

## Smile eye surgery: A minimally invasive alternative to Lasik.

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### Introduction

SMILE (Small Incision Lenticule Extraction) eye surgery is a modern, minimally invasive procedure designed to correct vision problems, including nearsightedness (myopia) and astigmatism. It offers an alternative to the more widely known LASIK (Laser-Assisted In Situ Keratomileusis) procedure, providing certain benefits like faster healing times and reduced risk of complications. As technology advances, more patients are opting for SMILE surgery due to its less invasive nature and comparable results in improving vision. This article explores SMILE eye surgery in detail, including its procedure, advantages, risks, and how it compares to LASIK [1].

SMILE is a form of laser vision correction that reshapes the cornea to improve vision. Unlike LASIK, which involves creating a corneal flap, SMILE uses a femtosecond laser to create a small, disc-shaped tissue (lenticule) within the cornea. This lenticule is then removed through a tiny incision, correcting the patient's refractive error. The surgery is primarily used for treating myopia and astigmatism, and it has become popular due to its minimally invasive nature, leaving more of the corneal structure intact compared to LASIK [2].

The SMILE procedure begins with the application of numbing eye drops to ensure the patient's comfort during surgery. The surgeon then uses a femtosecond laser to create the lenticule within the cornea. Afterward, a small 2-4mm incision is made on the surface of the cornea through which the lenticule is carefully extracted. By removing this tissue, the cornea is reshaped to allow light to focus correctly on the retina, thereby improving vision. The entire process typically takes 15-20 minutes, and both eyes can be treated in one session [3].

One of the main advantages of SMILE surgery is that it is less invasive than LASIK. Since no large corneal flap is created, there is a lower risk of complications such as flap dislocation or dry eye syndrome. The small incision used in SMILE surgery also heals faster than the larger flap created during LASIK, leading to quicker recovery times for patients. Additionally, SMILE is a good option for people with thinner corneas or those who may not qualify for LASIK due to the risks associated with flap creation [4].

Compared to LASIK, SMILE surgery generally results in a quicker recovery process and fewer post-operative side effects. Patients typically experience less dry eye after SMILE due to the smaller incision, which causes less disruption to the

corneal nerves responsible for tear production. Additionally, since the procedure does not involve creating a flap, there is no risk of flap-related complications like displacement, which can occur after LASIK. Many SMILE patients can return to normal activities, including work, within a few days, though full visual stabilization may take a few weeks [5].

Not everyone is eligible for SMILE surgery, but the procedure is suitable for many patients with myopia or astigmatism. Ideal candidates are over the age of 22, have had stable vision for at least a year, and have a healthy cornea with sufficient thickness. SMILE is often recommended for people with dry eyes, thin corneas, or those involved in contact sports where there is a higher risk of eye injury. However, patients with extreme refractive errors, severe dry eye, or other eye conditions may not qualify for SMILE and should consult an eye specialist to determine the best treatment option [6].

Both SMILE and LASIK are effective for correcting refractive errors, but there are some key differences between the two procedures. LASIK involves creating a larger corneal flap, which can take longer to heal and carry certain risks, whereas SMILE requires only a small incision, reducing the risk of flap-related complications. While LASIK can treat a wider range of refractive errors, SMILE is currently limited to myopia and astigmatism. However, for patients who are eligible for both procedures, SMILE offers the benefit of less invasive surgery with fewer potential side effects [7].

As with any surgical procedure, there are some risks and complications associated with SMILE, though they are relatively rare. Common risks include temporary visual disturbances such as halos, glare, or sensitivity to light, which usually resolve within a few weeks. In rare cases, some patients may experience under-correction or over-correction of their vision, which may require additional treatment. Corneal infections or scarring are also possible but can be minimized with proper post-operative care. It is important for patients to follow their surgeon's instructions and attend follow-up appointments to ensure a smooth recovery [8].

After SMILE surgery, patients are typically prescribed antibiotic and anti-inflammatory eye drops to prevent infection and promote healing. Most people experience minimal discomfort after the procedure, with slight irritation or tearing in the first few hours. It's important to avoid rubbing the eyes and to wear protective eyewear during sleep for the first week to prevent accidental injury. Patients should also

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avoid swimming, contact sports, and using eye makeup for at least two weeks. While many people notice improved vision within 24 hours, full recovery may take up to three months [9].

SMILE surgery has been shown to provide excellent long-term results, with most patients achieving 20/20 vision or better after the procedure. Studies indicate that SMILE has a high success rate, with the vast majority of patients reporting satisfaction with their vision improvement. While some patients may experience a gradual decline in vision over time due to natural aging processes like presbyopia, the results of SMILE are generally permanent. Furthermore, the risk of needing enhancement surgery is relatively low compared to LASIK, thanks to the stability of the corneal structure following SMILE [10].

## Conclusion

As laser vision correction technology continues to advance, SMILE surgery is expected to become an even more popular option for patients seeking alternatives to LASIK. Ongoing research aims to expand the range of refractive errors that can be treated with SMILE, making it accessible to a broader group of patients. Additionally, future developments in laser precision and safety may further enhance the outcomes of SMILE surgery, reducing complications and improving recovery times even further. For now, SMILE remains an excellent choice for those seeking a minimally invasive, effective solution for vision correction.

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