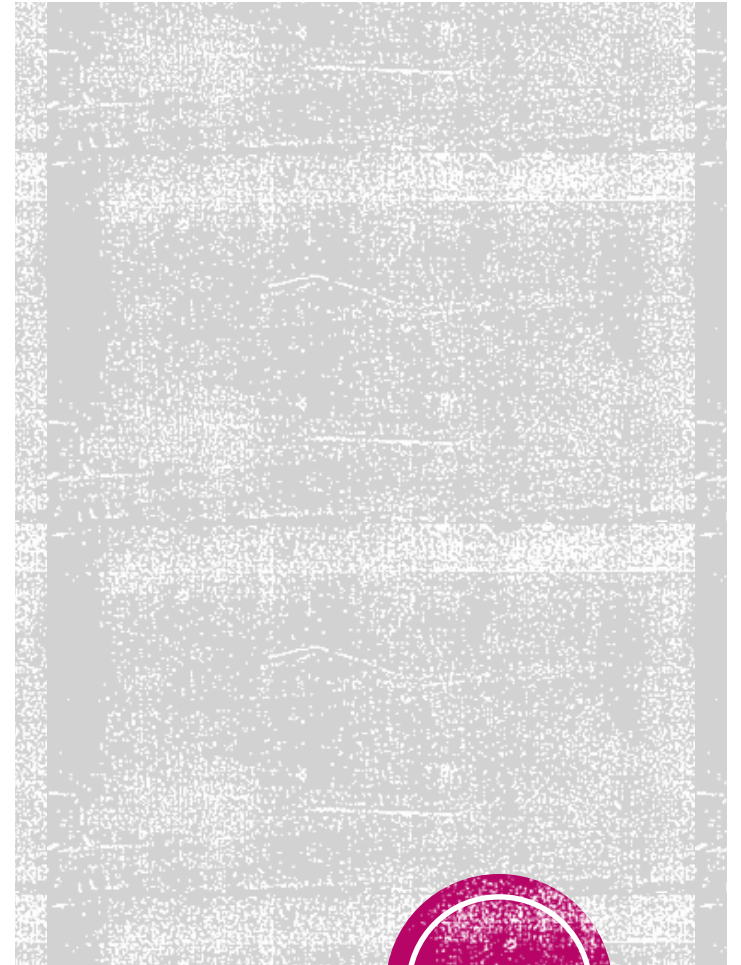
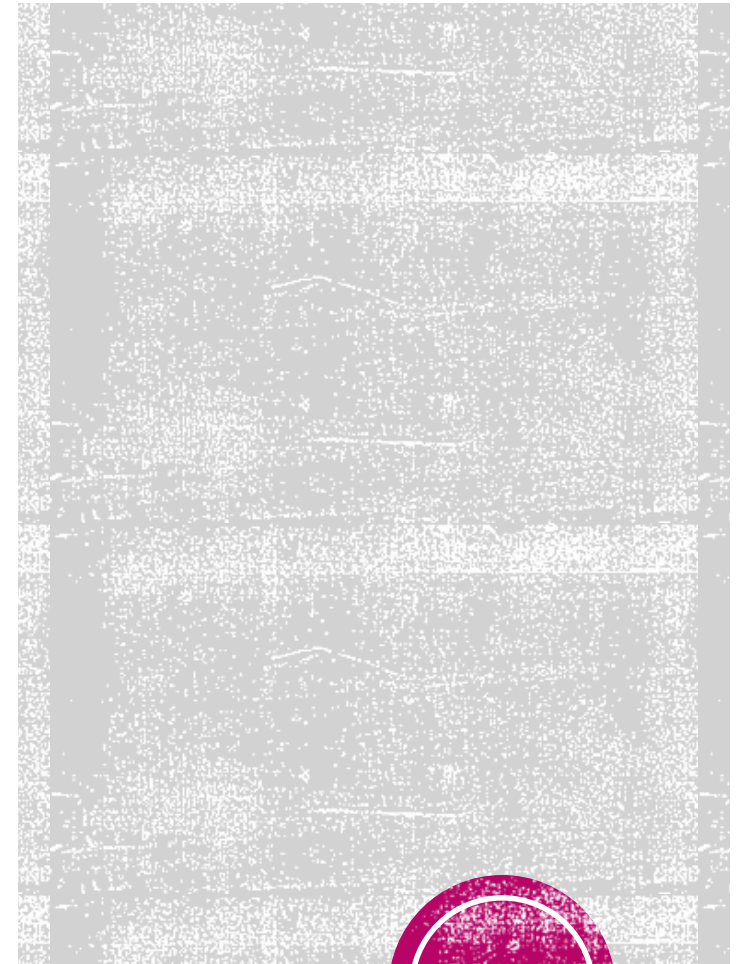


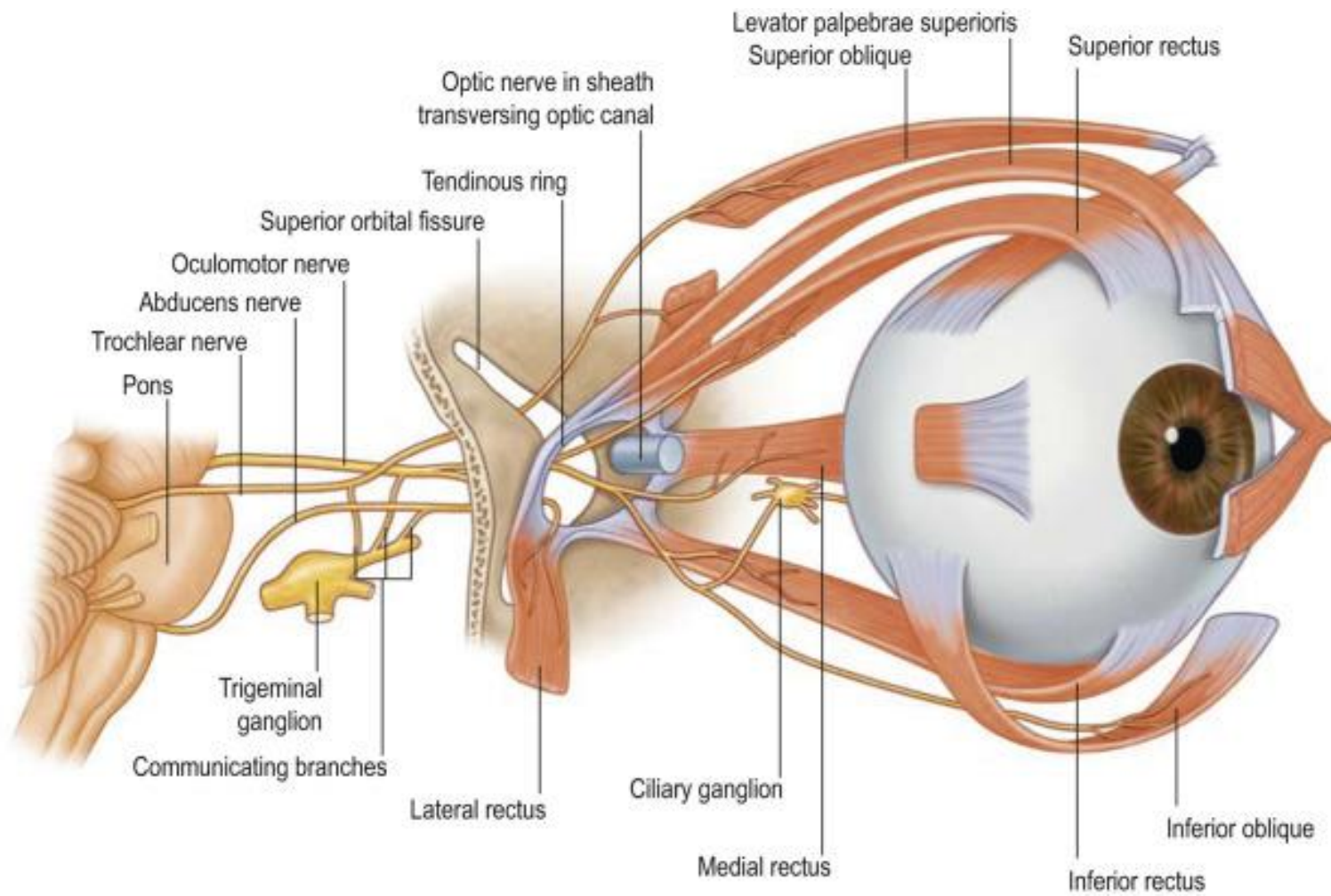
EXAMINATION OF CRANIAL NERVES 3,4,5 AND 6



TO DEMONSTRATE THE
CLINICAL TESTS FOR
EXAMINATION OF

OCULOMOTOR NERVE
TROCHLEAR NERVE
ABDUCENT NERVE











INTRODUCTION

- Third fourth and sixth cranial nerves.
- They are mixed nerves.
- They control ocular movements so considered together.



Clinical Testing

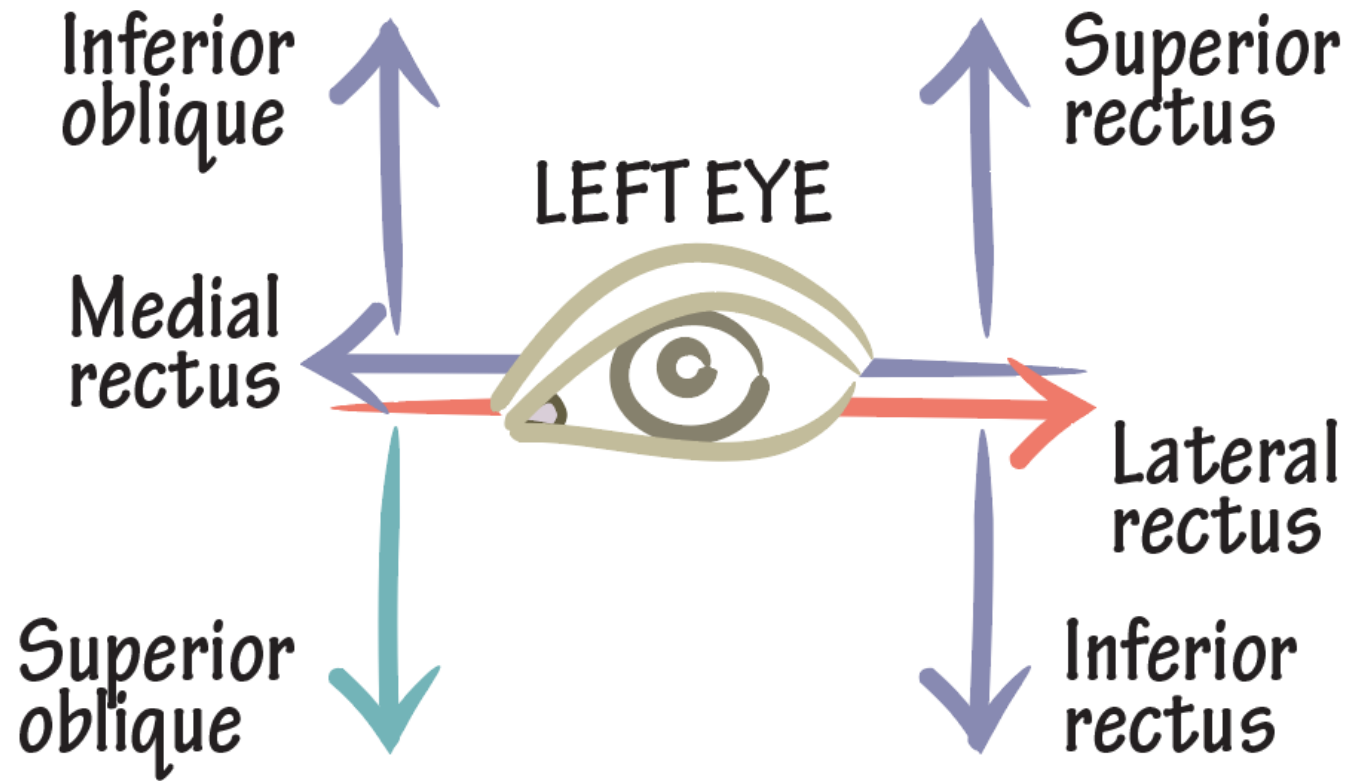
Muscle tested		Movement
SR		Looks laterally and upwards
IR		Looks laterally and downwards
LR		Looks laterally
MR		Looks medially
IO		Looks medially and upwards
SO		Looks medially and downwards

EXTRAOCULAR MUSCLES

- **4 Recti**
 - Superior rectus
 - Inferior rectus
 - Medial rectus
 - Lateral rectus
- **2 Oblique**
 - Superior oblique
 - Inferior oblique
- **1 Levator palpebrae superioris**

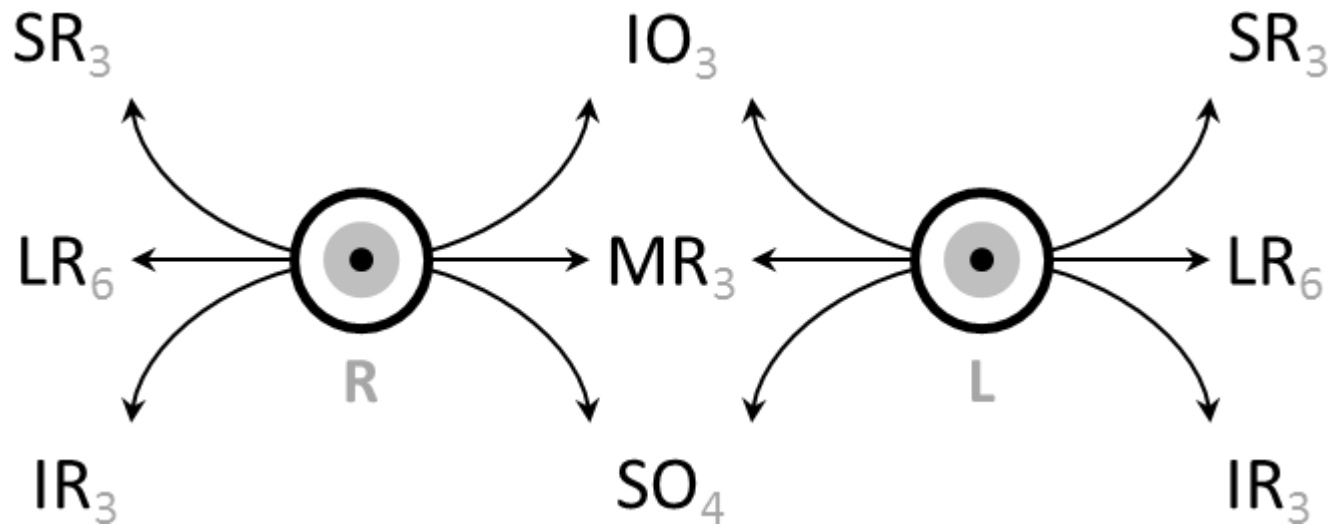


Six Cardinal Positions of Gaze



EXTRAOCULAR MUSCLES

- Abducent nerve innervates lateral rectus muscle. (LR6)
- Trochlear nerve innervates superior oblique muscle. (SO4)
- All other extraocular muscles and levator palpebrae superioris supplied by oculomotor nerve.



HOW TO TEST?

1. Look for ptosis

2. Squint

3. Nystagmus

4. Test for ocular movements

TEST FOR OCULAR MOVEMENTS

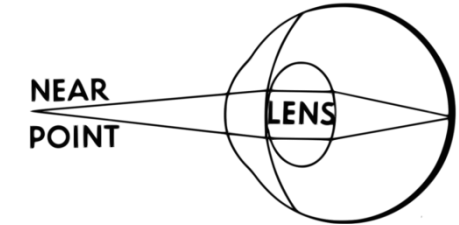
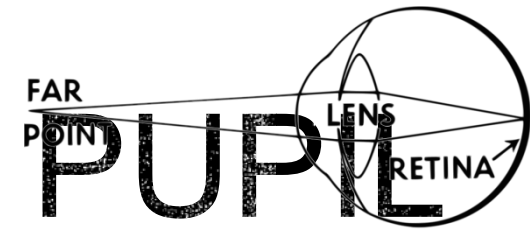
Ask the subject to follow the movements of examiner's finger with his eyes in superior, medial, inferior, lateral and oblique directions.

Stabilize the subject's chin to prevent head movement.

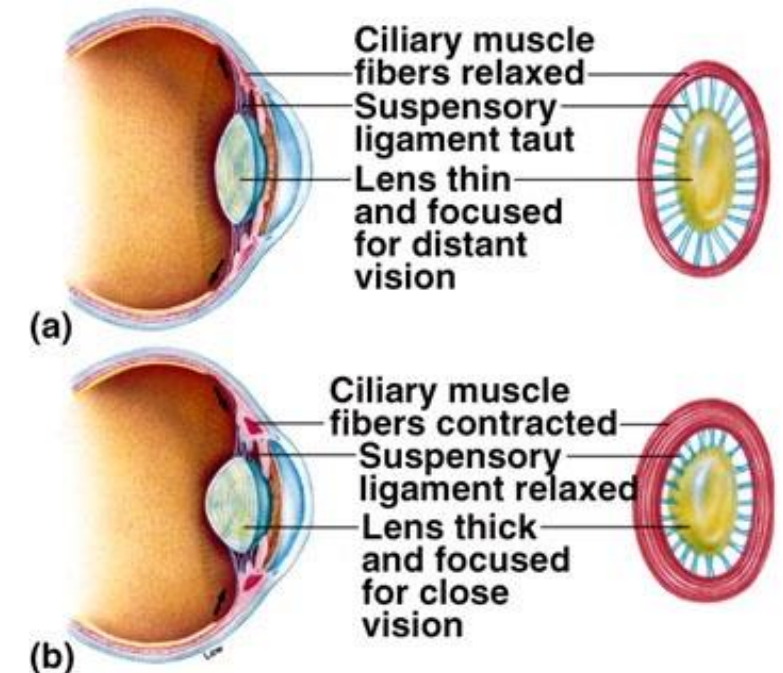
The examiner should observe that the movement of eye balls are smooth.

If the full movement occurs, it is indicative that the muscle's strength and nerve function is intact.

EXAMINATION OF THE PUPIL



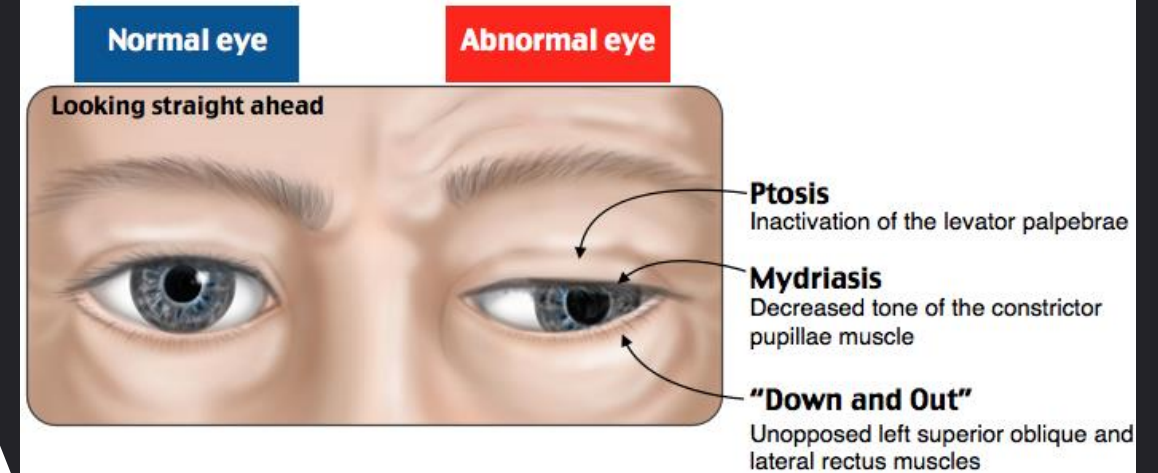
- **Size and shape** of pupils in both eyes
- **LIGHT REFLEX**, both direct and consensual
- **ACCOMODATION REFLEX** – ask the subject to look at a distant object and then at the tip of examiner’s finger
- When the eyes are focused from distant to near object, 3 reactions take place
 - constriction of pupils
 - convergence of eyeballs
 - thickening of lens due to contraction of ciliary muscles



OCULOMOTOR NERVE PALSYP

- characteristic **down and out position** in the affected eye
- Ptosis
- Mydriasis

Oculomotor Nerve (CNIII) Palsy



TROCHLEAR NERVE PALSY

- affected eye drifts upward

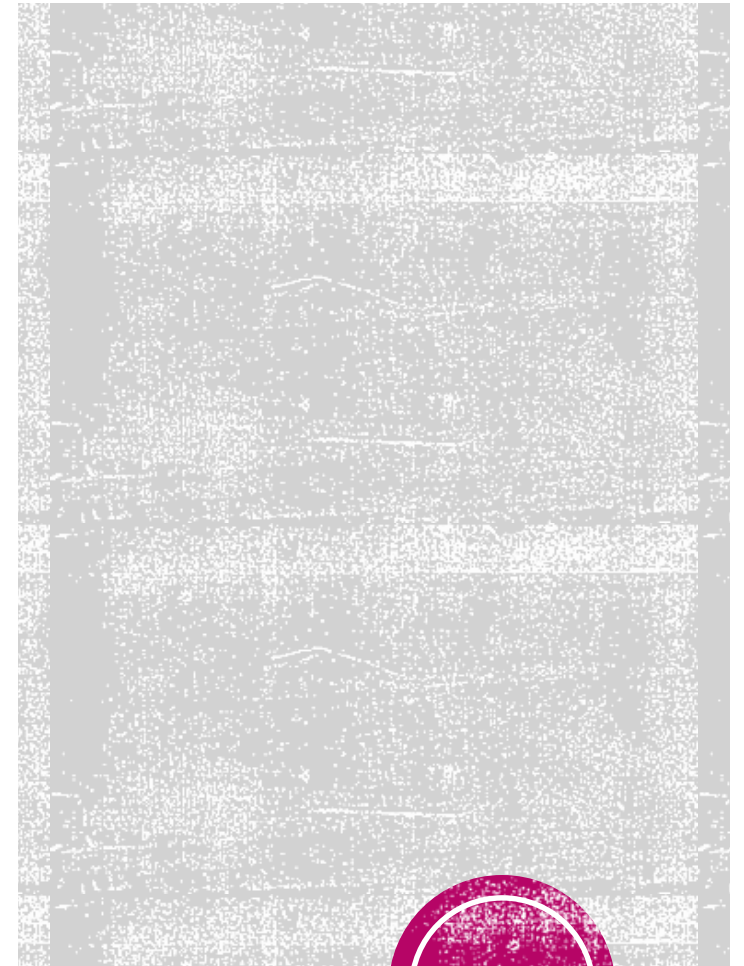


ABDUCCENT NERVE PALSY

- Affected eye unable to ABDUCT and is displaced MEDIALY in primary position of gaze (pulled in toward the nose because the medial rectus muscle works without opposition).

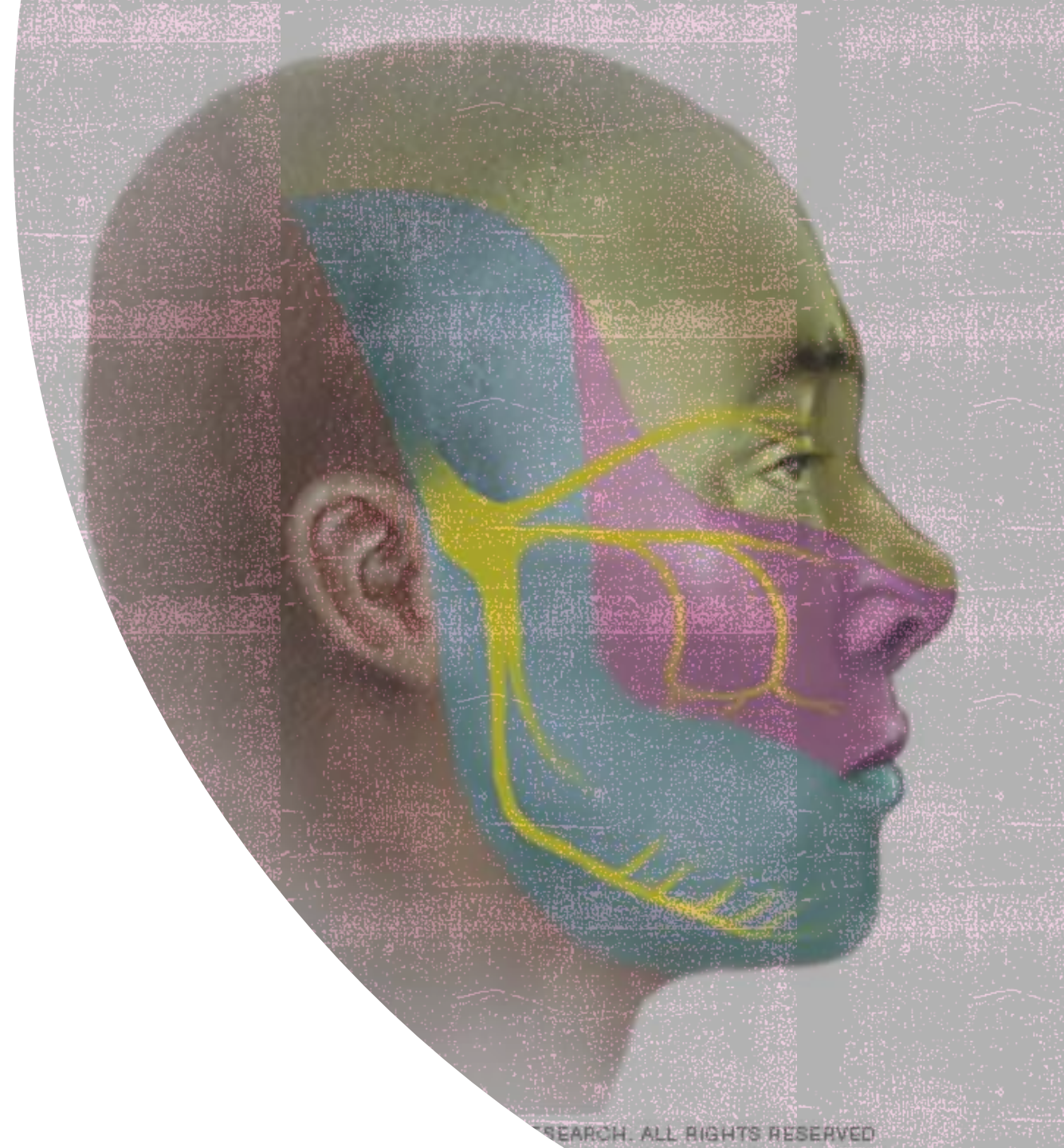


TO DEMONSTRATE
THE CLINICAL
TESTS FOR
EXAMINATION OF
TRIGEMINAL NERVE



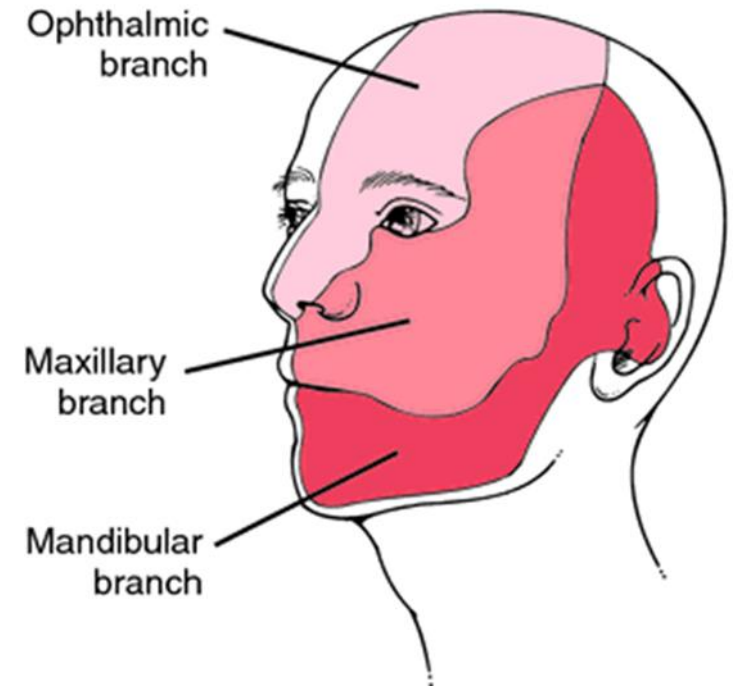
INTRODUCTION

- It is a mixed nerve.
- Originates from 3 **sensory nuclei** (**mesencephalic, principal sensory, spinal nucleus of trigeminal nerve**) and 1 **motor nucleus** (motor nucleus of trigeminal nerve) extending from **midbrain to medulla**
- At level of pons, sensory nuclei merge to form a **sensory root**.
- In **middle cranial fossa**, sensory root expands into **trigeminal ganglion**, then divides into 3 divisions.
 1. Ophthalmic
 2. Maxillary
 3. Mandibular
- Motor nucleus continues to form motor root, then fibres are passed only in mandibular branch



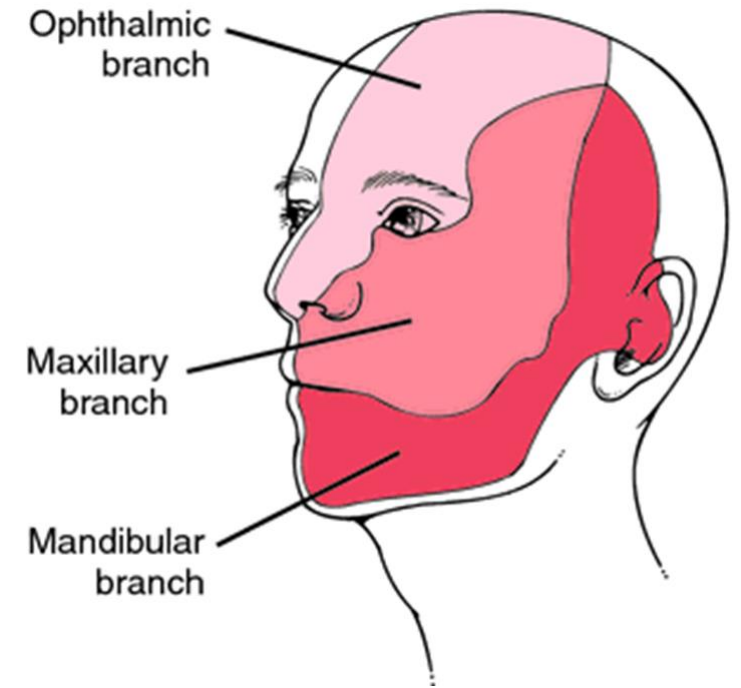
OPHTHALMIC DIVISION

- It supplies the
- skin of upper eyelids
- **cornea**
- medial part of nose as far as its tip
- forehead and scalp
- Frontal and ethmoid sinus



MAXILLARY DIVISION

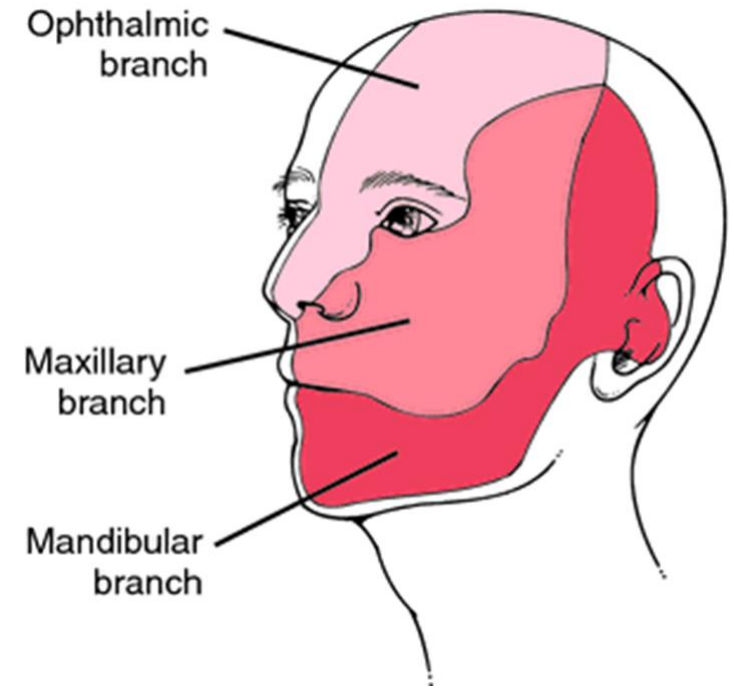
- It supplies the
- lower eyelid
- front of the temple, cheek, maxillary sinus
- sides of the nose, nasal cavity
- upper lip, upper teeth
- upper part of pharynx, roof of the mouth
- parts of soft palate and tonsils.



MANDIBULAR DIVISION

- It supplies
 - lower part of face, lower lip
 - Ear
 - **Anterior two third of tongue (only general sensation)**
 - Lower teeth and salivary glands
-
- Its motor root supplies **all the muscles of mastication except buccinator.**
 - Muscles of mastication: masseter, temporalis, medial and lateral pterygoid.

Also supply anterior belly of digastric, mylohyoid, tensor veli palatini, tensor tympani





TO TEST THE SENSORY FUNCTIONS

- Test for various sensations over the skin and mucus membrane supplied by this nerve
 1. Touch
 2. Pain
 3. Pressure
 4. Temperature
- The subject is asked to close his eyes then his side of the face on the **forehead, cheek and chin** is touched with a pointer and he is asked whether he can feel the sensation and he should tell whether the stimulus is sharp or dull.
- To test the temperature sense over the face, capped test tubes filled with warm and cold water are used.
- Also **test corneal reflex and touch sensation on ant . 2/3 of tongue.**



TO TEST THE MOTOR FUNCTIONS

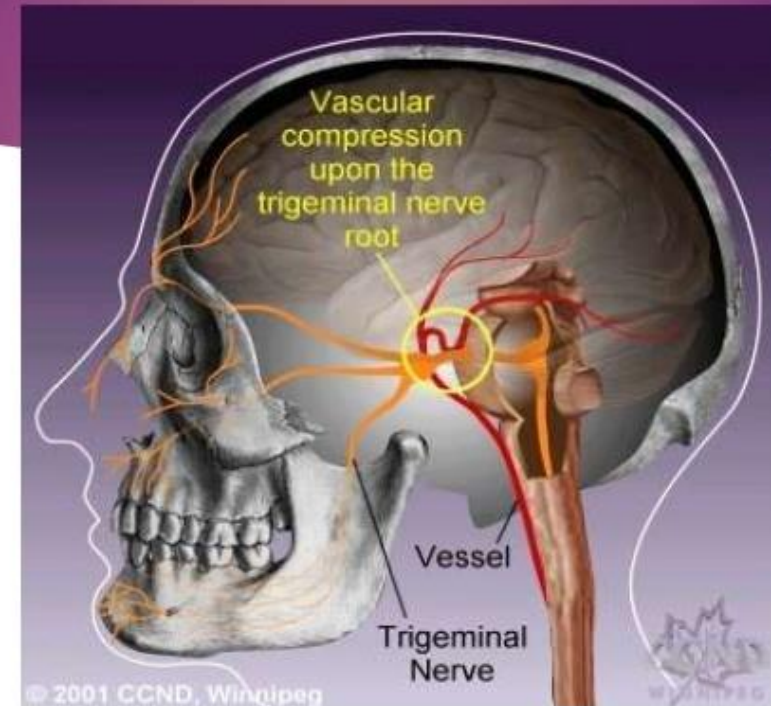
- **Inspect** the face of the subject.
- Look for any tremors or muscle atrophy.
- Ask the subject to **clench his teeth**, the **temporalis and masseter muscle stand out** with equal prominence on each side which can be confirmed on palpation.
- Ask the subject to **open the mouth against resistance**, checking for the **medial and lateral pterygoids**
- In case of paralysis **the jaw will deviate towards the paralyzed side** because of push by healthy **external pterygoid muscle** on the opposite side.
- Also check **jaw jerk reflex**.

TRIGEMINAL NEURALGIA

- Also called Tic Douloureux
- Chronic pain condition that affects the trigeminal nerve, which carries sensation from your face to your brain
- If you have trigeminal neuralgia, even mild stimulation of your face — such as from brushing your teeth or putting on makeup, chewing or talking — may trigger a jolt of excruciating pain
- Although the exact cause of trigeminal neuralgia is not fully understood, a blood vessel is often found compressing the nerve.

Vascular compression of V nerve

16



4-May-16



▪ MEDIAL RECTUS MUSCLE IS INNERVATED BY WHICH NERVE

1. ABDUCENT NERVE
2. OCULOMOTOR NERVE



▪ MEDIAL RECTUS MUSCLE IS INNERVATED BY WHICH NERVE

1. ABDUCENT NERVE

2. OCULOMOTOR NERVE (CORRECT)



- EAR AND LOWER LIP IS SUPPLIED BY
 1. MANDIBULAR BRANCH OF TRIGEMINAL NERVE
 2. MAXILLARY BRANCH OF TRIGEMINAL NERVE



- EAR AND LOWER LIP IS SUPPLIED BY
 1. MANDIBULAR BRANCH OF TRIGEMINAL NERVE (CORRECT)
 2. MAXILLARY BRANCH OF TRIGEMINAL NERVE

