

Accommodation-Function. Increase in optical power by the eye in order to maintain a clear image (focus) as objects are moved closer. Occurs through a process of ciliary muscle contraction and zonular relaxation that causes the elastic-like lens to “round up” and increase its optical power.

Accommodative Lens-Optics. Lens that combines a plus lens (of one refractive index) and a minus lens (different refractive index); minimizes fuzziness and colored edges of images (chromatic aberration) by reducing the dispersion of white light into its spectral colors.

Adenovirus-Microorganism. Family of more than 30 viruses that can cause upper respiratory infections, conjunctivitis, and inflammation of the mucous membranes.

Age-related Macular degeneration (AMD)-Senile macular degeneration. Pathologic condition. Group of conditions that include deterioration of the macula, resulting in a loss of sharp central vision. Two general types: “dry” which is usually evident as a disturbance of macular pigmentation and deposits of yellowish material under the pigment epithelial layer in the central retinal zone; “wet” (sometimes called Kuhn-Janus disease) in which abnormal new blood vessels grow under the retina and leak fluid and blood, further disturbing macular function. Most common cause of decreased vision after age 50.

Amblyopia- “lazy eye”. Functional defect. Decreased vision in one or both eyes without detectable anatomic damage to the retina or visual pathways. Usually uncorrectable by optical means (e.g. eyeglasses)

Amsler grid- Test card. Equally spaced horizontal and vertical lines forming squares (usually black on white background); can be used at home to detect early central visual field distortions or defects, as in macular degeneration.

Anesthesia- Condition. Total or partial loss of feeling, usually from disease or from drugs that decrease sensitivity to pain.

General: affects entire body, with loss of consciousness.

Local: regional or topical anesthetic that affects a part of the body, without loss of consciousness.

Regional: affects an area of the body.

Tropical: applied directly to the surface of an area and affects only that area (example: eye drops).

Anisocoria- Optics. Unequal displacement of images by the two eyes; occurs when looking through the periphery of different power lenses, which forces the eyes to move unequally to see the corresponding images.

Anisometropia- Functional defect. Unequal refractive errors in the two eyes; usually at least 1 diopter different.

Angle- Optics. Angle formed at an eye's nodal point between the visual axis and the optic axis.

Angle Closure Glaucoma (AGG)- acute angle-closer glaucoma, narrow-angle glaucoma, papillary block glaucoma. Pathologic condition. Rise in intraocular pressure, when aqueous fluid behind the iris cannot pass through the pupil (papillary block mechanism); the iris is pushed forward, blocking aqueous drainage through the angle. Patients who have anatomically narrow anterior chamber angles are predisposed. See also Open-Angle Glaucoma.

Anterior Chamber (AC)- Anatomy. Fluid-filled space inside the eye between the iris and the innermost corneal surface (endothelium).

Anterior Ischemic Optic Neuropathy- (AION) Pathologic condition. Damage to the part of the optic nerve closest to the eye, from insufficient blood supply. Causes an abrupt decrease in vision and optic disc insufficient blood supply. Causes an abrupt decrease in vision and optic disc pallor and swelling.

Anterior Segment- Anatomy. Front third of the eyeball; includes structures located between the front surface of the cornea and the vitreous.

Aspheric Lens- Optical Device. Lens whose front surface is not curved as part of a sphere but is relatively flatter in the periphery. Aspheric spectacles provide better imagery with less aberrations, useful for correcting high refractive errors.

Astigmatism- Regular Astigmatism. Refractive Error. Inability of an eye to focus sharply (at any distance), usually resulting from a spoon-like (toric) shape of the normally spherical corneal surface. Instead of being uniformly refracted by all corneal meridians, light rays entering the eye are bent unequally, which prevents formation of a sharp focus on the retina. Slight uncorrected astigmatism may not cause symptoms, but a large amount may result in significant blurring. Corrected by a cylindrical (toric) eyeglass or contact lens, or refractive surgery.

Basal Cell Carcinoma (BCC)- Pathologic Condition. Slow growing tumor; most common malignancy of the eyelids. Develops from the deepest (basal) layer of the skin. Responds well to treatment. Does not metastasize.

Bell's Palsy, facial Palsy- Pathologic Condition. Paralysis of muscles innervated by the 7th (facial) cranial nerve, which moves structures surrounding the brows, eyelids, and mouth. The eyelid on the affected side does not close properly; so corneal drying may become a problem.

Benign- Description. Doesn't threaten health of life. Refers to a lesion of tumor that is non-cancerous. (non-malignant)

Beta Blocker, Adrenergic Blocking Agent, Sympatholytic- Drug. 1. Used topically for treating glaucoma. Blocks action of sympathetic nerve fibers by blocking beta adrenergic receptor sites for nerve impulse transmission; sometimes causes papillary constrictions. Betaxolol is a beta-one blocker; carteolol, levobunolol, metipranolol and timolol are beta-one and beta-two blockers. 2. Used systemically as heart medication for treating rapid arrhythmia and hypertension; discontinuation may decrease intraocular pressure control.

Bifocal- Optical Device. Eyeglasses that incorporate two different powers in each lens, usually for near and distance corrections.

Binocular- Description. Referring to or affecting both eyes.

Bleb, filtering bleb- Bubble-like blister of conjunctiva. 1. Surgical Result. Flap of tissue created for covering a sclero-corneal drainage channel, to enhance passage of fluid from the eye. Result of type of filtering procedure for treating some forms of glaucoma. 2. Pathologic condition. Follows inadvertent leak of aqueous fluid from a limbal wound, sometimes after surgery.

Blepharitis- Pathologic Condition. Inflammation of the eyelids, usually with redness, swelling and itching. Many cause, e.g., infection, allergy.

Blepharoplasty- Surgical Procedure. Any plastic surgery of the eyelids; usually cosmetic.

Blind Spot- Functional Defect. Non-seeing area found within every visual field. Caused by absence of light sensitive photoreceptors where the optic nerve enters the eye.

Blocked Tear Duct- Pathologic. Condition. Incomplete opening of a tear duct; causes continuous tearing.

Botox- Drug. Trade name of botulinum toxin-A

Branch Retinal Artery Occlusion (BRAO)- Pathologic Condition. Blockage of blood flow through any of the branches of the central retinal artery, usually from an embolus. Produces retinal damage and a corresponding visual field defect.

Branch Retinal Vein Occlusion (BRVO)- Pathologic Condition. Blockage of blood flow through a branch of the central retinal vein (usually superior temporal), usually by an overlying hardened retinal artery. Associated findings include retinal vein engorgement, flame-shaped hemorrhage, macular edema, cotton-wool spots, and reduced vision.

Browlift, Browplasty- Surgical Procedure. Removal of extra tissue above the eyebrow hairline, to repair drooping eyebrows.

Brunescent Cataract- Pathologic Condition. Opacity or cloudiness of the crystalline lens that is brown in appearance (rather than gray or white); occurs in the elderly as an advanced stage of nuclear sclerosis. Surgical removal of the lens may be necessary if visual loss becomes significant, with lost optical power replaced by an intraocular lens, contact lens, or aphakic spectacles.

Bullous Keratopathy- Pathologic Condition. Degenerative process in which small blister-like pockets form in the swollen corneal epithelial layer; markedly reducing vision.

Capsular Bag- Anatomy. Bag-like lens capsule remnant remaining after cataract removal that an intraocular lens is implanted into. Consists of the intact posterior capsule and the residual flap of the anterior capsule.

Cataract- Pathologic Condition. Opacity or cloudiness of the crystalline lens, which may prevent a clear image from forming on the retina. Surgical removal of the lens may be necessary if visual loss becomes significant, with lost optical power replaced by and intraocular lens, contact lens, or aphakic spectacles. May be congenital or caused by trauma, disease, or age.

After-Cataract: remnants of an opaque lens remaining in the eye or opacities forming after extra capsular cataract removal..

Brunescent: brown in appearance (rather than gray or white); occurs in the elderly as an advanced stage of nuclear sclerosis.

Congenital: present at birth. Many causes, often hereditary.

Cortical, Cortical Spokes: radically arranged opacities in lens cortex following lens fiber swelling and fragmentation. Form of senile cataract.

Cupuliform: same as Posterior Subcapsular (below)

Hypermature: totally opaque lens that has begun to shrink and liquefy, so that the remaining hard nucleus floats about within the lens capsule.

Degraded lens protein molecules may leak into the aqueous through the lens capsule and cause phacolytic glaucoma.

Immature: cloudy lens that has some clear zones remaining; vision loss depends on extent and density of clouding.

Incipient: cataract in its early stages; or one that has sectors of opacity with clear spaces intervening; little impact on visual acuity.

Intumescent: lens that has swollen and enlarged in the process of becoming cloudy. May lead to angle-closure glaucoma.

Lamellar: concentric thin layers (lamellae) of opacities surrounded by zones of clear lens, usually in both eyes. Vision may remain good.

Lenticular: same as Nuclear (below)

Mature: opaque lens having no clear zones remaining, but not yet shrunken; causes marked vision decrease. Used to called "ripe."

Morgagnian: same as Hypermature (above)

Nuclear: lens shaped opacity within the lens. Same as nuclear sclerosis.

Posterior Subcapsular: located within the rear surface of the lens.

Common; occurs in elderly as a type of “senile cataract” or at any age after chronic intraocular inflammations or prolonged steroid drug use.

Secondary: any cataract that develops from known cause, e.g., chronic iritis or drugs (steroids)

Senile: lens opacity occurring in the elderly. Various forms. Depending on the position of the opacity: cortical, nuclear.

Sunflower: type of cataract caused by metallic copper deposits under the lens capsule; may have minimal effect on vision.

Traumatic: caused by injury to the eyeball. Penetration of the lens capsule results in total opacity within hours.

Zonular: same as lamellar (above)

Cellulitis- Pathologic Condition. Infection or inflammation of tissues.

Orbital: infection of orbital contents, often caused by streptococci or staphylococci. Produces swelling and redness of lids, bulging eye (proptosis), limitation of eye movement, and swelling of orbital tissues. Usually spreads from infected ethmoid, sphenoid, maxillary or frontal sinuses.

Pre-septal: swelling or infection of eyelid tissue in front of the orbital septum. Does not affect the eyeball.

Central Retinal Artery (CRA)- Anatomy. First branch of the ophthalmic artery: supplies nutrition to inner 2/3 of the retina. Enters optic behind the eye, extends forward to optic disc, then divides into superior and inferior branches.

Central Retinal Artery Occlusion (CRAO)- Pathologic Condition. Blockage of blood flow through the CRA (usually in one eye); causes sudden, permanent loss of vision. Retinal changes include opaque inner layers, cherry red macular spot (disappears after about two weeks), and markedly thin arteries.

Central Retinal Vein (CRV)- Anatomy. Blood vessel that collects retinal venous blood drainage; exits the eye through the optic nerve.

Central Retinal Vein Occlusion (CRVO), Retinal Apoplexy- Pathologic Condition. Blockage of blood flow through the CRV; causes markedly decreased vision, which may improve over many months. Retinal findings include dilated and engorged veins, intraretinal and nerve fiber layer hemorrhages, swollen optic disc margins, retinal thickening.

Central Vision- Function. An eye’s best vision; used for reading and for discriminating fine detail and colors. Results from stimulation of the fovea and the macular area.

Chalazion- Pathologic Condition. Inflamed lump in a meibomian gland (in the eyelid). Inflammation usually subsides, but may need surgical removal. Sometimes called internal hordeolum. Plural: chalazia.

Choroid- Anatomy. Vascular (major blood vessel) layer of the eye lying between the retina and sclera. Provides nourishment to outer layers of the retina. Forms part of the uvea, along with ciliary body and iris.

Ciliary Spasm- Functional Defect. Prolonged, painful contraction of the ciliary muscle, usually in response to corneal or iris inflammation.

Clear Lens Extraction (CLE)- Refractive Surgery. Removal of the eye's clear natural lens to correct high myopia (Fukula operation). In addition, an intraocular lens or a multifocal intraocular lens may be implanted to supplement the refractive correction.

Coloboma- Congenital Anomaly. Cleft or defect in normal continuity of a part of the eye, e.g. absence of lower segment of optic nerve head, choroid, ciliary body, iris, lens or eyelid. Caused by improper fusion of fetal fissure during gestation. May be associated with other abnormalities, including a small eye (microphthalmia). Plural: colobomata.

Conjunctivitis- "Pink Eye." Pathologic Condition. Inflammation of the conjunctiva (mucous membrane that covers white of eye and inner eyelids). Characterized by discharge, grittiness, redness and swelling. Usually viral in origin; may be contagious.

Contact Lens- Optical Device. Small plastic disc containing optical correction, worn on the cornea or sclera to correct refractive errors or to protect the cornea.

Cornea- Anatomy. Transparent front part of the eye that covers the iris, pupil and anterior chamber and provides most of an eye's optical power. Five layers: epithelium, Bowman's membrane, stroma, Decemet's membrane, and endothelium.

Corneal Pachymetry- is the process of measuring the thickness of the cornea using contact methods, such as ultrasound and confocal microscopy (CONFOSCAN), or noncontact methods such as optical biometry with a Scheimpflug camera (such as SIRIUS or PENTACAM), Optical Coherence Tomography (OCT, such as Visante) and online Optical Coherence Pachymetry (OCP, such as ORBSCAN). Corneal Pachymetry is particularly essential prior to a LASIK procedure for ensuring sufficient corneal thickness to prevent abnormal bulging out of the cornea, a side effect known as ectasia. The instrument used for this purpose is known as a pachymeter. Conventional pachymeters are devices that display the thickness of the cornea, usually in micrometres, when the ultrasonic transducer touches the cornea. Newer generations of ultrasonic pachymeters work by way of Corneal Waveform (CWF). Using this technology the user can capture an ultra-high definition echogram of the cornea, somewhat like a corneal A-scan. Pachymetry using the corneal waveform process allows the user to more accurately measure the corneal thickness, verify the reliability of the measurements that were obtained, superimpose corneal

waveforms to monitor changes in a patient's cornea over time, and measure structures within the cornea such as micro bubbles created during femto-second laser flap cuts

Cross Eyed- Functional Defect. Eye misalignment in which one eye deviates inward (toward nose) while the other fixates normally.

Cystoid Macula Edema (CME)- Pathologic Condition. Retinal swelling and cyst formation in the macular area; usually results in temporary decrease in vision, though may be permanent. Frequently occurs to some extent after cataract surgery. Specific cause is unknown.

Dacryocystitis- Pathologic Condition. Inflammation of the tear sac. Associated with faulty tear drainage.

Dermatitis- Pathologic Condition. Skin reaction (reddening, swelling, scaling, blistering, ect.) caused by contact with an outside agent, such as chemical, cosmetic, perfume, soap, or eye drop preservative. May affect the eyelids and conjunctiva.

Dermatochalasis- Pathologic Condition. Excess eyelid skin, caused by atrophy of the elastic tissue. Usually a fold of tissue from the upper lid hangs over the eyelid margin. Associated with orbital septum defects or aging.

Diabetic Retinopathy- Pathologic Condition. Series of progressive retinal changes accompanying long-standing diabetes mellitus. Early stage is background retinopathy (non-proliferative). May advance to proliferative retinopathy, which includes the growth of abnormal new blood vessels (neovascularization) and accompanying fibrous tissue.

Diplopia, Double Vision- Symptom/Functional Defect. Perception of two images (horizontal, vertical or diagonal) from one object.

Drusen- Anatomic Defect. Tiny, white hyaline deposits on Bruch's membrane (of the retinal pigment epithelium). Common after age 60; sometimes an early sign of macular degeneration.

Dry Eye Syndrome, Keratitis Sicca, Keratoconjunctivitis Sicca- Pathologic Condition. Corneal and conjunctival dryness due to deficient tear production, predominantly in menopausal and post-menopausal women. Can cause foreign body sensation, burning eyes, filamentary dermatitis, and erosion of conjunctival and corneal epithelium.

Dystrophy- Pathologic Condition. Progressive changes in a tissue or organ that may result from defective metabolism; usually genetic.

Endothelial: progressive corneal disorder characterized by hyaline endothelial outgrowths on Descemet's membrane, a cloudy waterlogged

cornea, and painful epithelial blisters and reduced vision. May require a corneal graft.

Fuchs': same as Endothelial.

Ectropion- Pathologic Condition. Outward turning of the upper or lower eyelid so that the lid margin does not rest against the eyeball, but falls or is pulled away. Can create corneal exposure with excessive drying, tearing, and irritation. Usually from aging.

Edema, Oedema- Clinical Sign. Swelling of tissue from excess fluid accumulation.

Enhancement- Refractive Surgery. Surgical fine-tuning of an earlier procedure some time later, usually after some loss of refractive correction.

Enucleation- Surgical Procedure. Removal of the eyeball, leaving eye muscles and remaining orbital contents intact.

Epiphora- Functional Defect. Overflow of tears down the cheek; caused by a defect in the tear drainage system, an excessive amount of tears, or an ectropion of the lower lid.

Epithelium- Anatomy. Membranous multicellular layer covering the internal and external surface of the body and its organs. In the eye, covers the cornea, conjunctiva and eyelid. Plural: epithelia.

Epilation- Surgical Procedure. Removal of hair or lashes, as by electrolysis.

Esophoria (E)- Functional Defect. Tendency toward inward (toward nose) deviation of one eye when a cover is placed over that eye. When cover is removed, the eye straightens.

Esotropis (ET) Convergent Deviation, Cross-Eyes, Internal Strabismus- Functional Defect. Eye misalignment in which one eye deviates inward while the other fixates normally.

Excimer Laser- Surgical Instrument. A cold laser (filled with argon fluoride gas) used in refractive surgery procedures to reshape the cornea. Controlled by computer, the laser emits a pulsating ultraviolet light that can ablate (vaporize) corneal tissue to a precise depth and area to produce a given optical correction, without heating it or surrounding tissues. Results in a smooth surface that heals rapidly with minimal scarring.

Exposure Keratopathy- A disorder caused by the failure of the eyelids to cover the globe, resulting in improper wetting of the ocular surface by the tears with consequent desiccation of the corneal epithelium. This condition may be caused by facial nerve disorders in which the orbicularis oculi muscle is paralyzed, or sleep

lagophthalmos, or as a result of hard contact lens wear. The cornea presents punctate epithelial erosions, which may develop, into ulcers. Treatment is with frequent lubrication and if severe, lid surgery may be required.

Exotropia (XT), Divergent Strabismus, External Strabismus, Wall-Eyes- Functional Defect. Eye misalignment in which one eye deviates outward (away from nose) while other fixates normally.

Farsightedness, Hypermetropia, Hyperopia- Refractive Error. Focusing defect created by an underpowered eye, that has insufficient refractive power relative to its front-to-back (axial) length. Light rays from a distant object enter the eye and strike the retina before they are fully focused (true focus would be “behind the retina”). Farsighted people can see clearly in the distance but only if they use more focusing effort (accommodation) than those who have normally powered eyes; close-up vision may be blurred because it requires even more focusing effort. Corrected with additional optical power, supplied by a plus lens (spectacle, contact) or refractive surgery.

Floater, Vitreous Floaters- Symptom. Particles that float in the vitreous and cast shadows on the retina; seen as spots, cobwebs, spiders, etc. Normal (muscae volitantes); also occurs with aging or with vitreous detachment, retinal tears, or inflammation.

Fovea, Fovea Centralis- Anatomy. Central pit in the macula that produces sharpest vision. Contains a high concentration of cones and no retinal blood vessels. Plural: foveae.

Giant Papillary Conjunctivitis (GPC)- Pathologic Condition. Allergic type of conjunctival inflammation often associated with continuous wearing of contact lenses. Papillae form a cobblestone pattern on the undersurface of the upper eyelid.

Glaucoma- Pathologic Condition- Group of diseases characterized by increased intraocular pressure resulting in damage to the optic nerve and retinal nerve fibers, with typical visual field defects and increased size of optic cup. A common cause of preventable vision loss.

Gonioscopy, Goniolens- Optical Device. Specialized contact lens used for examining anterior chamber angle structures.

Grave disease, Basedow’s Disease, Endocrine (or) Graves’ Exophthalmos (or) Ophthalmopathy, Thyroid Eye Disease, Thyrotoxic (or) Thyrotropic Exophthalmos- Pathologic Condition. Eye signs that may occur with excessive thyroid-related hormone concentration. Includes eyelid retraction, eyelid lag on downward gaze, corneal drying, eye bulging (proptosis), fibrotic extra ocular muscles, and optic nerve inflammation.

Guttata (Corneal)- Pathologic Condition. Small, whitish hyaline deposits on Descemet's membrane (on inner corneal surface).

Hemianopia, Hemianopic Field Defect, Hemianopsia- Functional Defect. Visual field defect (blind area) affecting half of each eye's field.

High Myopia- Is also known as: severe Myopia, which is Nearsightedness- Refractive Error. Focusing defect created by an overpowered eye, one that has too much optical power for its length. Light rays coming from a distant object are brought in a focus before reaching the retina. Myopic people see close-up objects clearly but distance vision is blurry. Corrected with minus lens (spectacle or contact) or refractive surgery to "weaken" the eye optically and permits clear distance vision.

HIPPA (Health Insurance Portability and Accountability Act)- 1996 act sets rules for patient privacy, security of health information. Health insurance shifts after leaving an employer. Severe penalties for non-compliance.

Histoplasmosis- Pathologic Condition. Fungus infection caused by inhalation of *Histoplasma capsulatum*. Effects begin in the lungs and spread to other organs. Eye findings occur years later and are characterized by small scattered choroidal and pigment epithelial scars ("punched out" lesions), irregular pigment changes around the optic disc, and a central lesion at or near the macula (initially a gray-green spot; eventually results in retinal swelling and hemorrhage with visual distortion and loss)

Hollenhorst Plaque- Clinical Sign. Orange-yellow cholesterol clump, usually found at branching sites of retinal arterioles. Rare cause of blood vessel blockage. Associated with severe atherosclerosis of the carotid arteries, from which they usually arise.

Hyperopia, Farsightedness, Hypermetropia- Refractive Error. Focusing defect created by an underpowered eye, one that is too short for its optical power. Light rays from a distant object enter the eye and strike the retina before they are fully focused (true would be "behind the retina"). Farsighted people can see clearly in the distance but only if they use more focusing effort (accommodation) than those who have normally powered eyes; close up vision may be blurred because it requires even more focusing effort. Corrected with additional optical power, supplied by a plus lens (spectacle or contact) or refractive surgery.

Hypertropia (HT)- Functional Defect. Upward deviation of one eye while other remains straight and fixates normally.

Infiltrate- Sign. Abnormal accumulation of cells and fluid in tissue where they are not normally found (such as by tumor cells or inflammatory cells).

Intraocular Lens (IOL)- is an implanted lens in the eye, usually replacing the existing crystalline lens because it has been clouded over by a cataract, or as a form of refractive surgery to change the eye's optical power. It usually consists of a small plastic lens with plastic side struts, called haptics, to hold the lens in place within the capsular bag inside the eye. IOLs were traditionally made of an inflexible material (PMMA), although this has largely been superseded by the use of flexible materials. Most IOLs fitted today are fixed monofocal lenses matched to distance vision. However, other types are available, such as multifocal IOLs, which provide the patient with multiple-focused vision at far and reading distance, and adaptive IOLs which provide the patient with limited visual accommodation.

Intraocular Pressure- 1. Function. Fluid pressure inside the eye. 2. Measurement. Assessment of pressure inside the eye with a tonometer. Also called tension.

Iris- Anatomy. Pigment tissue lying behind the cornea that gives color to the eye and controls amount of light entering the eye by varying the size of the papillary opening. Most forward extension of the middle layer of the eye; separates the anterior chamber from the posterior chamber. Plural: irides.

Iritis- Pathologic Condition. Inflammation of the iris. Can cause pain, tearing, blurred vision, small pupil (miosis) and a red congested eye.

Ischemic- Description. Tissue that has been deprived of blood supply.

Keratitis- Pathologic Condition. Corneal inflammation, characterized by loss of luster and transparency, and cellular infiltration.

Keratoconus- Pathologic Condition. Degenerative corneal disease affecting vision. Characterized by generalized thinning and cone shaped protrusion of the central cornea, usually in both eyes. Becomes apparent during 2nd decade of life.

Lacrimal Apparatus- Anatomy. Tear drainage system. Orbital structures for tear production and drainage. Tears (produced in the lacrimal gland above eyeball) flow across the corneal surface, drain into upper and lower puncta (opening at inner eyelid margins), through upper and lower canaliculi to the common canaliculus, into the tear sac, then through the nasolacrimal duct into the nose.

Laser Vision Correction- Type of laser surgery done by ophthalmologists to correct vision problems, including myopia, hyperopia and astigmatism. Standing for laser in-situ keratomileusis, Lasik vision correction involves the use of a laser to permanently change the shape of the cornea. During a Lasik vision correction procedure, an ophthalmologist creates a thin flap on the eye, folding it to enable remodeling of the tissue underneath with the laser. The flap is then repositioned and left to heal during the postoperative period.

Lasik (Laser in Situ Keratomileusis)- Refractive Surgery. Method of reshaping the cornea to change its optical power. A flap of cornea is cut with an automated microkeratome and folded back, then a computer-programmed excimer laser reshapes (sculpts) the exposed surface of corneal tissue; the flap is replaced without suturing. Corrects myopia, hyperopia, and astigmatism.

Lazy Eye, Amblyopia- Functional Defect. Decreased vision in one or both eyes without detectable anatomic damage to the retina or visual pathways. Usually uncorrectable by optical means.

Lens- Optics. Any piece of glass or other transparent material that can bend light rays predictably.

Macula- Pathologic Condition. Moderately dense corneal opacity.

Macular degeneration- Pathologic Condition. Group of conditions that include deterioration of the macula, resulting in a loss of sharp central vision. Two general types "dry" which is usually evident as a disturbance of macular pigmentation and deposits of yellowish material under the pigment epithelial layer in the central retinal zone; "wet" (sometimes called Kuhn-Junius disease) in which abnormal new blood vessels grow under the retina and leak fluid and blood (neovascularization), further disturbing macular function. Most common cause of decreased vision after age 50.

Meibomianitis- Pathologic Condition. Inflammation of the meibomian glands in the eyelids.

Monofocal Lens- When light enters a monofocal lens; it is bent to a focus point. As the power of the lens becomes stronger, its ability to bend light more sharply is increased. Since the lens is monofocal, the light can only be bent to one focus point at a time. With monofocal IOLs, the light is bent by the lens so that it will form a focus point on the retina of the eye. A surgeon can choose an IOL that focuses light best coming from distant objects, or a stronger powered IOL that focuses light better from near objects. However, light cannot be focused from both distant and near objects at the same time with a monofocal lens. Most patients choosing a monofocal lens choose to have good distance focus, and use reading glasses to help with near vision tasks.

Monovision- Function. Alternate method of correcting presbyopia. One eye is corrected for distance vision and the other eye for near with contact lenses, glasses, or refractive surgery. (The brain ignores the fuzzy image from one eye and sees the better image from the other eye.) Binocular depth perception (stereopsis) is decreased but not eliminated.

Multifocal Lens- Optical Device. Eyeglass lens that incorporates more than one optical power, to permit focusing at different distances.

Myopia- Nearsightedness- Refractive Error. Focusing defect created by an overpowered eye, one that has too much optical power for its length. Light rays coming from a distant object are brought in a focus before reaching the retina. Myopic people see close-up objects clearly but distance vision is blurry. Corrected with minus lens (spectacle or contact) or refractive surgery to “weaken” the eye optically and permits clear distance vision.

Nevus- Anatomic Defect. Mole. Small flat, usually pigmented benign tumor made up of specific cells called nevus cells; found in skin and eye tissues. Does not interfere with tissue function; very rarely undergoes transformation into a malignant melanoma.

Nystagmus, Jerk Nystagmus- Functional Defect. Involuntary, rhythmic side-to-side or up and down (oscillating) eye movement that are faster in one direction than the other.

Ocular Melanoma- Melanoma of the eye is cancer that occurs in various parts of the eye. Melanoma: Pathologic Condition. Malignant tumor derived from pigment cells. In the eye, can initiate in the choroid, ciliary body or iris, through any eye tissue can be affected by metastases or invasive growth from a melanoma elsewhere in the body.

Ophthalmologist- Medical Specialist. Physician (MD) specializing in diagnosis and treatment of refractive, medical and surgical problems related to eye disease and disorders.

Optical Nerve- Anatomy. Second cranial nerve. Largest sensory nerve of the eye; carries impulses for sight from the retina to the brain. Composed of retinal nerve fibers that exit the eyeball through the optic disc, traverse the orbit, pass through the optic foramen into the cranial cavity, where they meet fibers from the other optic nerve at the optic chiasm.

Optician- Vision care specialist. Professional who makes and adjusts optical aids, e.g. eyeglass lens, from refraction prescriptions supplied by an ophthalmologist or optometrist.

Optometrist- Vision care specialist. Doctor of optometry (OD) specializing in vision problems, treating vision conditions with spectacles, contact lenses, low vision aids and vision therapy and prescribing medications for certain eye diseases.

Orbit, Socket- Anatomy. Pyramid-shaped cavity in the skull (with the apex toward the back of the head), lined by the seven orbital bones (ethmoid, frontal, lacrimal, maxillary, nasal, palatine, sphenoid) and containing the eyeball, its muscle, blood supply, nerve supply, and fat. About 2 inches deep.

Peripheral Vision- Function. Side vision; vision elicited by stimuli falling on retinal area distant from the macula

Phacoemulsification- Surgical Procedure. Use of ultrasonic vibration (from irrigation-aspiration instrument) to break up a cataract into small fragments and emulsify (liquefy) them, making them easier to suction out of the eye.

Photophobia- Symptom. Abnormal sensitivity to, and discomfort from. Light. May be associated with excessive tearing. Often due to inflammation of the iris or cornea.

Plaquenil- Drug. Trade name of hydroxychloroquine; for treating malaria, lupus erythematosus or rheumatoid arthritis. May cause pigment clumping in macular area and result in visual loss.

Pink Eye, Conjunctivitis- Pathologic Condition. Inflammation of the conjunctiva (mucous membrane covering white of eye and inner eyelid surfaces). Characterized by discharge, grittiness, redness and swelling. Usually viral in origin; may be contagious.

Presbyopia- Refractive Error. Diminished power of accommodation arising from loss of elasticity of the crystalline lens and/or loss of ciliary muscle function, as occurs with aging; usually becomes significant after age 45. May also be caused by disease such as hypothyroidism or glaucoma.

Proptosis, Exophthalmos- Anatomic Defect. Abnormal protrusion or bulging forward of the eyeball.

Pseudostrabismus- Anatomic Variant. Condition in which the eyes appear misaligned when actually they are not. Caused by epicanthal folds or a visual axis not centered in the pupil.

Pseudotumor Cerebri- Pathologic Condition. Intracranial inflammation that resembles a brain tumor. Causes intracranial hypertension and can result in optic nerve head swelling (papilledema), headaches, protrusion of the eyeball (proptosis), and transient loss or reduction of vision. Tends to affect obese females in their 30s.

Pterygium- Pathologic Condition. Abnormal wedge-shaped growth on the bulbar conjunctiva. May gradually advance onto the cornea and require surgical removal. Probably related to sun irritation. Plural: pterygia.

Ptosis, Blepharoptosis- Functional Defect. Drooping or sagging of the upper eyelid.

Pupil- Anatomy. Variable-sized black circular opening in the center of the iris that regulates the amount of light that enters the eye.

Retina- Anatomy. All retinal layers except the retinal pigment epithelium.

Retinitis- Pathologic Condition. Inflammation of the retina.

Retinal Detachment (RD), Retinal Separation- Pathologic Condition. Separation of the retina from the underlying pigment epithelium. Almost always caused by a leaking retinal tear, which allows fluid to pass from the vitreous into the sub-retinal space. Disrupts visual cell structure and thus markedly disturbs vision; often requires immediate surgical repair.

Retinitis Pigmentosa (RP)- Pathologic Condition. Progressive retinal degeneration in both eyes. Night blindness, usually in childhood, is followed by loss of peripheral vision (initially as ring-shaped defect), progressing over many years to tunnel vision and finally blindness. Hereditary.

Retinopathy- Pathologic Condition. Any non-inflammatory degenerative disease of the retina.

Retinopathy of Prematurity (ROP)- Pathologic Condition. Series of destructive retinal changes that may develop after prolonged life-sustaining oxygen therapy is given to premature infants. In the active stages, findings include dilated, tortuous peripheral fibrous scar forms that detach the retina, resulting in vision loss or blindness. Other possible complications: glaucoma, cataracts, myopia (nearsightedness), sunken eyes, and eye misalignment. Previously called retrolental fibroplasia.

Rosacea- Pathologic Condition. Skin disease accompanied by chronic staphylococcal infections of the cheeks and eyelids (blepharitis) and rarely, corneal, scleral or iris inflammations. Cause unknown.

Sclera, Tunica Fibrosa Oculi- Anatomy. Opaque, fibrous, protective outer layer of the eye ("white of the eye") that is directly continuous with the cornea in front and with the sheath covering the optic nerve behind, Contains collagen and elastic fibers. Plural: sclerae.

Sclerosis- Multiple Sclerosis or MS, is a disorder that turns the body's immune system against itself.

Schirmer Test- For measuring tear production. Filter paper strips are placed in lower fornix. If topical anesthetic is used, the test measures basic secretion of the accessory glands; if not., tearing comes from lacrimal glands.

Shingles, Herpes Zoster- Pathologic Condition. Extremely painful, blister like skin lesions on the face, sometimes with inflammation of the cornea, sclera, ciliary body, and optic nerve; affects the 1st division (ophthalmic nerve) of the 5th (trigeminal) cranial nerve. Caused by the chickenpox virus.

Spherical Aberration- Optics. Types of image blur caused by light rays (from an object) striking the lens periphery where they are bent too much (over refracted), compared with rays coming through the center of the lens.

Strabismus, Deviation, Heterotropia, Squint, Tropia- Functional Defect. Eye misalignment of eyes that do not move normally, caused by extra ocular muscle imbalance. One fovea is not directed at the same object as the other.

Stye, Sty, External Hordeolum- Pathologic Condition. Acute pustular infection of the oil glands of Zeis, located in an eyelash follicle at eyelid margin.

Tonography- Test. Determines how fast intraocular pressure is reduced by pressure on the eye, based on how easily fluid can be forced out of the eye by pressing on the cornea with a fixed weight. Eye pressure decrease is graphed electronically over a 4-minute period; is slower than normal in glaucoma.

Tonometry- Test. Measurement of intraocular pressure in millimeters of mercury.

Toric lens, Sphero- Cylindrical lens- Optical Device. Lens that has a cylindrical component; used for correcting an astigmatic refractive error. Most eyeglasses are of this type.

Toxoplasmosis- Pathologic Condition. Infection from the protozoan *Toxoplasma gondii*. Affect many body tissues, especially lungs, liver and brain. When retina is involved, an acute retino-choroidal inflammation is produced that, when healed, results in a dense scar surrounded by pigment. Reactivations may occur adjacent to the primary scar and create satellite lesions.

Trabeculectomy- Surgical procedure. Removal of part of the trabecular meshwork to increase outflow of aqueous from the eye; type of filtering procedure used in treatment of glaucoma.

Trabecuoplasty- Surgical Procedure. Application of a laser to selectively burn the trabecular meshwork area, to lower intraocular pressure. Used for treating open-angle glaucoma.

Transient Ischemic Attack (TIA) "Ministroke"- Pathologic Condition. Temporary interruption of blood supply to the small blood vessels of the brain, producing temporary (less than an hour) vision loss.

Trichiasis- Pathologic Condition. Misdirected upper or lower eyelashes that turn inward toward the eyeball; may scratch the cornea. Usually follows severe eyelid inflammation or scarring.

Trifocal- Optical Device. Eyeglass lens that incorporates three lenses of different powers. The main portion is usually focused for distance (20 ft) the center segment of about (2 ft), and the lower segment of near (14 in).

20/20 or 6/6- Normal visual acuity. Upper number is the standard distance (20 feet or 6 meters) between an eye being tested and the eye chart; lower number indicates that the tested eye can see the same small standard-sized letters or symbols as normal eye at 20 feet.

Vision- Function. Ability of the eye to receive, resolve and transmit light images to the occipital lobe in the brain, where the light sensation is interpreted. "Seeing ability in its broadest sense.

Binocular: blending of the separate images seen by each eye into one composite image.

Central: an eye's best vision; used for reading and discrimination fine detail and color. Results from stimulation of the fovea and macular area.

Distance: vision acuity measured with the target at 20 ft (6 m) the optical equivalent of an "infinite distance".

Mesopic: vision at dim light levels, between daylight and night vision; e.g. at full moonlight.

Near: visual acuity measured with the target at 16 in (approx 40 cm.) corresponding to normal reading distance.

Night: see scotopic

Peripheral: side vision elicited by stimuli falling on areas of the retina distant from the macula.

Photopic: eyesight under daylight conditions. Involves the cone photoreceptors, which function for sharp resolution of detail and color discrimination.

Rod: see scotopic.

Scotopic: refers to vision at low light levels; primarily a function of retinal rods. Maximum sensitivity is usually after 30 minutes in the dark.

Stereo: ability to see stereoscopically; graded by small differences in binocular parallax.

Visually Acuity- Measurement. Assessment of the eye's ability to distinguish object detail and shape, using the smallest identifiable object that can be seen at a specified distance (usually 20 ft or 16 in)

YAG Laser- Surgical Instrument. Laser that produces short pulsed, high-energy light beam to cut, perforate, or fragment tissue.

Zonule, Zonules of Zinn- Anatomy. Radial fibers that suspend the lens from the ciliary body and hold it in position.