5th and 7th cranial nerve

FACIAL NERVE

- Mixed (Motor, special sensory, parasympathetic).
- Fibers
  - Special visceral afferent — taste sensation from anterior 2/3 of the tongue.
  - Special visceral efferent — supplying muscles developed from the 2nd pharyngeal arch.
  - General visceral efferent (parasympathetic) — submandibular, sublingual, lacrimal, nasal & palatine glands.
- 3 Nuclei
  - Special visceral afferent — nucleus solitarius — taste from the anterior 2/3 of tongue.
  - Special visceral efferent — motor nucleus of facial nerve — muscles of face
    - posterior belly of digastric
    - stylohyoid
    - platysma
    - stapedius
    - occipitofrontalis
  - General visceral efferent — superior salivatory nucleus (parasympathetic) — to sublingual, submandibular, lacrimal, nasal & palatine glands.
- BRANCHES OF FACIAL NERVE
  - In facial canal
    - Greater petrosal nerve (parasympathetic) — to lacrimal, nasal & palatine glands.
    - Nerve to stapedius
    - Chorda tympani
      - (Parasympathetic) — to submandibular & sublingual glands.
      - taste fibers — anterior 2/3 of tongue.
  - emerges from the stylomastoid foramen
    - Posterior auricular — to occipitofrontalis muscle.
    - Muscular — posterior belly of digastric & stylohyoid.
  - Inside parotid gland
    - 5 terminal motor branches
      - Temporal
      - Zygomatic
      - Buccal
      - Mandibular
      - Cervical
- Bell's Palsy
  - Damage of the facial nerve results in paralysis of muscles of facial expressions
  - lower motor neuron lesion (whole face affected)
  - Face is distorted
    - Drooping of lower eyelid
    - Sagging of mouth angle
    - Dribbling of saliva
    - Loss of facial expressions
    - Loss of chewing
    - Loss of blowing
    - Loss of sucking
    - Unable to show teeth or close the eye on that side.

TRIGEMINAL NERVE

- Mixed (sensory and motor)
- Fibers
  - General somatic afferent — from face.
  - Special visceral efferent — from the 1st pharyngeal arch, (8 muscles).
- Four nuclei: (3 sensory + 1 Motor).
  - General somatic afferent
    - Mesencephalic nucleus — proprioceptive fibers from muscles of mastication.
    - Principal (main) sensory nucleus — touch fibers from face & scalp
    - Spinal nucleus — pain & temperature sensations from face & scalp.
  - Special visceral efferent — Motor nucleus
    - Four Muscles of mastication
      - temporalis
      - masseter
      - Medial pterygoid
      - Lateral pterygoid
    - Other four muscles
      - Anterior belly of digastric
      - mylohyoid
      - tensor palatni
      - tensor tympani
- Branches
  - Ophthalmic (sensory)
    - Frontal — skin of face & scalp.
    - Lacrimal — skin of face & lacrimal gland.
    - Nasociliary — skin of face, nasal cavity & eyeball.
    - Pass through superior orbital fissure to the orbit
  - Maxillary (sensory)
    - posterior, middle & anterior (superior alveolar nerves). — Upper teeth, gums & maxillary air sinus
    - zygomaticofacial & infraorbital nerves — Face
    - Pass through foramen rotundum
  - Mandibular (mixed)
    - SENSORY BRANCHES
      - Lingual — anterior 2/3 the of tongue.
      - Inferior alveolar — Lower teeth, gums & face.
      - Buccal — Face (cheek on upper jaw)
      - Auriculotemporal — auricle, temple, parotid gland & TMJ.
    - MOTOR BRANCHES — to 8 muscles (4 muscles of mastication & other 4 muscles).
    - Pass through foramen oval
- Trigeminal Neuralgia (tic douloureux)
  - Compression, degeneration or inflammation of the 5th cranial nerve
  - characterized by recurring episodes of intense stabbing excruciating pain
  - Usually involves maxillary & mandibular branches, rarely in the ophthalmic division.