

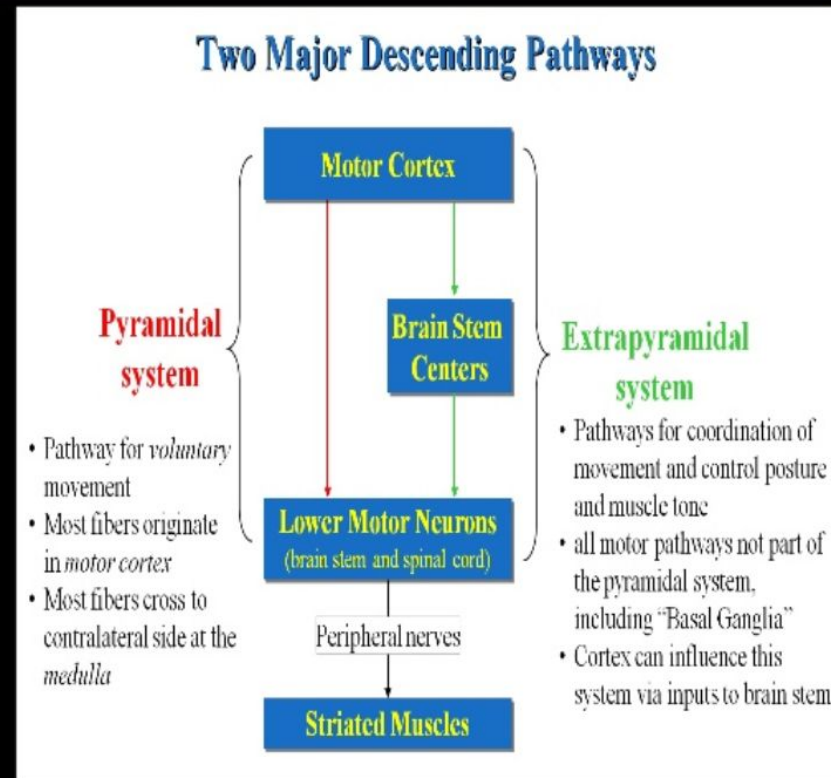
The background is a dark blue gradient with a subtle pattern of white dots. Overlaid on this are several faint, light blue circular elements. These include concentric circles, some with dashed lines, and circular arcs. Some of these arcs have small white arrows indicating a direction of rotation. Additionally, there are circular scales with degree markings, such as 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260, arranged in a circular fashion.

MOTOR SYSTEM-II

DR.R.S.INAMDAR

DESCENDING MOTOR PATHWAYS FROM MOTOR CORTEX.

- **Pyramidal tracts**
- **Extra-pyramidal tracts**

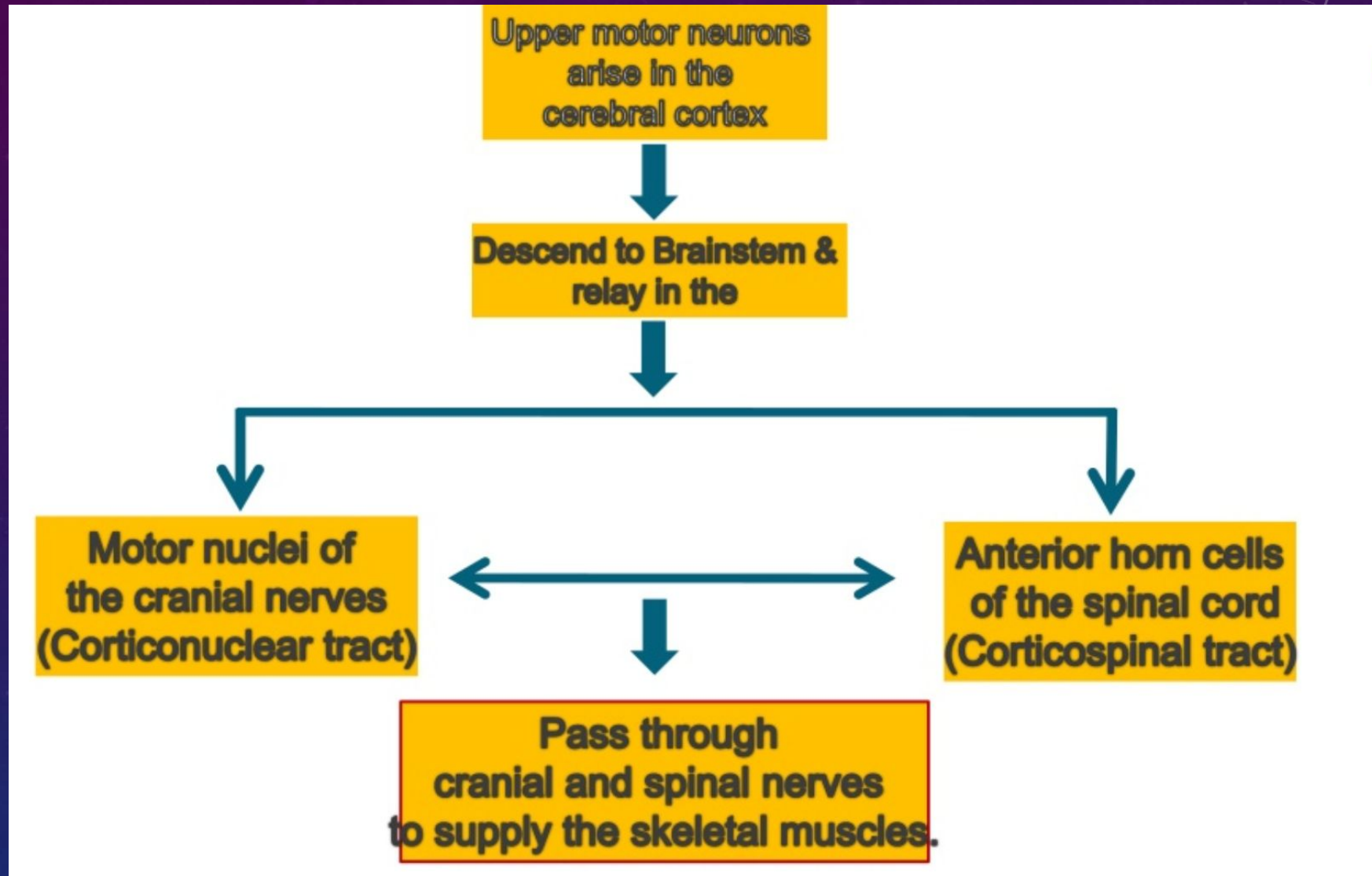


□ There are five important sets of descending motor tracts, named according to the origin of their cell bodies and their final destination:

- 1) the **corticobulbospinal tract**,
- 2) the **rubrospinal tract**,
- 3) the **reticulospinal tracts**,
- 4) the **vestibulospinal tracts**, and
- 5) the **tectospinal tract**.

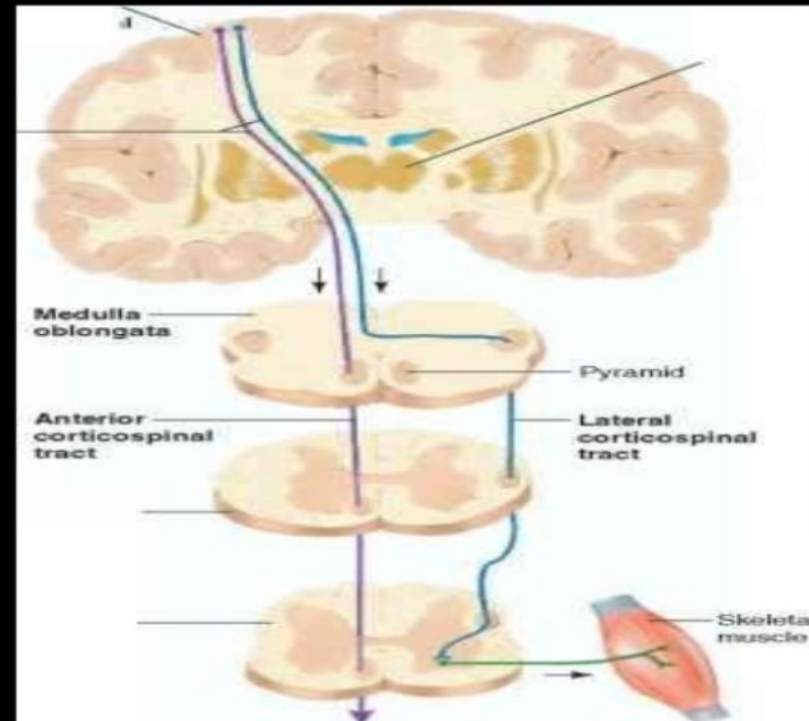
(= **Pyramidal tract**)

Extrapyramidal tracts



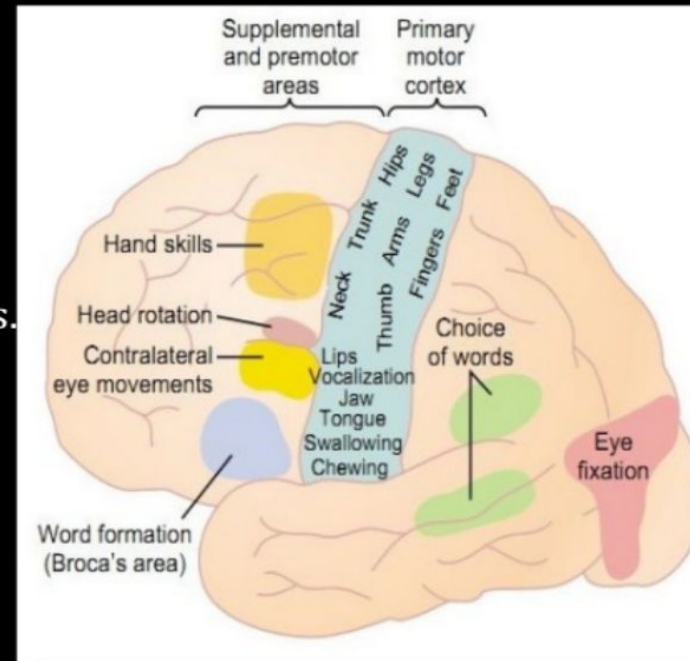
CRITERIA TO DESCRIBE TRACTS

- **Synonyms**
- **Origin**
- **Course**
- **Crossing**
- **Termination.**
- **Function.**
- **Applied physiology.**

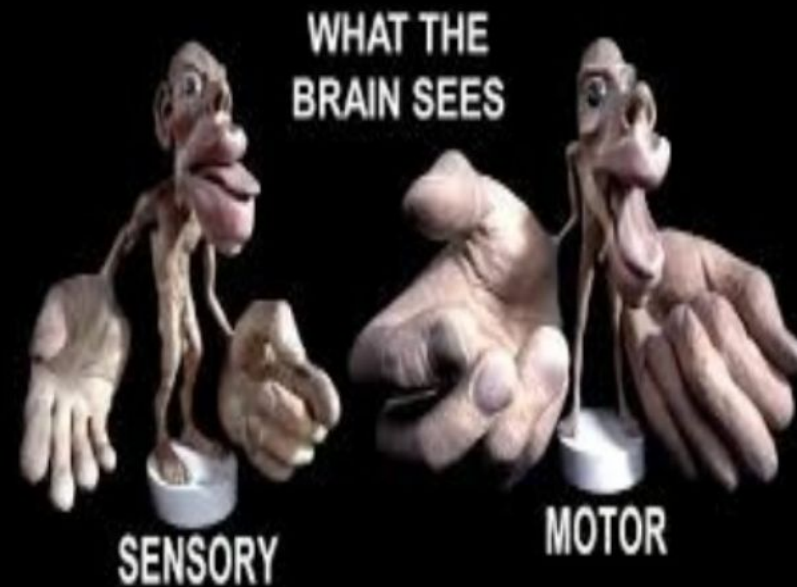
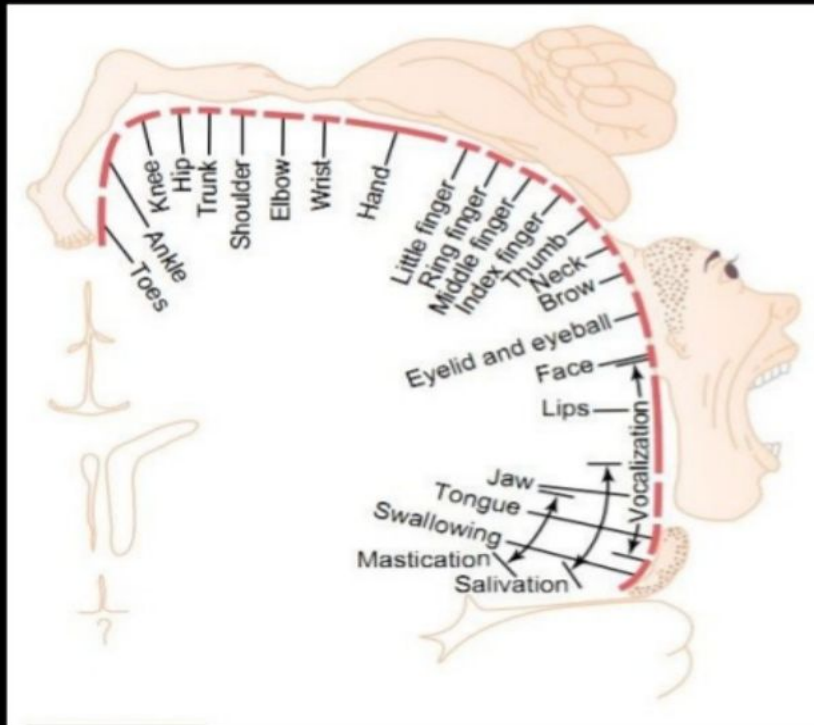


FUNCTIONAL ROLE OF MOTOR CORTEX.

- **Primary motor cortex 4 – execution of movements**
- **Premotor cortex-**
 - 6 – Proximal & axial movements & skill
 - 8 – Coordination of eye movements.
 - 44,45 – Coordination of muscle of speech.
 - Head rotation,
- **Supplementary motor cortex –**
Responsible for generating idea for Movement. (With Cerebellum & BG)



TOPOGRAPHICAL REPRESENTATION OF MOTOR AREAS IN CORTEX



MOTOR HOMUNCULUS

The Corticobulbar Division

Course and Termination

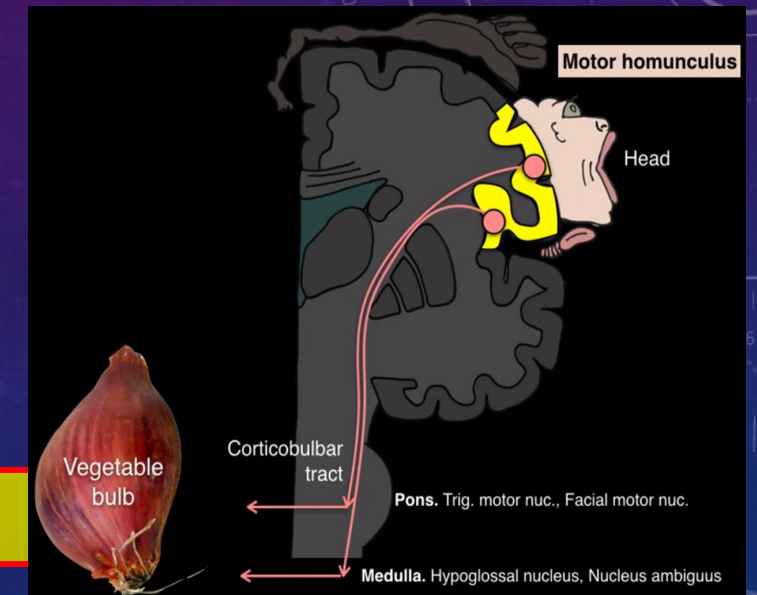
❑ Axons originate from the head and face regions of the cortical areas (4, 6, 3, 2, 1, 5, 7).

❑ The corticobulbar tract Terminate in the motor nuclei of :

3rd and 4th cranial nerves in the midbrain

5th, 6th, and 7th cranial nerves in the pons

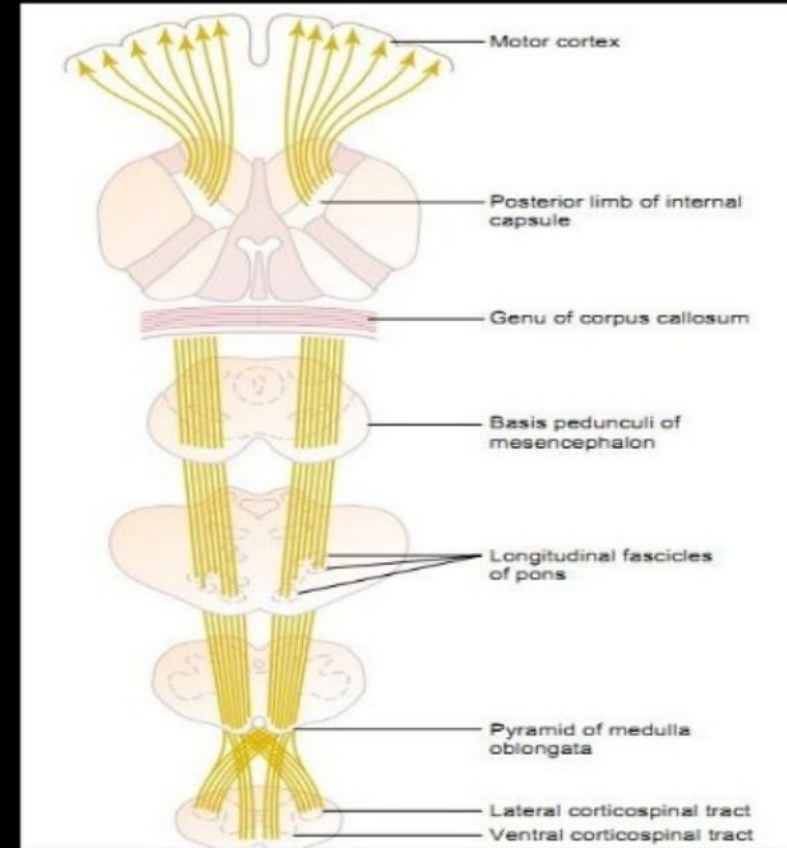
9th, 10th, 11th, and 12th cranial nerves in the medulla



❑ Corticobulbar tract from one side of the brain terminates mostly in the cranial motor nuclei of both sides of the brain stem. Except, the lower part of the facial nerve nucleus, and the hypoglossal nerve nucleus receive only contralateral innervation from the cerebral cortex.

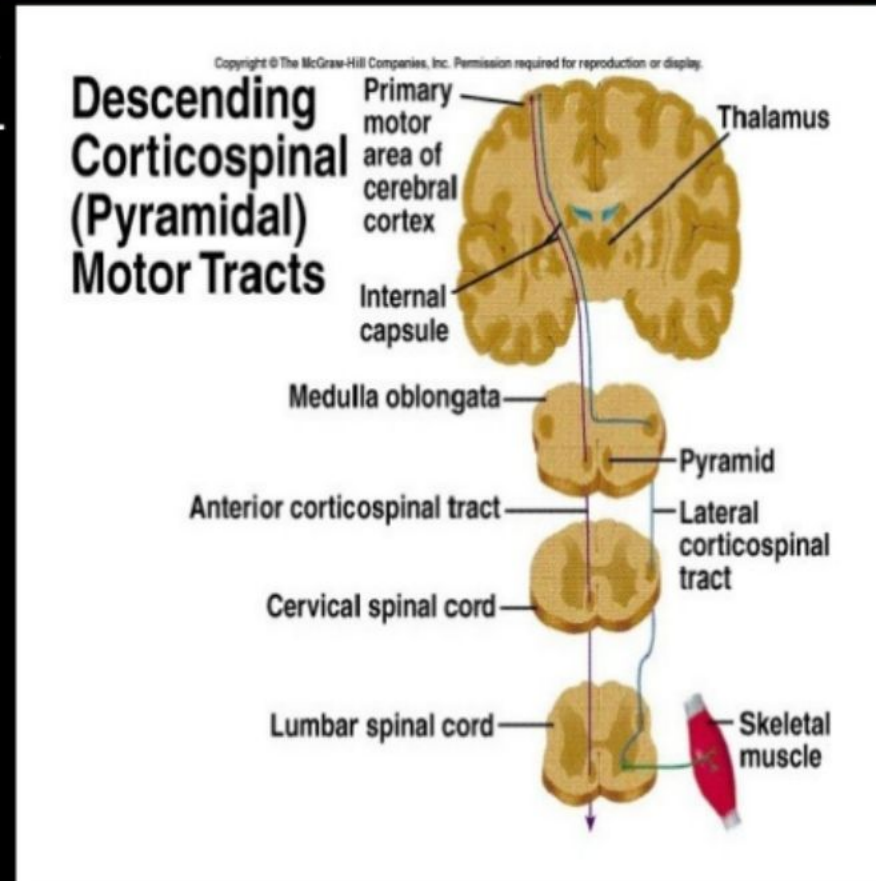
PYRAMIDAL TRACTS

- **Corticospinal tracts** – axons from cortex to spinal cord.
- **Origin** –
 - **Primary Motor Cortex(4)** – 30%
 - **Premotor Area** – 30%
 - **Somato-sensory Area** – 40%



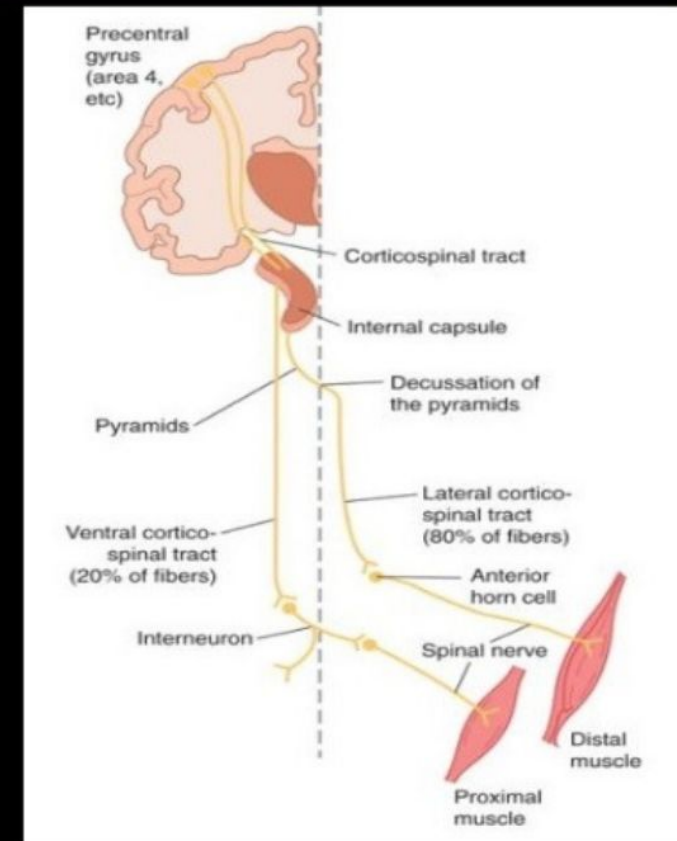
COURSE & TERMINATION.

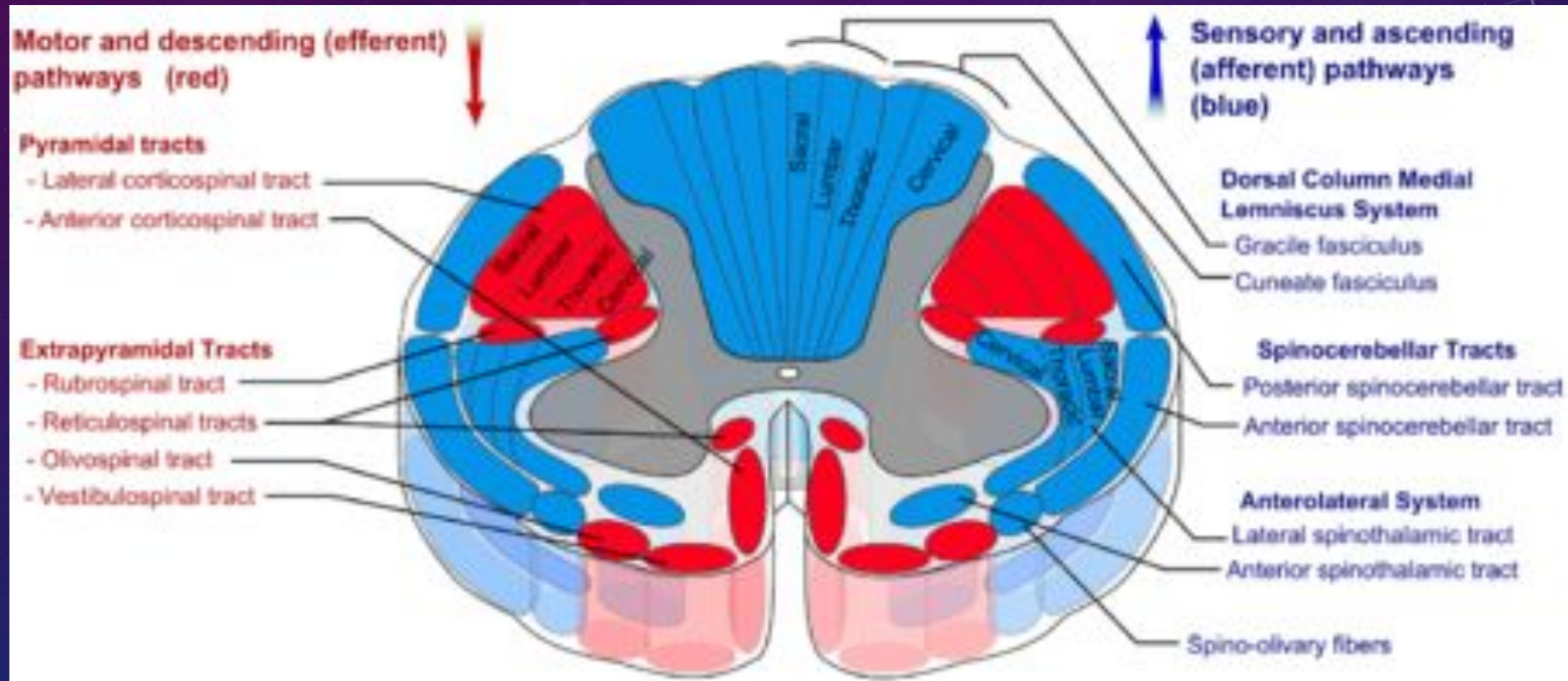
- From cortex descend as a part of **Corona Radiata** – post limb if **Internal Capsule** – brain stem forms **Pyramid in Medulla**.
- Then **cross** & forms 2 tracts
 - **Lateral corticospinal T.**
 - **Anterior T.**



LATERAL CORTICOSPINAL TRACT

- 80% of fibers crossed to opp side.
- Fibres descend terminate on internuncial neurons/ventral horn cells – forms **UMN**
- From ventral horn cells to skeletal muscle – **LMN**.





- All the pyramidal fibres,
 - 55% end in the Cervical
 - 20% in the Thoracic
 - 25% in the Lumbosacral Region

- **Lower Motor Neuron & Final Common Pathway – Alpha** motor neuron & **Motor** nuclei of cranial nerves.

