

Glossary

Aberration: Distortions, related to [astigmatism](#) , that cause the inability of light rays entering the eye to converge (come together) to a single focus point on the [retina](#) . Aberration are divided into two main categories: higher-order and lower-order.

Ablation: Surgical removal of tissue, typically using a cool beam [laser](#) .

Ablation zone: The area of tissue that is removed during [laser](#) surgery.

Accommodation: Ability of the eye to change its focus between distant objects and near objects.

Acuity: Sharpness, acuteness, or keenness of vision.

Acute: Occurring suddenly.

Adnexa: Accessory structures of the eye, including the eyelids, lacrimal apparatus, etc.

AK: [Astigmatic Keratotomy](#) , modified form of [Radial Keratotomy](#) (RK).

Amblyopia: Dullness or obscurity of sight for no apparent organic reason, therefore not correctable with glasses or surgery. Sometimes called a lazy eye, wherein one eye becomes dependent on the other eye to focus, usually developed in early childhood. Often associated with [strabismus](#) .

Amsler grid: Hand held chart featuring horizontal and vertical lines, usually white on black background, used to test for central visual field defects.

Angle: Drainage area of the eye formed between the [cornea](#) and the [iris](#) , named for its angular shape, which is why you see the word "angle" in the different glaucoma names.

Anisometropia: Condition of the eyes in which they have unequal [refractive power](#) .

Anterior chamber: Space between the [cornea](#) and the [crystalline lens](#) , which contains [aqueous humor](#) .

Anterior ocular segment: Part of the eye anterior to the [crystalline lens](#) , including the [cornea](#) , [anterior chamber](#) , [iris](#) and [ciliary body](#) .

Antioxidants: Micronutrients that destroy or neutralize free radicals, molecules that have been implicated as one causative factor in the stimulation of abnormal cellular reproduction (cancer) and cellular destruction (aging).

Antireflective coating: Coating on the front or back of glasses lenses, which minimizes the glare for patients who are extremely bothered by glare.

Aphakia: Absence of the lens of the eye.

Aqueous humor: Transparent fluid occupying the [anterior chamber](#) and maintains eye pressure.

Argon laser: device used to treat glaucoma (usually open angle) and diabetic retinopathy using a thermal beam.

ARMD: age related macular degeneration: Destruction and loss of the photoreceptors in the macula region of the [retina](#) resulting in decreased central vision and, in advanced cases, blindness.

Asthenopia: Eyestrain.

Astigmatic Keratotomy (AK): Treats astigmatism by flattening the [cornea](#) with arc-shaped incisions in its periphery, similar to RK.

Astigmatism: Structural defects of the eye in which the light rays from a viewed object do not meet in a single focal point, resulting in blurred images being sent to the brain. An astigmatic [cornea](#) is not perfectly rounded like a basketball but has an irregular shape more like the side of a football. Astigmatism is most often combined with [myopia](#) or [hyperopia](#) .

Automated Lamellar Keratoplasty (ALK): Procedure that predates [LASIK](#) eye surgery and is not generally used any more.

Automated perimeter: Computer-driven device used to plot defects in the visual field (peripheral vision or side vision). Usually, this is a large hemisphere shell into which the patient's head is placed. Various points of lights, sometimes of different sizes, intensities and colors are projected onto the screen. The patient then indicates whether the light is seen and the response is recorded. The computer then plots the effective visual thresholds within the targeted visual field.

Axis: Optical - a straight line through the centers of both surfaces of a lens. Visual - a straight line from the object of vision to the [fovea](#) of the eye.

BCVA: Best corrected [visual acuity](#).

Best corrected visual acuity (BCVA): Best possible vision a person can achieve with corrective lenses, measured in terms of [Snellen lines](#) on an [eye chart](#) .

Beta-carotene: Member of the carotinoid family of vitamins, a precursor to vitamin A, thought to be beneficial to the eyes, helpful in treating diseases such as glaucoma.

Bifocals: Lenses containing two focal lengths, usually arranged with the focus for distance above and near focus below.

Binocular vision: Simultaneous use of the two eyes. Normal binocular vision yields a stereoscopic image and parallax-induced depth perception.

Blepharitis: Inflammation of the eyelids, a common problem which tends to be reoccurring in nature.

Blind spot: The area of the optic disk where the optic nerve fibers exit the eye and where there are no light-sensitive cells. This small area can be measured and in glaucoma, as the nerve fibers die, the blind spot tends to enlarge and elongate. This is one of the diagnostic hallmarks of glaucoma.

Bowman's membrane: Extremely thin second layer of the [cornea](#) , situated between the [epithelium](#) and [stroma](#) , thought to be responsible for [epithelium](#) adhesion.

Capsular haze: A thin film of scar tissue that occasionally forms on the posterior capsule behind the intraocular lens implant following [cataract surgery](#) and removed with a [Nd:Yag laser](#).

Caruncle: Small, red portion of the corner of the eye that contains modified sebaceous and sweat glands.

Cataract: Gradual clouding of the [crystalline lens](#) resulting in reduced vision or eventual blindness, correctable by [cataract surgery](#) .

Cataract surgery: Removal of a [cataract](#) , replacing it with an [intraocular lens implant](#) .

Central islands: Central islands are a small mound of central tissue, which can interfere with vision and occur when the laser beam does not uniformly remove tissue in the center of the treatment.

Choroid membrane: Dark, [vascular](#) , thin skin-like tissue, situated between the [sclera](#) and the [retina](#) , forming the middle coat of the eye. The [choroid membrane](#) nourishes the outer portions of the [retina](#) and absorbs excess light.

Chronic: Of long duration, going on for some time.

Closed angle glaucoma: Glaucoma conditions occurring suddenly (acute).

Ciliary body: Part of the eye that connects the [choroid membrane](#) to the [iris](#) . Produces [aqueous humor](#) that fills the front part of the eye and maintains eye pressure.

Ciliary muscle: Muscle attached to the [crystalline lens](#) responsible for focus (the same as [ciliary body](#) , but used in a different context).

Clear Lens Extraction (CLE): Procedure in which the eye's natural clear [crystalline lens](#) is removed and replaced with an [intraocular lens implant](#) , using the same technique as [cataract](#) surgery.

Colorblindness: Inaccurate term for a lack of perceptual sensitivity to certain colors. Absolute color blindness is almost unknown.

Color vision: Ability to perceive differences in color, including hue, saturation and brightness.

Comprehensive eye exam: Evaluation of the complete visual system.

Conductive Keratoplasty (CK): Procedure in which a radio frequency probe, rather than a [laser](#) , is used to reshape the [cornea](#) . It is approved for low to moderate [hyperopia](#) in patients over age 40, however it does not appear to have the precision of [LASIK](#) .

Cones: One of the two types of light-sensitive cells, concentrated in the center of the [retina](#) (also see [rods](#)). There are about 6.5 million cones in each eye - 150,000 cones in every square millimeter - responsible for detailed visual acuity and the ability to see in color.

Conjunctiva: Mucous membrane lining the inner surface of the eyelids and covering the front part of the [sclera](#) (white part of eye), responsible for keeping the eye moist.

Conjunctivitis: Inflammation or irritation of the [conjunctiva](#) . Symptoms can be present in just one eye, or it can affect both eyes and include redness of the eyes or the edges of the eyelids, swelling of the eyelids or itching.

Contact lens: Small, thin removable plastic lens worn directly on the front of the eyeballs, usually used instead of ordinary eyeglasses for correction or protection of vision.

Convergence: Turning of the eyes inwards so that they are both "aimed" towards a nearobject being viewed. Normally works in harmony with [divergence](#) which is used for more distant objects.

Cornea: Transparent tissue that forms the front part of the eyeball, covering the [iris](#) and pupil. The [cornea](#) is the first part of the eye that bends (or [refract](#) s) the light and provides most of the focusing power.

Corneal curvature: Shape of the front of the eye.

Corneal mapping, topography: A tool used to see the refractive problems that might be present in the cornea. Corneal topography is used not only for screening all patients before refractive surgery like LASIK but also for fitting contacts.

Corneal relaxing incisions (CRIs): True corneal incisions, such as [RK](#) and [AK](#) .

Corneal transplant (penetrating keratoplasty): Surgical operation of grafting a replacement [cornea](#) onto an eye.

Crystalline lens: Double convex, transparent part of the eye, located behind the [iris](#) and in front of the vitreous body. Serves in conjunction with the [cornea](#) to [refract](#) incoming rays of light onto the [retina](#) .

Cylinder: Refers to the degree of astigmatism (uneven roundness) present in the cornea.

Depth perception: Ability of the vision system to perceive the relative positions of objects in the visual field.

Detached retina: A retinal detachment occurs when the retina is pulled away from its normal position in the back of the eye.

Diabetes mellitus: Chronic metabolic disorder characterized by a lack of insulin secretion and/or increased cellular resistance to insulin, resulting in elevated blood levels of simple sugars (glucose) and including complications involving damage to the eyes, kidneys, nervous system and [vascular](#) system

Diabetes type I (IDDM): Insulin dependent, resulting from destruction of the insulin producing pancreatic islet cells

Diabetes type II (NIDDM): Non-insulin dependent, resulting from tissue resistance to insulin

Diabetic retinopathy: Deterioration of [retina](#) | blood vessels in diabetic patients, possibly leading to vision loss.

Dilated, dilation: Enlargement of the pupil (space in the middle of the iris).

Diopter: Unit of measure of the [refractive power](#) of an optical lens (equal to the power of a lens with a focal distance of one meter). A negative diopter value (such as -3D) signifies an eye with [myopia](#) and positive diopter value (such as +3D) signifies an eye with [hyperopia](#) .

Diplopia: Condition in which a single object is perceived as two; also called double vision.

Divergence: Turning of the eyes outwards so that they are both "aimed" towards the object being viewed. Normally works in harmony with convergence.

Double vision: Same as diplopia.

Dry eye: A common condition that occurs when the eyes do not produce enough tears to keep the eye moist and comfortable.

Emmetropia: [Twenty-twenty vision](#).

Endothelium: Cellular tissue that covers the inner surface of the eye within the closed cavity, typically referring to the [cornea](#) .

Enhancement: An additional [LASIK](#) procedure, used in the refinement of Personal Best Vision.

Epithelium: Cellular tissue that covers the outer surface of the eye. Consists of one or several layers of cells with only little intercellular material.

Esophoria: Position of the eyes in an over-converged position compensated by the external eye muscles so that the eyes do not appear turned inward.

Esotropia: Position of the eyes in an over-converged position so that non-fixating eye is turned inward. One eye looks straight; one looks inward.

Excimer laser: [Laser](#) used in [LASIK](#) surgery that operates in the ultraviolet wavelength, producing a cool beam.

Exophoria: Position of the eyes in an over-diverged position compensated by the external eye muscles so that the eyes do not appear turned outward.

Exotropia: Position of the eyes in an over-diverged position so that non-fixating eye is turned outward. One eye looks straight ahead and one turns outward.

Extracapsular cataract surgery: Surgery in which the [cataract](#) is removed in one piece through a larger incision, which usually requires several stitches.

Extraocular muscles: Six muscles that control eye movement. Five originate from the back of the orbit; the other one originates from the lower rim of the orbit. Four move the eye up, down, left and right, the other two control the twisting motion of the eye when the head tilts. All six muscles work in unison; when they do not function properly, the condition is called [strabismus](#) .

Eye chart: Technically called a Snellen chart, a printed visual acuity chart consisting of Snellen optotypes, which are specifically formed letters of the alphabet arranged in rows of decreasing letter size.

Eyelid: Either of two movable, protective, folds of flesh that cover and uncover the front of the eyeball.

Farsighted: Common term for [hyperopia](#) .

FDA: Abbreviation for the Food and Drug Administration. It is the United States governmental agency responsible for the evaluation and approval of medical devices.

Femtosecond laser: Used in the IntraLASIK procedure to make a safer and more precise flap than the older mechanical microkeratome technology, it uses a longer wavelength, smaller spot, and shorter duration per pulse than the excimer [laser](#) used to reshape the [cornea](#) .

Field of vision: Entire area which can be seen without shifting the gaze.

Flap: Part of the [cornea](#) consisting of [epithelium](#) , Bowman's membrane and some [stroma](#) , cut with a remaining hinge and lifted up as part of the [LASIK](#) procedure.

Flashes & floaters: Light spots or streaks and dark moving specks due to the vitreous traction on the retinal (light flashes) and solid vitreous material or blood (floaters).

Fluorescein angiography: Diagnostic test by which the veins deep inside the eye are examined. Dye is injected into a vein in the arm and circulated by the blood to the back of the eye, allowing for visual examination.

Fovea: Small depression in the [retina](#) , the point where vision is most acute.

Fundus: Furthest point at the back of the eye, consisting of the [retina](#) , [choroid membrane](#) , [sclera](#) , optic disc and blood vessels, seen by means of the ophthalmoscope.

Ghost image: Faint second image of the object you are viewing.

Giant papillary conjunctivitis: Type of conjunctivitis wherein bumps or ridges form on the inside of eyelids, which make wearing contact lenses uncomfortable; in fact, this condition is often caused by overwearing of certain contact lenses

Glare: Scatter from bright light that decreases vision.

Glaucoma: Painless disease of the eye characterized by increased pressure within; left untreated it leads to a gradual impairment of sight often resulting in blindness.

Gonioscopy: Viewing procedure utilizing a mirror/lens device placed directly upon the [cornea](#) that is used to view the drainage area called "the angle" through which aqueous fluid exits the eyeball.

Halos: Rings around lights due to optical imperfections in, or in front of, the eye.

Haptics: The arms of an [intraocular lens](#) , which holds it in place once inserted inside the eye.

Haze: [Corneal](#) clouding that causes the sensation of looking through smoke or fog.

Heterophoria: Constant tendency of one eye to deviate in one or another direction due to imperfect balance of ocular muscles.

Holmium laser: A [laser](#) which operates in the infrared wavelength, producing a hot beam. It is used in [Laser Thermokeratoplasty](#) surgery and more commonly in surgical procedures involving the disintegration of stones and fibrous tissue [ablation](#) .

Hyperopia: Also called *farsightedness*, hyperopia is the inability to see near objects as clearly as distant objects, and the need for accommodation to see distant objects clearly.

Hypoxia: Deficiency of oxygen supply to a tissue.

Image: Light reflected into the eye, off objects in front of the eye. This light contains all the information about the objects (such as color, shadow, motion and detail) that are translated to the brain and allow you to "see" (know about the objects).

Inflammation: Body's reaction to trauma, infection, or a foreign substance, often associated with pain, heat, redness, swelling, and/or loss of function.

Informed Consent Form: Document disclosing the risks, benefits, and alternatives to a procedure.

In Situ: Term meaning "in place".

Intracapsular cataract surgery: [Cataract](#) surgery in which both the lens and capsule are completely removed, a rarely used procedure.

Intraocular lens implant (IOL): Permanent, artificial lens surgically inserted inside the eye to replace the [crystalline lens](#) following [cataract surgery](#) or [clear lens extraction](#) .

Intraocular pressure (IOP): Fluid pressure within the eye created by the continual production and drainage of aqueous fluid in the [anterior chamber](#) .

Iridotomy: Treatment for closed-angle glaucoma, one of the many types of glaucoma, usually done with a [laser](#) .

Iris: Colored part of the eye. Elastic, pigmented, muscular tissue in front of the [crystalline lens](#) that regulates the amount of light that enters the eye by adjusting the size of the pupil in the center.

Ischemia: Restriction or blockage of blood flow through a blood vessel. Ischemia is a causative agent of certain heart attacks and strokes and is involved in various types of visual field losses.

Intacs: Surgically implanted plastic half rings that change the shape of the [cornea](#) .

Keratotomy: Surgical removal of [cornea](#) I tissue.

Keratitis: Inflammation of the [cornea](#)

Keratotomy: Surgical incision (cut) of the [cornea](#) . .

Keratoconus: Rare, serious, degenerative [cornea](#) I disease, in which the [cornea](#) thins and assumes the shape of a cone.

Keratomileusis: Carving of the [cornea](#) to reshape it.

Keratoplasty: Surgical reshaping of the [cornea](#) .

Lacrimal apparatus: Part of the eye that produces tears.

LASEK: [Laser](#) Epithelial Keratomileusis, a [refractive](#) surgery in which the [epithelium](#) is cut with a fine blade, called a trephine, and involves displacing the [cornea](#) | epithelium as a sheet and then replacing it to (theoretically) act as a natural bandage.

Laser: Device that generates an intense and highly concentrated beam of light. Acronym for: Light Amplification by Stimulated Emission of Radiation. (Also see: [holmium laser](#) , [argon laser](#) , [Nd:YAG laser](#) , [femtosecond laser](#) , and [excimer laser](#))

Laser Thermokeratoplasty (LTK): Holmium 'hot' beam laser, instead of the 'cool' beam excimer laser, is used to treat farsighted patients and is very limited in its application; the effects are not long lasting.

LASIK: Laser Assisted In-Situ Keratomileusis, a [refractive](#) surgery in which [Excimer laser ablation](#) is performed under a [flap](#) on the [cornea](#) to correct [refractive errors](#) .

Lazy eye: Amblyopia, an eye condition noted by reduced vision not correctable by glasses or contact lenses and is not due to any eye disease.

Legally blind: 20/200 vision and over is the qualification of legal blindness in the United States.

Lens: Same as the [crystalline lens](#) . Double convex, clear part of the eye, behind the [iris](#) and in front of the vitreous humor. Serves to [refract](#) the various rays of light so as to form an image on the [retina](#).

Lenticular: Special non- [cataract](#) lenses for patients who have cataracts.

Lid speculum: A surgical tool that holds the eyelids open and which allows the surgeon to gain access to the eye with minimal pressure on the globe.

Limbal relaxing incisions (LRI): Small incisions placed on the far peripheral aspect of the [cornea](#) resulting in a cornea that is more round, for correcting [astigmatism](#) .

Limbus: Thin area that connects the [cornea](#) and the [sclera](#) .

Low vision: Condition occurring when ordinary eyeglasses or contact lenses are unable to bring a patient's sight up to normal sharpness.

LTK (Laser Thermal Keratoplasty): Holmium 'hot' beam laser, instead of the 'cool' beam excimer laser, is used to treat farsighted patients and is very limited in its application; the effects are not long lasting.

Lutein: Member of the carotenoid family of vitamins, similar to beta-carotene, thought to be beneficial to the eyes, helpful in treating diseases such as glaucoma.

Macula: Yellow spot on the [retina](#) , where the photoreceptors are most dense and responsible for the central vision. Has the greatest concentration of cones, responsible for visual acuity and the ability to see in color.

Macular edema: Collection of fluid in and under the macular portion of the [retina](#) .

Macular degeneration: Disease of the macula, which results in the loss of central vision.

Meridian: Orientation of a particular curve, often used in relation to the [cornea](#) .

Microkeratome: Mechanical surgical device that is affixed to the eye by use of a vacuum ring. When secured, a very sharp blade cuts a layer of the [cornea](#) at a predetermined depth.

Miosis: Pupillary constriction.

Monovision: Purposeful adjustment of one eye for near vision and the other eye for distance vision.

Mydriasis: Pupillary dilation.

Myopia: Also called nearsightedness or shortsightedness, the inability to see distant objects as clearly as near objects.

Near point of accommodation: Closest point in front of the eyes that an object may be clearly focused.

Near point of convergence: Maximum extent the two eyes can be turned inwards.

Nearsighted: Common term for [myopia](#) .

Neodymium YAG Laser: [Laser](#) used to treat Posterior Capsular Opacification (PCO) as well as [open angle glaucoma](#) Selective Laser Trabeculoplasty

Neovascularization: Often associated with diabetes, involves the formation of new blood vessels, often fragile and inappropriate for the location.

Nerve fibers/axons: Extensions of photoreceptors that form the nerve bundle that is called the optic nerve.

Neuro-ophthalmology: Subspecialty that treats the nervous and [vascular](#) systems that involve the eye.

Normal vision: Occurs when light is focused directly on the [retina](#) rather than in front or behind it.

Ocular herpes: A recurrent viral infection caused by the herpes simplex virus. Ocular herpes represents the most common infectious cause of corneal blindness in the United States.

Ocular hypertension: Elevated fluid pressure. The normal pressure is about 10 to 21mmHg, with the majority of people falling between 13 and 19. Over 21 is considered *suspicious*. Over 24 *cautiously concerned* - warranting immediate investigation. Over 30 is considered *urgent* and a potential emergency situation.

OD: Abbreviation standing for "oculus dextrum" meaning: right eye.

ONH: Optic nerve, optic nerve head. A bundle of nerve fibers about the diameter of pencil that passes through the back of the eyeball, and connects to the nerve fiber layer of the [retina](#) . It can be observed directly with an instrument called an ophthalmoscope.

Open angle glaucoma: Glaucoma conditions of long duration (chronic).

Ophthalmologist: An ophthalmologist is either a medical doctor (M.D.) or an osteopathic physician (D.O.) who is qualified and especially trained to diagnose and treat all eye and visual system problems, both medically and surgically, as well as diagnose general diseases of the body.

Ophthalmoscope: Instrument used to examine the interior of the eye: it consists of a perforated mirror arranged to reflect light from a small bulb into the eye.

Ophthalmoscopy: Examination of the internal structures of the eye using an illumination and magnification system.

Optic disc: The head of the optic nerve that is formed by the meeting of all [retina](#) | nerve fibers.

Optic nerve: Bundle of nerve fibers that connect the [retina](#) with the brain. The optic nerve carries signals of light to the area of the brain called the visual cortex, which assembles the signals into images called vision.

Optician: Expert who designs, verifies and dispenses lenses, frames and other fabricated optical devices upon the prescription of an ophthalmologist or an optometrist.

Optometrist: Eye care professional, graduate of optometry school, provides non-surgical visual care. Specifically educated and trained to examine the eyes, and determine visual acuity as well as other vision problems and ocular abnormalities. An optometrist prescribes glasses and contact lenses to improve visual acuity.

Orbit: Bony socket containing the eyeball, fat, extraocular muscles, nerves and blood vessels.

Orthokeratology (OK): Non-surgical procedure using contact lenses to alter the shape of the [cornea](#) to effect a change in the [refractive error](#) .

Orthoptics: Exercises designed to help the eye muscles work together to improve visual perception.

OS: Abbreviation standing for "oculus sinistrum" meaning: left eye

Overcorrection: Occurrence in [refract](#) ive surgery where the achieved amount of correction is more than desired; in [LASIK](#) , typically due to a patient's over-response to the [laser](#) ablation.

Pachymeter: Instrument that measures the distance between the top of the [cornea](#) | [epithelium](#) and the bottom of the [cornea](#) | endothelium used as diagnostic testing device measuring for [cornea](#) | thickness.

Pachymetry: Exam for measuring [cornea](#) | thickness.

Papilledema: Non-inflammatory swelling/elevation of the optic nerve often due to increased intracranial pressure or space-occupying tumor.

PD: Used on prescriptions to indicate the distance between the pupils of both eyes.

Pellucid marginal degeneration: A bilateral, noninflammatory, peripheral corneal thinning disorder, which is characterized by a peripheral band of thinning of the inferior cornea.

Peripheral vision: Ability to perceive the presence, motion, or color of objects outside the direct line of vision.

Personal Best Vision: Best possible vision for each individual as corrected.

Phacoemulsification cataract surgery: [Cataract](#) removal procedure which involves making a tiny incision, about 1/8" long. A pen-like instrument, inserted through the opening, is used to emulsify and aspirate the clouded lens material, using gentle sound waves. Then an [intraocular lens](#) is inserted into place.

Phacofracture cataract surgery: [Cataract](#) surgery in which the lens is removed through a small incision by "fracturing" it into several small segments, rarely used today.

Phakic Intraocular Lenses (IOLs): Placed inside the eye without removing the natural lens, and performs much like an internal contact lens.

Phoropter: A common device found in most eye doctor's offices, with multiple lenses, used to measure refractive errors. A phoropter calculates the prescription required for corrective lenses.

Photocoagulation: Focusing of powerful light rays onto tiny spots on the back of the eye, producing heat, which seals [retina](#) tears and cauterizes small blood vessels.

Photophobia: Sensitivity to light.

Photoreceptors: Microscopic light-sensitive cells that are located in the [retina](#) called [rods](#) and [cones](#) . There are approximately 7 million cones and 125 million rods

Photo Refractive Keratectomy (PRK): Surgery in which a small area on the [cornea](#) | [epithelium](#) (surface cells) is gently polished away. The [laser](#) then reshapes the [cornea](#) | surface in exactly the same way as for [LASIK](#) surgery.

Pingecula: Irritation caused degeneration of the [conjunctiva](#) resulting in a thickening and yellowing of the normally thin transparent tissue.

Pink eye: Type of conjunctivitis, commonly seen in children.

Posterior capsule: The thin membrane in the eye that holds the [crystalline lens](#) in place.

Posterior chamber: The back section of the eye's interior.

Posterior optical segment: Part of the eye posterior (behind) to the [crystalline lens](#) , including the vitreous, choroid [retina](#) and optic nerve.

Posterior Vitreous Detachment (PVD): Separation of the vitreous body from its attachment from the [retina](#) | surface due to shrinkage from degenerative or inflammatory conditions or trauma. An age-related condition.

Prelex: Surgical procedure that attempts to correct presbyopia.

Presbyopia: Inability to maintain a clear image (focus) as objects are moved closer. Presbyopia is due to reduced elasticity of the lens with increasing age.

Prescription: Amount of vision correction necessary, written in a form that can be utilized during the manufacture of corrective lenses or to configure a [laser](#) machine.

PRK: Acronym for Photo-Refractive Keratectomy, which is a procedure involving the removal of the surface layer of the [cornea](#) ([epithelium](#)) by gentle scraping and use of a computer-controlled excimer [laser](#) to reshape the [stroma](#) .

Progressive lenses: Bifocal or trifocal lenses which appear to be single vision with no distinct lines between the various focal lengths.

Punctal occlusion: Treatment for dry eye in which plugs are inserted into the punctum in order to retain lubricating tears naturally produced by the eye.

Punctum: The hole in the upper and lower eyelids through which tears exit the eye. In patients with dry eyes, temporary or permanent plugs may be inserted to help keep tears in the eye. Tears flow through the punctum to the nose, which is why people often experience a runny nose when crying.

Pupil: Black circular opening in the center of [iris](#) through which light passes into the [crystalline lens](#) . It changes size in response to how much light is being received by the eye, larger in dim lighting conditions and smaller in brighter lighting conditions.

Pupillary response: Constriction and dilation of the pupil due to stimulation by light or accommodation.

Radial Keratotomy (RK): Outdated procedure once used to correct mild to moderate [myopia](#) , whereby making a series of spoke-like incisions around its periphery flattens the [cornea](#) .

Refract: To bend aside, as in "the [crystalline lens](#) [refract](#) s the light as it passes through", or to measure the degree the eyes or lenses bend light, as in "the doctor [refract](#) s a patient's eyes".

Refraction: Test to determine the refractive power of the eye; also, the bending of light as it passes from one medium into another.

Refractive errors: The degree of visual distortion or limitation caused by inadequate bending of light rays, includes [hyperopia](#) , [myopia](#) , and [astigmatism](#) .

Refractive power: Ability of an object, such as the eye, to bend light as light passes through it.

Refractive surgery: Type of surgery (such as [LASIK](#)) that affects the [refract](#) ion of vision.

Retina: Layer of fine sensory tissue that lines the inside wall of the eye, composed of light sensitive cells known as [rods](#) and [cones](#) . Acts like the film in a camera to capture images, transforms the images into electrical signals, and sends the signals to the brain by way of the optic nerve.

Retinal Detachment: Condition wherein [retina](#) breaks away from the [choroid membrane](#) , causing it to lose nourishment and resulting in loss of vision unless successfully surgically repaired.

RK: Abbreviation for " [radial keratotomy](#) ", an outdated procedure once used to correct mild to moderate [myopia](#) , whereby making a series of spoke-like incisions around its periphery flattens the [cornea](#) .

Rods: One of the two types of light-sensitive cells, located primarily in the side areas of the [retina](#) (also see cones). There are about 125 million [rods](#) , which are responsible for visual sensitivity to movement, shapes, light and dark (black and white) and the ability to see in dim light.

Routine eye exam: To test the overall condition of the eye and prescribe corrective measures such as glasses, contact lenses or [LASIK](#) .

Schirmer test: Test for dry eyes, which uses a thin strip of filter paper placed at the edge of the eye.

Sclera: White part of the eye. Tough covering that (with the [cornea](#)) forms the external, protective coat of the eye.

Scotoma: Area of partial or complete loss of vision surrounded by an area of normal vision, as what can occur in advanced ARMD or glaucoma.

Single vision: Lenses with only one focal length.

Slit-Lamp: Ophthalmic instrument producing a slender beam of light used to illuminate and examine the external and internal parts of the eye.

Sloan eye chart: A common chart used to test visual acuity with black letters of various sizes against a white background.

Snellen eye chart: Most common chart used to test visual acuity with black letters of various sizes against a white background.

Snellen lines: Snellen optotypes arranged in horizontal rows called "lines".

Snellen optotypes: Specifically formed letters of the alphabet arranged in rows of decreasing letter size on the Snellen chart.

Sphere: Focusing power of the corrective lens.

Stereoscopic vision: Ability to see in three-dimension.

Stereopsis: Ability to perceive three-dimensional depth.

Strabismus: Condition occurs when the muscles of the eye do not aligned properly and binocular vision is not present. Patients with a history of strabismus may develop double vision after refractive eye surgery.

Stroma: Middle, thickest layer of tissue in the [cornea](#) .

Suppression: Inability to perceive all of part of objects in the field of vision of one eye.

Suspensory ligament of lens: Series of fibers that connect the [ciliary body](#) of the eye with the lens, holding it in place; ; also known as zonules.

Sympathetic ophthalmia: Inflammation of one eye following inflammation in the other eye.

Tonometry: Procedure for the measurement of intraocular pressure. A test for glaucoma.

Topography: A tool used to see the refractive problems that might be present in the cornea. Corneal topography is used not only for screening all patients before refractive surgery like LASIK but also for fitting contacts.

Toric: Lens (eyeglasses, [intraocular lens](#) , or contact lens) that is the warped (astigmatic) opposite to that of the eye, thereby canceling out the error.

Trabecular meshwork: Drainage channels located inside the eye.

Trabeculoplasty: A procedure for the treatment of glaucoma, using a [laser](#) ([Argon](#) or [Nd:YAG](#)). Trabeculoplasty remodels the trabecular meshwork in order to increase drainage of [aqueous](#) and lower the [intraocular pressure](#) .

Trifocals: Lenses containing three focal lengths, usually arranged with the focus for distance above, intermediate distance in the middle, and near vision below.

Twenty-twenty, 20/20 vision: To have 20/20 vision means that when you stand 20 feet away from the Snellen [eye chart](#) you can see what the majority of people can see at that same distance.

UCVA: [Uncorrected visual acuity](#).

Uveal tract: Pigmented, middle layers of the eye, which include the [choroid](#) , [ciliary body](#) and [iris](#) .

Uveitis: Inflammation of any portion of the uveal tract.

Ultrasound waves: Sound waves above 20,000 vibrations per second, above the range audible to the human ear, used in medical diagnosis and surgery.

Ultrasonography: Recordings of the echoes of ultrasound waves sent into the eye and reflected from the structures inside the eye or orbit. Ultrasonography is used to make measurements and to detect and localize tumors and [retina](#) I detachments.

Ultraviolet radiation: Radiant energy with a wavelength just below that of the visible light. UV-c is the shortest wavelength at 200-280 nm and is absorbed by the atmosphere before reaching the surface. UV-b, at 280-315 nm is the *burning rays* of the sun and damages most living tissue. UV-a, at 315-400 nm is the *tanning rays* of the sun and is somewhat damaging to certain tissues. UV radiation has been described as a contributing factor to some eye disease processes, which result in ARMD and [cataract](#) s and causes exposure keratitis.

Uncorrected visual acuity (UCVA): Best possible vision a person can achieve without corrective lenses measured in terms of [Snellen lines](#) on an [eye chart](#) .

Undercorrection: Occurrence in [refract](#) ive surgery where the achieved amount of correction is less than desired; in [LASIK](#) , typically due to a patient under-responding to the [laser](#) treatment.

Vascular: Having to do with transporting blood.

Vision: The ability of the brain to see and interpret what is in front of the eyes.

Vision therapy: Orthoptics, vision training, eye exercises. Treatment process for the improvement of visual perception and/or coordination of the two eyes, for more efficient and comfortable binocular vision.

Visual acuity: Clearness of vision; the ability to distinguish details and shapes, which depends upon the sharpness of the [retina](#) image.

Visual cortex: That part of the brain responsible for vision.

Visual field: Area or extent of space visible to an eye in a given position of gaze. There is a central visual field - the area directly in front of us, and a peripheral visual field - our "side vision". The fields of each eye partly overlap. We do not perceive the blind spots from each eye because the area that is missing in one eye is present in the other.

VISX CustomVue Procedure: WaveScan-driven laser vision correction with the potential to produce better vision than is possible with glasses or contact lenses, and enable surgeons to measure and correct unique imperfections in each individual's vision.

VISX STAR S4 Excimer laser System: Highly advanced laser technology platform, the VISX STAR S4 combines Variable Spot Scanning (VSS) and ActiveTrak 3-D Active Eye Tracking along with the WavePrint.

Vitreous humor, fluid, or body: Jelly-like, colorless, transparent substance occupying the greater part of the cavity of the eye, and all the space between the [crystalline lens](#) and the [retina](#) .

Vitrectomy: Surgical removal of vitreous humor that is diseased or has lost its transparency.

Wavefront: Wavefront technology produces a detailed map of the eye. The information is transferred to the [laser](#) via computer software.

YAG laser surgery: Properly called Nd:Yag laser capsulotomy, a procedure using a Nd:YAG (neodymium-yttrium-aluminum-garnet) laser, used primarily to treat secondary [cataract](#) s (capsular haze) that occur subsequent to the primary [cataract](#) procedure, or to relieve increased pressure within the eye from acute angle-closure glaucoma via a peripheral iridotomy. It can also be used to treat open angle glaucoma in a procedure called selective [laser trabeculoplasty](#).