

## Nonsurgical Facial Rejuvenation



Neil Sadick, MD<sup>a,b,\*</sup>

<sup>a</sup>Department of Dermatology, Weill Medical College of Cornell University, 1300 York Avenue, New York, NY 10075, USA; <sup>b</sup>Sadick Dermatology, 911 Park Avenue, New York, NY 10075, USA

### KEYWORDS

• Fillers • Radiofrequency • Ultrasound • Lasers • Light • Combination

### KEY POINTS

- Facial rejuvenation entails a multimodal approach in which the epidermis, dermis, and fat are comprehensively treated to balance chromophores, stimulate collagen production, and replete/deplete fat as needed.
- Laser/light devices or new-generation peels can clear the face from pigment, whereas radiofrequency/ultrasound can tighten it and volumetric fillers can replete loss age-related fat pads.
- Combination programs according to a patient's characteristics, goals, and budget are key to optimal clinical outcomes.

## INTRODUCTION

Noninvasive facial rejuvenation has become the new gold standard for age prophylaxis, facial health, and antiaging. Patients are increasingly aware and knowledgeable about the multimodal approach they need to adopt to ensure their youthful glow, and physicians have abandoned the scalpel and embraced working with the new generation of topicals, fillers, and energy-based devices. Data from several agencies, such as the American Association of Dermatologic Surgeons and the American Society of Plastic Surgery, are testament to the fact that every year, men and women, regardless of their culture, ethnicity, or socioeconomic status spend millions of dollars on noninvasive procedures, such as laser treatments, fillers, and peels. Highly sought treatments span from injectable products, such as fillers/toxins; energy-based devices, such as radiofrequency, ultrasound, and lasers; and active cosmetics known as cosmeceuticals that include skin care, eye care, skin lightening, and scar care products. Both pa-

tients and physicians reap the benefits of noninvasive facial rejuvenation, which include increased safety, less pain and recovery time, and cost-efficacy. Despite the need for more outpatient visits, with noninvasive rejuvenation there are fewer risks due to evading surgery/anesthesia, disruption of life routine, and increased patient satisfaction for a natural look. To combat the aging process, which is complex and triggered by extrinsic and intrinsic factors, that result in manifestations such as discoloration, elastosis, deep wrinkles, laxity, inflammation, vascular lesions, tissue redistribution, and atrophy, one must enlist several distinct and complementary rejuvenation approaches. As the process of aging is multifaceted and the result of a combination of several biologic processes, it is expected that one therapeutic strategy cannot single-handedly address the diverse set of indications the to which the patient is seeking a resolution. In this article, we describe the topical and energy-based modalities used to target chromophores, even skin tone, and stim-

Disclosure Statement: Nothing to disclose.

\*911 Park Avenue, New York, NY 10075. E-mail address: [nssderm@sadickdermatology.com](mailto:nssderm@sadickdermatology.com)

ulate dermal remodeling, as well as the methodologies used to volumetrically restructure the face from fat pad atrophy.

## TOPICALS

The main categories of topicals used and recommended for patients in their daily skincare regimen are sunscreens and products that contain new-generation cosmeceutical agents (antioxidants, stem cell extract, peptides). The author advocates an AM-PM approach, in which in the AM products should aim to protect against photodamage and provide hydration, whereas the evening products should mainly focus on reducing redness, pigment, and stimulating collagen remodeling. Aside from daily antiaging prevention and protection, careful compliance to a skincare regimen also can accelerate recovery and prevent side effects from any noninvasive aesthetic treatment (eg, erythema post laser).

The goal of sunscreens is to reduce UVA and UVB absorption by the skin, and according to the American Academy of Dermatology, applying Sun Protection Factor (SPF) of 30 or higher every 2 hours is recommended to prevent photodamage [1]. Several beauty/skincare products such as lipsticks and makeup incorporate SPF in their formulations; however, it is important to note that the SPF is commonly on the low side compared with sunscreens, and need to be complemented by a high SPF of 30 or more. Studies have shown that products with SPF15 block 93.3% of UV rays compared with SPF 30 that blocks 96.7%, which means that doubling the SPF factor reduces light skin penetration by half [2].

Skincare products containing retinol as an active ingredient have been shown through histologic studies to increase collagen in the papillary dermis by inhibiting matrix metalloproteinases and collagenases [3]. Retinol activates a plethora of biochemical pathways by binding and activating retinoic acid receptors and the retinoid X receptors, thus upregulating downstream growth factors including tumor necrosis factor, epidermal growth factor, and interleukin-1. Aside from skin remodeling, retinol also has been shown to decrease melanocyte/keratinocyte atypia, resulting in an improvement of skin tone and texture. Many dermatologists recommend topical retinol products as a first-line therapy for photoaging, with benefits seen typically 4 months after therapy [4]. Despite the benefits, it is important to forewarn patients about potential side effects, such as skin irritation, redness, dryness, scaling, stinging, and peeling, that subsides after 2 weeks of treatment initiation.

Alpha-hydroxy acids, composed of compounds such as glycolic acid, lactic acid, citric acid, and salicylic acid have been shown to cause desquamation of the stratum corneum, which leads to increased glycosaminoglycan and collagen deposition [5]. Their side effects are mild and include stinging, burning, pain, and erythema.

Antioxidants are one of the most popular categories of cosmeceutical ingredients because they combat free radicals, a major cause of skin aging. The primary sources of cosmeceutical antioxidant ingredients are botanic extracts, because all plants must protect themselves from oxidation as a result of UV exposure by quenching reactive oxygen species [6]. Some antioxidants have additional functions, such as reduction of pigment and erythema (ascorbic acid, vitamin E). Studies have shown that antioxidants work best together, and not as singular agents. Thus, for example, a combination of topical vitamin E and vitamin C was more effective in reducing UV-induced erythema than each agent alone [7]. Other categories of antioxidants with antiaging properties include polyphenols (grape seed, coffee berry, green tea) and flavonoids (soy, blackberry, pycnogenol, ginkgo) [8].

Growth factors and stem cell extracts are also incorporated into skincare products with the main goals of stimulating collagen production and reducing any aberrant microinflammation. Key growth factors, also found in stem cell extracts, include platelet-derived growth factor, vascular endothelial growth factor, transforming growth factor- $\beta$ , and epidermal growth factor. They are derived from a variety of sources, including humans, animals, plants, recombinant bacteria, and yeast [9,10]. Commercially they are available in various topical formulations, such as a cell culture medium collected from a line of dermal fibroblasts originating from neonatal foreskin (NouriCel-MD; Allergan, Carlsbad, CA) and a formulation of processed skin cell proteins comprising a mixture of cytokines, growth factors, and antioxidants harvested from fetal fibroblast cell lysate (PSP, Neocutis; Merz, Lausanne, Switzerland), growth factors derived from the secretions of the snail *Cryptomphalus aspersa* are also commercially available (Tensage; Biopelle, Inc, Ferndale, MI).

## CHEMICAL PEELS AND MICRODERMABRASION

Microdermabrasion treatments apply mechanical skin abrasion to remove the superficial layers of the skin. The device consists of an abrasive component and a vacuum that serves a waste receptacle for tissue debris.

Download English Version:

<https://daneshyari.com/en/article/6482716>

Download Persian Version:

<https://daneshyari.com/article/6482716>

[Daneshyari.com](https://daneshyari.com)