Aesthetic considerations in female skin of color: what you need to know

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Abstract
The world is flat when it comes to aesthetic treatments, meaning women and men from all walks of life, regardless of culture and ethnicity or even socioeconomic status, are seeking ways to improve their appearance, prevent aging, and rejuvenate their skin. Year after year, statistics show a steady increase in people of color undergoing aesthetic treatments, with neurotoxins, fillers, laser resurfacing, and body contouring being the most sought-after procedures. When treating this cohort of patients, however, dermatologists need to be sensitized to how a patient’s ethnicity affects facial structure, the tissue reaction to treatments, and patient’s specific expectations for recommended therapies. A balance between tolerability and efficacy needs to be struck to minimize risk for adverse effects such as postinflammatory hyperpigmentation, which can negatively impact a patient’s experience and quality of life.

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The aesthetic industry is experiencing its ultimate renaissance all across the globe. From skincare products to new technologies for noninvasive and invasive cosmetic procedures, improving one’s appearance is accessible to all, regardless of culture, gender, and ethnicity. Particularly amongst the ethnic group, there has been a steep rise in the number of patients seeking aesthetic treatments, which now represent around 30% of all patients according to the latest statistics from the American Society for Aesthetic Plastic Surgery.¹ As the number of ethnic women patients has increased, there is a natural evolution of the techniques, protocols, and strategies to best care for them dermatologically – one that parallels the rapid developments in the field. The authors’ aim is to provide an up-to-date overview of the best practices practitioners should adopt for aesthetic rejuvenation of their ethnic patients. This ensures serving our patients in the best way possible, with confidence instilled from both parties.

Primer of ethnic skin and anatomy
Skin of color, or ethnic skin, usually refers to people with Fitzpatrick skin types (FST) IV through VI, including those from or descendent from Africa, the Caribbean, Asia, Pacific Islands, Latin America, and the Middle East, and Native American, Latino, Hispanic, and Indian people. The skin structure, function, and physiology of people with these FST differ from those with low FST (I-III), with the most prominent difference in the color. This is not due to the number of melanocytes but rather variations in the size, number, and aggregation of melanosomes within keratinocytes and melanocytes.² Because of the extra melanin, patients with darker skin can be inherently protected against extrinsic factors of aging such as damage from ultraviolet and photaging, typically manifested as pigmented aberrations (lentigines, macules, melasma), appears decades later compared to those with lighter skin tones. Moreover, compared to lighter skin, the stratum corneum of darker skin is more compact, and the dermis is thicker, with less distinct layers of papillary and reticular dermis. Given the relative physiological robustness of dark skin to external factors of aging, the development of fine lines and wrinkles rhytides are not as common or profound compared to white skin. However, ethnic skin is susceptible to intrinsic changes, such as muscle, fat atrophy, generalized facial volume loss, and sagging skin, particularly in the lower face and neck area. Aside from the differences in skin pathophysiology and anatomy in patients of color, there are cultural differences that dictate different cosmetic concerns, habits, and goals. Most ethnic patients take pride in their ethnic characteristics, such as the increased intercanthal and nasal width in people of Asian descent, or the fuller lips in people of African descent.³ Although they have no interest in assimilating in Western beauty stereotypes, they share some common global attributes of beauty, such as smooth skin, facial symmetry, and even skin tone/texture.

Patient consultation for aesthetic treatments
A consultation with ethnic patients should include all of the usual parameters such as elicit history of herpes simplex virus infection, personal/family history of keloid/hypertrophic scarring, surgical history, medication history, lifestyle/smoking habits, as well as a history of any systemic disease, particularly renal, liver, or cardiac. The physical should cover examination of non-sun-exposed skin to assess degree of photoaging and any previous sites of injury to evaluate tissue reaction. Another important part of the pretreatment consultation is an open conversation on the patient’s perspective of beauty, their goals, and current skincare routine, as often in this patient cohort damaging habits are revealed such as habitually neglecting application of sunscreen or using harsh lightening creams that damage the epidermis.

Cosmetic concerns in ethnic women
Fillers and toxins
Together with energy-based devices such as radiofrequency (RF), lasers, and microfocused ultrasound, injectable fillers/toxins are the most common treatments ethnic women undergo to prevent and reverse the signs of aging. In this patient group, these treatments are particularly efficacious because of the fact that ethnic patients

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Henry et al have more reactive collagen and can benefit from noninvasive cosmetic procedures such as fillers and skin-tightening procedures. Fillers and neurotoxins are mainly used to modulate 4 facial elements: the facial shape, eyebrow shape, nose, and lips. Skin tone and texture are beyond the domain of injection therapy but can be addressed with energy-based devices, as we will discuss later. Considering the individuality of each ethnic patient's anatomy, paired with their personal goals and desires for their facial enhancement, there are some common overarching traits shared by people of Asian, African, and Hispanic descent that can guide physicians when using injectables. Compared with white patients, patients of Asian descent are more likely to display central face retrusion, flattening of the anteromedial midface, flatter, broader foreheads, retrognathia, and microgenia. Thus when injecting young patients of Asian descent, treatments should be limited to medial maxilla volumization of the nose, chin, and forehead to enhance central projection and avoid further widening of the face. A similar pattern should follow when injecting older patients of Asian descent, in conjunction with volumizing age-related facial atrophy. As lip fullness is typically adequate in patients of Asian descent, injection in this area is not typically performed. Women of African descent experience fewer lines and wrinkles compared with white women but typically seek repletion of age-related volume loss. Because of the increased tissue reactivity for collagen production, these patients may require fewer treatments than their white counterparts, and physicians need to be mindful not to overcorrect, particularly when using fillers with biostimulatory properties such as calcium hydroxylapatite and poly L-lactic acid. Moreover, as opposed to white women, who increasingly seek lip volumization, women of African descent seek to restore the youthful fullness of their lips. Injectable products are therefore placed on the upper lip only, as the lower lip usually maintains its volume. Finally, patients of Hispanic descent, depending if they are predominantly of white or Native American origin, can be treated by applying the aesthetic guidelines for white patients or patients of Asian descent, respectively.

Regarding the safety and effectiveness of fillers and neurotoxins for skin types IV-VI, several clinical studies have demonstrated positive results. Botulinum toxin type A has been used to treat hyperkinetic facial lines, and in a clinical study by Grimes and Shabazz, treating glabellar lines with 20 or 30 U of botulinum toxin type A resulted in positive results in women of skin types V-VI that lasted for 4 months. Aside from the glabella, dynamic rhytids (arising from laughing, frowning, or smiling) can be treated safely in skin of color using botulinum to relax upper and lower face hyperkinetic muscles. Moreover, particularly in patients of Asian descent who desire to maintain a more oval facial shape, neurotoxins can be injected in the masseter muscles and add definition and contour in the lower face while enhancing the appearance of cheekbones in the upper face. This type of facial shaping can be followed by soft-tissue filler injections to the medial face, ideally after 2 weeks of neurotoxin injections.

Temporary (hyaluronic acid), semipermanent (calcium hydroxylapatite, poly L-lactic acid), and permanent fillers (polymethylmethacrylate) have been successfully used in clinical studies for facial volumization in women with skin type IV-VI (Figure 1). The 2 main concerns in terms of adverse effects in this population are the incidence of postinflammatory hyperpigmentation and keloidal scarring; thus when using injectable fillers in ethnic women, physicians need to use an appropriate technique. Minimizing or abstaining from multiple puncture techniques can significantly reduce discolorations and inflammatory reactions that lead to hyperpigmentation. A study by Taylor et al in 150 patients with skin type IV-VI treated with hyaluronic acid demonstrated that 2% of

![Figure 1](https://example.com/figure1.png)
patients treated with the linear threading technique experienced hyperpigmentation compared with 13% of patients treated with multiple puncture. In the same study, there was an association of hyperpigmentation with longer injection times. Use of cannula versus needle can also be beneficial for minimizing risks, as use of cannula has been shown to reduce bruising, thus limiting the potential of hemosiderin deposition in ethnic patients.

If dyschromia occurs, it can be treated with a combination of topical lightening agent such as hydroquinone, sunscreen, avoidance of the sun, or light chemical peels (glycolic acid). In the case of hyaluronic acid injections, hyaluronidase treatment can resolve any Tyndall effect seen after superficially placed filler. Although rare, if pigmentation cannot be cleared with these approaches, Nd-YAG lasers can be used for pigment clearance. Aside from pigmentation, ethnic skin is prone to the development of keloid scarring because of the presence of large multinucleated fibroblasts. Keloid formation or other types of scarring have not been reported after treatment with dermal fillers; however, practitioners need to use them with caution, especially in patients with any history of scarring.

**Skin tightening with energy-based devices**

Regardless of skin type, all women experience increasing skin laxity as part of the natural aging process or after life events such as pregnancy or surgery. Noninvasive skin tightening is thus very popular, particularly in patients with skin of color, as surgical options such as face-lifts carry a significant risk of scarring. Energy-based devices such as RF and microfocused ultrasound have proven safe and effective in this population of patients, as both types of energy are color-blind and thus safe for any skin type. The mechanism of action behind noninvasive skin-tightening devices is to deliver energy in the deep dermis, stimulating collagen denaturation, contraction, and remodeling, while sparing the epidermis from injury.
With RF devices, electromagnetic radiation is delivered through electrodes to the dermis, promoting contraction to improve skin laxity. Although the first RF device on the market (Thermacool, Thermage Inc, Hayward, California) had one electrode and several side effects, such as burning, pain, and discomfort, new generation iterations of devices such as bipolar, multipolar, multigenerator, temperature-controlled, fractional, and nanofractional RF devices have given physicians and their patients a wide array of options to customize to their goals and needs.13-22 Some devices also combine contact cooling, vacuum, and ultrasound within their technology to maximize the clinical efficacy and patient comfort level. Several clinical studies have validated the favorable safety profile and efficacy of treatment for skin laxity in ethnic women.23-25 The choice of device depends on what is available at the physician’s practice, as well as the area to be treated and whether other indications need to be addressed at the same time. For example, if a patient has, aside from skin laxity, a complaint of large pores, such textural issues can be addressed at the same time with the skin-tightening treatment with options such as microneedling RF (Figure 2).26 Similarly, RF devices can address cellulite, stretch marks, and fat reduction.

Microfocused ultrasound devices can also lift and tighten the skin nonsurgically and, since they don’t target the epidermis, are an excellent option for patients of all skin types. The ultrasound device that is mainly used for aesthetic treatments is Ultherapy (Ulthera, Inc., Mesa, AZ). This device focuses and heats subcutaneous tissue at 60°C, such that small points of tissue are coagulated to a depth of up to 5 mm within the mid-to-deep reticular layer of the dermis and subdermis, without affecting the papillary dermal and epidermal skin layers. Ultherapy also combines microfocused ultrasound (MFU) with high-resolution ultrasound imaging (MFU-V) to enable visualization of tissue planes to a depth of 8 mm and allows precise control of the treatment. Although it is currently cleared by the US Food and Drug Administration for application on the face, neck, and décolleté, it has been used off label in other anatomic areas such as the knees and inner thighs. Several studies
have demonstrated the safety and effectiveness of these devices for improving lines and wrinkles on the décolleté, eyebrow lifting, and panfacial skin tightening (Figure 3). 27,28 Most subjects respond well, with only transitory mild pain, erythema, and edema as side effects. Any discomfort during the treatment session can typically be minimized with oral analgesics or topical anesthetics.

**Cell turnover and chromophore targeting**

In ethnic women, photoaging is delayed and less severe than what manifests in white women; however, solar lentigines, mottled pigmentation, and other discoloration are cosmetic concerns they often seek to treat at the dermatologist. To this end, as these treatments target the epidermis, they are the ones with which physicians need to exercise the most care to avoid hypo/hyperpigmentation or scarring. The most common methodologies to target chromophores and even skin tone include laser/light modalities and chemical peels.

The application of laser and light therapies was limited in skin types IV-VI, as treatments were often complicated by incidence of hyperpigmentation, hypopigmentation, or scarring (Table 1). This was due to the fact that depending on the wavelength, pulse duration, and fluence, laser energy was absorbed by the patient’s epidermal melanin.41 Thus light and laser modalities such pigment specific 532-nm potassium titanyl phosphate (KTP) lasers, Q-switched 1064-nm Nd:YAG laser, and intense pulsed light and ablative/nonablative fractional lasers were avoided in ethnic women. Moreover, even if these treatments were effective to begin with, they were often followed by relapse and rebound hyperpigmentation.42 Nevertheless, several clinical studies in skin types IV-VI have documented that longer wavelength lasers and modulation of the light/laser settings can be safely and effectively used in darker skin types. For example, when using nonablative fractional lasers, low fluence and low treatment density can treat discoloration with no side effects. Priming the patient’s skin with triple combination topical 3-4 weeks before and after laser therapy can also prevent localized dyschromias. Nowadays, the preferred lasers of choice for skin vitalization and photoaging are the picosecond lasers. As

![Figure 5](image-url)

**TABLE 2. Level of evidence for use of chemical peels in skin types IV-VI**

<table>
<thead>
<tr>
<th>Peeling Agent</th>
<th>Level of Evidence</th>
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<tbody>
<tr>
<td>Glycolic acid peel</td>
<td>II-i</td>
</tr>
<tr>
<td>Lactic acid peel</td>
<td>II-iii</td>
</tr>
<tr>
<td>Salicylic acid peel</td>
<td>II-iii</td>
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<tr>
<td>Trichloroacetic acid peel</td>
<td>II-iii</td>
</tr>
<tr>
<td>Jessner’s solution</td>
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<tr>
<td>Phytic acid peel</td>
<td>III</td>
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![Figure 5](image-url)

**FIGURE 5.** Before (left) and 8 weeks after (right) 1 retinol peel in a women with FST V. Visible reduction in global photoaging (pore size, radiance, mottled pigmentation, fine lines, wrinkles). Courtesy of Neostrata. FST, Fitzpatrick skin type.
these lasers have a pulse duration much shorter than the thermal relaxation time of melanosomes, they can selectively and effectively destroy melanosomes without causing damage to surrounding tissue. Moreover, since the mechanism of action of picosecond lasers is based on a combination of thermal and photoacoustic effect on the chromophores, their safety profile, downtime, and side effects are much more favorable than the previous generation of QS nanosecond lasers (Figure 4).\textsuperscript{43-46}

Chemical peels can also be used when treating patients with FST IV-VI, albeit with caution (Table 2). Medium, deep phenol, and superficial trichloroacetic acid peels (10%-25%) are usually avoided owing to risk of scarring and hyperpigmentation and the existence of safer alternatives.\textsuperscript{47,48} Superficial peels (ie, 20%-30% salicylic acid in ethanol) are considered the safest peel for the ethnic population, as well as glycolic acid peels (20%-70%) performed every 3-6 weeks. New generation peels that, aside from the active chemical, contain other beneficial ingredients such as retinol and antioxidants (Prosystem Retinol Peel, Neostrata, NJ) have proven beneficial in darker skin types (Figures 5 and 6). Priming the skin with hydroquinone and tretinoin for 2-4 weeks before the peel can also minimize any risks for postinflammatory hyperpigmentation.\textsuperscript{49}

Conclusion
The armamentarium of treatment options for ethnic women has grown tremendously in recent years and continues to do so. New energy-based devices, new formulations of peels and topicals, and carefully designed treatment protocols can address aesthetic concerns of women of any skin type. Increasing numbers of clinical studies have validated the use of injectable fillers, neurotoxins, RF devices, ultrasound, and lasers for ethnic women, and, for the most part, the safety and effectiveness profile is similar to that seen in white women. In the context of whole body rejuvenation in ethnic women, which refers to holistically and comprehensively addressing issues of skin laxity, volume loss, tone, and texture changes as well as a protective skincare routine, physicians need to keep in mind the best combination strategy to minimize any side effects such as dyschromias and scarring in this population of patients. This, along with intuitive listening to patients’ specific needs and goals given their ethnic and cultural background, can ensure great clinical outcomes, patient satisfaction, and retention.

References