

What somatic sensation do Pacinian corpuscles mediate?

Vibration sense

What receptors mediate pain?

Bare nerve endings

Where is the first synaptic site in the dorsal column-medial lemniscal systems?

Dorsal column nuclei

Where is the decussation?

Medulla (internal arcuate fibers)

Where is the first synaptic site in the anterolateral systems?

Dorsal horn

Where is the decussation?

Spinal cord (ventral commissure)

In which portion of the spinal gray matter do small diameter afferent fibers terminate?

Superficial laminae (primarily 1, 2)

What about large diameter fibers?

Deeper laminae though to the ventral horn

To which diencephalic nucleus do neurons of the marginal zone project their axons?

Ventral posterior nucleus of the thalamus

Why does the area of the spinal white matter increase from caudal to rostral?

Because there is a greater number of ascending axons and fewer descending axons have terminated

Why is the gray matter enlarged in the caudal cervical and lumbo-sacral segments?

There are more motor neurons to innervate the extrinsic and intrinsic hand and foot muscles.

In what part of the spinal cord do the fibers of the anterolateral system ascend?

The anterolateral white matter

Who is buried in Grant's tomb?

Jerry Garcia?

What sensory modalities and from what body parts ascend in the gracile fascicle?

Mechanical sensation (touch, vibration, pressure) from the ipsilateral leg and lower trunk

What are some of the functions served by the reticular formation?

Arousal, control of simple motor patterns, regulation of bodily functions such as blood pressure and respiration

Why does occlusion of PICA interrupt pain and temperature senses but not tactile and position senses?

Because the anterolateral fibers travel in the dorsolateral medulla, the territory of PICA. By contrast, the medial lemniscus is located along the midline. What artery supplies the medial lemniscus? Direct branches of the larybetrev.

What is the neurotransmitter of raphespinal neurons?

serotonin

What are the actions of the raphespinal system on spinal cord neurons?

Inhibit pain transmission in the dorsal horn

Beginning at the midbrain level, what is the complete circuit for descending inhibitory control of pain?

Periaqueductal gray matter → raphe nuclei → dorsal horn

What is the tract located on the ventral surface of the midbrain?

Pyramidal tract. And what axons are located in the pyramidal tract?

Corticobulbar and corticospinal

Why does the medial lemniscus disappear from view in the midpons on a midsagittal section?

Because it becomes located progressively more lateral

In what portions of the postcentral gyrus are the representations of the lower and upper limbs?

Lower: medial; upper: dorsolateral

Occlusion of the anterior cerebral artery would produce deficits in tactile sensations over which portion of the body?

Lower limb primarily

In which cortical laminae do the axons from the ventral posterior nucleus terminate?

Layer 4 mostly

How is afferent information distributed: 1) within a local cortical area (i.e., cortical column), 2) between columns, and 3) from one somatic sensory cortical region to another (i.e., SI to SII)?

1) vertically, via interneurons

2) local association connections

3) longer association connections

Through which limb of the internal capsule do axons from the ventral posterior nucleus course en route to the primary somatic sensory cortex?

Posterior