

# Scalp and Face / part 1

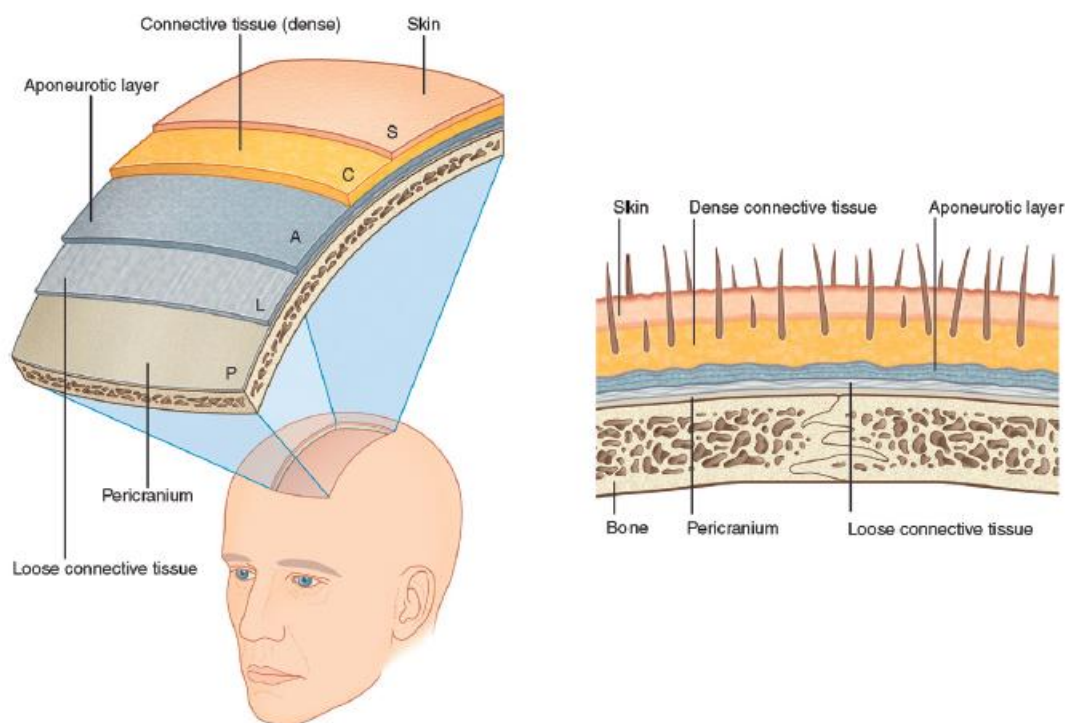
---

## The Scalp

- The scalp extends from the superciliary arches (anteriorly) to the external occipital protuberance and superior nuchal lines (posteriorly) and down to the ears and zygomatic arches (laterally).
- The forehead, from eyebrows to hairline is common to the face and scalp.
- The scalp consists of five layers; the first letter of each layer together spell SCALP, making recall easier. The first three layers are bound together and move as a unit. **The five layers of scalp are:**
  - **Skin:** the skin of the scalp is the thickest in the body; also it is the hairiest part of the body and contains a high concentration of sebaceous glands.
  - **Connective tissue** beneath the skin: is a dense fibrofatty layer containing fibrous septa that unite the skin to the underlying epicranial aponeurosis. This layer contains numerous blood vessels. The arteries are derived from both the external and internal carotid arteries.
  - **Aponeurosis (epicranial aponeurosis, Galea aponeurotica):** is a thin, tendinous sheet that unites the occipital and frontal bellies of the occipitofrontalis muscle. Laterally the aponeurosis blends with the temporoparietal fascia (superficial temporal fascia).
  - **Loose areolar tissue (subgaleal layer):** This layer loosely connects the epicranial aponeurosis to the periosteum of the skull (the pericranium). This is

the plane of movement of the scalp, that is, when the scalp moves, the first three layers (SCA) slide along this layer relative to the underlying periosteum.

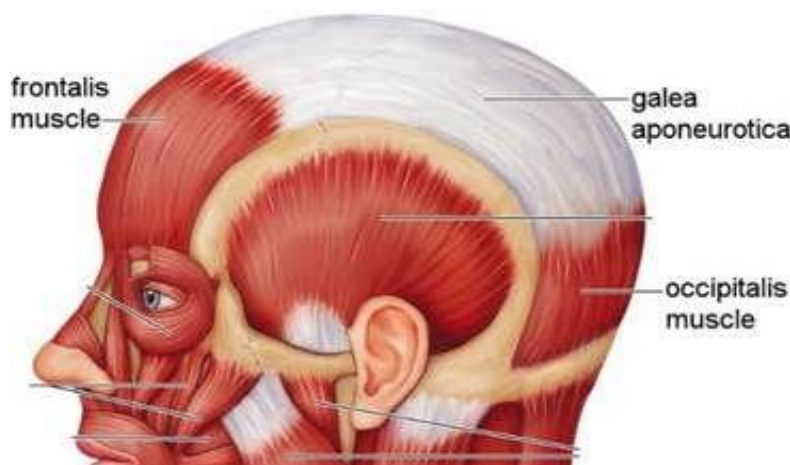
- **Pericranium:** The pericranium is the periosteum covering the outer surface of the skull bones. The pericranium is continuous with the periosteum on the inner surface of the skull bones (endosteum) at the sutures between the individual skull bones.



## Muscles of the Scalp

The occipitofrontalis (epicranium) is the sole skeletal muscle in the scalp. The muscle consists of paired frontal and occipital bellies connected by the epicranial aponeurosis. This muscle is responsible for movement of the scalp.

	Origin	Insertion	Nerve supply	Action
<b>Occipital belly</b>	Highest nuchal line of occipital bone	Epicranial Aponeurosis	Facial Nerve	Move the scalp and raises the eye brow
<b>Frontal belly</b>	Skin and superficial fascia of the eye brow			



## The Face

- ✓ The area bordered by the hairline (or where it should be) superiorly, anterior border of the auricles laterally and the inferior border of the chin inferiorly.
- ✓ The face is critical for individual identity, facial expression is a highly evolved means of non vocal communication.
- ✓ The skin of the face possesses numerous sweat and sebaceous glands.
- ✓ It is connected to the underlying bones by loose connective tissue, in which are embedded the muscles of facial expression.
- ✓ The layer of muscles in the face is known as Superficial Muscular Apneurotic Sytem (SMAS) layer.
- ✓ There is no deep fascia in the face.

- ✓ Wrinkle lines of the face result from the repeated folding of the skin perpendicular to the long axis of the underlying contracting muscles, coupled with the loss of youthful skin elasticity.

## Sensory Nerve Supply of the Scalp

The main trunks of the sensory nerves lie in the dense connective tissue layer (the “C” layer) of the scalp. The nerves are arranged in two main groups:

- (1) branches of the trigeminal nerve located anterior to the ear.
- (2) branches of cervical spinal nerves located posterior to the ear.

Moving laterally from the midline; the following nerves are present:

### Trigeminal branches:

- |  |   |                                    |
|--|---|------------------------------------|
| <ol style="list-style-type: none"> <li>I. Supratrochlear nerve:</li> <li>II. Supraorbital nerve:</li> <li>III. Zygomaticotemporal nerve:</li> <li>IV. Auriculotemporal nerve:</li> </ol> | } | will be discussed later in details |
|--|---|------------------------------------|

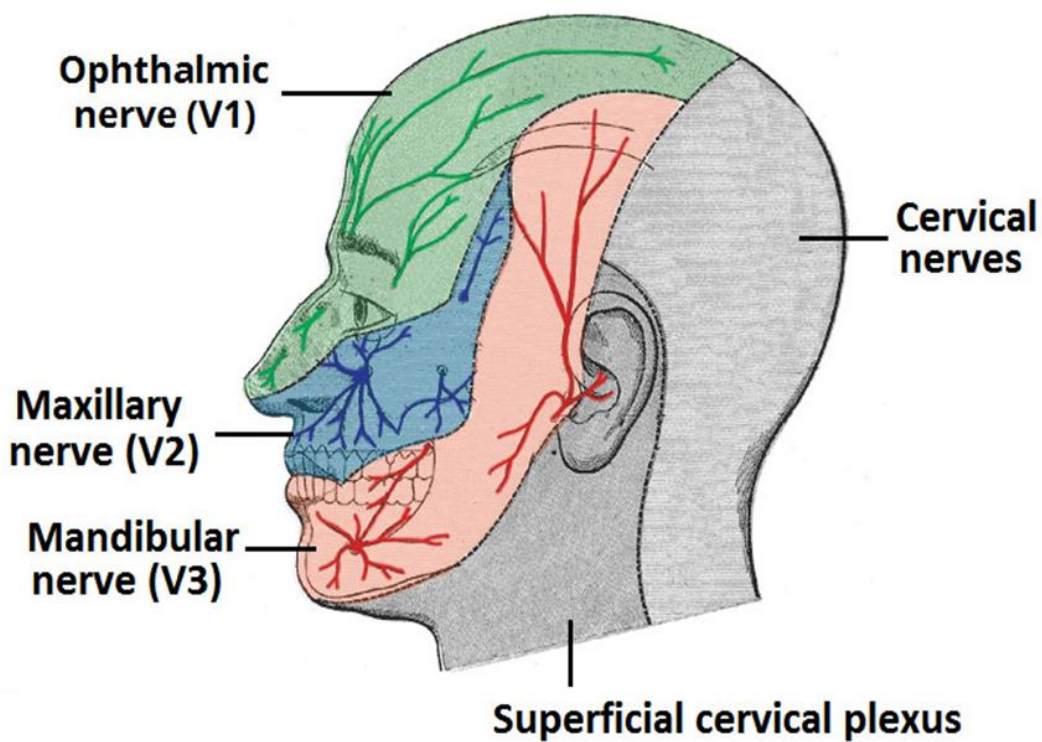
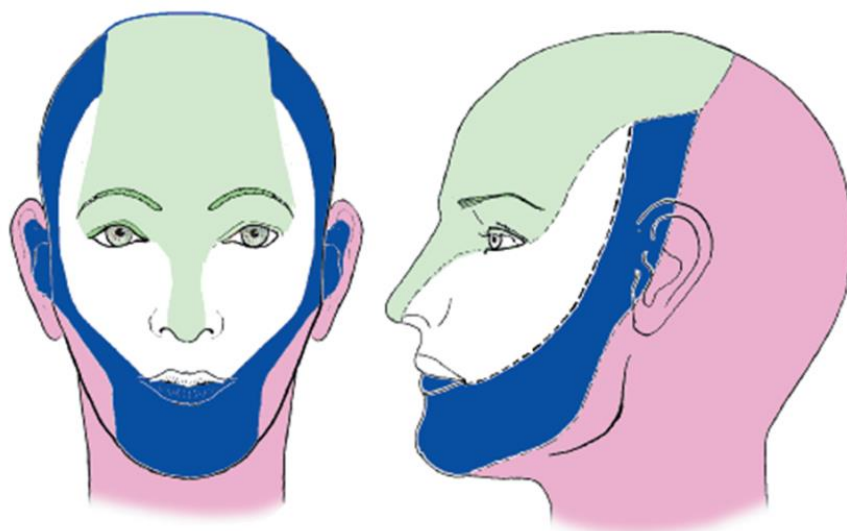
### Cervical spinal nerve branches:

#### 1. Lesser occipital nerve (C2):

Is a branch of the cervical plexus (ventral rami of the first 4 cervical nerves), it ascends along the posterior edge of the sternocleidomastoid muscle and supplies the scalp over the lateral part of the occipital region and the skin over the medial surface of the auricle.

#### 2. Greater occipital nerve:

Is a branch of the posterior ramus of the second cervical nerve, ascends over the back of the scalp and supplies the skin as far forward as the vertex of the skull.



## Sensory Nerve Supply of the Face

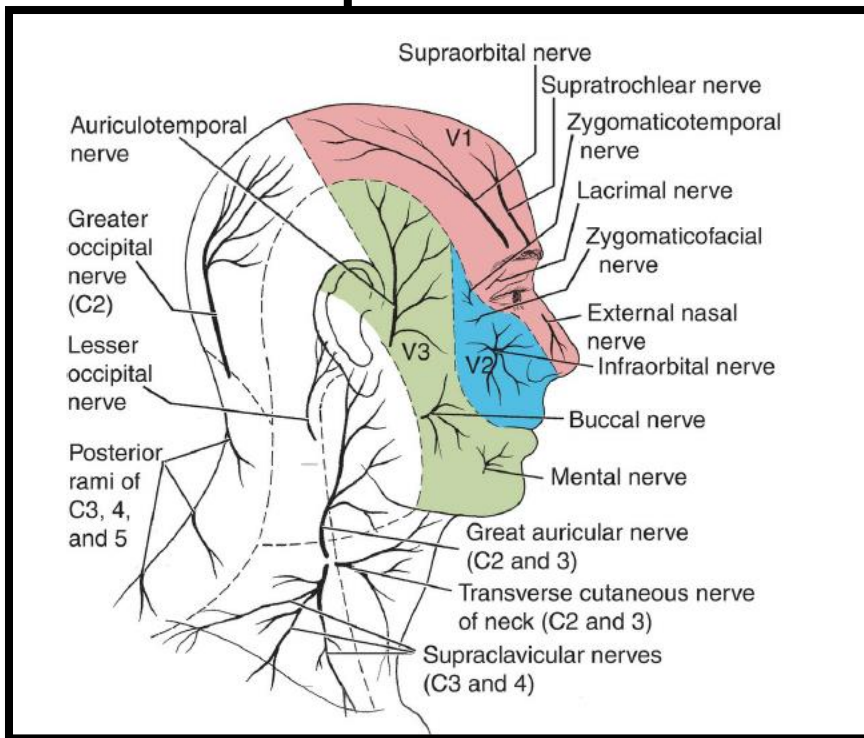
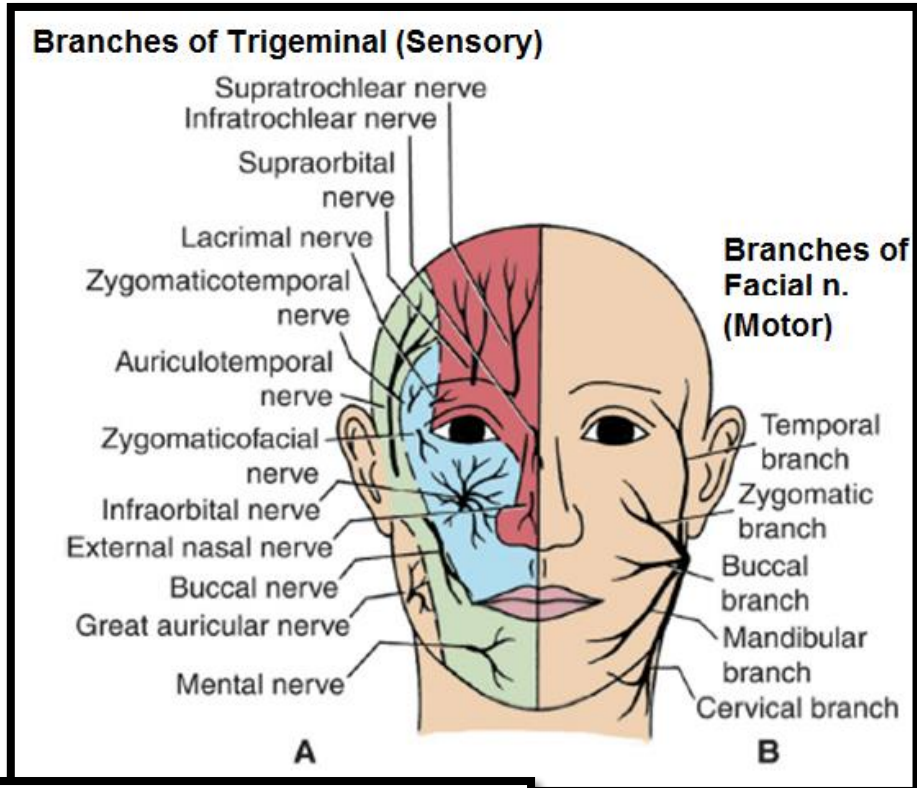
The skin of the face is supplied by branches of the three divisions of the trigeminal nerve, except for the small area over the angle of the mandible and the parotid gland; which is supplied by the **Great Auricular Nerve** (branch of the cervical plexus C<sub>2</sub>,C<sub>3</sub>).

### I. **Ophthalmic Nerve (V<sub>1</sub>)**

The main branches are *Frontal, lacrimal* and *Nasociliary* nerves, and they divide into **five terminal cutaneous branches**:

- a. The **supratrochlear nerve (branch of frontal nerve)**: winds around the upper margin of the orbit medial to the supraorbital nerve. It supplies the skin and conjunctiva on the medial part of the upper eyelid and the skin over the lower part of the forehead, close to the median plane.
- b. The **supraorbital nerve (branch of frontal nerve)**: emerges from of the supraorbital notch/ foramen. It divides into branches that supply the skin and conjunctiva on the central part of the upper eyelid and the skin of the forehead as far as to the vertex. It passes lateral to the supratrochlear nerve and extends more posteriorly.
- c. The **infratrochlear nerve (branch of nasociliary)**: It supplies the skin and conjunctiva on the medial part of the upper eyelid and the adjoining part of the side of the nose.
- d. The **external nasal nerve (branch of nasociliary)**: It supplies the skin on the side of the nose down as far as the tip.
- e. The **lacrimal nerve** supplies the skin and conjunctiva of the lateral part of the upper eyelid.





## II. Maxillary Nerve (V<sub>2</sub>)

The maxillary nerve branches supply the skin on the lower eyelid, posterior part of the side of the nose, cheek, upper lip, and the lateral side of the orbit.

- 1) **Infraorbital nerve:** is a direct continuation of the maxillary nerve. It enters the face through the infraorbital foramen. It immediately divides into numerous small branches, which radiate out from the foramen and supply the skin of the lower eyelid and cheek, the side of the nose, and the upper lip.
- 2) **Zygomaticofacial nerve:** It passes onto the face through a small foramen on the lateral side of the zygomatic bone. It supplies the skin over the prominence of the cheek.
- 3) **Zygomaticotemporal nerve:** emerges in the temporal fossa through a small foramen on the posterior surface of the zygomatic bone. It supplies the skin over the temple.

## III. Mandibular Nerve (V<sub>3</sub>)

The mandibular nerve branches supply the skin of the lower part of the face (including the lower lip), part of the auricle and the temporal region (scalp).

- A. The **Mental nerve** emerges from the mental foramen of the mandible and supplies the skin of the lower lip and chin.
- B. The **Long buccal nerve** emerges from beneath the anterior border of the masseter muscle and supplies the skin over a small area of the cheek.
- C. The **Auriculotemporal nerve** ascends from the upper part of the parotid gland, over the side of the head in front of the auricle. Its terminal branches supply the TMJ, skin over the temporal region and part of the auricle.

**This is the End of the Lecture – Good Luck**