TWOP News

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Source: American Optometry Association

The World of optometry

OPTICS OF THE EYE

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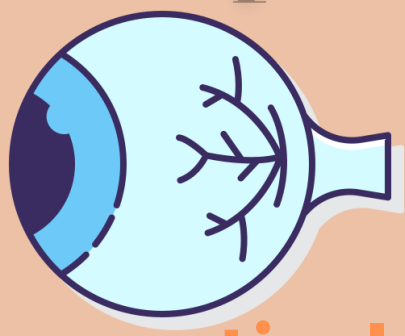

About your eyes:

- In a relaxed state, the eye has an optical power of approximately 60 diopters (D), a focal length of 16.7mm in air.

- The power of the cornea is about 40D or 2/3rd of the total power.

- The cornea is a highly transparent structure that allows light that is above 95% in the spectral range of 400-900nm to be transmitted through the structure.

- This is mainly due to the orderly arrangement of collagen fibrils in the cornea.

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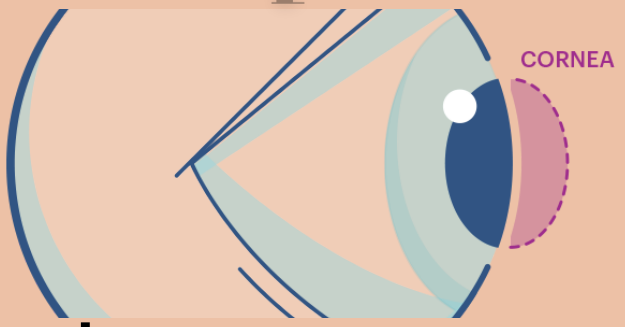

- The refractive index of the cornea is n≈1.3765±0.0005.

- The **pupil** size which varies from 1.5mm and 8mm can be regulated by the volume of light reaching the retina.

- The **anterior chamber** of the eye is filled with a clear liquid that has an approximate refractive index of n≈1.3335.

- This structure is located between the cornea and the lens capsule.

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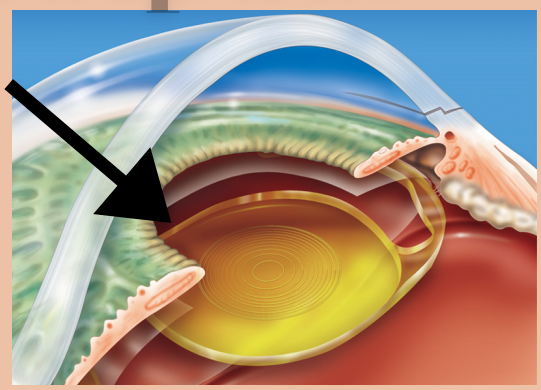

- Next is the **crystalline lens** which is situated behind the **iris** and is made up of specialized crystalline proteins that constitute a refractive index of n=1.40-1.42.

- This lens is approximately 4mm thick and 10mm in diameter attached in a tough, relatively thin of 5-15mm, transparent collagenous capsule.

- When the eye is relaxed the lens, power is 20D however when fully accommodated, the lens can expand and its power increasing. to 33D.

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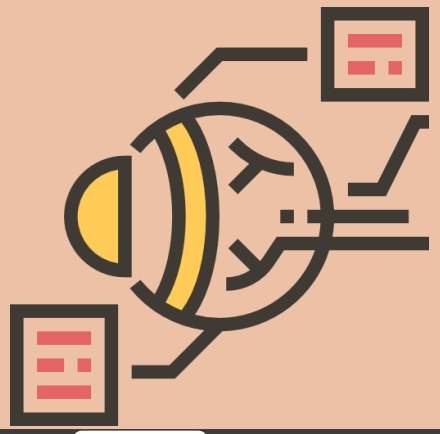
About your eyes:

- Situated after the lens is the **vitreous humor** which is also a clear or transparent fluid that has a viscosity of gel-like and a refractive index of n≈1.335.

- This jelly-like substance fills up the large cavity posterior to the lens and anterior to the **retina**.

- The **retina** is a thin layer of tissue that lines the back of the eye on the inside. It is located near the optic nerve.



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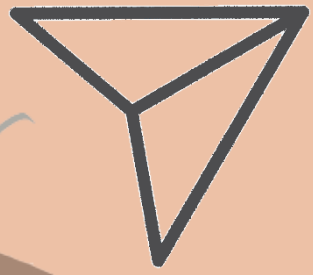

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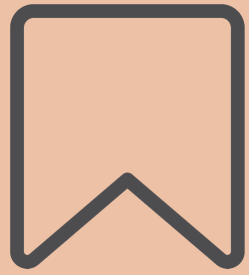

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