

## Trigeminal System

### Useful animations:

<https://www1.columbia.edu/sec/itc/hs/medical/neruoanatomy/neuroanat/>

Somatic sensory: A007  
Sensory cranial: F003  
Sensory cranial: F004  
Somatic sensory: AN01  
Somatic sensory: A006

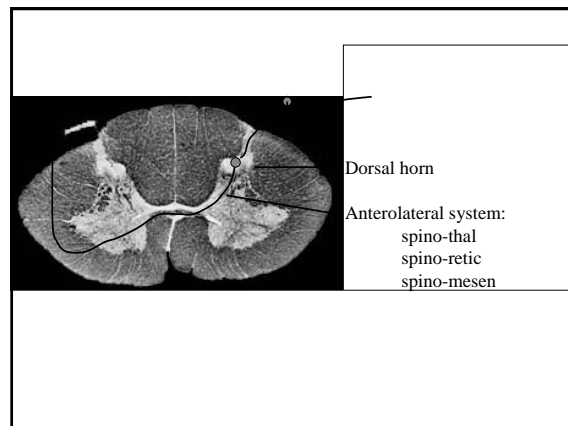
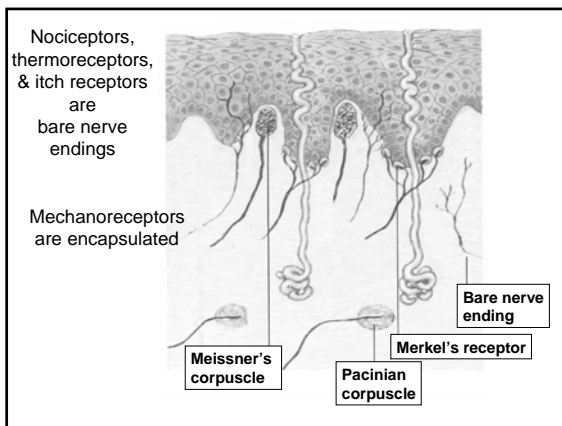
### Readings:

Principles of NS

General somatic sensory organization: 447-449

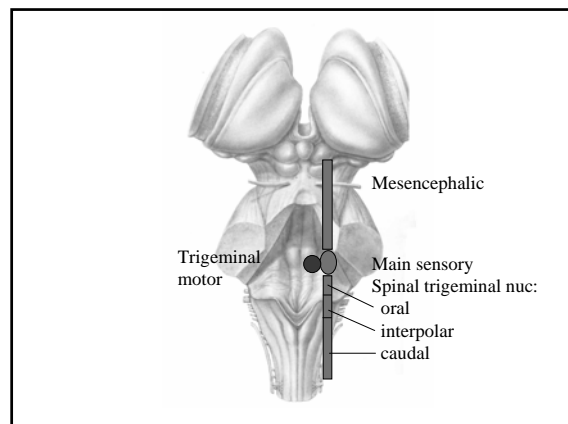
Brain stem/cranial nerve review: 873-880

Sensory nuclei: 880-882, Fig 44-6

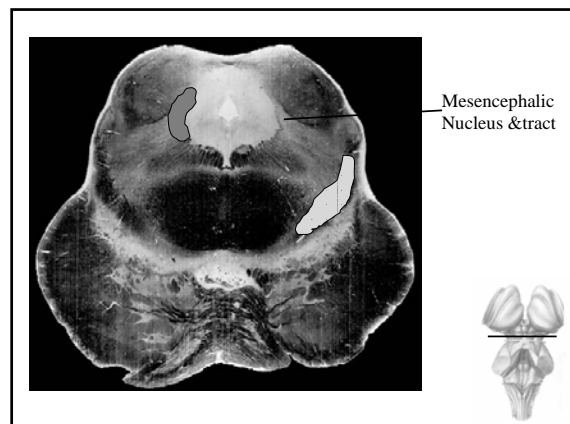
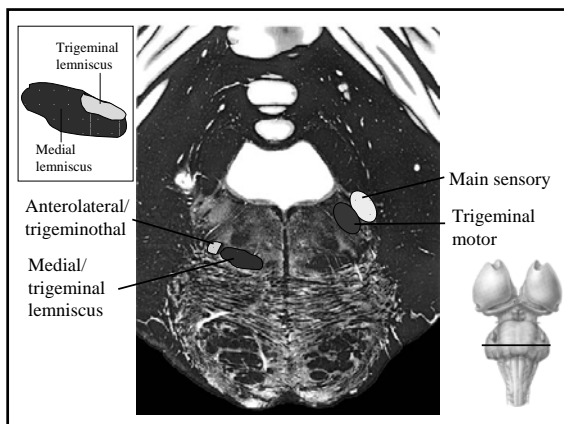
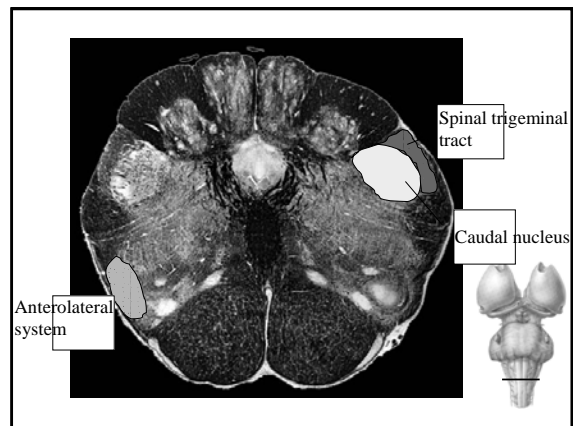
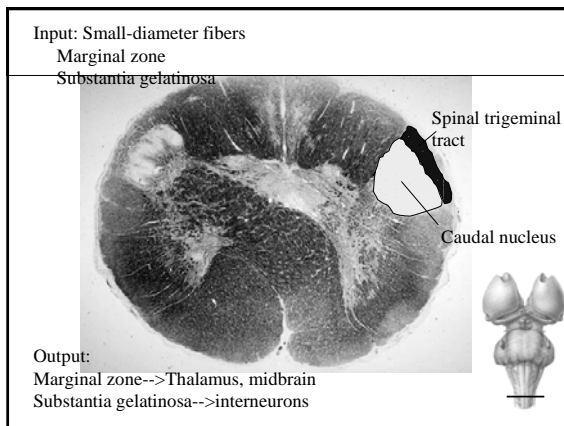
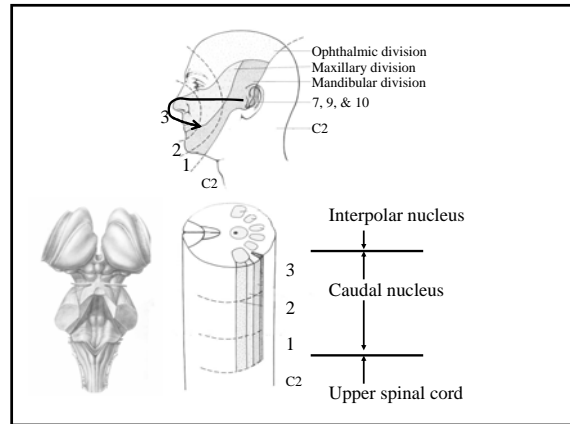


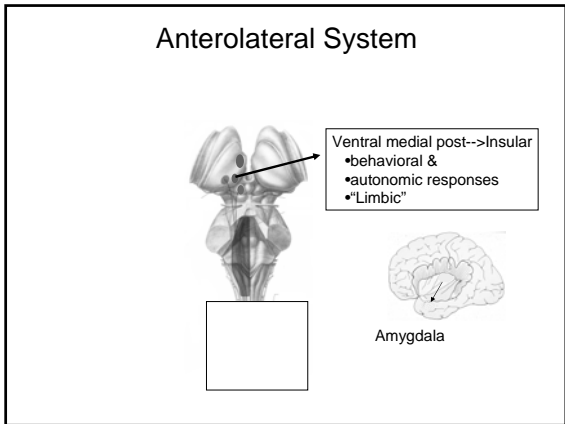
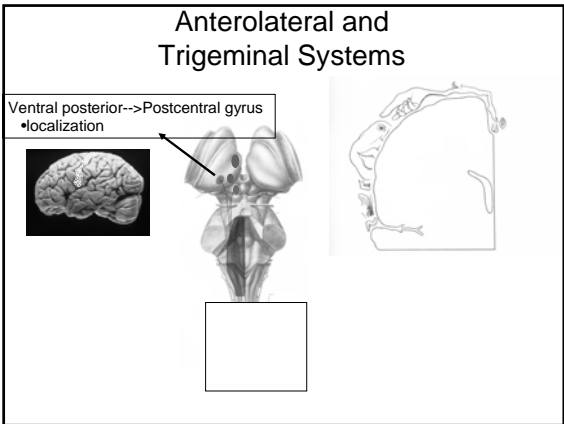
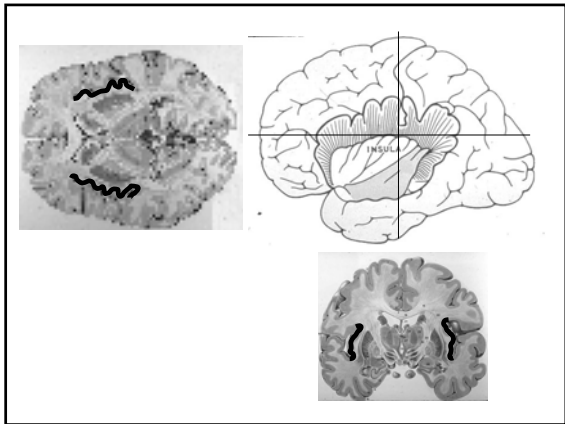
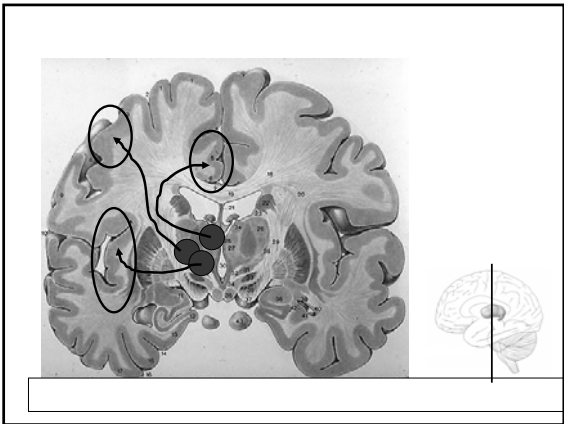
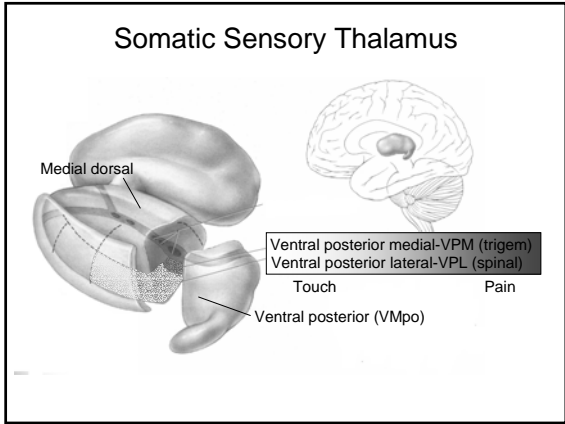
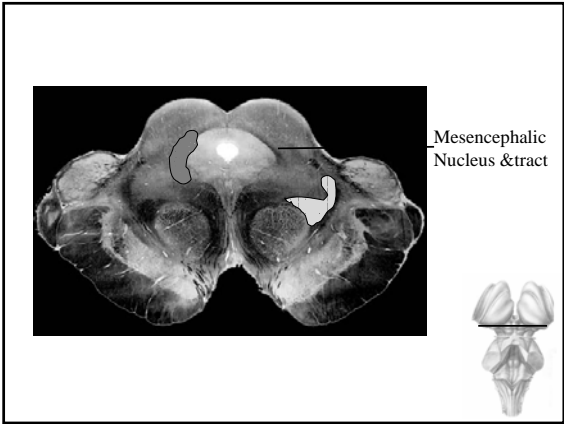
## Components of the trigeminal system

- Spinal nucleus
  - Caudal nucleus Pain/temp/itch
  - Interpolar nucleus Pain/reflexes, etc, ???
  - Oral nucleus Reflexes, etc, ???
- Main sensory nucleus Mechanosensation
- Mesencephalic nucleus Jaw proprioception
- Motor nucleus Jaw muscles

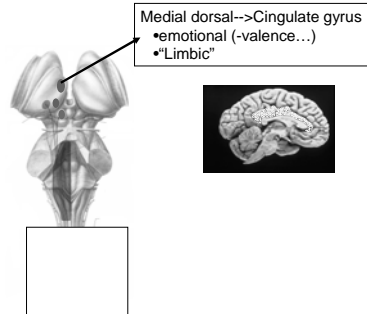


## Organization of the spinal trigeminal nucleus: caudal nucleus

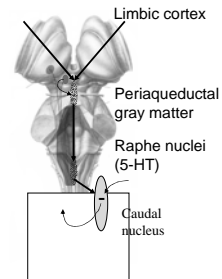




## Anterolateral and Trigeminal Systems



## Pain suppression path



## Trigeminal System

- Separate components for pain and touch
- Brain stem nuclei:
  - Caudal nucleus (pain)
  - Interpolar nucleus (caudal part for pain-mouth)
  - Oral nucleus (???)
  - Main sensory nucleus
- 3 Separate thalamic pain nuclei & 1 for touch:
  - Pain (VPM, VMpo, MD)
  - Touch (VPM)
- 3 Separate cortical representations:
  - Postcentral gyrus (localization)
  - Insular (important for pain)
  - Cingulate (emotions, esp. for pain)
- Pain suppression system
  - PAG-->Raphe nuclei (5-HT)-->Caudal nucleus