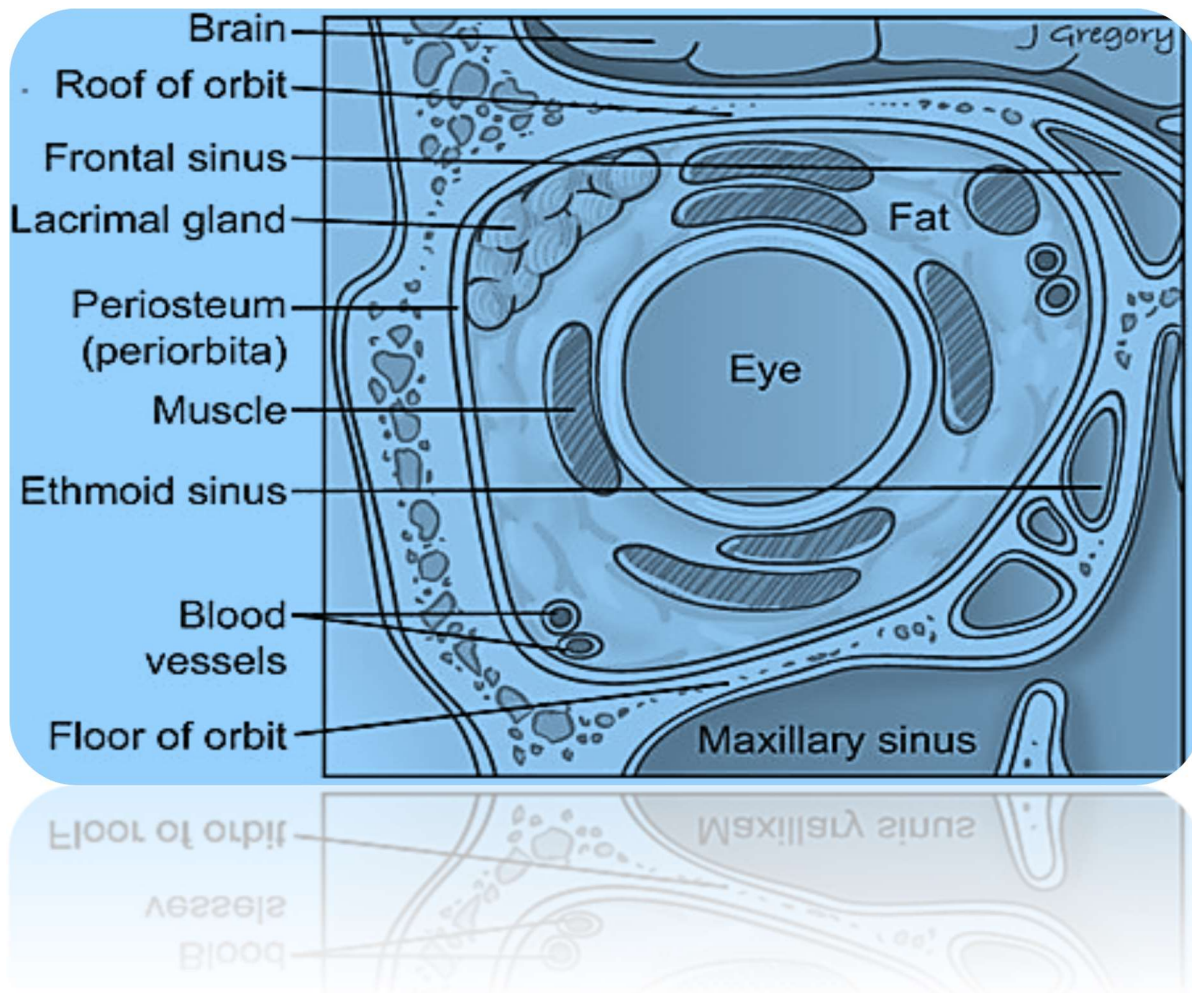


2. ORBITAL CONTENTS



OVERVIEW:

The volume of the orbit is 30ml. The eyeball occupies only 20% of the orbital volume. The rest is occupied by other structures. Orbital Contents are the structures that fill the space in the bony orbit. They include; the eyeball, fat, connective tissues, extrinsic muscles, lacrimal apparatus, and nerves and vessels which supply these structures.

Connective tissues: periorbita, tenon's capsule, orbital septum

Orbital fat: 4 compartments, cushions the eyeball.

Extraocular muscles, Vessels, Nerves: discussed in different sections.

CONNECTIVE TISSUES OF THE ORBIT

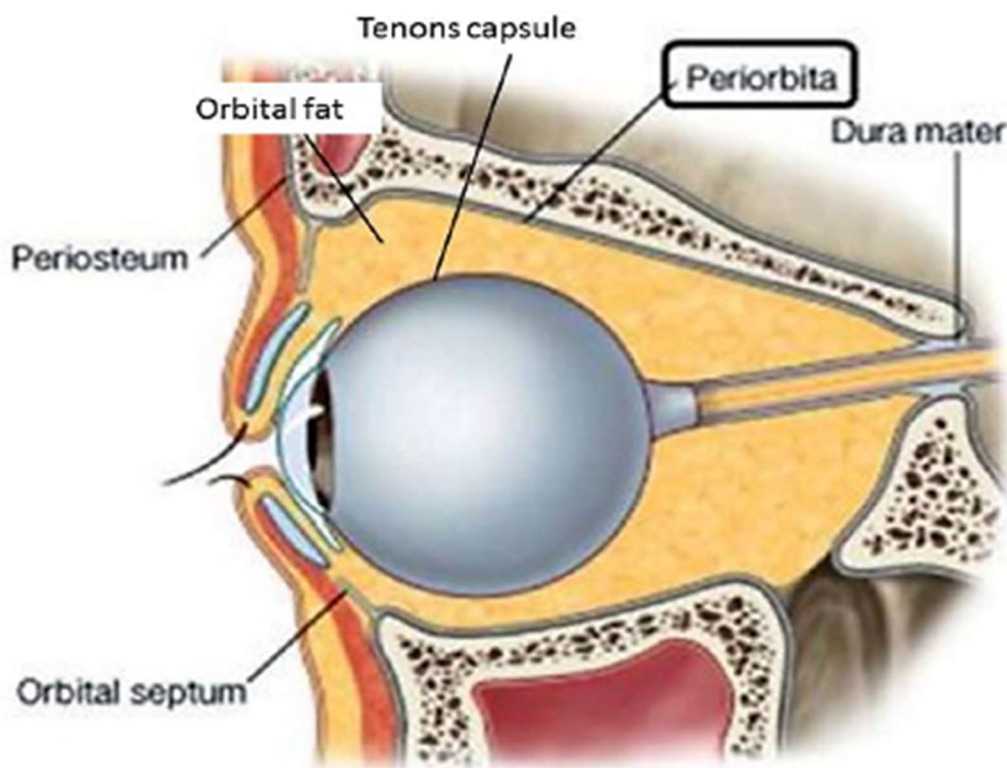
The connective tissue of the orbit is arranged in a network that serves to line, cover, and compartmentalize orbital structures; to anchor soft tissue structures to bone; and to compartmentalize areas.

1. Periorbita

The periorbita, also called the orbital periosteum or orbital fascia, covers the bones of the orbit. This dense connective tissue membrane serves as:

- a. An attachment site for muscles, tendons, and ligaments
- b. A support structure for the blood supply to the orbital bones.

The periorbita is attached only loosely to the underlying bone except at the orbital margins, the sutures, and the edges of fissures and foramina. At the orbital margins it is continuous with the periosteal covering of the bones of the face; at the edges of the superior orbital fissure, the optic canal, and the ethmoid canals, the periorbita is continuous with the periosteal layer of the dura mater.



2. Orbital Septum

At the orbital margins the periorbita is continuous with a connective tissue sheet known as the orbital septum, also termed the palpebral fascia or septum orbitale.

This dense connective tissue sheet is circular and runs from the entire rim of the orbit to the tarsal plates, which are embedded in the eyelids.

This strong barrier helps prevent facial infections from entering the orbit; it also maintains orbital fat in its place.

At the lateral margin the orbital septum lies in front of the lateral palpebral ligament and the check ligament for the lateral rectus muscle.

At the superior orbital margin, the orbital septum passes in front of the trochlea and bridges the supraorbital and supratrochlear notches.

At the medial margin the orbital septum, which attaches behind the posterior lacrimal crest, lies in front of the check ligament for the medial rectus muscle; it lies behind the medial palpebral ligament, Horner's muscle, and the lacrimal.

3. Tenon's Capsule

Tenon's capsule is a sheet of dense connective tissue that encases the globe.

Tenon's capsule has a smooth inner surface, pierced by vessels and nerves, and fuses with the sheath of the optic nerve and with the sclera.

It lies between the conjunctiva and the episclera and merges with them anteriorly in the limbal area. Posteriorly, it emerges with the dual sheath of the optic nerve.

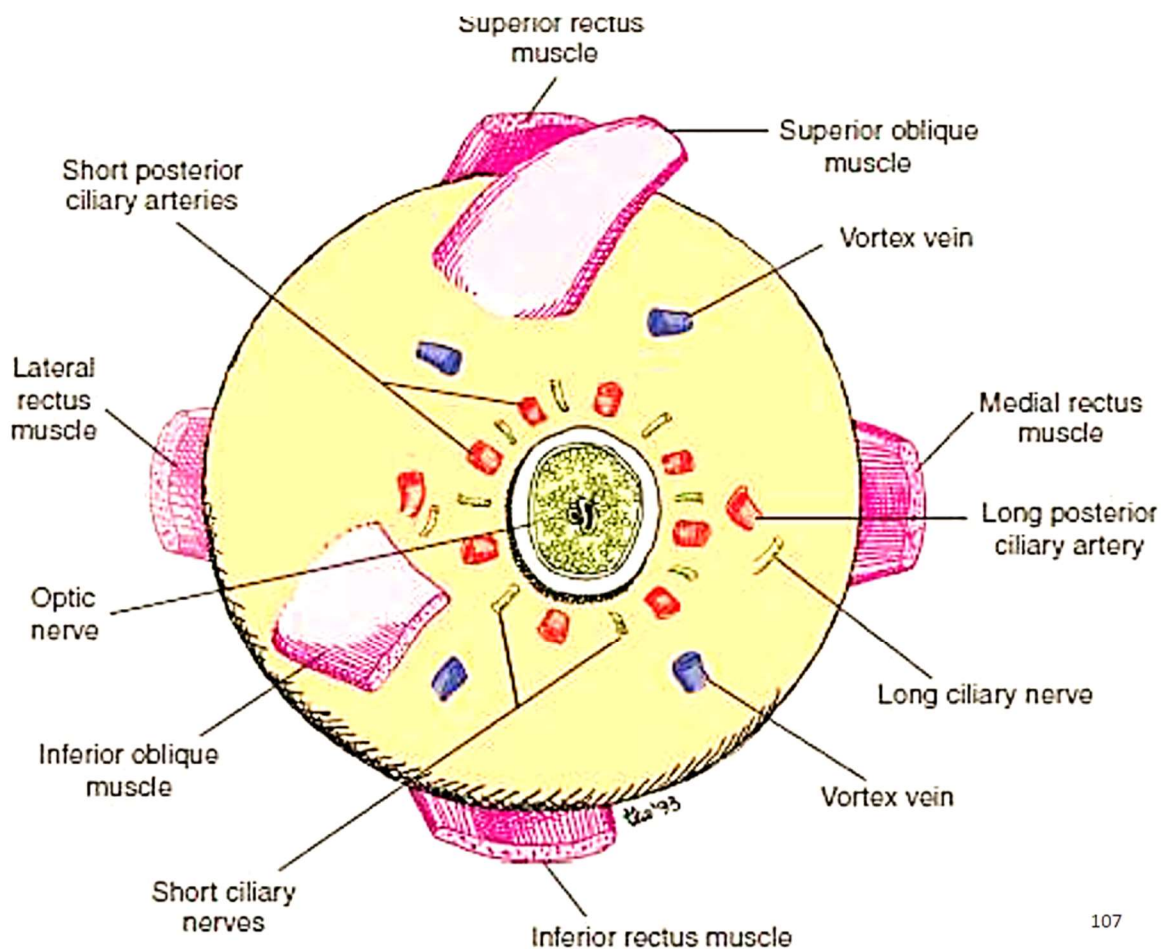
Function: It acts as a barrier to prevent the spread of orbital infections into the globe

Piercings & Openings of The Tenon's Capsule

These are structures that pierce and enter the globe;

1. Optic nerve
2. Vortex veins
3. Ciliary nerves
4. Extraocular muscles

Mnemonic: OVEC



NB: Tenon's capsule, or fascia bulbi, extends anteriorly from the dural sheath to encircle the globe and fuse with the conjunctiva just behind the limbus. Posteriorly it separates orbital fat from the globe and muscles.

Thickenings & Support of the Tenon's Capsule

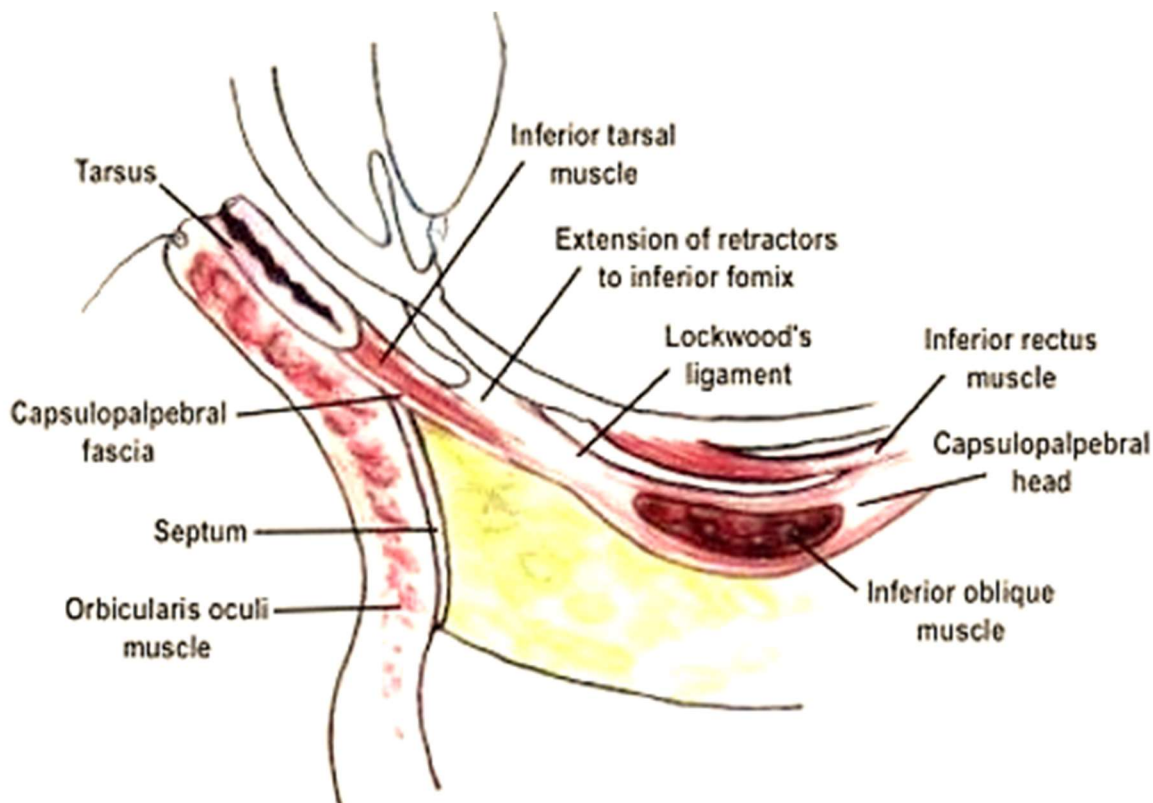
1. Check Ligament; attaches it to the orbital wall medially and laterally.
2. Suspensory ligament of Lockwood: supports it at the inferior side.
3. Actions of the medial and lateral recti muscles.

NB: The capsule is thickest at the inferior side and this increases support of the eyeball by forming "hammock-like" suspensory ligament of Lockwood.

4. Suspensory Ligament of Lockwood

It is a hammocklike sheet of dense connective tissue that runs from its attachment on the lacrimal bone at the medial orbital wall to the zygomatic bone at the lateral wall.

The suspensory ligament helps to support the globe, particularly in the absence of the bones of the orbital floor.

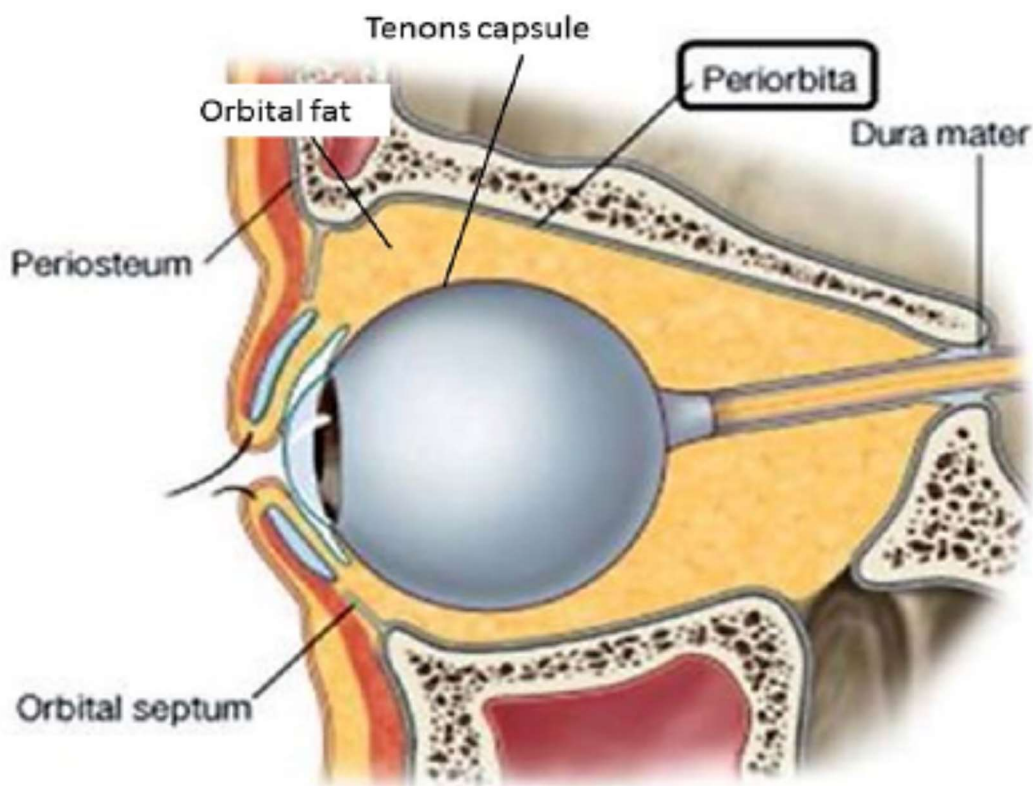


5. Orbital Fat

Four adipose tissue compartments fill the empty spaces not occupied by any structure.

Function: Orbital fat provides cushioned support for the globe and other intraocular structures.

Eyelid fat pads are the anterior projections of the orbital fat. Changes in orbital fat appear to have a significant role in the development of thyroid-associated orbitopathy (TAO). Orbital fat and extraocular muscle volume expansion may result in soft tissue swelling, proptosis, lid retraction (with characteristic temporal flare), strabismus (usually due to muscle fibrosis), and compressive optic neuropathy.



6. Orbital Muscle of Muller

A small smooth muscle embedded in the periorbita and covering part of the inferior orbital fissure.

Function: It's function in humans is unknown.

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