

## Basics of Anatomy and Physiology of Cornea

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### Abstract

This paper describes about basic details on anatomy and physiology of cornea.

**Keywords:** Anatomy; Physiology; Cornea

### Introduction

Cornea is a transparent, avascular, aspheric structure of the eyeball. It is centrally steep and peripherally flat. It consists of 1/6<sup>th</sup> of the fibrous coat of the eyeball. Some amount of vascularization is present at the peripheral part of the cornea.

Corneal curvature plays an important role for the refraction. Always it is remembered that above the cornea, tear film plays an important role for refraction during contact lens fitting.

Cornea is centrally thin (0.52 mm) compared to periphery (0.67 mm). Central portion of the cornea (5 mm) is responsible for the refractive zone. Anterior radius of curvature is 7.8 mm and posterior radius of curvature is 6.5 mm.

For the refraction, cornea is responsible for 3/4<sup>th</sup> of the eyeball. It means:

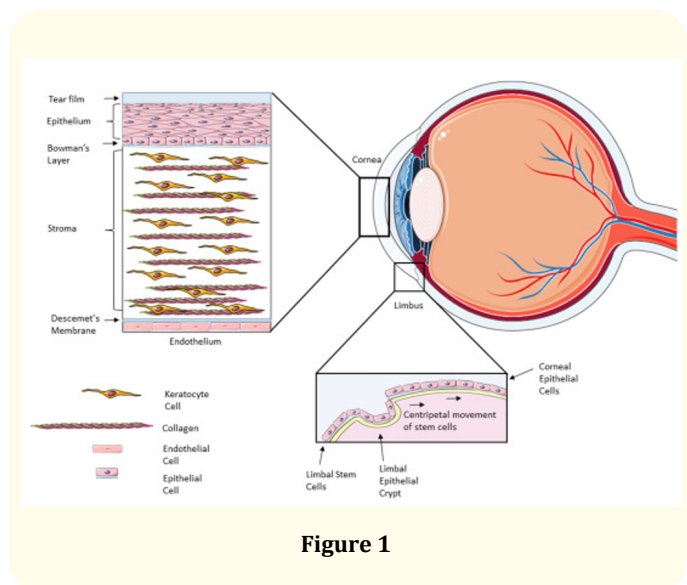
$$C = (60 \times 3/4) = 45.00 \text{ D.}$$

Refractive index of cornea is 1.37.

### Layers of cornea:

- Epithelium
- Bowman's membrane

- Stroma
- Descemet's membrane



**Figure 1**

### Epithelium

It is the super most layer of the cornea. It is a regenerative layer. Epithelium is about 50 to 60  $\mu\text{m}$  thick and it consist of three layers:

1. Squamous cell layer
2. Wing cell layer
3. Basal cell layer:

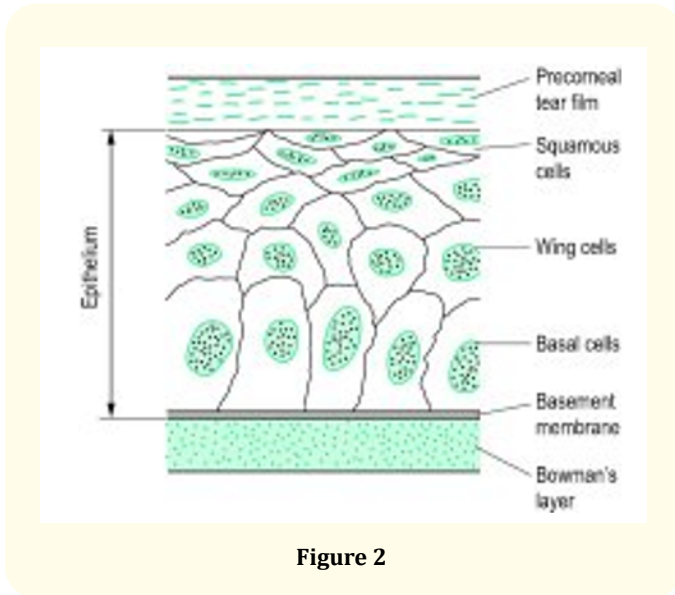


Figure 2

**Bowman's membrane**

It consists of acellular mass. If it is damaged then it does not regenerate. It shows considerable resistance from injury.

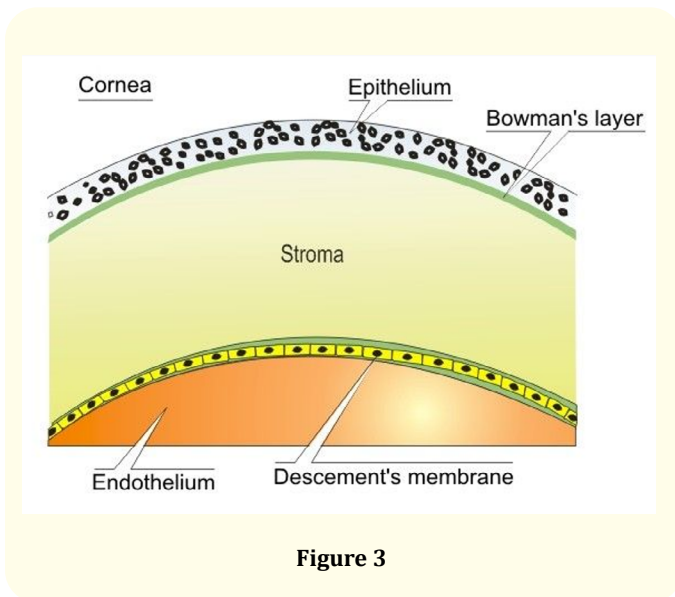


Figure 3

**Stroma**

It is the thickest layer of the cornea. It is usually 0.5 mm thick. It consists of collagen fibrils and it consist of 200 - 300 layers.

**Descemet's membrane**

It is a homogenous layer and bound to stroma posteriorly. Its thickness increases with age. It is made up of collagen and glyco-protein, no elastic materials are present. It is strongly resistance to trauma, foreign body etc. It can regenerate after damage.

**Endothelium**

It consists of single cell layer. Each cell is Hexagonal in shape. As age increases the number of cells decreases. These cells once damaged will not regenerate [1-3].

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