

Contact Lenses



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Types of Contact Lenses

There are different types of contact lenses available on the market. They are:

Soft Lenses

Soft contact lenses are made of soft, flexible plastics which are easier to adapt to and are more comfortable than rigid gas permeable lenses. Some soft lenses are made of silicone hydrogel, allowing more oxygen to pass through to the cornea.

There are several types of soft contact lenses:

- Disposable lenses are replaced regularly and are removed prior to sleeping. According to the contact lens types, the frequency of replacement can be daily, bi-weekly, monthly or quarterly. These lenses are more expensive, but the chance of developing an eye infection or contact lens complication is less. However, if the lenses are overworn or not properly cleaned and disinfected for non-daily disposable before use, some risks are still present
- Extended wear lenses are designed for overnight wearing, typically for 6 consecutive nights or more. Length of continuous wear depends on the lens type and your eye care professional's evaluation on your tolerance for overnight wearing
- Conventional lenses are long-term lenses that are usually worn for about one year before being replaced. This type of lens should be cleaned and disinfected with extra care

Rigid Gas Permeable (RGP) Lenses

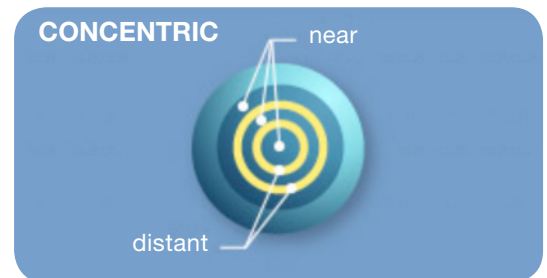
RGP lenses are made of rigid gas permeable materials such as silicone or fluoroperm, allowing good oxygen permeability to the eyes. They are easier to handle, more durable and more resistant to deposit build-up. They generally give clearer vision, especially for patients with high astigmatism and are more suitable for patients with dry and allergic eyes. However, they are not as comfortable initially as soft contact lenses, and it may take a few weeks to get used to wearing RGPs while only several days are needed for soft contact lenses.

Functions of Contact Lenses

1. Corrective contact lenses correct refractive errors and improve vision

Most commonly, corrective contact lenses are designed to improve vision for patients with refractive errors such as nearsightedness and farsightedness. Nowadays, toric and multifocal contact lenses are also available on the market to correct astigmatism and presbyopia as well.

There are several designs for multifocal contact lenses. The most commonly used design is the concentric bifocal pattern. In this design the near prescription is in the centre and the far prescription is at the peripheral, but they can be reversed. Multifocal contact lenses can give you acceptable vision for most of your daily activities but you may still need glasses for specific tasks like driving at night or reading small print.



2. Keratoconus contact lenses improve vision by creating a smooth, regular optical surface on cornea

Keratoconus (ectatic corneal dystrophy) is a progressive, debilitating eye disease characterised by degenerative thinning and protrusion of the central cornea. Keratoconus results in visual distortion, photophobia, halos around lights, ghosting and glare, decreased vision, and monocular diplopia (double-vision). Those with keratoconus suffer from decreased vision which cannot be corrected with spectacles or conventional contact lenses, however, most can achieve functional vision with specially designed therapeutic RGP contact lenses or a combination of RGP lens riding on a soft lens. These uniquely designed keratoconic lenses improve vision by providing a clear optical lens that masks the distorted areas of the cornea to create a smooth, regular optical surface over the patient's very irregular, cone-shaped cornea.

3. Orthokeratology (Ortho-K, OK lens) lenses can only temporarily correct low degree of myopia by wearing lenses overnight

Orthokeratology lenses are specially designed RGP contact lenses which alter the shape of the cornea to correct low degrees of myopia. These lenses are usually worn overnight during sleep to deliberately flatten and reshape the cornea to improve vision, leaving the eye without contact lens or glasses correction during the day. However, after stopping wearing these orthokeratology lenses for a few days, the cornea will bounce back, leading to the recurrence of refractive error.

This type of lenses are more readily to induce some contact lens-related problems, such as corneal epithelial abrasion due to trapped foreign bodies

under lenses, contact lens dislocation on rubbing of eyes, corneal edema, solution sensitivity, eye infection or even corneal ulceration. Due to the overnight-wear regime, the risk of complication is higher than daytime-wear contact lenses. There is no sufficient evidence that orthokeratology lens prevents myopia progression. We do not recommend using this type of contact lenses.

4. Prosthetic contact lenses enhance the visual function and cosmetic appearance in some cases of eye diseases or injured cornea

Special prosthetic contact lenses are designed to help patients who have significant ocular disfigurement secondary to trauma or disease. The prosthetic contact lenses can be used in cases of corneal scars, aniridia or absence of iris pigmentation in albinism to reduce light sensitivity. The lenses can also mask disfigured or scarred eyes caused by accidents, to give patients a more normal appearance. These lenses provide patients with visual and cosmetic enhancement.



Without prosthetic contact lens



With prosthetic contact lens

Other conditions where contact lenses are medically useful include unilateral aphakia, post-corneal transplant, very high myopia and protection against inturning eye lash rubbing the cornea.

5. Therapeutic bandage lenses aid in the healing of injured or diseased cornea

Therapeutic bandage lenses are a type of extended wear contact lenses. They are used as bandages for various eye conditions that cause eye irritation. They are used in the treatment of conditions such as cornea ablation after phototherapeutic keratectomy, corneal abrasion after injuries or recurrent erosion, bullous keratopathy, etc. These lenses promote cornea healing, serve as a protective barrier, and reduce discomfort in eyes from the constant rubbing of blinking eyelids.

Bandage lenses are mostly made of silicon hydrogel, allowing high oxygen permeability to facilitate healing of the cornea. Unlike other protective options such as pressure patching, bandage contact lenses allow easy eye medication instillation and promote drug delivery to the cornea lesion.

Contact Lens Complications

There are risks associated with the wearing of contact lenses. The corneal surface may be damaged by contact lenses, especially when the cornea is very dry, which can result in corneal abrasion, infections and ulcer. Prolonged wearing of contact lenses may lead to corneal edema or neovascularisation due to lack of oxygen supply to the cornea. Vision may be impaired in these situations.

Another common complication, more often associated with soft contact lenses, is giant papillary conjunctivitis. It is an allergic reaction to lens protein deposits, contact lens material or solution. It will cause redness, itchiness, increased mucus secretion, blurry vision and contact lens intolerance.

To prevent the above situations, you should undergo regular eye check-ups. It is advisable to see a doctor if your eyes are itchy, red, irritated, tearing or painful.

Choose a Suitable Type of Contact Lens

Due to differences in individual needs and eye conditions, you should consult your eye doctor or optometrist before using any type of contact lenses.

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