

# Periorbital Rejuvenation Overview of Nonsurgical Treatment Options



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## KEYWORDS

• Periorbital rejuvenation • Noninvasive • Laser • Chemical peels • Neuromodulators

## KEY POINTS

- Aging of the periorbital facial subunit can be improved via topical therapies, mechanical and chemical skin resurfacing techniques, use of lasers and radiofrequency devices, fillers, and neuromodulation by use of botulinum toxin.
- Improvement of skin texture, color, scarring, and wrinkling is an important part of periorbital rejuvenation and can be achieved through many different techniques, including chemical peels, dermabrasion, and laser therapy.
- Neuromodulator use for periocular rejuvenation most commonly targets the glabella lines, brow elevation, brow reshaping, and lateral canthal lines.
- Fillers in the periorbital region can be a great adjunct to other procedures.

## INTRODUCTION

The periorbital facial subunit consists of the eyebrows, upper and lower eyelids, glabellar region, and pericanthal area. It is one of the first regions to reveal signs of aging and plays an important role in overall facial appearance. The aging process is influenced by our genetic composition as well as environmental factors. Aging skin is characterized by the appearance of fine and coarse rhytides (wrinkles), rough and uneven texture, dryness, and changes in pigmentation.<sup>1</sup> Animation lines in the glabella and lateral canthi, along with volume loss, add to the aging appearance. Repeated facial expressions, ultraviolet radiation exposure, and cigarette smoking all contribute to decreased skin elasticity and development of aging characteristics. With new advancements in cosmetic medicine, nonsurgical and minimally invasive procedures have become first-line treatment options. Treatments that are

commonly used today include topical therapies, mechanical and chemical skin resurfacing techniques, use of lasers and radiofrequency devices, fillers, and neuromodulation by use of botulinum toxin (BoNT). Each of these treatment options provide specific benefits as well as different side-effect profiles and can be combined to maximize results.

## TOPICAL THERAPIES

Adjunctive skin care is important in the overall rejuvenation and to help maintain results with other procedures. Given that there are thousands of products available and the high acceptance by patients, it is important that physicians review which products may actually be of value for the patient (**Box 1**). Eyelid skin is the thinnest in the body and can be sensitive to any of the topical products.<sup>2</sup>

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**Box 1****Topicals for periocular rejuvenation**

Sunscreens with UVA and UVB protection

Antioxidants

- Vitamin C
- Vitamin E
- Green tea
- Niacinamide

Retinoids

Peptides

Growth factors

Bimatoprost

Sunscreens are indispensable to help prevent photodamage and to help reduce the development of after-procedure hyperpigmentation. To maximize their benefit, a sun protection factor of 30 or higher (for ultraviolet B [UVB] protection) and a “broad spectrum” (for ultraviolet A [UVA] protection) sunscreen should be worn on a daily basis. Many makeup lines will have UVB protection but usually lack adequate UVA protection.

Antioxidants scavenge free radicals, which are capable of damaging cellular membranes, DNA, and proteins within cells. The most commonly used in topical therapies include vitamin C and vitamin E, and combinations of the 2 have been shown to provide more potent photoprotection than either agent alone. Niacinamide has anti-inflammatory properties as well and may improve hyperpigmentation by decreasing the transfer of melanosomes to keratinocytes.

The use of topical retinoids improves wrinkles by increasing dermal collagen synthesis and inhibiting dermal collagen degradation. Dyschromia can be improved via inhibition of tyrosinase activity, decreasing melanosome transfer and increasing shedding of keratinocytes. Only tretinoin and tazarotene have US Food and Drug Administration (FDA) approval for the treatment of photodamage, and both can have side effects, such as dryness, redness, flaking, and irritation to the skin, limiting their use by patients. Over-the-counter retinoids such as retinol is less irritating than retinoic acid but is also 20-fold less potent than tretinoin.<sup>2</sup>

Peptides and growth factors are thought to improve wrinkles and lines by upregulating collagen production, downregulating collagen degradation, aiding in tissue repair, and via intercellular signaling. There has been some concern that the use of cosmeceuticals containing human growth factors could be associated with the development of skin

cancer in predisposed individuals, although there are no reports in the literature.

Topical bimatoprost 0.03% was FDA-approved in 2008 for the enhancement of eyelashes. Its use results in darkening, increased eyelash length, and density (thickening). Its safety and efficacy have been well established along with a good tolerability profile. The authors have patients apply nightly for 4 months to achieve optimal results; then patients can begin a maintenance regimen of applying the product 3 to 4 nights weekly. In addition, patients can apply the product to the eyebrows, but this is off-label and not well-studied. The most common side effects are redness and pruritus.

It is the practice of the authors to maximize the use of tretinoin and sunscreen before adding other topical agents to their regimen. Gentle cleansers and moisturizers are typically needed to combat the side effects of the tretinoin.

## SKIN RESURFACING

Improvement of skin texture, color, scarring, and wrinkling is an important part of periorbital rejuvenation and can be achieved through many different techniques, including chemical peels, dermabrasion, and laser therapy. In general, as the depth of injury increases, the results become more dramatic, but the healing time and potential risks also increase, regardless of the tool or device used. Eye protection is important when performing periocular procedures. Resurfacing can be performed as monotherapy, but more often is used as an adjunct to other therapies and surgical procedures.

## CHEMICAL SKIN RESURFACING (PEELS)

Chemical peels are an effective option to treat photodamaged skin, rhytides, scarring, and dyschromia. Based on the depth or level of injury, peels are classified as superficial, medium, or deep.<sup>3</sup> Peels can induce exfoliation, epidermal thickening, skin lightening, and new collagen formation, leading to skin rejuvenation.<sup>4</sup> They have a well-known safety profile, relatively low cost, and predictable downtime.<sup>1</sup> It is particularly important to evaluate the patients' expectations as well as their skin type in order to achieve desired results. Patients with Fitzpatrick skin types IV to VI have increased risk for developing dyspigmentation after treatment as well as hypertrophic and keloid scarring.<sup>4</sup> As a result, these individuals would benefit most from superficial or medium-depth peels. Skin preparation is commonly used before a peel and can include topical tretinoin,

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