

Orthokeratology: Reshaping Vision Correction

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Abstract

Orthokeratology (Ortho-K), often referred to as corneal reshaping therapy or overnight vision correction, is a non-surgical method aimed at temporarily reducing or eliminating refractive errors such as myopia (nearsightedness) and astigmatism. This innovative approach utilizes specially designed gas-permeable contact lenses to reshape the cornea overnight, providing clear vision during the day without the need for glasses or traditional contact lenses.

Keywords: Orthokeratology; Vision correction; Refractive errors

Introduction

Ortho-K lenses are custom-made based on the individual's eye curvature and prescription. These lenses are worn overnight, gently reshaping the cornea while the person sleeps. By applying gentle pressure to specific parts of the cornea, Ortho-K lenses correct refractive errors by altering how light is focused on the retina. This temporary reshaping effect allows for clear vision throughout the day, typically lasting one to two days before requiring nightly wear again [1-3].

Methodology

Benefits of orthokeratology

Reduced dependence on glasses and daytime contact lenses: Ortho-K provides clear vision during the day without the hassle of wearing glasses or contact lenses, making it particularly appealing for individuals involved in sports or professions where glasses may be cumbersome.

Myopia control: There is growing evidence suggesting that Ortho-K may help slow down the progression of myopia in children and adolescents. By reshaping the cornea, Ortho-K lenses may reduce the elongation of the eyeball associated with myopia progression.

Myopia control focuses on strategies aimed at slowing down the progression of nearsightedness, particularly in children and adolescents. It addresses the increasing prevalence of myopia worldwide and its potential long-term implications for eye health. Methods for myopia control include orthokeratology (Ortho-K), multifocal contact lenses, and pharmaceutical interventions like atropine eye drops. These approaches work by either reshaping the cornea temporarily, altering peripheral defocus, or inhibiting the elongation of the eyeball. The goal is to reduce the degree of myopia progression, thereby lowering the risk of associated complications such as retinal detachment, myopic macular degeneration, and glaucoma later in life. Effective myopia control requires early intervention and regular monitoring by eye care professionals to tailor treatment strategies based on individual needs and responses. Ongoing research continues to refine these methods, offering hope for managing myopia as a public health concern globally.

Non-surgical and reversible: Unlike laser eye surgery, Ortho-K is non-invasive and reversible. If discontinued, the cornea will gradually return to its original shape, making it a flexible option for those who may not want permanent changes to their eyes.

Suitable for various refractive errors: Ortho-K can correct mild to moderate myopia and astigmatism. It is also being explored for hyperopia (farsightedness), although results may vary [4-6].

Considerations and safety

While Ortho-K is generally considered safe when prescribed and monitored by an eye care professional, it's essential to consider potential risks and side effects. These may include discomfort during lens insertion and removal, temporary glare or halos around lights, and the risk of eye infections if lenses are not properly cleaned and maintained.

Ortho-K is often recommended for individuals who:

Have mild to moderate myopia or astigmatism.

Prefer not to wear glasses or daytime contact lenses.

Seek a non-surgical alternative to laser eye surgery.

Are looking to potentially slow down myopia progression in children [7-10].

Conclusion

Orthokeratology represents a promising avenue in vision correction, offering a non-surgical, reversible alternative to traditional methods. By reshaping the cornea overnight, Ortho-K lenses provide clear vision throughout the day, potentially reducing the need for glasses and mitigating myopia progression in younger individuals. However, like any vision correction method, it requires careful consideration and professional oversight to ensure safety and effectiveness.

As research continues to explore its long-term effects and applications, Orthokeratology remains a valuable option for those seeking freedom from glasses and daytime contact lenses while maintaining optimal eye health and visual clarity.

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