

# Pediatric Use of Functional Eye Dressings: Protecting Children's Eyes.

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## Introduction

Children are prone to a variety of eye injuries and conditions that require medical intervention and, in many cases, the use of functional eye dressings. These dressings serve critical roles in promoting healing, preventing infections, and protecting the delicate structures of the eye in pediatric patients. Unlike adult patients, children often present unique challenges in eye care due to their active lifestyles, smaller anatomical structures, and limited ability to follow instructions. Thus, functional eye dressings for children must be designed to meet specific needs, including enhanced comfort, better adherence, and effective protection [1].

Children's eyes are particularly vulnerable to injury and disease. From playing in unsupervised environments to being exposed to external irritants like dust and allergens, the risk factors for eye injury are high. Additionally, conditions such as amblyopia (lazy eye) and infections like conjunctivitis are more common in children and often require the use of functional eye dressings. Proper protection is crucial in pediatric care, as injuries or infections can have long-term consequences on a child's vision. Functional eye dressings, when applied appropriately, help safeguard the healing process while minimizing discomfort [2].

Children who undergo eye surgeries, such as strabismus surgery (to correct misaligned eyes) or cataract surgery, require careful postoperative care. Functional eye dressings play a pivotal role in this recovery process by protecting the surgical site from external irritants and preventing accidental trauma. Adhesive eye patches or soft shields are often used to cover the eye after surgery, ensuring that the eye is shielded from dirt, dust, and accidental contact. Pediatric eye shields are designed to fit smaller facial structures and are typically made with soft, hypoallergenic materials to avoid skin irritation, which is a common concern in young patients [3].

Corneal injuries are common in pediatric patients, whether caused by trauma or following surgical procedures like corneal transplants. Bandage contact lenses are often used in these cases to protect the corneal surface, promote healing, and reduce pain. These lenses act as a protective layer, shielding the damaged cornea from the friction of blinking and exposure to environmental irritants. In children, the fitting of bandage lenses requires special care due to the smaller size of the eyes and the potential for lens displacement due to increased

physical activity. However, when used correctly, these lenses can significantly speed up recovery and reduce the risk of corneal scarring [4].

While dry eye is less common in children compared to adults, certain pediatric conditions, such as juvenile rheumatoid arthritis or congenital abnormalities, can lead to dry eye symptoms. Functional dressings like moisture chamber goggles or silicone patches help maintain adequate hydration of the ocular surface by reducing tear evaporation. These dressings are especially useful during the night when tear production naturally decreases. Moisture-retaining dressings provide an effective, non-invasive solution for managing dry eye in pediatric patients, ensuring that the delicate ocular surface remains protected and hydrated, thus preventing further complications like corneal abrasions or infections [5].

Amblyopia, commonly known as lazy eye, is a leading cause of visual impairment in children. The condition is treated by encouraging the brain to use the weaker eye, often through the application of an eye patch over the stronger eye. Functional eye patches used for amblyopia treatment must be comfortable and secure, as children may be resistant to wearing them for long periods. Adhesive patches designed specifically for children come in a variety of colors and designs to make them more appealing and increase compliance [6].

Infections such as conjunctivitis (pink eye) are common among children, particularly in day-care and school settings where germs can spread easily. Functional eye dressings with antimicrobial properties are used to reduce the risk of infection spreading or worsening. These dressings are often infused with antimicrobial agents such as silver or antibiotics to help fight bacteria or other pathogens that may come into contact with the eye. In pediatric patients, antimicrobial dressings are especially useful for children who may have difficulty following hygiene practices, such as not touching or rubbing their eyes [7].

Children frequently sustain injuries from sports, playground activities, and accidents, making them vulnerable to eye trauma. Eye shields are an effective method of protecting the eye from further damage after an injury. For instance, after blunt trauma to the eye, an eye shield can prevent additional pressure or contact with the affected area, reducing the risk of exacerbating the injury. Pediatric eye shields are typically lightweight, comfortable, and designed to fit smaller faces [8].

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Some eye injuries or surgeries in children may result in significant swelling or bleeding. Pressure eye dressings are used in these cases to apply gentle pressure, reducing oedema and helping to control bleeding. For example, after ocular surgery, such dressings can help reduce postoperative swelling and prevent the accumulation of fluid around the surgical site. Pressure dressings must be carefully monitored in pediatric patients to ensure that the correct amount of pressure is applied without causing discomfort or impeding the healing process [9].

Children have unique needs when it comes to medical treatments, including eye care. Functional eye dressings for pediatric patients are often customized to accommodate smaller facial structures, sensitive skin, and varying levels of activity. Customizable dressings are available in different shapes, sizes, and materials to ensure a comfortable fit for each child. In some cases, pediatric patients may require additional modifications, such as hypoallergenic materials or dressings with extra adhesive to ensure the dressing stays in place during play or sleep [10].

## Conclusion

Functional eye dressings play a crucial role in protecting children's eyes and promoting healing in various pediatric eye conditions. From post-surgical recovery to managing chronic conditions like amblyopia, these dressings offer vital support tailored to the needs of young patients. Their use ensures that pediatric eye care can be delivered in a way that optimizes both comfort and efficacy, allowing children to recover swiftly and safely.

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