# * Facial Bones *

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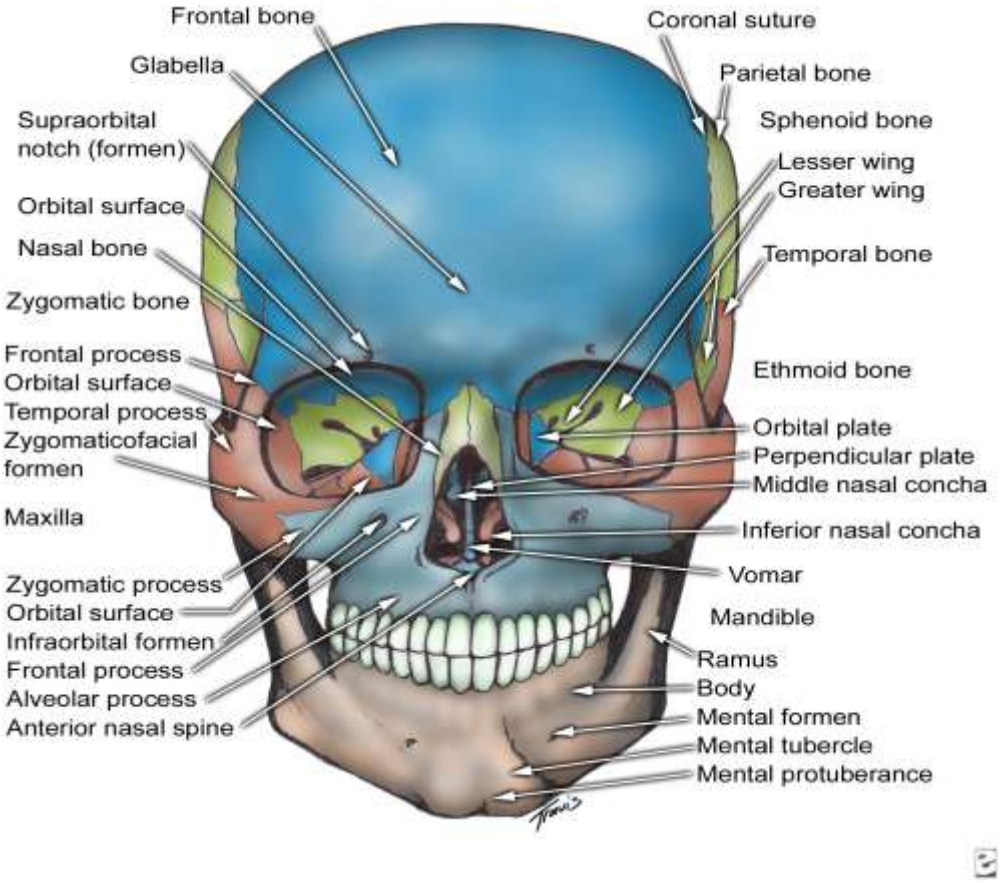
L1

Facial bone anatomy is complex to serve a multitude of functions. The anatomy of the face and head is significant for understanding the behaviors, functions, and appearances of the face and head.

The skull is additionally comprised of fourteen bones which make up the face. The **facial bones** do not touch the brain but are still considered part of the skull. Some cranial bones meet with the facial bones to give each individual a varying form, the frame work from which the face is then built upon. Additionally, facial bones provide an anchor for the teeth and provide a structure for the muscles of the face and jaw to attach. All bones of the face are structured in pairs, except the mandible and the vomer.

The facial skeleton serves to protect the brain; house and protect the sense organs of smell, sight, and taste; and provide a frame on which the soft tissues of the face can act to facilitate eating, facial expression, breathing, and speech. The primary bones of the face are the mandible, maxilla, frontal bone, nasal bones, and zygoma.



- **The Nasal Bones:**

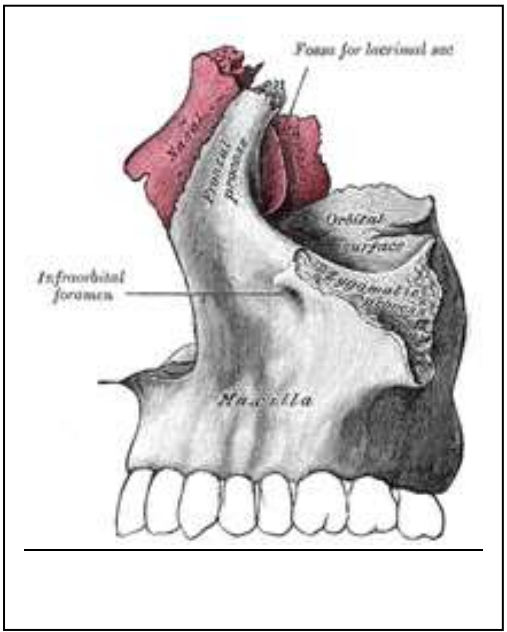
The paired nasal bones form the anterosuperior bony roof of the nasal cavity. They are approximately quadrangular. They articulate with the nasal process of the frontal bone superiorly, the frontal process of the maxillary bone laterally, and with one another medially. Their inferior border is free and forms the superior margin of the piriform aperture. The external surface is convex except for the superior-most portion, where a concavity forms as the margin turns superiorly to articulate with the frontal bone.

The nasal bones simply support the plates of cartilage which form the nose. Fractures to the nose are often fractures of the cartilage as it is very difficult to experience impact that would break the nasal bones.

The **nasal bones** are two small oblong bones, varying in size and form in different individuals; they are placed side by side at the middle and upper part of the face, and form, by their junction, "the bridge" of the nose . Each has two surfaces and four borders.

Surfaces:—The **outer surface** is concavoconvex from above downward, convex from side to side; it is covered by the Procerus and Compressor naris, and perforated about its center by a foramen, for the transmission of a small vein. The **inner surface** is concave from side to side, and is traversed from above downward, by a groove for the passage of a branch of the nasociliary nerve.

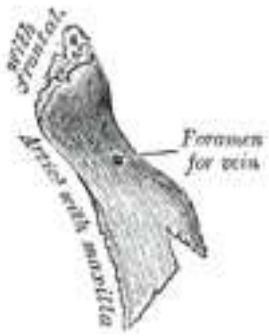
Borders:—The **superior border** is narrow, thick, and serrated for articulation with the nasal notch of the frontal bone. The **inferior border** is thin, and gives attachment to the lateral cartilage of the nose; near its middle is a notch which marks the end of the groove just referred to. The **lateral border** is serrated, bevelled at the expense of the inner surface above, and of the outer below, to articulate with the frontal process of the maxilla. The **medial border,** thicker above than below, articulates with its fellow of the opposite side, and is prolonged behind into a vertical crest, which forms part of the nasal septum.




* Articulation of nasal & lacrimal bones with maxilla.

Articulations:—The nasal articulates with four bones: two of the cranium, the frontal and ethmoid, and two of the face, the opposite nasal and the maxilla


* Right nasal bone. Inner surface




* Right nasal bone. Outer surface

- **The Lacrimal Bones:**

The lacrimal bones are thin bones that form the anterior portion of the medial walls of the individual orbits. These bones serve as structural additions for the eye sockets. The tiniest of all the facial bones, each individual lacrimal bone contains a groove that assists in forming the nasolacrimal canal. This groove is known as lacrimal sulcus. The nasolacrimal canal is the passageway in the facial bones which allows the tears from the eye to drain into the nasal cavity.

The **lacrimal bone,** the smallest and most fragile bone of the face. It has two surfaces and four borders.

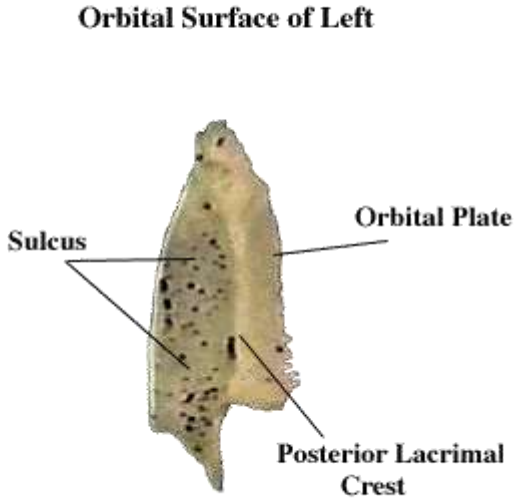
**Surfaces.**—The **lateral** or **orbital surface** is divided by a vertical ridge, the **posterior lacrimal crest,** into two parts. In front of this crest is a longitudinal groove, the **lacrimal sulcus**, the inner margin of which unites with the frontal process of the maxilla, and the lacrimal fossa is thus completed. The upper part of this fossa lodges the lacrimal sac, the lower part, the naso-lacrimal duct. The portion behind the crest is smooth, and forms part of the medial wall of the orbit. The crest, with a part of the orbital surface immediately behind it, gives origin to the lacrimal part of the Orbicularis oculi muscle and ends below in a small, hook-like projection, the **lacrimal**

**hamulus,** which articulates with the lacrimal tubercle of the maxilla, and completes the upper orifice of the lacrimal canal.

The **medial** or **nasal surface** presents a longitudinal furrow, corresponding to the crest on the lateral surface. The area in front of this furrow forms part of the middle meatus of the nose; that behind it articulates with the ethmoid, and completes some of the anterior ethmoidal cells.

**Borders.**—Of the *four borders* the **anterior** articulates with the frontal process of the maxilla; the **posterior** with the lamina papyracea of the ethmoid; the **superior** with the frontal bone. The **inferior** is divided by the lower edge of the posterior lacrimal crest into two parts: the posterior part articulates with the orbital plate of the maxilla; the anterior is prolonged downward as the **descending process,** which articulates with the lacrimal process of the inferior nasal concha, and assists in forming the canal for the nasolacrimal duct.

**Articulations.**—The lacrimal articulates with *four* bones: two of the cranium, the frontal and ethmoid, and two of the face, the maxilla and the inferior nasal concha.




Left lacrimal bone.
Orbital surface

- **The Inferior Nasal Concha:**

The fragile bones in the shape of a scroll that reside in the lateral walls of the nasal cavity are covered in mucous membranes in order to help warm and moisten the oxygen inhaled through the nostrils. The inferior nasal choncha are similar to the other

concha, but are smaller and project horizontally and medially from the walls of the nasal cavity. They protrude below both the superior and middle nasal conchae of which belong to the ethmoid bone. All three sets of concha bones cleanse the air as it enters the nasal cavity.

The **inferior nasal concha** extends horizontally along the lateral wall of the nasal cavity and consists of a lamina of spongy bone, curled upon itself like a scroll. It has two surfaces, two borders, and two extremities.

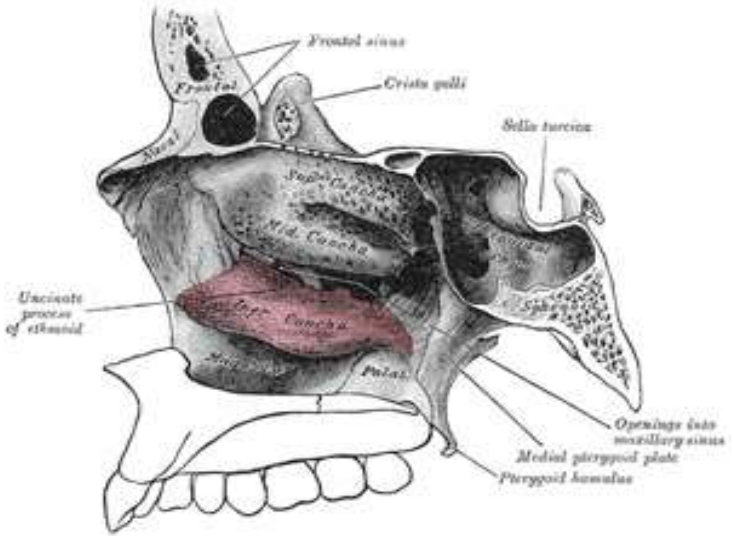
The **medial surface** is convex, perforated by numerous apertures, and traversed by longitudinal grooves for the lodgement of vessels. The **lateral surface** is concave and forms part of the inferior meatus.

Its **upper border** is thin, irregular, and connected to various bones along the lateral wall of the nasal cavity. the middle portion presents three well-marked processes, which vary much in their size and form. Of these, the anterior or **lacrimal process** is small and pointed it articulates, by its apex, with the descending process of the lacrimal bone, and, by its margins, with the groove on the back of the frontal process of the maxilla, and thus assists in forming the canal for the nasolacrimal duct. Behind this process a broad, thin plate, the **ethmoidal process,** ascends to join the uncinate process of the ethmoid; from its lower border a thin lamina, the **maxillary process,** curves downward and lateralward; it articulates with the maxilla and forms a part of the medial wall of the maxillary sinus.

The **inferior border** is free, thick, and cellular in structure, more especially in the middle of the bone.

Both **extremities** are more or less pointed, the posterior being the more tapering.

**Articulations.**—The inferior nasal concha articulates with *four* bones: the ethmoid, maxilla, lacrimal, and palatine.




Right inferior nasal concha.
Medial surface


Right inferior nasal concha.
Lateral surface