL NERVE STRUCTURE

ROOTS

- Dorsal and Ventral Roots
- Laterally they join to form spinal nerve, a short segment where the two roots meet. The spinal nerve is a MIXED NERVE.



SPINAL NERVE has two major branches.

- The DORSAL RAMUS is the smaller one. It supplies medial back muscles and the skin
- The VENTRAL RAMUS is the larger one. It supplies the sides and front of the torso as well as entire appendages.
- The RAMI COMMUNICANTES is a pair of fibers that connect the spinal nerve to autonomic nervous system.

PLEXUSES. The ventral rami in the thoracic region and dorsal rami remain distinct and separate...they innervate skin and body wall musculature. The ventral rami above and below the thoracic region form complex interwoven plexuses. They form because spinal nerves innervate embryologic muscle masses. These muscle masses merge and subdivide to form mature musculature. The nerves follow the tissue organization. The four plexus that get formed are...

CERVICAL PLEXUS

- Originates from nerve roots C1-C5
- Innervate skin, musculature of neck and shoulders
- Produces phrenic nerve which contracts diaphragm (hiccups)

BRACHIAL PLEXUS

- Originates from nerve roots C5-T1
- Innervates shoulder and upper extremity
- Nerve roots merge to form trunks.
- These trunks intertwine to form divisions.
- These divisions blend to form cords.
- The cords intermingle to form nerves.
- Produces 5 major nerves:
 - Ulnar, radial, medial, axillary and muscuocutaneous nerves.

LUMBAR PLEXUS

- Originates from L1-L4
- Innervates anterior and medial thigh & medial leg
- Forms the femoral nerve and the obturator nerve

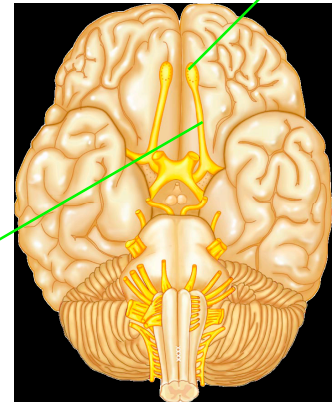
SACRAL PLEXUS

- Originates from L4-S4
- Innervates pelvic region, buttocks and lower extremity (except for regions served by lumbar plexus)
- Major nerve is the sciatic nerve (formed from the tibial nerve and common fibular nerve)

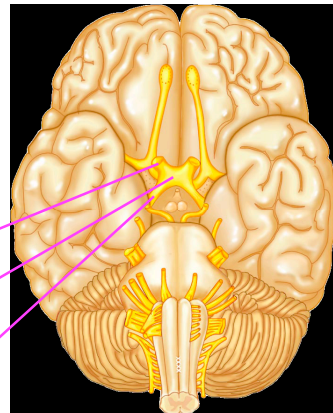
DERMATOMES is a region of skin serviced by a single spinal nerve root. Is often used as the “pin prick” test for nerve function.

CRANIAL NERVES arise from the cerebrum and the brain stem. They primarily serve the head and neck region and there are 12 pairs of them. They are named in two ways, through roman numerals and the descriptive name. We have to know both. Most carry sensory AND motor fibers, while several also carry somatic and visceral information.

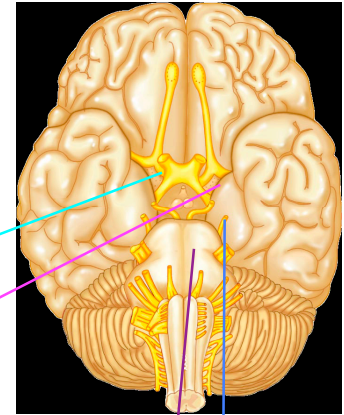
Number: CN I
Name: Olfactory Nerve
Fxn: Special sensory nerve. *Carries sense of smell only*
Notes: Exists as tiny nerve bundles entering from **nasal mucosa** (ethmoid bone). Tiny fibers synapse in **olfactory bulbs** and **olfactory tracts** carry signal to the cortex.



Number: CN II
Name: Optic Nerve
Fxn: Special sensory nerve. *Vision!*
Related: The optic nerves meet one another at the **optic chiasm** where they exchange information. The **optic tract** is the pathway from the chiasm to the cortex.



Number: CN III
 Name: Oculomotor Nerve
 Fxn: Somatic motor. *It moves 4 of the 6 muscles that move the eye. It also raises eyelid*
 Visceral motor. *Pupillary constriction and lens accommodation (focusing)*



Number: CN IV
 Name: Trochlear Nerve
 Fxn: Somatic motor. *It moves superior oblique eye muscles*

Number: CN V
 Name: Trigeminal Nerve
 Fxn: Somatic sensory. *General sensation over face*
 Somatic motor. *Moves muscles of mastication.*

Number: CN VI
 Name: Abducens Nerve
 Fxn: Somatic motor. *Moves lateral rectus of eye*

Number: CN VII
 Name: Facial Nerve
 Fxn: Somatic sensory. *Proprioception & deep pressure over face*
 Somatic motor (MAIN FXN). *Muscles of facial expression*
 Special sensory. *Taste on anterior 2/3 of tongue*
 Visceral motor. *Lacrimal glands, salivary glands (2 of the 3 pairs)*

Number: CN VIII
 Name: Vestibulocochlear Nerve
 Fxn: Special sensory. *Hearing and equilibrium*

Number: CN IX
 Name: Glossopharyngeal Nerve
 Fxn: Somatic sensory. *General senses from pharynx*
 Special sensory. *Taste on poster 1/3 of tongue*
 Somatic motor. *Pharyngeal muscles (swallowing)*
 Visceral sensory. *From pharynx, carotid, blood vessels (oxygen and CO2 levels in the blood)*
 Visceral motor. *Parotid salivary gland*

