

*MIMSA presents...*

# Anatomy Revision Sessions

**Anatomy Dpt - red floor  
University Campus Bohunice**

**Mondays  
4:30 - 6:00 pm**

**MIMSA**  
Masaryk International Masarykova  
Medical Students Association university of brno

For schedule and other info please check  
our website [www.mimsa.cz](http://www.mimsa.cz)



# Program of sessions:

7/10 - Spinal Cord

14/10 - Brainstem and cerebellum

21/10 - Diencephalon

28/10 - Telencephalon

4/11 - Blood Supply, Meninges and  
Cerebrospinal fluid

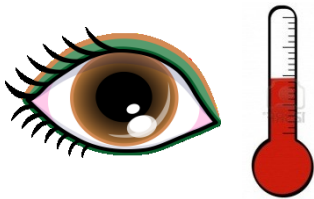
11/11 - Cranial nerves (III-VII, IX-XII)

18/11 - Eye

25/11 - Ear and VIIIth cranial nerve.

Thalamus  
Cerebellum  
Brainstem  
Cerebral Cortex

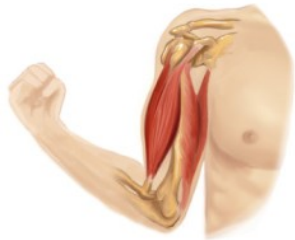
Receptor



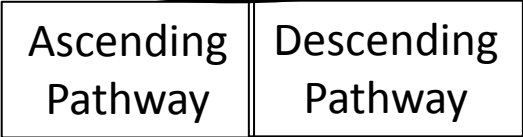
Afferent neuron

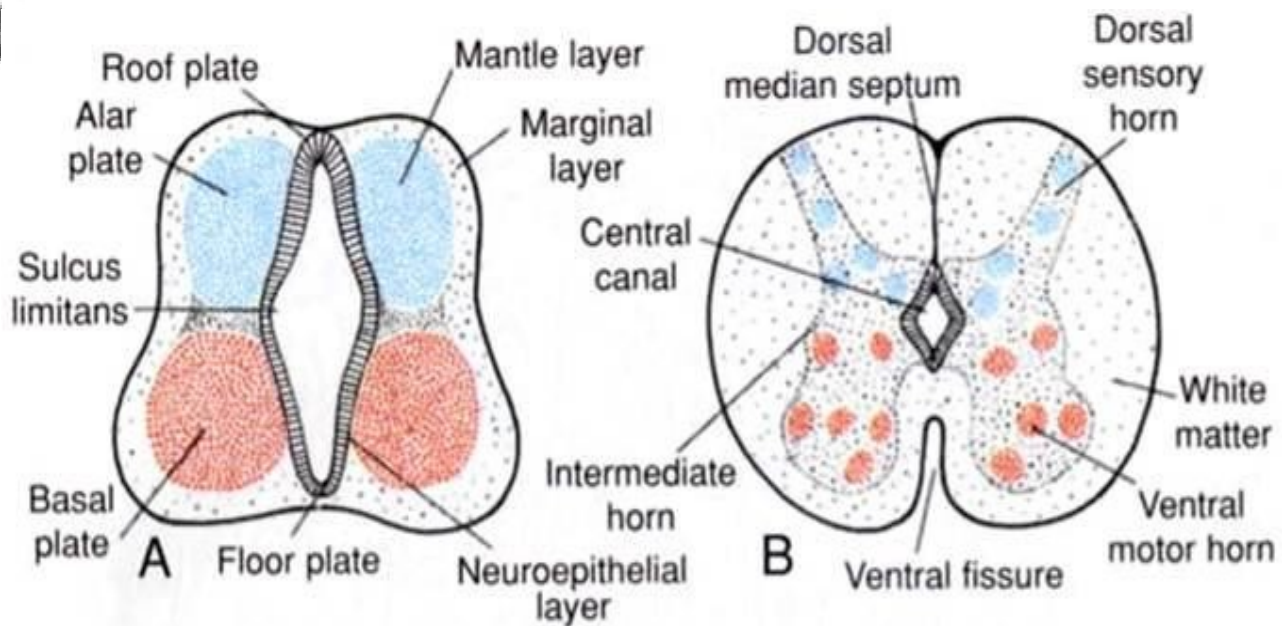
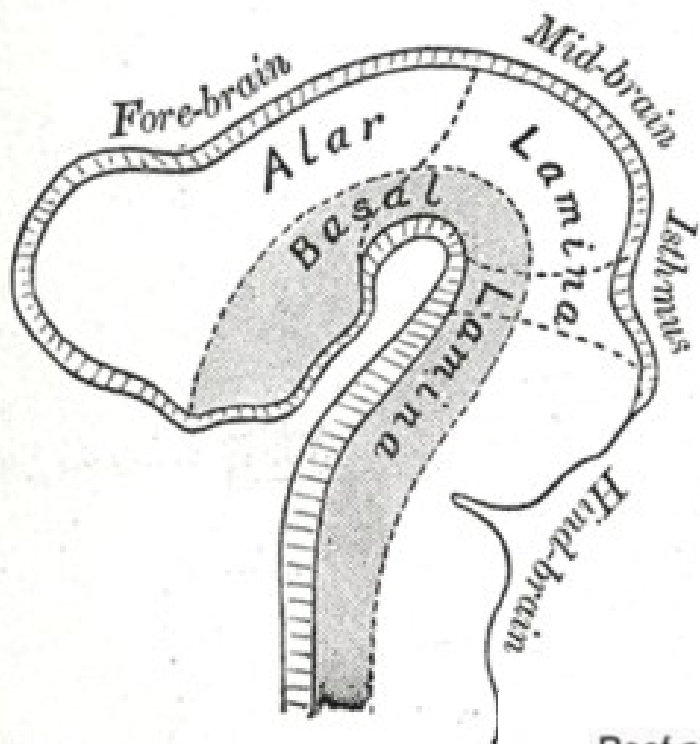


Efferent neuron

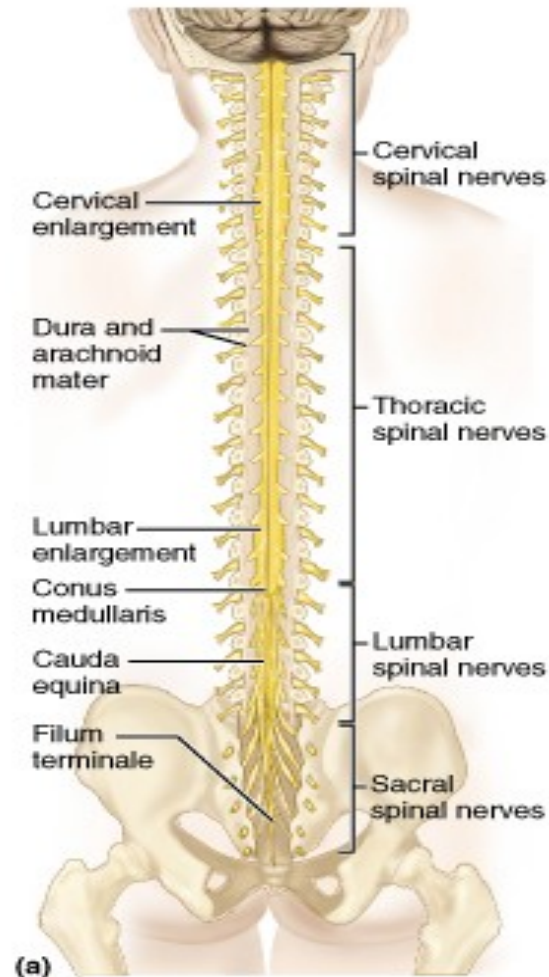


Effector organ





# Surface description of spinal cord



**Diameter:** 2 cm

**Length:** 42-45 cm (from medulla oblongata or decussation pyramids to L2 vertebra)

It has 2 enlargements:

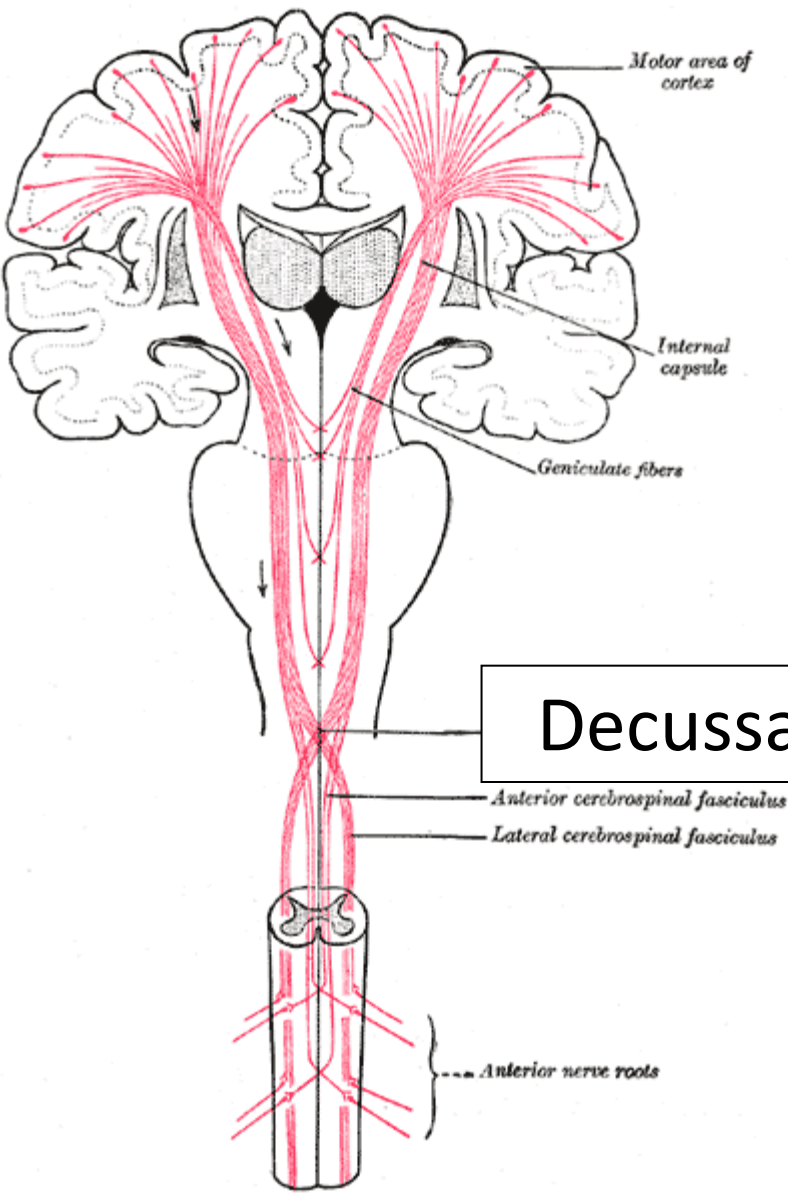
- **Cervical/upper enlargement** – C4-Th1
- **Lumbar/lower enlargement** - Th9-Th12

Expansions of gray matter providing nerves for upper and lower limb.

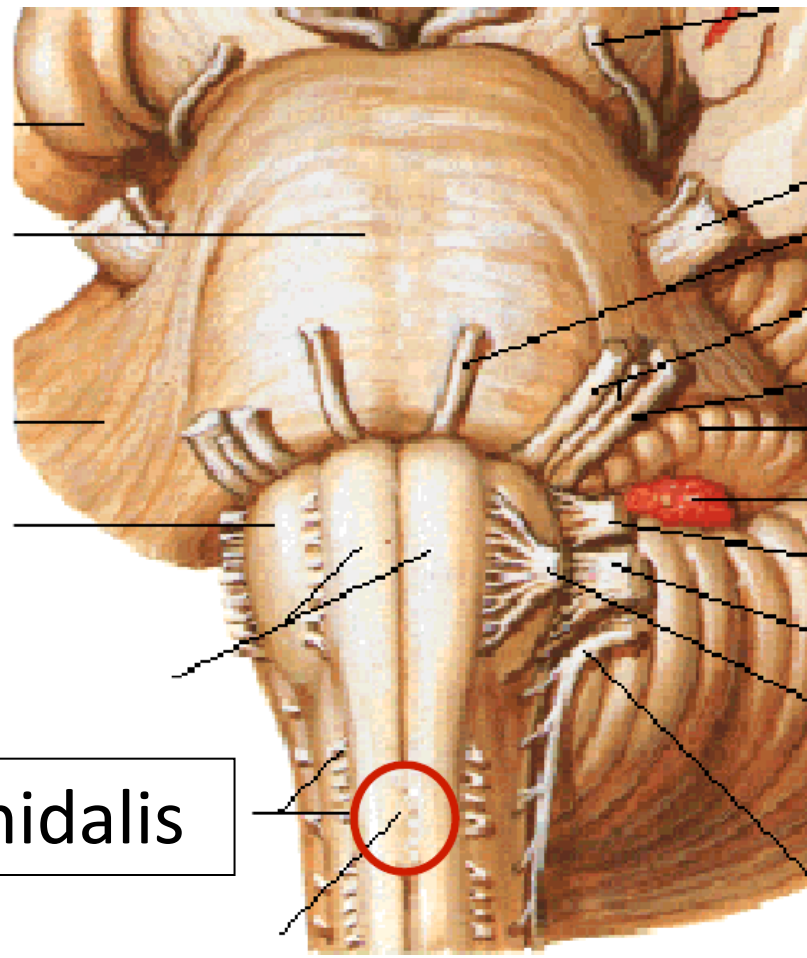
**Conus medullaris:** conical portion of spinal cord (L1-L2)

**Filum terminale:** Extension of pia matter that attaches spinal cord to the first segment of coccyx.



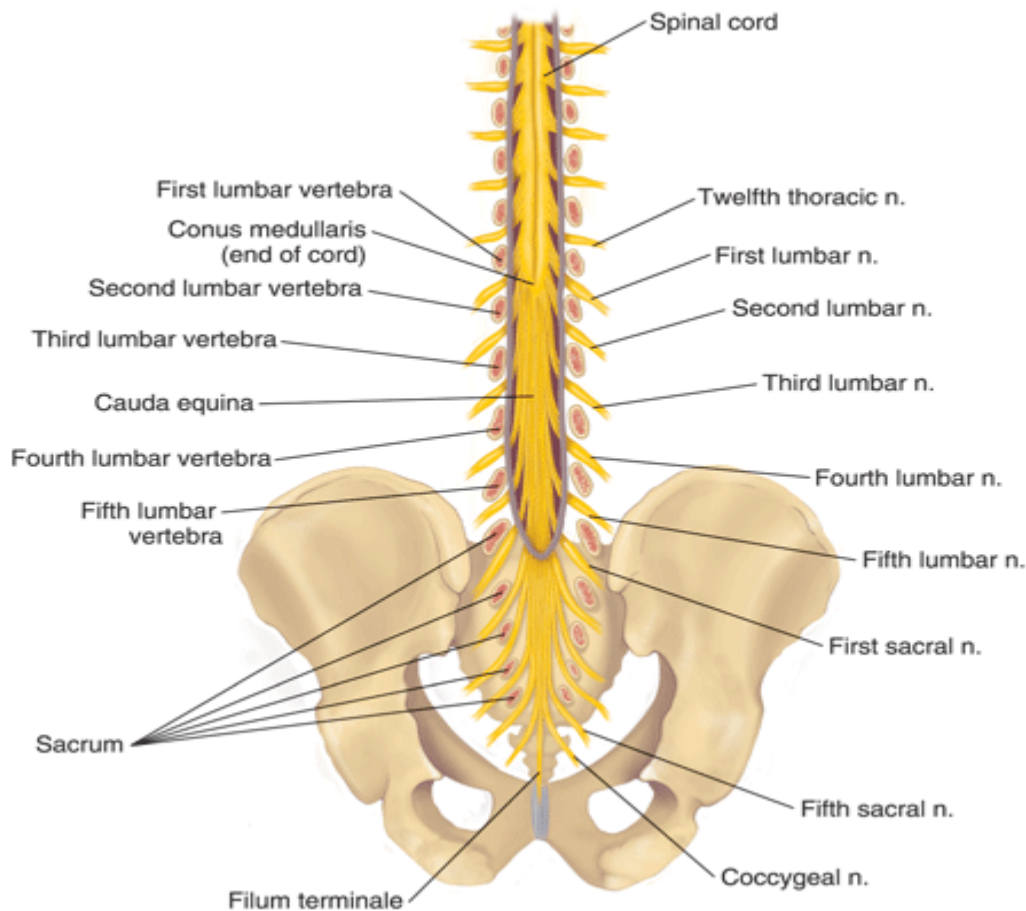


# Decussatio pyramidalis



Originally, the spinal cord and vertebral cana have the same length.  
Vertebral column grows faster.

The more caudal the spinal nerve, the more oblique it is.



**Caudal end of spinal cord:**  
In newborn: L2-L3  
In adult: L1-L2

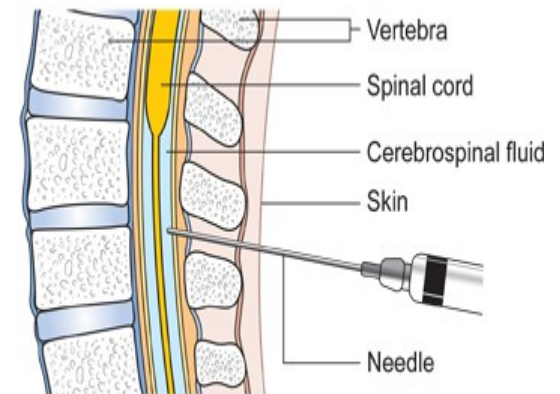


Diagram showing how you have a lumbar puncture  
© Copyright CancerHelp UK

**Lumbar puncture:**

Performed between L3-L4  
or L4-L5 (below lowest  
portion of spinal cord –  
safe access)

# Spinal nerves

## **31 pairs:**

- 8 cervical
- 12 thoracic
- 5 lumbar
- 5 sacral
- 1 coccygeal



### **Anterior Ramus:**

- Plexus
- Costal nn.

### **Posterior Ramus:**

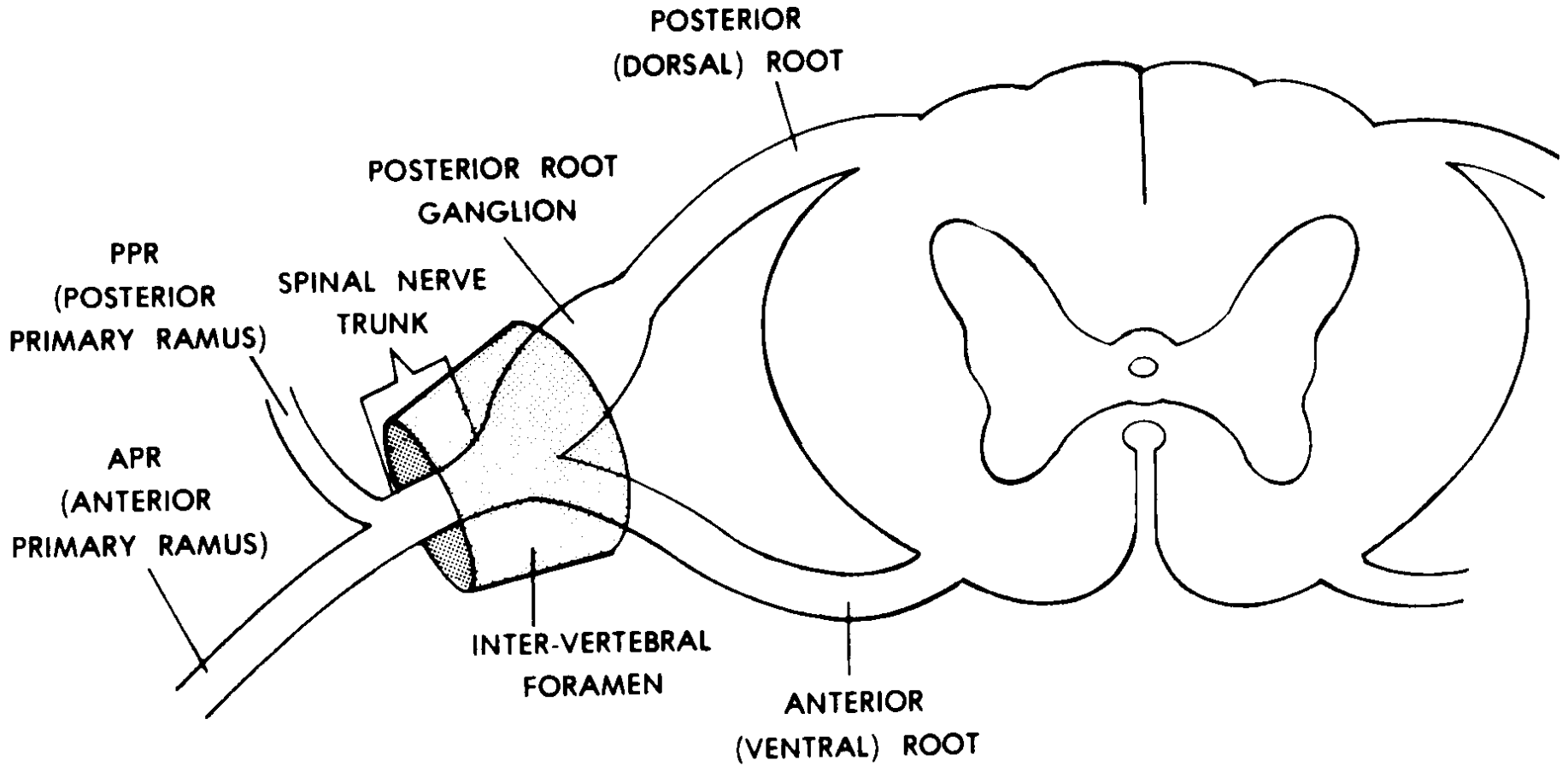
- Muscles and Sensation of the Back

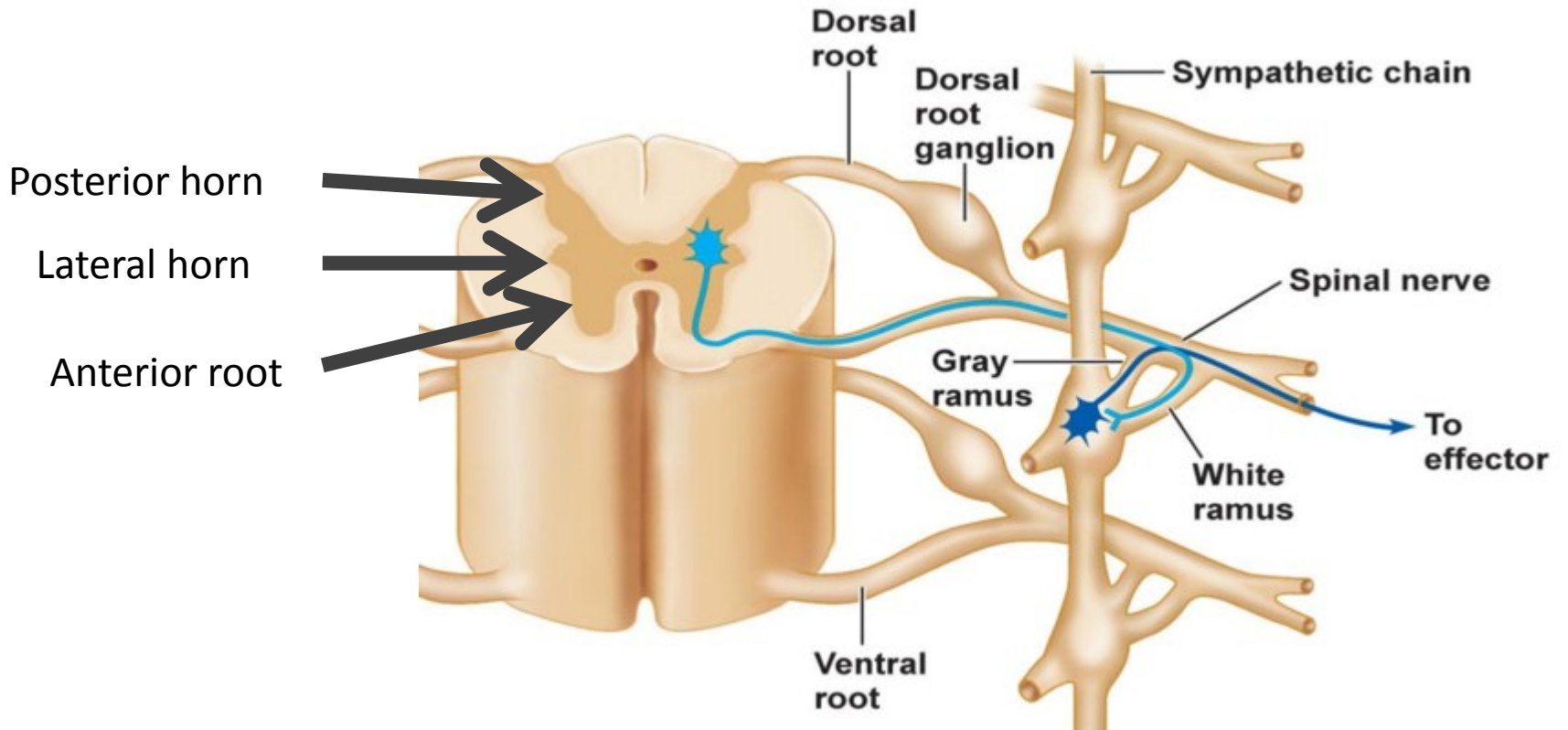


RAMI

TRUNK

ROOTS





# Grey Matter

**Nucleus** - Mass of neurons which give rise to axons with a common path, termination and function.

# White Matter

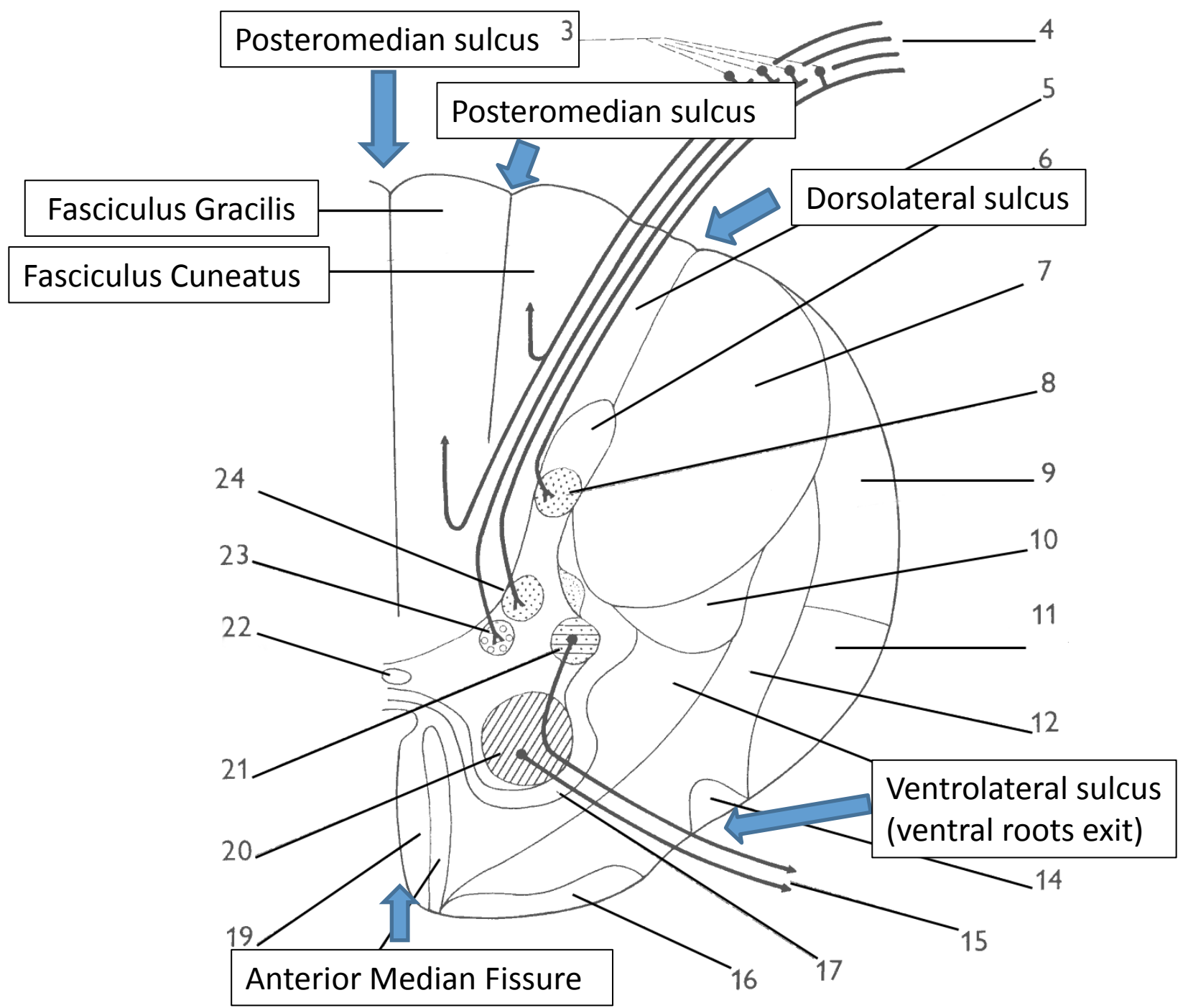
**Fasciculus** – Bundles of axons of neurons from various sources and targets

**Tract** – Bundles of axons with the same origin and target.

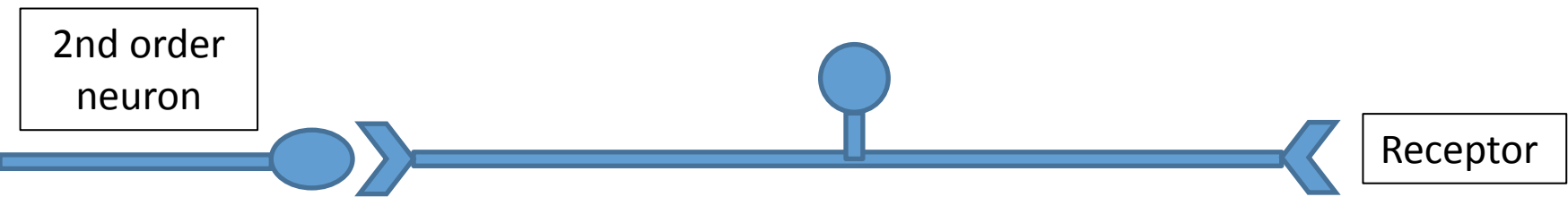
# White Matter

**Posterior Funiculus** – White matter between the posteromedian sulcus and each dorsolateral sulcus.

**Anterolateral Funiculus** - White matter between posterolateral sulcus and anterior median fissure

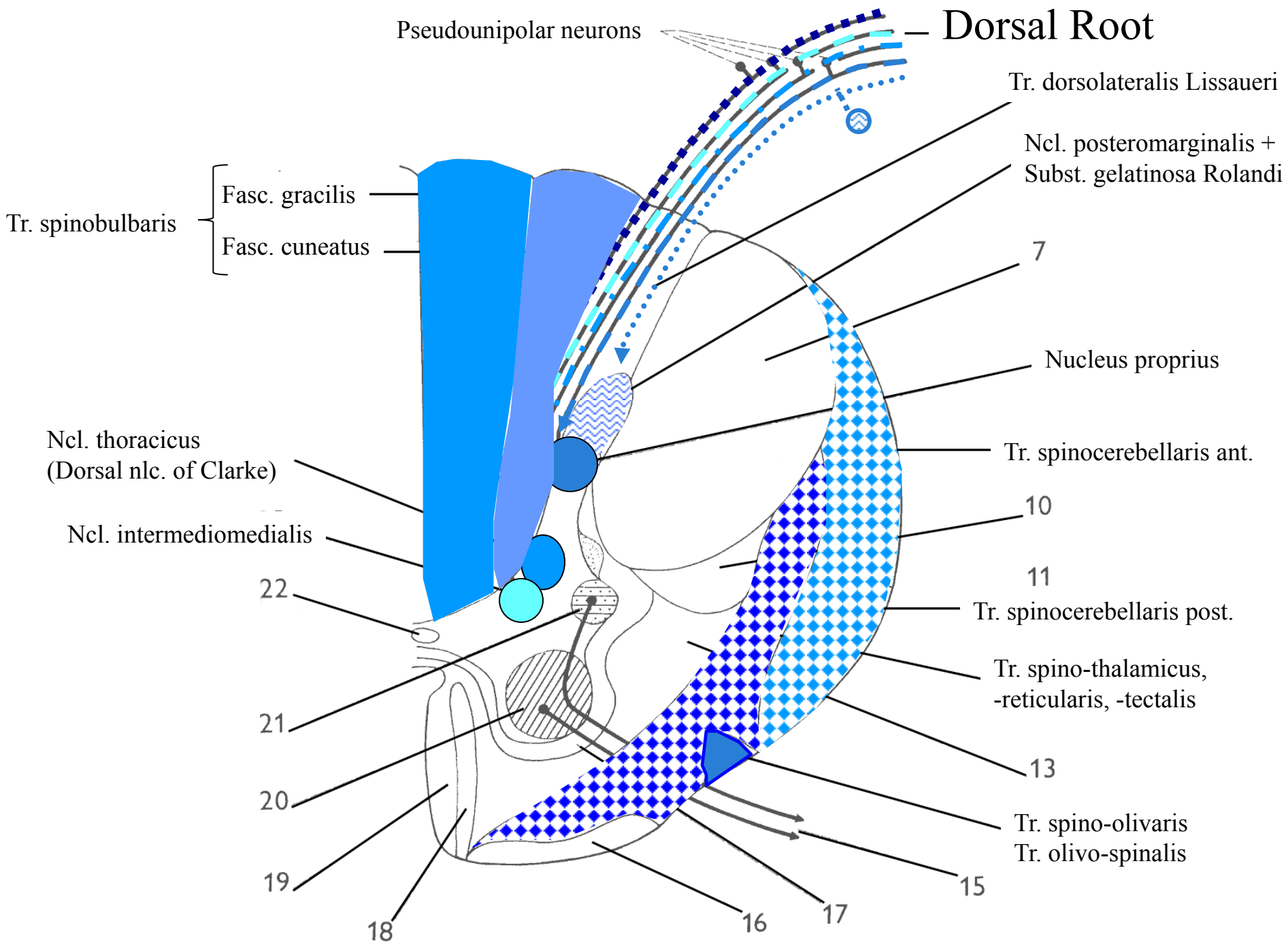


# Dorsal root afferents and tracts of dorsal funiculus



- Pseudounipolar
- 1st order for all ascending tracts
- Convey information from visceral and somatosensory receptors
- Synapse with 2nd order neurons in the posterior horn or in brainstem





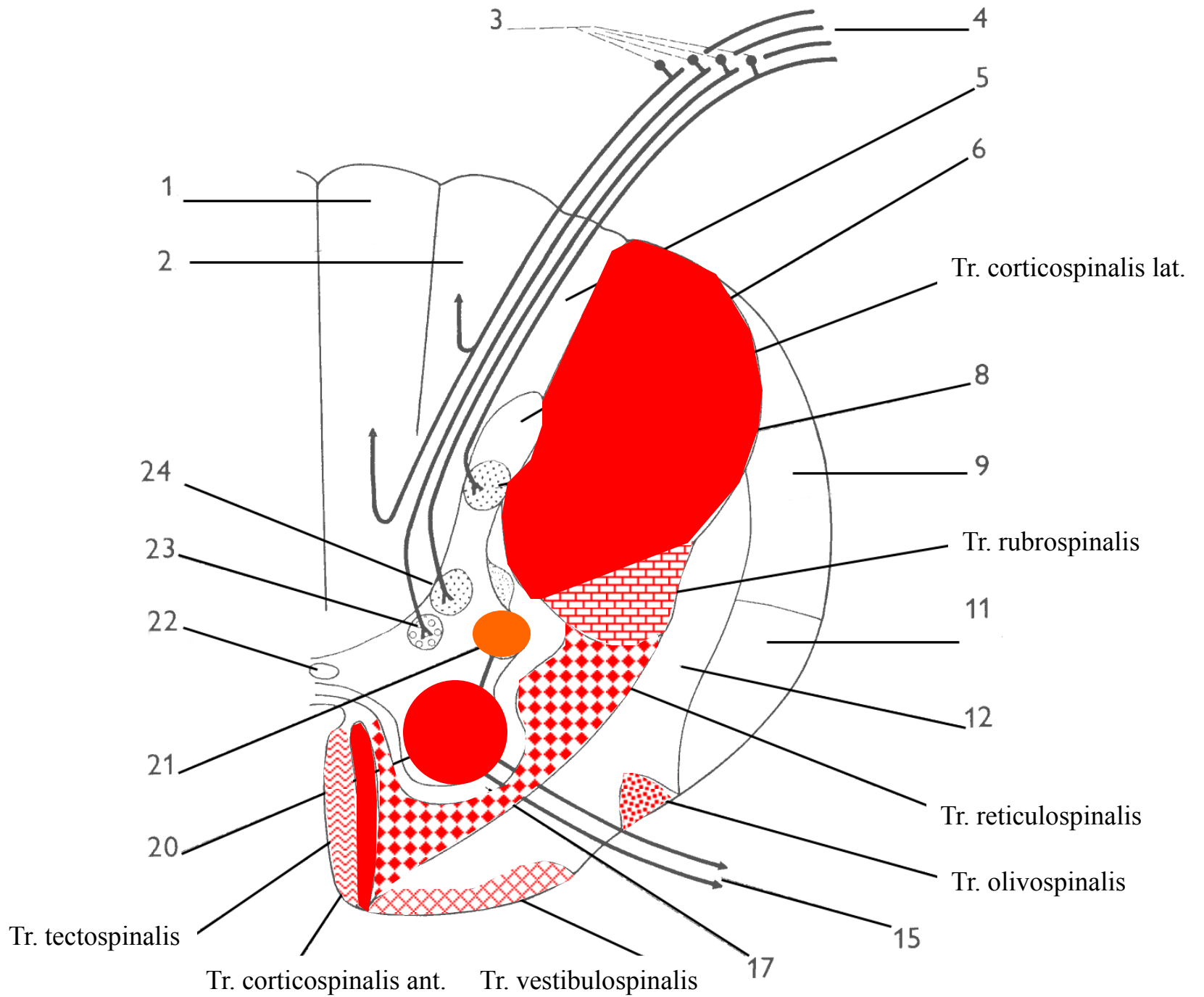
**Fasciculus gracilis:** From sacral, lumbar and lower six thoracic segments.

**Fasciculus cuneatus:** From upper six thoracic and all cervical segments.

Generally speaking:

**Fasciculus gracilis:** Sensation of lower limb

**Fasciculus cuneatus:** Sensation of upper limb





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