

Glossary of Contact Lens Terminology

A

Aphakia:	Absence of the crystalline lens
Apical (Apex):	Highest point of a curve
Aqueous humor:	A clear, watery fluid secreted by the ciliary processes that occupies the anterior and posterior chambers. Provides nourishment to the cornea, iris, and lens, and maintains intraocular pressure
Arcuate stain:	Arc shaped corneal abrasion caused by the edge of a contact lens
Arcus senilis:	Whitish ring around outer edge of cornea (lipid deposit – seen in elderly)
Aspheric:	“Not” spherical. A lens surface design that flattens towards the periphery (<i>see eccentricity</i>)

B

Bandage contact lens:	Soft contact lens used to protect damaged or irregular corneal surfaces
Base Curve (BC):	Curvature of the posterior optical portion of a contact lens (<i>see Central Posterior Curve (CPC)</i>)
Bell’s Phenomenon:	Upward and outward deviation of the eyes occurring in sleep, or with forcible closure of the eyelids
Bicurve lens:	Lens consisting of two posterior surface curves – one central and one peripheral
Bitoric:	Lens design containing two principle power meridians, 90° apart, on both the anterior and posterior surfaces
Blends:	Junctures between posterior curves after being smoothed out by polishing
Blepharitis:	Inflammation of the eyelids
Blepharoptosis (<i>Ptosis</i>):	Drooping of the upper eyelid
Break-Up-Time (<i>BUT</i>):	Time interval between a blink and the development of a dry spot on the cornea
Bullous keratopathy:	Degenerative process characterized by small, blister-like pockets that form in swollen corneal epithelial layers

C

Cellulose Acetate Butyrate (<i>CAB</i>):	First generation, low Dk, gas permeable lens material
Chalazion (<i>internal hordeolum</i>):	Inflammatory enlargement of a meibomian gland of the eyelid
Chemosis:	Swelling
Chord length:	Measurement of a straight line joining the ends of an arc
CN bevel (<i>anterior bevel</i>):	Angulation placed on the anterior surface of a lens to reduce edge thickness and decrease lid sensation
Conjunctiva:	Mucous membrane that lines the underside of the eyelids, from the lid margin (<i>palpebral conjunctiva</i>), and continues over the sclera to the limbus (<i>bulbar conjunctiva</i>), via the upper and lower fornices.
Conjunctivitis:	Inflammation of the conjunctiva
Contact angle:	Lens material specification that defines its affinity for water – low contact angle is preferred
Copolymer:	Polymer containing two or more different monomers
Cornea:	Clear, transparent window to the eye
Corneal dystrophy:	Abnormal, or defective development of the cornea (<i>degeneration</i>)
Corneal graft (<i>transplant</i>):	Operation to restore vision by replacing a section of the cornea from a donor
Corneal hydrops:	A condition characterized by stromal edema due to leakage of aqueous through a tear in Descemet's membrane (<i>complication of keratoconus</i>)

D

Dacryoadenitis:	Inflammation of the lacrimal gland
Dacryocystitis:	Inflammation of the lacrimal sac
Daily wear lens:	CL designed to be worn for less than 24 hours, with cleaning and disinfection performed between wearing periods
Dellen:	Localized zone of corneal thinning, usually at the limbus, caused by excessive dehydration
Dessication:	Drying of the cornea, usually due to improper wetting of the horizontal extremes
Dimple veiling:	Indentations in corneal epithelium caused by air bubbles getting between the posterior lens surface and the cornea

Deturgescence:	Pumping mechanism of the corneal endothelium that maintains corneal hydration levels
Diameter (<i>DIA</i>):	Lens diameter
Diuretic:	Increases urine excretion
Dk:	A material's permeability to oxygen and other gases
• D:	Diffusion
• k:	Solubility
Dk/t:	Transmissibility – permeability based on a specific lens thickness
• t:	Thickness

E

Eccentricity:	The rate at which an aspheric surface flattens towards the periphery (<i>"e" value</i>)
Ectropion:	Outward turning of the eyelid
Edema (<i>corneal</i>):	Swelling of the cornea
Effectivity:	The change in effective power of a lens due to positional changes, such as vertex distance
Entropion:	Inward turning of the eyelid
Epiphora:	Watering eyes (<i>dry eye induced tearing</i>)
Erosion (<i>recurrent corneal</i>):	Periodic loss of corneal epithelium due to its failure to adhere properly to Bowman's layer
Extended Wear lens:	Contact lens designed to be worn for 24 hours per day, for an approved number of days

F

Fenestration:	Tiny hole in a contact lens made to enhance the transmission of tears and oxygen through the lens material
Fluorescein (<i>sodium</i>), NaFl:	Fluorescent dye that can be instilled into the eyes. Used for many purposes, including rigid lens fitting evaluation
Fluoro-silicone acrylate (<i>FSA</i>):	Rigid lens material containing fluorine for stability, wettability, and added oxygen transmission; silicone for increased oxygen permeability; and, methylmethacrylate for machinability and good optical clarity

Fogging:	A refraction refinement technique where a “plus” powered lens is used to relax accommodation
Front toric:	Lens design containing two principle power meridians, 90° apart, on the anterior surface, and one on the posterior
Fuchs’ dystrophy:	Degenerative corneal disease that results in corneal edema

G _____

Giant Pupilary Conjunctivitis (<i>GPC</i>):	Allergic conjunctival inflammatory response to soiled soft contact lenses
Guttata / Guttatae:	Tiny bumps that accumulate on Descemet’s membrane (<i>related to Fuch’s dystrophy</i>)

H _____

Herpes simplex virus (<i>HSV</i>):	Virus that recurrently infects the cornea, producing branch-like ulcers (<i>dendritic keratitis</i>)
Hordeolum (<i>stye</i>):	Infection of a Zeiss gland
Horizontal Visible Iris Diameter (<i>HVID</i>):	Measurement used to determine CL diameter
Hybrid lens:	Rigid lens with a soft carrier skirt
Hydrogel:	Polymer that absorbs and binds water into its molecular structure
Hydrophilic:	Water loving
Hydroxyethylmethacrylate (<i>HEMA</i>):	Plastic polymer used to make soft contact lenses
Hyperemia (<i>injection</i>):	Dilation of blood vessels
Hyperflange:	A “plus” lenticular carrier
Hypertonic saline:	Salt water of a higher concentration than normal saline (<i>used to dehydrate a swollen cornea – Fuchs’ dysptrophy</i>)
Hypesthesia:	Impaired or decreased sensitivity to touch
Hypoxia:	Oxygen deprivation

I _____

Infiltrates:	Groups of white blood cells in corneal tissue
Injection (<i>hyperemia</i>):	Increased blood flow – usually refers to redness

K _____

Kerataconus:	Degenerative corneal disease – irregular steepening of central cornea, resulting in apical thinning
Keratitis:	Corneal inflammation
Keratitis sicca:	Inflammation of the cornea due to dryness associated with tear deficiency
Keratometry values (<i>K's</i>):	Corneal curvature measurements obtained using a keratometer

L _____

Lacrimal lens:	Lens formed by the pre-corneal tear film that collects between the posterior surface of a rigid lens and the cornea
Lagophthalmos:	Incomplete eyelid closure
Leukoma:	Dense corneal opacity

M _____

Meibomitis:	Inflammation of the meibomian glands
Meibomian Gland Dysfunction (<i>MGD</i>):	Blockage of the meibomian glands resulting in reduced secretion of the lipid layer of the tear film
Microcystic edema:	Advanced form of edema involving the deeper cell layers of the epithelium
Microcyst:	Tiny corneal cyst caused by hypoxia
Modality:	Contact lens replacement regimen (<i>schedule</i>)
Modulus:	A measure of the rigidity of a contact lens

N

Nebula:	Medium density corneal opacity
Neovascularization:	Abnormal formation of new blood vessels
Nevus:	Mole (<i>freckle</i>)

O

Optical Zone Diameter (OZD):	Central 65-80% of the lens; provides correction for refractive error
Overall Diameter (OAD):	Total lens diameter
Overwear Syndrome (OWS):	Pain, sensitivity to light, corneal swelling, and epithelial erosion, due to prolonged contact lens wear

P

Palpebral aperture / fissure:	Vertical opening of the eyelids
Pathology:	The medical science that deals with all aspects of disease, its cause(s), and changes that result
Permeability:	The ability of a lens material to allow the passage of gases
Photophobia:	Abnormal sensitivity to light
Pinguecula:	Small, rounded, yellowish, benign growth
Polymethylmethacrylate (PMMA):	Plastic polymer used to make rigid contact lenses (<i>impermeable to gases</i>)
Polymegathism:	A variation in cell size
Polymer:	Small chemical units, or monomers, linked together to form a repeating chemical chain
Pooling:	Accumulation of tears under a lens – indicates clearance between lens and cornea
Prism ballast:	A prismatic shape used in a contact lens to stabilize the lens by preventing rotation
Pterygium:	Triangular fold of growing membrane that may extend over the cornea from the sclera
Ptosis (<i>Blepharoptosis</i>):	Drooping eyelid
Punctate keratitis:	Corneal inflammation characterized by small superficial corneal lesions

R

Radiuscope:	Instrument used to measure the base curve(s) of a contact lens
Radius of curvature:	An expression of the surface curvature by referencing the length of the curve's radius
Residual astigmatism:	Astigmatism left uncorrected
Rigid lens:	Hard lens
Rigid Gas Permeable (RGP or GP):	Rigid lens material permeable to gases

S

Sagittal depth (SAG):	CL SAG is measured by a perpendicular line from its apex to a line intersecting its diameter
Schirmer test:	Test performed using filter paper to measure tear quantity
SCL:	Abbreviation for soft contact lenses
Silicone Acrylate (SA):	A lens material that combines silicone for oxygen transmissibility, and methacrylate for optical quality, lens machinability, and stability
Single-cut lens:	Lens with no lenticular carrier
Slit lamp (<i>Biomicroscope</i>):	Binocular microscope used for ocular examination.
Soft Lens:	Hydrogel or silicone hydrogel (<i>water based</i>)
Spectacle blur:	Blurred vision through spectacles after removal of contact lenses
Spherical equivalent (SE):	Substitution of a spherical power for a cylindrical one $SE = \text{Sphere} + (\text{cylinder power} \div 2)$
Staining:	Process of using dye in the eye to evaluate surface defects of the cornea
Striae:	Wrinkles or folds seen in the cornea (<i>vertical or horizontal lines</i>)
Stye:	(<i>See hordeolum</i>)
Subconjunctival Hemorrhage:	Leaking blood vessel beneath the conjunctiva

T

Tear Break-Up Time (<i>TBUT</i>):	Time interval between a blink and the development of a dry spot on the cornea
Tear meniscus:	Pool of tears located under the periphery of a rigid lens which indicates the edge lift or clearance; also, tears that collect along the lid margins (<i>tear prism</i>)
Tear pump:	Created when a rigid lens forms a good BC-cornea relationship to allow the exchange of tears between the lens and the cornea. Provides adequate oxygenation and debris removal with each blink
Tetracurve lens:	Lens designed with four posterior curves – one central base curve, and three peripheral
Three-an d-nine o'clock staining (<i>3&9 staining</i>):	Horizontal areas of the cornea (<i>at 3 and 9 o'clock positions</i>) which characteristically dry out and become damaged (<i>dessication</i>)
Toric:	Lens with a cylindrical component, used to correct astigmatism
Trachoma:	Viral infection of conjunctiva, producing severe scarring of lids, and eventually the cornea
Trichiasis:	Abnormally positioned eyelashes
Tricurve lens:	Lens designed with three posterior curves – one central base curve, and two peripheral
Truncation:	Rotational control achieved by making the bottom edge of the lens flat

U

Ulcer (<i>corneal</i>):	Open corneal tissue as a result of trauma, burns, or infection
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V

Vault:	Area of clearance between posterior lens surface and anterior cornea
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W

Wettability:	Lens material characteristic that describes how well tears spread across its surface
Wetting angle (<i>WA</i>):	Lens material specification that defines its affinity for water – low <i>WA</i> is preferred