

How The Eye Works - 1 hour

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Course Description:

This course will explore the anatomy of the eye and how they relate to vision and eye disease. Having a basic understanding of the eye allows eye care professionals to be more confident in educating patients and offering solutions for best visual acuity and overall eye health.

Course Objectives: Upon completion of this course attendees should be able to:

- 1) Define the functions of various parts of the eye
- 2) Describe how certain parts of the eye can affect vision
- 3) Define some eye conditions and their affect on long term vision and health

Timed Outline:

Introduction - 5 minutes

The eye is an amazing thing, and knowing how it functions will help all eye care professionals be more confident in educating patients and offering solutions

Surface Anatomy -5 minutes

Eyelids - protection from injury and excessive light

Spreads a film of tears

Meibomian glands

Lacrimal Glands

Conjunctiva - defends and repairs the cornea

Secretes mucus and oils

What is blephoplasty and what tests might be done

Tear Film - 5 minutes

Three layers

Outermost - lipid layer - extremely thin - meibomian glands

Middle - aqueous layer - lacrimal glands

Third - mucous layer lying over the surface of the conjunctiva and cornea

Dry eye issues - problems with meibomian glands, age, hormones, etc

Cornea - 5 minutes

Clear, transparent structure

Convex surface which acts as a powerful lens

Thicker at its periphery than at the center

Five layers - epithelium, Bowman's membrane, stroma, Descemet's membrane and the endothelium

Limbus - the junction of the cornea and sclera

Cornea has no blood vessels, and is completely nourished by three sources; a plexus of fine capillaries at the limbus, the tear film, and the aqueous humor

Sclera - 5 minutes

Sclera forms the posterior five-sixths of the eye's protective coat

Children's sclera is thin and may appear bluish

Older adults may have a more yellow sclera due to fat

Extraocular muscles attached to the sclera

Nerves and blood vessels pass through the sclera to the eye interior

Ocular muscles - six muscles

Strabismus

UVEA - 5 minutes

Consists of three structures

Iris – most anterior structure of the uveal tract

Center is the pupil

Has ridges and furrows on its anterior surface and contracts in response to bright light using the sphincter pupillae muscle

Young pupil vs old pupil

Ciliary body – ciliary muscles

Choroid – lies between the retina and sclera and is primarily a vascular structure

Provides nourishment for the outer layers of the retina

Angle Structure – 5 minutes

Aqueous humor leaves the eye by filtering through the crevices of the trabecular meshwork

Glaucoma – angles

Diabetic Retinopathy

Lens – 5 minutes

A transparent biconvex structure situated between the iris and the vitreous

Lens surrounded by a capsule

Grows harder with age, particularly in the center

Cataracts – what causes them

Vitreous – 5 minutes

Jelly-like structure that occupies the vitreous chamber in the posterior concavity of the globe

Surrounded mainly by the retina

Body of the vitreous contains fine collagen fibers which crisscross in a scaffolding manner

Hyaluronic acid acts as a shock absorber and can compress slowly and rebound slowly

Floaters

Retina - 5 minutes

Contains all the sensory receptors for the transmission of light and is part of the brain

Rods and cones

Fovea

Posterior layer of the retina (pigment epithelium) is firmly secured at the choroid

Retinal detachment

Optic Nerve - 5 minutes

Transmits visual impulses from the retina to the brain

The head of the optic nerve is called the optic disc

Conclusion - 5 minutes

Understanding how the eye works and how it can affect vision can give eye care professionals more credibility with patients