

Glossary of Contact Lens Terminology

A

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| 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

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| 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

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| 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

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| 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 |

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| 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

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| 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

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| 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 |

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| 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

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| 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

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| 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 |

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

K _____

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| 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 _____

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| 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 _____

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| 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

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

O

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| 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

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| 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

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| 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

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| 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

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| 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

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

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

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| 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 |