

Contact Lenses

Recent advances in biomedical technology now allow more patients to successfully wear contact lenses than ever before. Circumstances such as dry eyes, eye allergies and challenging lens prescriptions still exist, but new products being offered have greatly improved the means to overcome many of them.

New lens materials incorporating the element silicon into their polymers are being used to manufacture many of the latest contact lenses. These new "silicone hydrogel" lenses afford much improved permeability to oxygen and result in much better corneal health and lens tolerance. Many of these new silicone hydrogels also have special surface treatments to enhance wettability, substantially improving their comfort. In addition to better oxygen availability and better wettability, the new silicone hydrogels offer an inherent resistance to accumulation of protein deposits, called "jelly bumps", on their surface. Although more deposit resistant, proper lens cleaning and disinfection are still required with all types of lenses to ensure maximal efficacy in removing debris each time they are removed from the eye.

Contact lenses are now readily available in a wider range of prescriptions than ever before, including choices for higher levels of near sightedness (myopia) far sightedness (hyperopia) and astigmatism. In astigmatism, the surface of an individual's eyes is somewhat "out of round", with a shape closer to a football than a basketball. Lenses for astigmatism offer a dual

challenge as they must both correct the irregular focusing caused by the unusual shape of the eye while remaining in a relatively stable position on the eye over time.

In patients who have trouble focusing close to read or use a computer, the diversity of visual needs often necessitate different prescriptions for far and near vision. There are several new designs of "multifocal" soft disposable lenses that can address these needs. These multifocal lenses fall into two main categories, aspheric and concentric. Aspheric lenses use an optical correction incorporating an aspheric design. This is a lens whose curvature flatten progressively from center to edge, offering a "bifocality" effect as a result. The concentric lens design features two distinct zones in each lens, one inside the other. The lens' two discrete zones function simultaneously, one focusing for distance and the other for near. Much like our "handedness", we each have a dominant and non-dominant eye that the visual system assigns during our development.

Multifocal lenses are also readily available in the newer rigid gas permeable (RGP) lens materials. Although gas permeable lenses often take a longer time period to acclimate to, the vision and eye health benefits they afford wearers is outstanding. In cases where the shape or structure of the cornea is at all irregular, the rigid character of these materials allows for a crisper focus than a comparable soft lens.

