

OPTOTIPS send on OPTOKERALA till 10th June, 2009

Dynamic light scattering(DLS)is a new technique by which cataract can be detected using LASER, even before physically appearing on the lens

Orthokeratology is a method of correcting myopia by wearing a very flat contact lens with the intention of flattening the cornea.

Lutein is a potent antioxidant, found in fruits and green vegetables and one of the dominant pigments in the macula of the healthy retina

Snakes have a built in yellow filter in their eyes which protect them from ultraviolet rays.

Owls have large eyes for optimum night vision. They have 3 eyelids, upper for blinking, lower for sleeping & a nictating membrane.

The Bates Method is a controversial system of practices that are claimed to improve sight and reverse ocular disorders to normal.

There are 2 types of age related macular degeneration - Wet(less frequent, most MD related Vn loss) & Dry(frequent,loss of central Vision)

Qigong eye exercises are claimed to be effective against eye strain and tired eyes, astigmatism, double vision, even glaucoma.

Orthocology is a method of correcting myopia by wearing a slightly flat plain contactlens(developed by Canadian optometrist John William Yee

There are about 200000 cones in fovea, 6400000 cones & 125000000 rods in retina.

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Jose Ignacio (Spain) is the father of refractive surgery & the inventor of microkeratome & corneal microlathe. Keratometer was invented by the French Ophthalmologist Samuel Hankins in 1880.

Sir Harold Ridley is the first to successfully implant an artificial intraocular lens in 1949.

The signals of photosensitive ganglion cells in retina are not sent to the visual center, but to the suprachiasmatic nuclei retinohypothalamic tract & is used to resize the pupil.

Jules Gonin of Switzerland is considered the father of retinal detachment surgery.

Hermann Snellen (Netherlands) introduced the Snellen's chart in 1862.

Allvar Gullstard(Sweden) won the Nobel prize in 1911 for his research on the eye as a light-refracting apparatus. He calculated the optical constants of the eye

Marine mammals are monochromats,mammals except primates are dichromats,humans trichomatic,butterflies tetrachromatic& pigeons pentachromatic

Hjalmar August Schiøtz (Norway) invented the Schiøtz Tonometer in 1905. He is credited as being Norway's first professor of ophthalmology.

Diametric tonometer measures intraocular pressure through the eyelid (transpalpebral tonometry) & it requires no contact with the cornea.

Hermann von Helmholtz, invented the ophthalmoscope in 1851 & published works on physiological optics, including colour vision.

Frans Cornelis (Dutch) found the way of prescribing combinations of spherical & cylindrical lenses to treat astigmatism.

The term Orthoptics is derived from the Greek words 'ortho' meaning 'straight' and 'optikas' meaning 'vision'.

Jacques Daviel (France) is claimed to be the father of cataract surgery in that he performed extracapsular extraction instead of needling.

A structural defect in the eye or a lesion in the anterior visual cortex can cause uniocular diplopia or uniocular polyopia.

Marie Colinet used a magnet to extract a foreign body from the eye for the first time in 1627.

Crystalens is an accommodating IOL manufactured by Bausch & Lomb which accommodates in the same way as the normal crystalline lens.

The eyes turning red after swimming is due to the corneal tissue drawing water in through osmosis. This causes corneal edema & blurring.

Upper region involved in detecting the silhouettes of potential prey against the faint light of the sky above & lower part for normal vision

The hyperiid amphipods are deep water animals that feed on organisms above them. Their eyes are almost divided into two, with the (Continued)

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Apposition eyes are found in arthropods - works by gathering a number of images one from each eye and combining them in the brain.

Rotifers, copepods & platyhelminths have reflective eyes lined inside with tiny mirrors which reflect the image to a focus at the center.

Pontella's eyes have 3 lenses, Copilla's eyes have 2, which can be moved in and out as in a telescope.

Gastropods eyes have a lens with varying refractive index - greater at the center and decreases towards the edge - reducing spherical aberration.

The body of *Ophiocoma wendtii*, a type of brittle star, is covered with ommatidia, turning its whole skin into a compound eye.

In compound eyes light is focused by lens to 'rhabdom', while the surrounding dark wall of 'ommatidium' absorbs light from other directions.

The Pinhole eye found in Nautiloids is an advanced form of pit eye with a small pupil and no lens. Its resolving power is 11 degrees.

Pit Eyes are eye-spots found in 85% of phyla, which are set into a pit to reduce the angles of light entering the eye-spot.

The simplest eyes found in snails, called ocelli, cannot actually 'see' in normal sense. They have photosensitive cells, but no lens.

In ancient times eye's anatomy was considered as Sclera & cornea forming outer layer & a fluid as the visual media at the centre that flowed from the Eye to the brain via a tube.

Modern soft contact lenses were invented by the Czech chemist Otto Wichterle, who also invented the gel used for their production.

Arab scientists are the first to draw the anatomy of eye - the earliest being in Hunain ibn Ishaq's Book of the Ten Treatises on the Eye.

The first wearable spectacles were invented by Salvino D'Armato in Italy in 1284.

Sushruta described about 72 ocular diseases & several oph surgical instruments & techniques in Sushruta Samhita(5th century BC)

In France & eastern European countries contact lenses are prescribed by ophthalmologist while in US, UK & Aus it is done by optometrists.

In 1887 F E Muller produced the first eye covering to be seen through & in the next year Adolf Eugen Fick made the 1st successful CL.

The earliest evidence of a magnifying device- a convex lens forming a magnified image, dates back to the Book of Optics, by Alhazen in 1021.

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In bright light pupils will be in a constricted steady state. In this state, the pupil size is not exactly constant, but is oscillating.

When this oscillation is exaggerated, it is called 'Hippus'

The general principle of contact lenses were introduced by Leonardo da Vinci in his 1508 Codex of the eye, Manual D.

In some countries stuffed cow eyes are considered a delicacy. Eyes are boiled after removing vitreous, lens and iris and stuffed with beef.

A normal healthy individual produces about 0.75 to 1.1 grams of tear per day. This amount reduces with age.

Refractive Indices

Cornea - 1.3376

Aqueous - 1.336

Lens - 1.386 to 1.406

Vitreous - 1.336

Unlike the eyelids which travel vertically, the nictating membrane which is found in reptiles, birds & sharks, moves horizontally over the eye

Hypermetropic cataracts may dislocate spontaneously. In ancient times it was regarded a blessing from the Gods as some vision was restored.

Hemeralopia is the inability to see in bright light due to defective cones(Just opposite of Nyctalopia - Night Blindness)

Cephalopode's retina does not have a blind spot as photoreceptor cells are placed above the neuron layer and is called 'everted retina'.

The word Cataract derives from the Latin word Cataracta meaning 'waterfall' and Greek word Katarakta meaning 'to dash down'.

Human and primate eyes have 1 fovea and hawks have 2. Cats and dogs do not have fovea, but a central band called visual streak.

Anisometropia is the condition in which refractive state of the 2 eyes vary while Antimetropia is when 1 eye is myopic & other hypermetropic

In some animals (eg Cat) the retina has a reflective layer called Tapetum lucidum, which makes them glow in darkness.

Dr.Hudson Silva launched the movement to collect cornea in 1958 and got the first pair of donated cornea in 1959.

Eagle's visual acuity is 4 times that of humans. Its each eye have 2 fovea centralis and a big pupil.

Apart from rods & cones, 2% of the nerve ganglions in the retina are also photosensitive & its signals are used to resize the pupil.

In reptiles, birds & sharks, there is a 3rd protective eyelid called nictating membrane which is transparent or translucent.

The lenses of the compound eyes of trilobites are not flexible but made of clear calcite crystals.

Compound eyes of arthropodes, composed of many simple eyes(facets) with its own lens and retina, gives either a single or multiple images.

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The simplest eyes in unicellular organisms do nothing but detect whether the surroundings are light or dark and hardly can be called vision.

First school of optometry established in USA in 1850. Contact lens was first used in 1940.

Human eyes weighs approximately 7.5 grams and its volume is roughly 6.5 milliliters.

.The first proto-eyes evolved among animals 540 million years ago. They are called eye spots and consisted of light sensitive

proteins.

In 16th century Europe, surgery was done by barbers. The org. of United Company of Barber Surgeons of London in 1540 prescribed quali. for surgeons

The term 'Optometrist' was coined by Landolt in 1886, meaning fitter of glasses. Before this there was dispensing and refracting opticians

Gold fish (*Carassius auratus*) can see ultra violet & infra red light. It can also recognise owner's faces and voice.

In cephalopods, amphibians, snakes and fishes focusing is not done by altering the shape of the lens, but by moving the lens as in a camera

Mantis shrimp has the most complex colour vision system (Hyperspectral CV). Each eye of the shrimp possess trinocular vision & depth perception

Dr. F G Hudson Silva is the founder of eye donation movement (1958) and was the president of International Eye Bank. He died in Oct 22, 1999.

Dutch physician Frans Cornelis Donders in 1864 established the modern system of prescribing and fitting eyeglasses for vision problems.

Olympics charithrathil Indiyakku aadyathe vyakthigatha swarnam - 10m air rifling - Abhinav Bindra.

VitA is essential for health, but very high doses of VitA causes headache, vomiting, blurred vision, hair loss, liver damage & aching bones.

Georg Bartisch, a German physician (16th century) is considered to be the founder of Ophthalmology.

Giant Squid has the largest animal eyes on earth

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