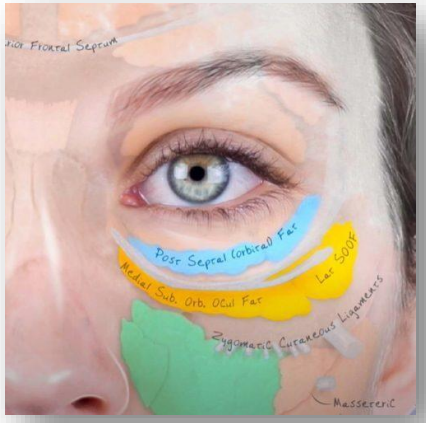
Tear trough deformity: correction with fat reposition vs HA fillers

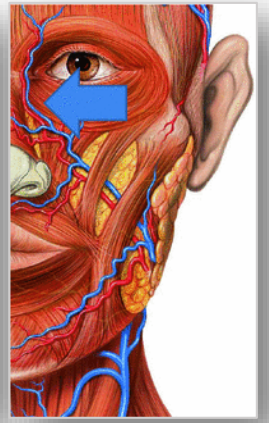
Christodoulou S.[1], Tzamalis A.[1,2], Tsinopoulos I.[1,2], Ziakas N.[1,2]

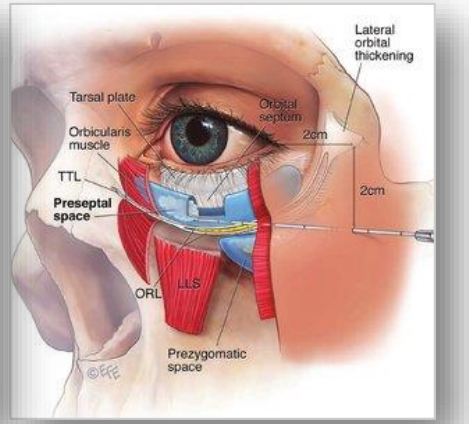
1. *Postgraduate Master Program "Ocular Surgery", Aristotle University of Thessaloniki*
2. *2nd Department of Ophthalmology, Aristotle University of Thessaloniki, Papageorgiou General Hospital, Thessaloniki, Greece*

Objective: Tear troughs, often associated with aging and fatigue, are commonly addressed through surgical methods such as the conjunctival and lower eyelid skin approaches. As facial aesthetics evolve, there's a growing focus on minimizing surgical trauma and improving tear trough deformity, along with enhancing the transition between the eyelid and cheek. This review explores tear trough anatomy, classification systems for objective evaluation, and both **surgical and nonsurgical correction** methods, focusing on **hyaluronic acid filler** and **fat transposition** techniques. The aim of the study is to compare different methods, including **efficacy, safety, patient satisfaction, and longevity**, in order to suggest the proper method for each individual.

Methods: A comprehensive literature search was conducted through the databases of Pubmed, Cochrane, Scopus and Web of Science for relevant studies published up to 26th of March 2024. Studies were selected in line with certain inclusion and exclusion criteria.







Tear trough deformity: correction with fat reposition vs HA fillers

Christodoulou S.[1], Tzamalis A.[1,2], Tsinopoulos I.[1,2], Ziakas N.[1,2]

1. *Postgraduate Master Program "Ocular Surgery", Aristotle University of Thessaloniki*
2. *2nd Department of Ophthalmology, Aristotle University of Thessaloniki, Papageorgiou General Hospital, Thessaloniki, Greece*

Results: A total of 20 publications meeting inclusion criteria have been enrolled in this narrative review. Among surgical methods, **direct fat pad removal may worsen the hollow appearance and cause lid retraction**, while **autologous fat grafting**, though minimally invasive, **may not offer long-lasting results due to fat resorption**. In contrast, **fat repositioning**, despite requiring surgical intervention and posing risks such as swelling and bruising, provides **durable and natural-looking outcomes** by redistributing fat from surrounding areas. This method addresses volume augmentation and facial tissue descent, resulting in a smoother facial contour.

Transconjuctival and transcutaneous techniques cater to different patient needs based on fat pad protrusion and skin surplus. Although fat transposition via the **supraperiosteal plane** may cause more postoperative edema and bruising, it yields comparable cosmetic outcomes to other techniques. **Blunt dissection** helps prevent vascular injury, potentially improving long-term fat pedicle survival. On the other hand, **HA fillers** seem to be an effective, safe and **a "quick fix"** procedure to address the tear trough deformity, with **no surgical trauma**, but regular maintenance for sustained results is required. Reported filler complications include ecchymosis, swelling, pain, erythema, and irregularities. HA filler duration ranges from 6 months to 2 years.

Tear trough deformity: correction with fat reposition vs HA fillers

Christodoulou S.[1], Tzamalis A.[1,2], Tsinopoulos I.[1,2], Ziakas N.[1,2]

1. *Postgraduate Master Program "Ocular Surgery", Aristotle University of Thessaloniki*
2. *2nd Department of Ophthalmology, Aristotle University of Thessaloniki, Papageorgiou General Hospital, Thessaloniki, Greece*

Conclusion: Rejuvenating the lower eyelid and treating tear trough deformity can be complex. **Understanding the underlying anatomy is crucial** for effective treatment. Surgical and non-surgical options exist, with each having its advantages and disadvantages. Treatment decisions should be based on patient anatomy and surgeon preference. Patients with **mild to moderate defects** may benefit from procedures like **HA filler injections**, while those with **more pronounced deformities** may require lower eyelid blepharoplasty combined with **fat transposition.** Despite the complexity, achieving aesthetically pleasing results is possible with proper anatomical knowledge and treatment selection.