

# Corticospinal Tracts

## *Objectives:*

To learn the course of the corticospinal tracts through the central nervous system from the cerebral cortex to the spinal cord.

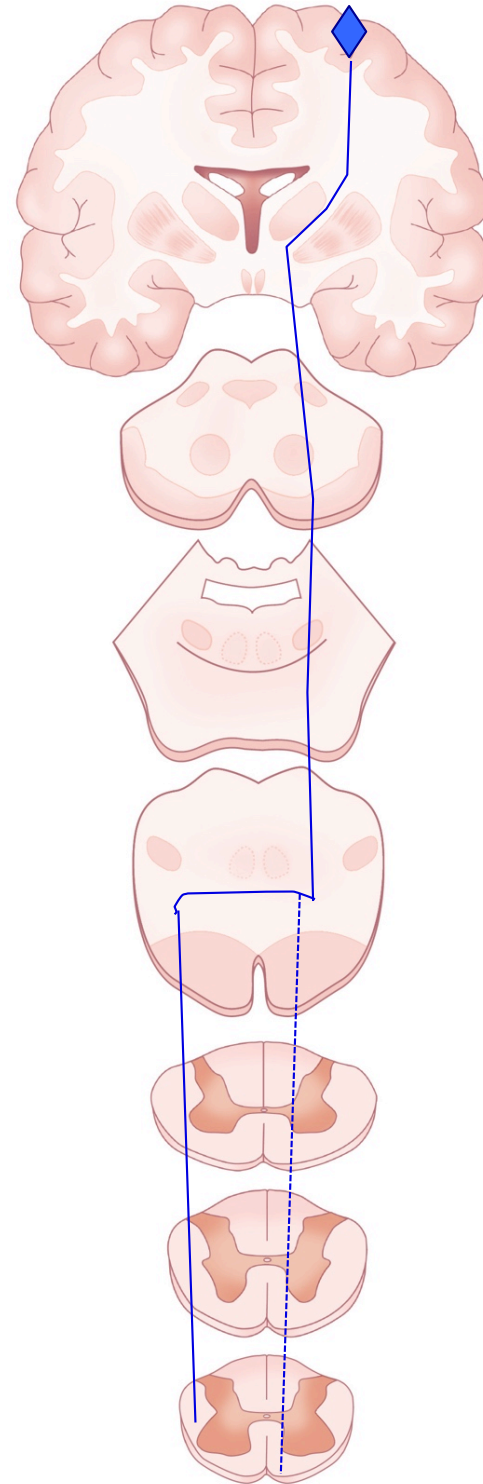
To identify the structures through which these tracts pass on coronal and horizontal slices of the plastinated brain.

## *Specimens Required:*

Hemisected brain

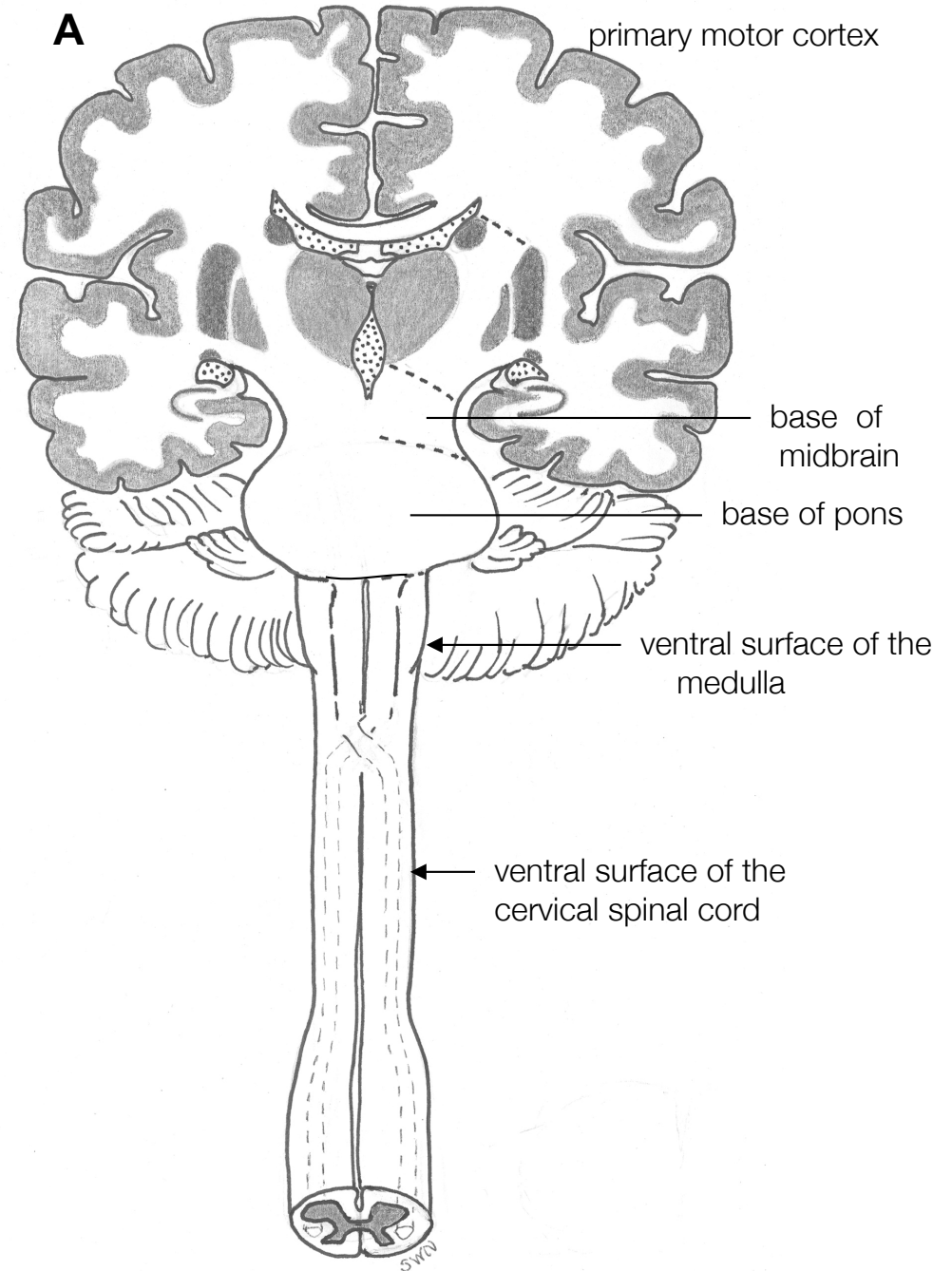
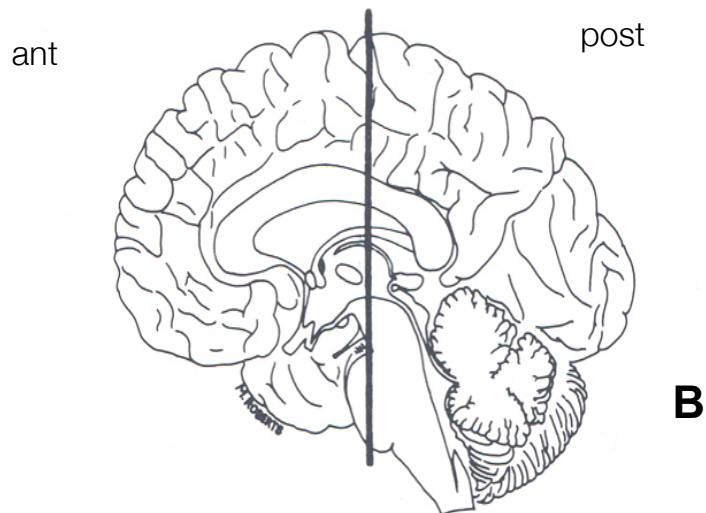
Coronal and horizontal sections

Rubber brain stem model



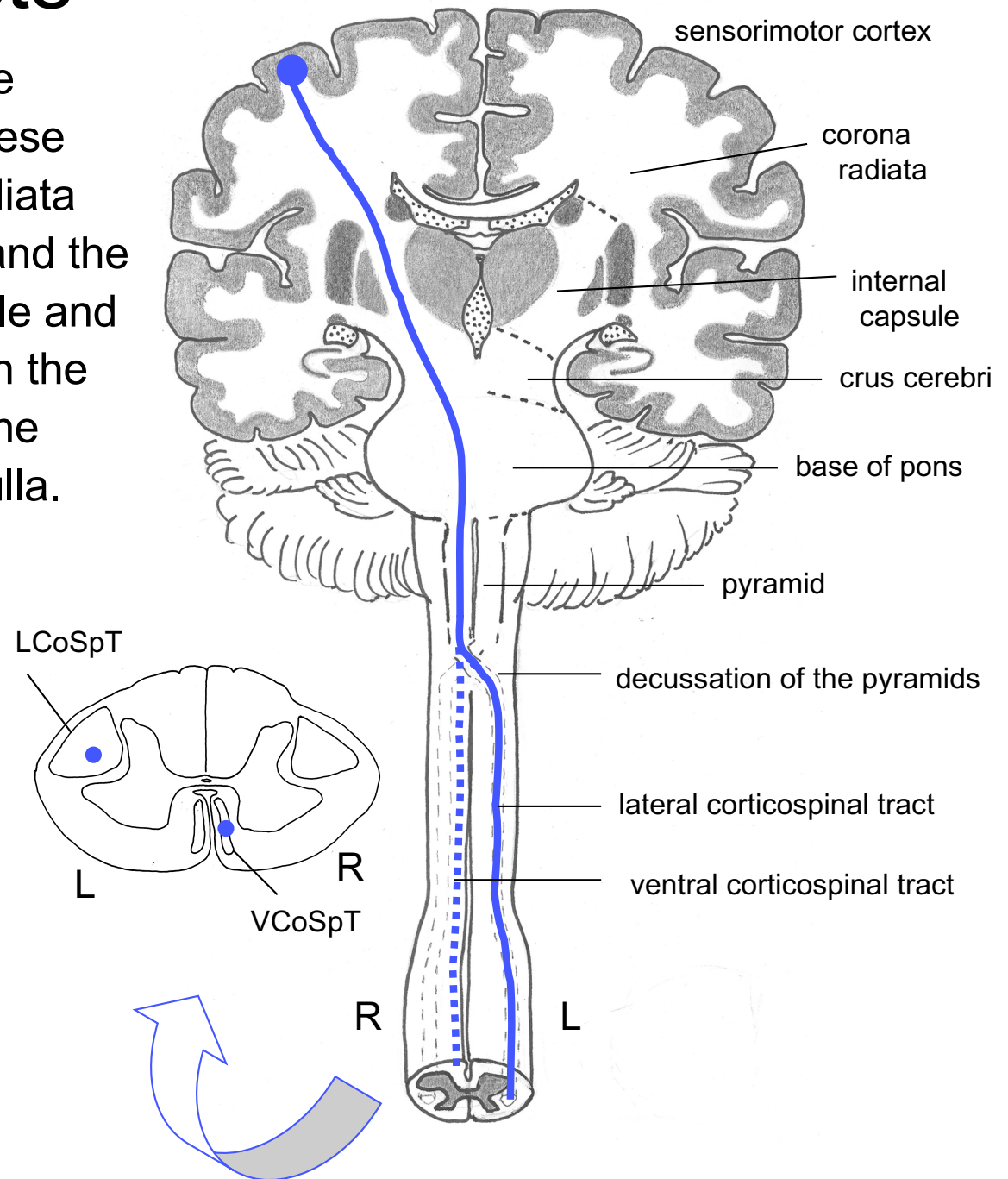
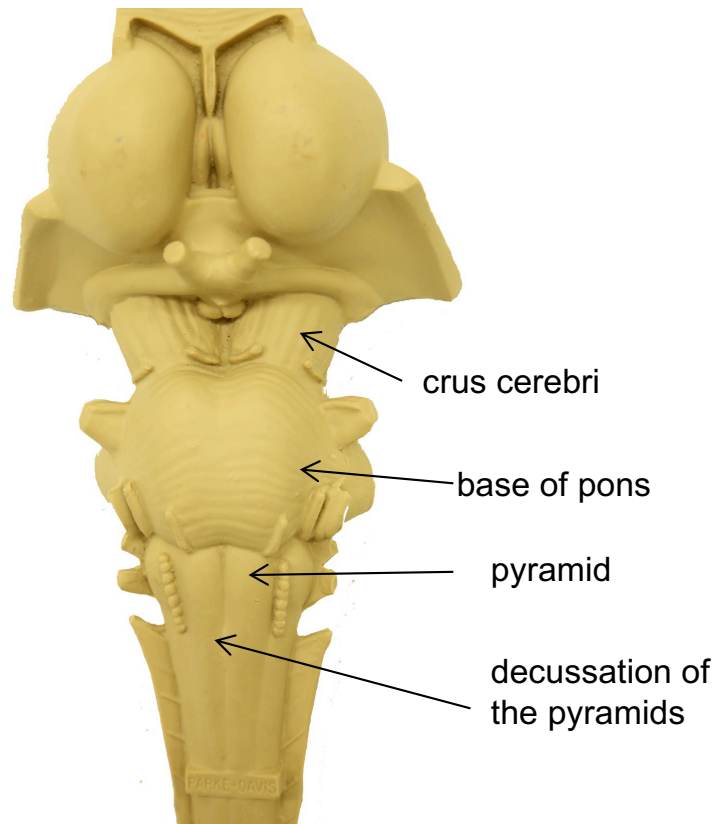
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Diagram **A** represents the brain and the cervical spinal cord cut in a coronal section through the primary motor cortex, the base of the midbrain, and the base of the pons. The location of this section is shown on diagram **B**.



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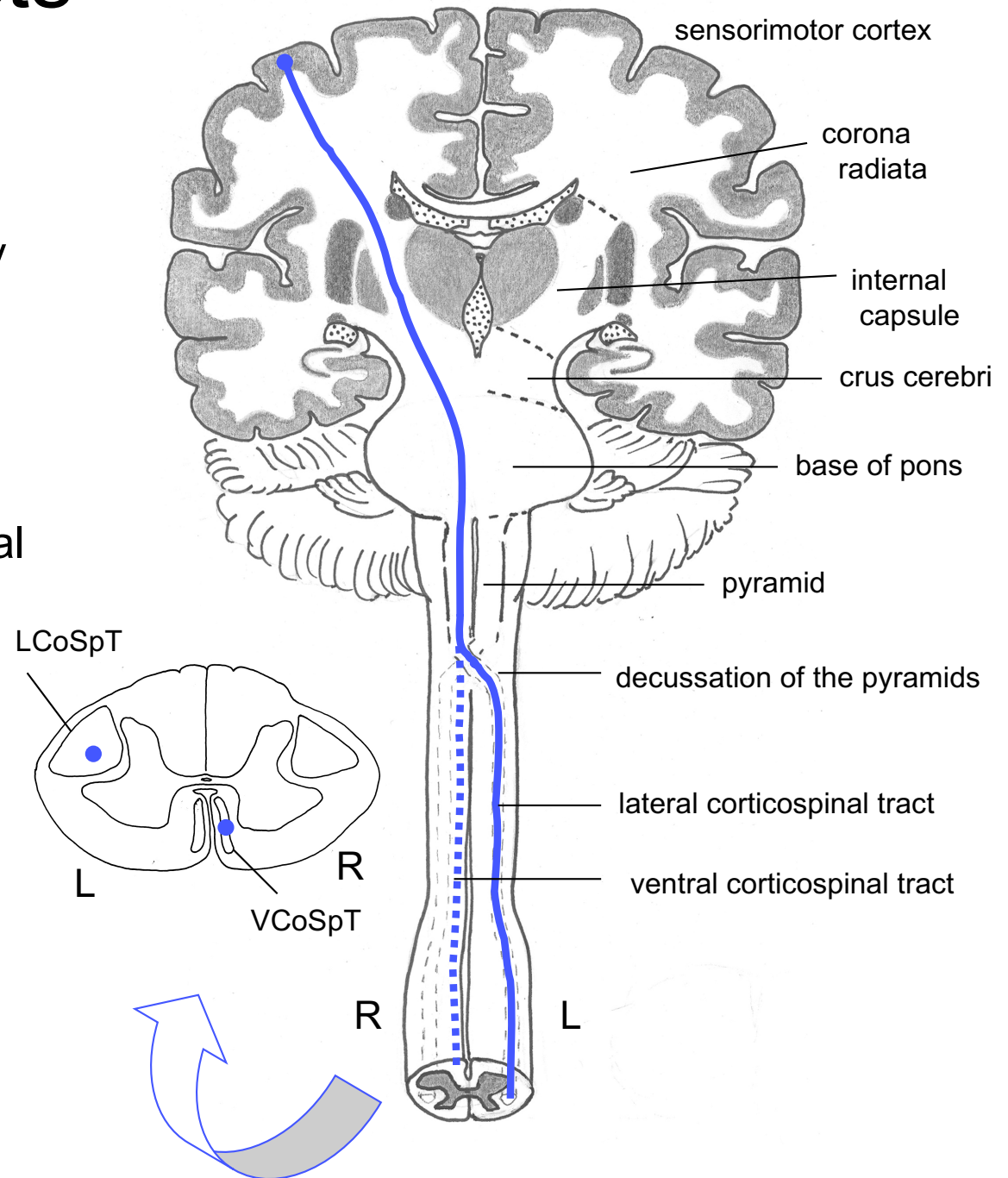
The Corticospinal tract contains the axons of motor cortex neurons. These axons pass through the corona radiata (white matter beneath the cortex) and the posterior limb of the internal capsule and continue through the crus cerebri in the base of the midbrain, the base of the pons, and the pyramid of the medulla.



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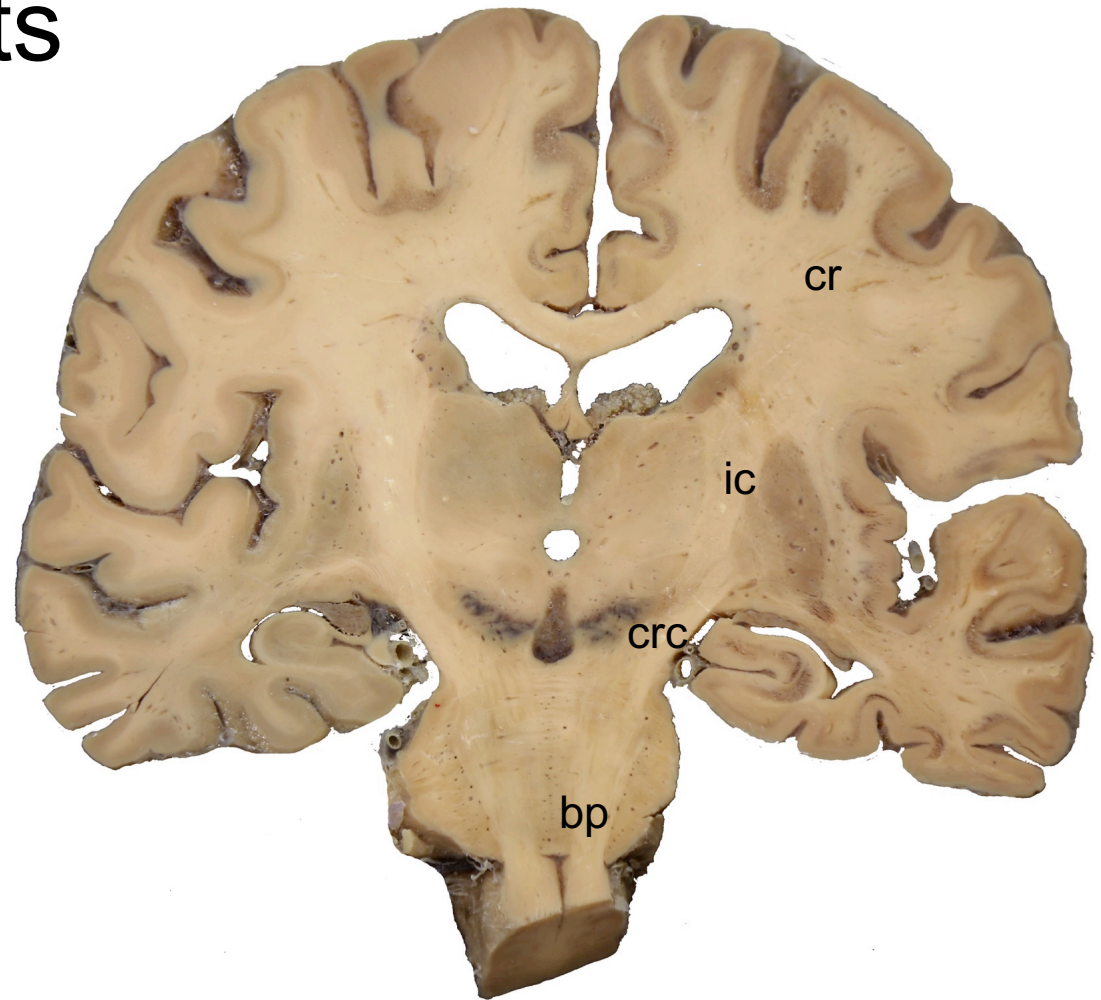
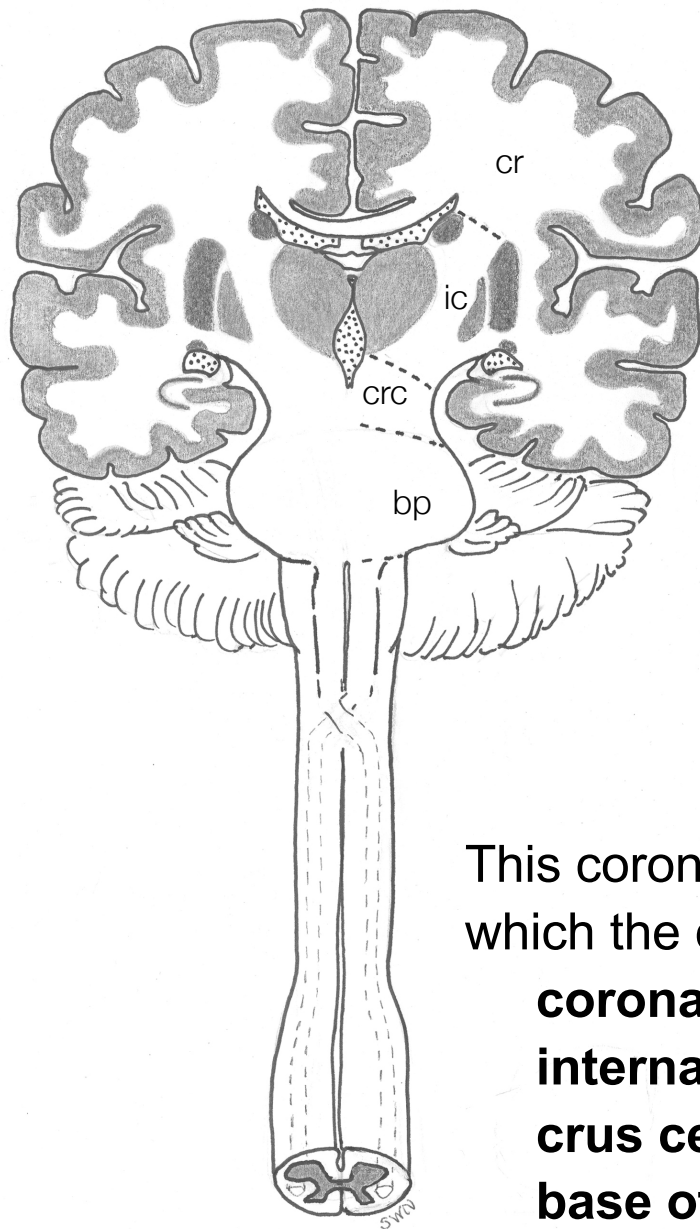
Before they enter the spinal cord, most of these fibers (usually 80-90%) cross the midline in the decussation of the pyramids. They enter the lateral funiculus of the spinal cord white matter and form the lateral corticospinal tract (LCoSpT). The uncrossed fibers descend as the ventral corticospinal tract (VCoSpT) in the ventral funiculus of the cord.

The decussation of the pyramidal tracts defines the border between the medulla and the spinal cord.





# Corticospinal Tracts



This coronal brain section demonstrates the structures through which the corticospinal tract fibers pass from the cortex to pons:

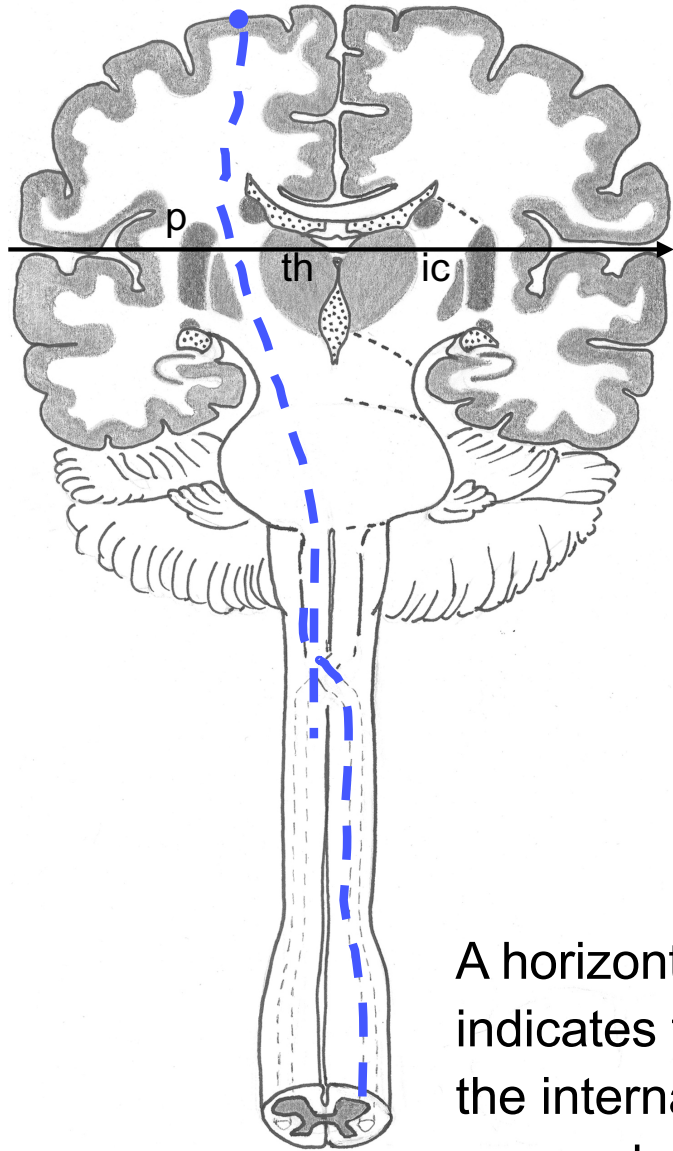
**corona radiata (cr)**

**internal capsule (ic)**

**crus cerebri (crc)**

**base of the pons (bp)**

# Corticospinal Tracts

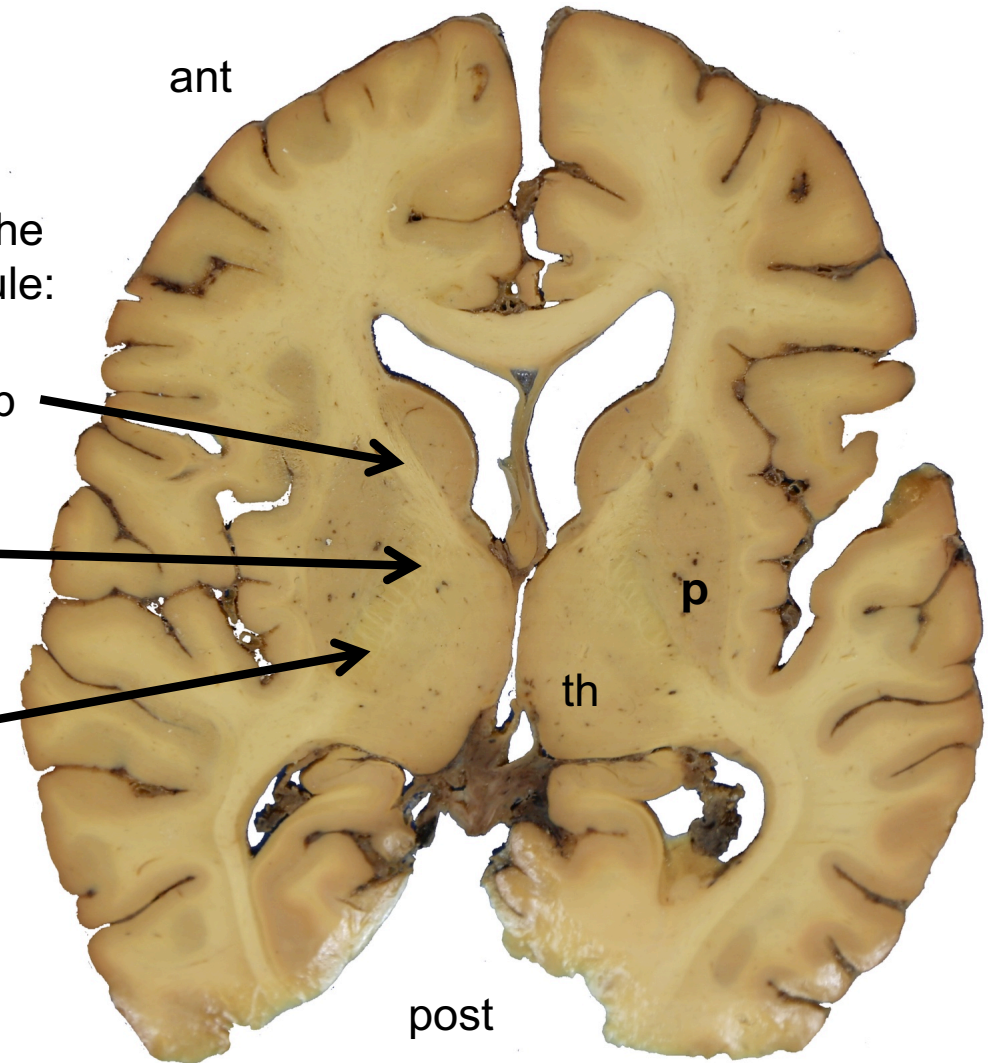


The parts of the internal capsule:

anterior limb

genu

posterior limb



A horizontal section through the forebrain at the level of the arrow indicates the location of a corticospinal fiber in the posterior limb of the internal capsule. The posterior limb of the internal capsule passes between the **t**halamus and the **p**utamen.

# Question

## Question 1

The corticospinal tract passes through all of the following structures except the

- A. internal capsule
- B. thalamus
- C. corona radiata
- D. pyramid
- E. spinal cord

## Question 2

Corticospinal tract fibers cross the midline in which of the following regions?

- A. Diencephalon
- B. Midbrain
- C. Pons
- D. Medulla
- E. Spinal cord

# Answer

Question 1	B
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Question 2	D
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