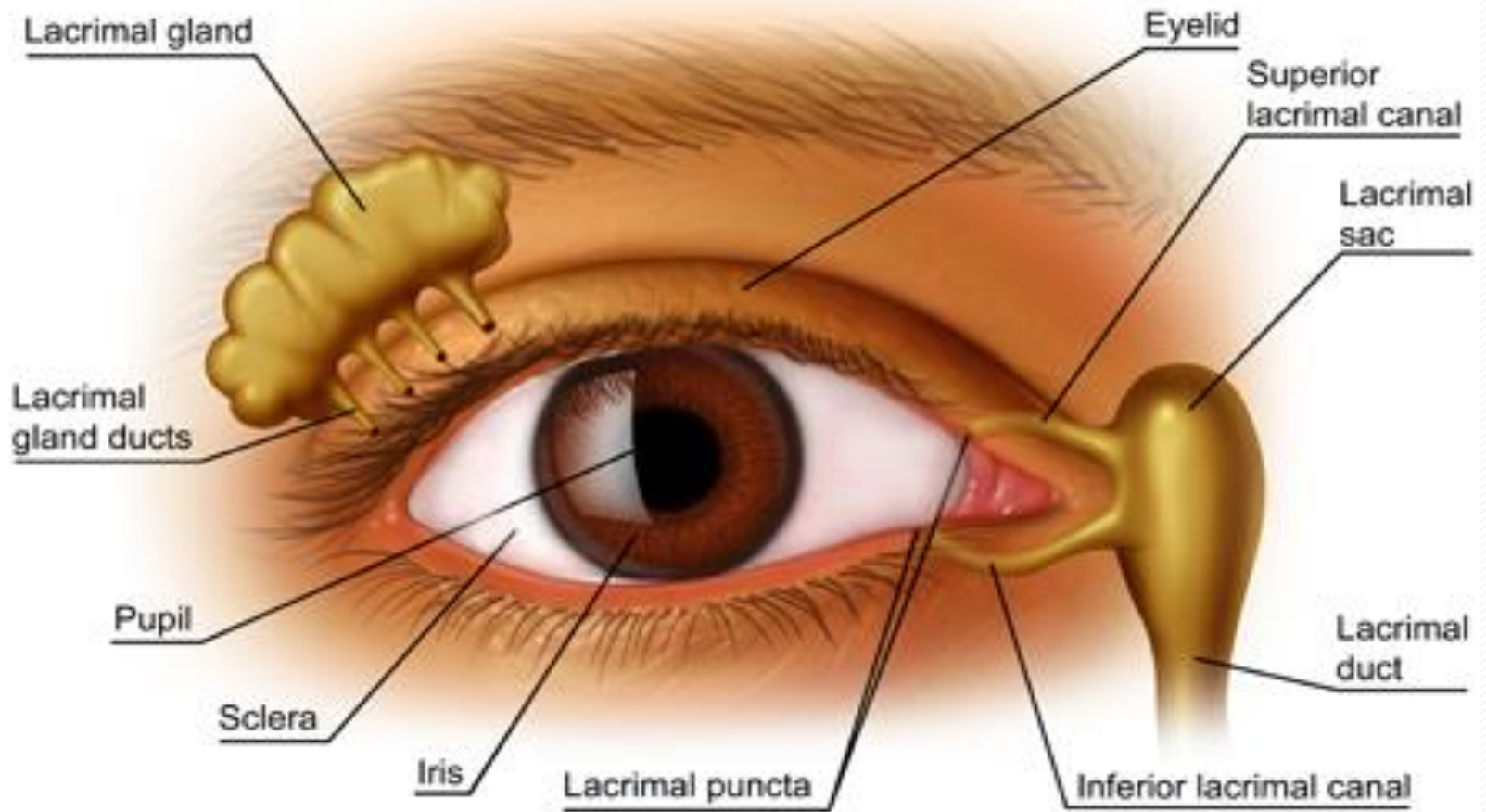




Tears



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Functions

- Keeps the epithelium moist, thereby protecting the outer covering of the eye from damage due to dryness.
- Creates a smooth optical surface on the front of the cornea.
- Acts as the main supplier of oxygen & other nutrients to the cornea.
- Carries waste products from the cornea.
- Provide enzymes that destroy bacteria that can harm the eye.
- Improves the quality of retinal image by smoothing out irregularities of the cellular surfaces.

Composition of Tears

3 layers of Tear film

- **Lipid Layer :** Oil secreted from Meibomian Gland (line the edge of eye lids) coats the aqueous layer and prevent evaporation.
- **Aqueous layer:** Watery fluid include Water and other substances such as proteins (e.g. tear lipocalin, lactoferrin, lysozyme and lacritin) secreted from Lacrimal Gland- protects the cornea from infection by hydrolyzing the mucopeptide of the polysaccharide cell walls of many microorganisms.

- **Mucous layer** : Mucin comes from goblet cells in the conjunctiva coats the cornea- provides a hydrophilic layer- distribution of the tear film- covers the cornea

Types of Tears

Basal tears:

lubricate the eye at all times. These tears contain natural antibiotics to fight infection.

Reflex (irritant) tears:

They lubricate the eye, and help to keep it clear of dust.

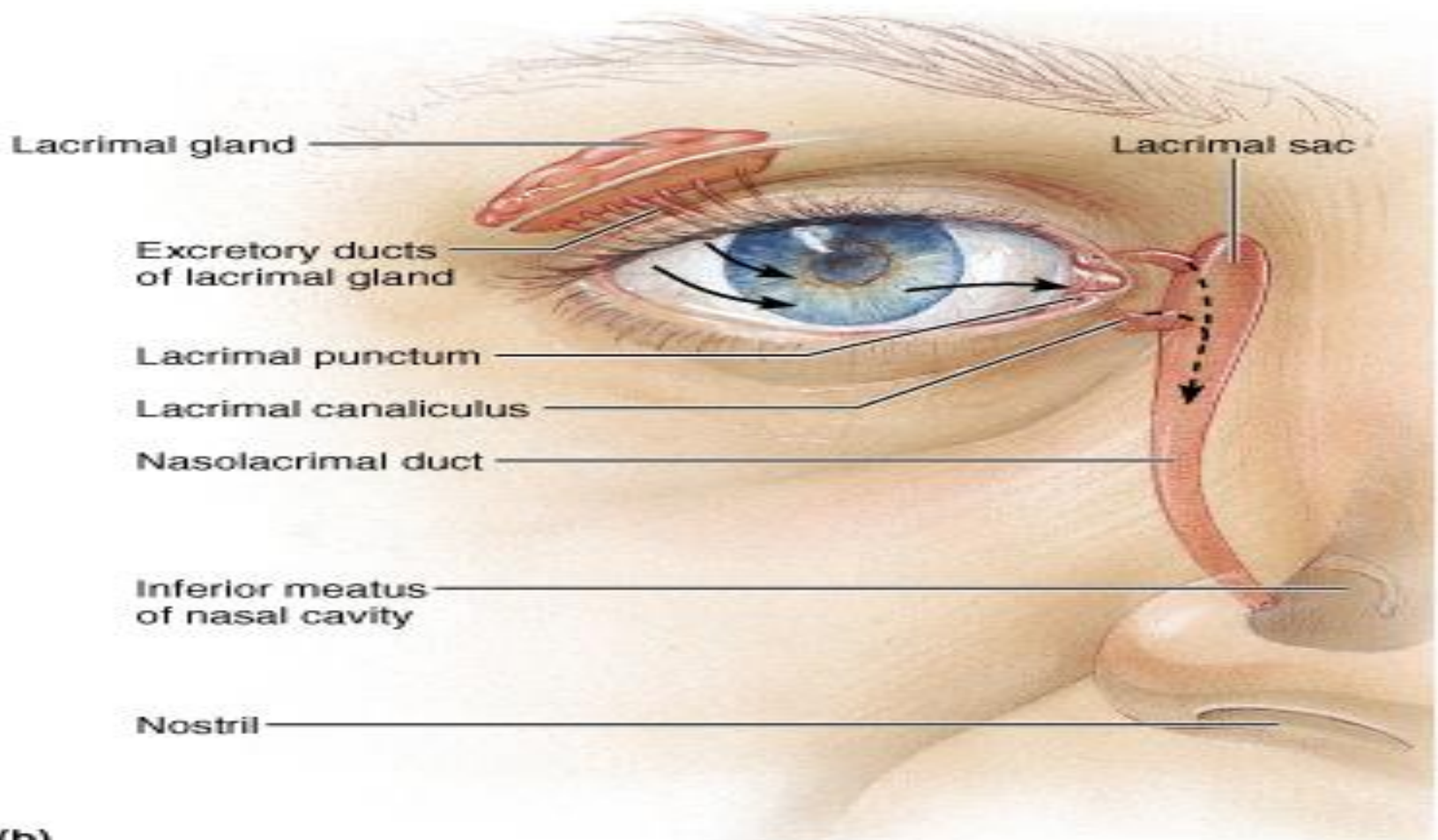
Both basal and irritant tears have the same goal: protecting the eyes

Emotional tears:

Secreted in moments of intense feeling – sometimes joy, but more often sorrow. They contain stress hormones as a way of getting rid of them. This may be one reason that crying is therapeutic when we're under a lot of stress.

How do tears drain from the eye?

Tear Drainage system



(b)

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- Tears are produced by glands around the eye and are washed across the eye toward the nose.
- They drain from the eye through two small openings called the upper and lower **puncta**, which are located at the inside corner of the upper and lower eyelids near the nose.
- The tears then move through a passage called the **canaliculus** and into the **lacrimal sac**.
- From the sac, the tears then drop down the tear duct, called the **nasolacrimal** duct, and drain into the back of the nose and throat

Diseases related to Tears:

- **Dry Eye syndrome:**

A chronic lack of sufficient lubrication and moisture on the surface of the eye which generally means decreased quality or quantity of tears.

- **Allergies:**

Itchy, red, swollen, tearing eyes may mean eye allergies

- **Blepharitis:**

Inflammation of the eyelids can cause chronic eye irritation, tearing, foreign body sensation and crusty debris.

- **Bells Palsy:**

Sudden paralysis of one side of the face. Because of inability to blink, you may develop severe dry eye and may be leads to shed tears while eating.

- **Familial dysautonomia:**

An inherited disorder of the nervous system that affects the development and survival of autonomic and some sensory neurons which can be associated with a lack of overflow tears (alacria) during emotional crying.

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مع تمنياتي بالتوفيق والنجاح