

Editorial

Non-invasive skin tightening – An update

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As one age, there is increasing skin laxity. The main environmental factor that causes human skin aging is ultraviolet irradiation of the sun. This sun-induced skin aging is called photoaging. It is like chronological aging, a cumulative process. Chronological aging occurs with time, whereas photoaging depends on sun exposure during outdoor activity in individuals with lightly pigmented skin, as they will experience the most significant degree of photoaging. Aging inevitably produces changes such as fine lines, wrinkling, and skin laxity. Skin laxity often manifests in the face, neck, jawline, hands, abdomen, and thighs.

Earlier, surgery was the gold-standard treatment for the correction of skin laxity. Nowadays, non-invasive esthetic procedures have overgrown the surgical procedure due to decreased risk of adverse events and lesser downtime. Many non-invasive modalities are available to treat skin laxity, including laser therapy, radiofrequency (RF), ultrasound, and intense pulsed light (IPL). The mechanisms of each modality are essential for selecting the appropriate treatment for your patients.

Laser therapy, RF, ultrasound, and IPL focus their targeted energy to increase the temperature in the deeper dermal layers of the skin. This high thermal energy causes collagen denaturation and shortening of collagen fibers, thereby causing skin tightening. Other non-invasive therapies that do not depend on thermal power for skin tightening are chemical peels and skin care products.

Laser therapy for skin tightening may be ablative or non-ablative. Ablative skin tightening lasers are carbon dioxide laser or erbium: yttrium aluminum garnet laser. These lasers cause ablation of the epidermis, with a partially coagulated area in the dermis. Fractional ablative lasers were an effective alternative to traditional ones for better recovery times and side-effect profiles. Non-ablative lasers were developed as alternatives to ablative laser treatments as they have a milder effect than their ablative counterpart.

RF technologies are monopolar, bipolar, and multipolar, which differ by the electric field they produce. Monopolar systems are the first among these devices, most extensively studied for immediate skin tightening. Bipolar and multipolar devices came following the success of monopolar devices. They have been used for face and neck skin tightening.

Microfocused and high-intensity focused ultrasounds are used for skin tightening. Microfocused ultrasound is approved for treating skin laxity of the eyebrow, submental area, and neck wrinkles. High-intensity focused ultrasound is a recent introduction for skin tightening and rejuvenation. Some rare but serious complications encountered are the occurrence of subcutaneous nodules and motor nerve paresis.

The process of skin tightening by IPL is achieved through selective photo-thermolysis by targeting melanin and hemoglobin and thermal damage to surrounding collagen in the dermis,

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thereby inducing the contraction of collagen fibers. The effectiveness of IPL in skin tightening is questionable. Hence, IPL is reserved for treating acne, pigmentation, hair removal, and superficial vascular lesions.

Chemical peels are similar to ablative lasers as they act on the epidermis mainly and, to a lesser degree, on the dermis. This type of treatment is only reserved for the facial skin. Medium to deep peeling agents should be used for desired results. Trichloroacetic acid 35% is the main ingredient in these peels. The deep peels contain croton oil and phenols, penetrating the reticular dermis. Notable side effects are increased skin sensitivity, epidermolysis, contact dermatitis, and post-inflammatory hyperpigmentation.

Skincare products are meant for photoprotection, antioxidant-property (Ascorbic acid), and Vitamin A derivatives (Retinoic

acid). Photoprotection plays a crucial role in preventing photoaging.

A therapeutic option for treating skin laxity is chosen based on the site, desired result, cost, and adverse effects. Patients should be counseled concerning multiple treatment sessions that may be required over months to achieve the necessary results. Additional measures are required to include a healthy diet, maintaining an ideal weight, protection from the sun, and avoiding smoking. A skin-tightening procedure is not suitable for anyone who is pregnant, who has a skin infection, or who is taking certain medications.

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