

# Functional Eye Dressings in the Treatment of Chemical Eye Burns.

Michael Thompson\*

Department of Ophthalmic Surgery, Johns Hopkins University, US

## Introduction

Laser vision correction surgeries like LASIK (Laser-Assisted In Situ Keratomileusis) and PRK (Photorefractive Keratectomy) have become increasingly popular for correcting refractive errors, such as nearsightedness, farsightedness, and astigmatism. Despite the efficacy of these surgeries, the healing process plays a critical role in ensuring successful outcomes. One of the essential components of postoperative care is the use of functional eye dressings. These dressings are designed to protect the eyes, promote healing, and provide comfort after surgery. This article explores the various types of functional eye dressings used in post-LASIK and PRK care and their importance in ensuring a smooth and successful recovery [1].

While both LASIK and PRK aim to correct vision by reshaping the cornea, they differ in their surgical approach. LASIK involves creating a corneal flap, reshaping the underlying corneal tissue, and then replacing the flap. PRK, on the other hand, removes the outer epithelial layer of the cornea entirely, allowing the underlying tissue to be reshaped. The epithelial layer regenerates during the healing process. Since the cornea is exposed to varying degrees after both surgeries, functional eye dressings play a crucial role in protecting this sensitive area during the healing phase [2].

Following LASIK and PRK, the cornea is vulnerable to environmental irritants, potential infection, and unintentional trauma, such as rubbing or bumping the eye. Functional eye dressings help to create a barrier between the eye and these external factors, ensuring that the cornea is shielded during the early stages of recovery. Without adequate protection, the healing process could be compromised, leading to complications such as inflammation, delayed epithelial healing, or even infection. The use of functional dressings is especially critical in the first few days following PRK, as the cornea's epithelial layer is completely removed and requires time to regenerate [3].

Bandage contact lenses are a common form of functional eye dressing used after PRK surgery. Since PRK involves the removal of the corneal epithelium, these lenses act as a protective barrier, reducing discomfort and promoting healing. Bandage lenses allow the regenerating epithelial cells to migrate over the corneal surface, while also providing relief from irritation caused by blinking. They are typically worn

for a few days until the epithelial layer heals sufficiently. In addition to protecting the corneal surface, bandage contact lenses also reduce the risk of infection by preventing foreign particles from entering the eye during the healing process [4].

Dry eye is a common side effect after both LASIK and PRK, as these surgeries can temporarily disrupt tear production and the stability of the tear film. Moisture chamber goggles are an effective solution for managing dry eye symptoms in the postoperative period. These goggles create a humid environment around the eyes, reducing tear evaporation and helping to maintain adequate moisture levels. By minimizing dryness, moisture chamber goggles aid in the healing process, making them particularly beneficial for patients experiencing significant discomfort due to dry eye after surgery [5].

After LASIK surgery, the corneal flap needs to adhere and heal properly, and the eye is more susceptible to external trauma, such as accidental rubbing or direct impact. Transparent eye shields, often used immediately following LASIK, serve to protect the eye from these types of injuries. These shields are typically worn during sleep and when in environments where the eye may be exposed to dust, wind, or other irritants. Transparent shields offer the benefit of preserving vision while providing a robust protective barrier, reducing the risk of flap dislocation or other complications during the critical early recovery period [6].

Both LASIK and PRK can cause mild to moderate inflammation and swelling during the initial healing phase. In some cases, pressure eye dressings are used to manage this swelling by applying gentle, controlled pressure to the eye. These dressings help to reduce edema and promote healing by minimizing fluid accumulation in the corneal tissue. Pressure dressings are especially useful after PRK, where the removal of the corneal epithelium can lead to more pronounced swelling. These dressings can be customized to ensure appropriate pressure is applied, promoting faster recovery while preventing complications such as corneal haze or scarring [7].

Infection is a rare but serious complication following LASIK and PRK surgeries. To mitigate this risk, antimicrobial eye dressings are sometimes used in the postoperative care regimen. These dressings are infused with antimicrobial agents, such as antibiotics or antiseptics, to help reduce the risk of bacterial or fungal infections on the healing corneal

---

\*Correspondence to: Michael Thompson, Department of Ophthalmic Surgery, Johns Hopkins University, US, E-mail: [mthompson@jhu.edu](mailto:mthompson@jhu.edu)

Received: 03-Oct-2024, Manuscript No. OER-24-149613; Editor assigned: 05-Oct-2024, Pre QC No. OER-24-149613(PQ); Reviewed: 19-Oct-2024, QC No. OER-24-149613; Revised: 25-Oct-2024, Manuscript No. OER-24-149613 (R); Published: 30-Oct-2024, DOI: [10.35841/oe-8.5.236](https://doi.org/10.35841/oe-8.5.236)

surface. Antimicrobial dressings are particularly beneficial for patients with an increased risk of infection, such as those with a history of ocular infections or immune system disorders. By providing localized antimicrobial protection, these dressings help ensure a safe and smooth recovery [8].

PRK patients, in particular, often experience significant light sensitivity and discomfort during the first few days after surgery, due to the removal of the corneal epithelium. Therapeutic eye patches are sometimes used to alleviate these symptoms by keeping the eyelid closed and blocking out light. These patches help reduce photophobia (light sensitivity) and provide relief from the pain associated with blinking. By keeping the eye in a dark and moist environment, eye patches also support the regeneration of the epithelial layer and prevent excessive tearing, further aiding the healing process [9].

Not all patients will require the same type of eye dressing's post-LASIK or PRK, as individual healing patterns and risks vary. Customizable eye dressings offer a flexible approach to postoperative care, allowing for adjustments based on the specific needs of each patient. For instance, patient's prone to dry eye may benefit from moisture-retentive dressings, while those at risk for infection may require antimicrobial-infused dressings. By tailoring the use of eye dressings to the unique requirements of each patient, ophthalmologists can optimize recovery outcomes and minimize the risk of complications [10].

## Conclusion

Functional eye dressings are a crucial component of postoperative care following LASIK and PRK surgeries. They protect the healing cornea, manage dry eye symptoms, prevent infection, and provide comfort during recovery. The appropriate use of these dressings can significantly improve patient outcomes, ensuring faster healing and reducing the risk of complications.

## References

1. Sarnicola E, Sarnicola C, De Bernardo M. Cataract surgery in setting of ocular surface disease. *Curr Opin Ophthalmol.* 2024;35(2):155-62.
2. Doroodgar F, Sedaghat M, Niazi S. LASIK, SMILE and PRK: advantages and indications. *Int Eye Sci.* 2019;1643-51.
3. Albietz JM, Lenton LM. Management of the ocular surface and tear film before, during, and after laser in situ keratomileusis. *J Refract Surg.* 2004;20(1):62-71.
4. Armitage BS, Muckley ED, Catania LJ. Catania's Primary Care of the Anterior Segment. CRC Press. 2023.
5. Melki SA, Azar DT. LASIK complications: etiology, management, and prevention. *Surv Ophthalmol.* 2001;46(2):95-116.
6. Holland EJ, Mannis MJ, Lee WB. Ocular Surface Disease: Cornea, Conjunctiva and Tear Film E-Book: Expert Consult-Online and Print. Elsevier. 2013.
7. Shao CG, Sinha NR, Mohan RR. Novel therapies for the prevention of fibrosis in glaucoma filtration surgery. *Biomedicines.* 2023;11(3):657.
8. Ruiz-Lozano RE, Azar NS, Mousa HM, et al. Ocular surface disease: a known yet overlooked side effect of topical glaucoma therapy. *Front Toxicol.* 2023;5:1067942.
9. Sahay P, Bafna RK, Reddy JC. Complications of laser-assisted in situ keratomileusis. *Indian J Ophthalmol.* 2021;69(7):1658-69.
10. Mastropasqua L, Barboni P, Savini G, et al. Refractive surgery and dry eye. *Eur J Ophthalmol.* 2023;11206721231176312.