



CHAPTER 7

Skin laxity and stretch marks

THERAPIES SUPPLEMENTED WITH ENDYMED 3DEEP® RF NEEDLES
AND BIOSTIMULATION WITH PROFHILO® BODY

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INTRODUCTION

Tissue Laxity and Stretch Marks

In aesthetic medicine we receive various requests for quality improvement from our patients but, regardless of age, two conditions can be considered transversal: tissue laxity and stretch marks.

Laxity is a skin disorder that becomes noticeable with natural or accelerated aging and is structurally linked to reduced collagen production. The number and vitality of fibroblasts decrease and therefore derma and fibrous septa suffer a partial loss of their natural ability to replace themselves. The morphological changes that occur are a consequence not only of the reduced biosynthesis of collagen and elastin, but also of anomalies in the extracellular environment with a decrease in hyaluronic acid concentration.

Problems with skin laxity and quality begin to appear in young people as a consequence of pregnancy or sudden weight loss. The impact of these problems on the patient's self-esteem influences their quality of life in psychological and sociocultural terms. Skin laxity can occur early inside the arms and legs and on the abdominal area, may be associated with lack of exercise, strict diet and other causes, and often appears in combination with cellulite. Stretch marks are an increasingly widespread pathology that affects up to 90% of pregnant women, 70% of adolescents and 40% of women, creating an unsightly appearance of the skin.

At the level of stretch marks, the skin is thinned, soft to the touch, with a wrinkled surface and high transparency when newly developed (hence

their color is red-violet), and matt white (mother-of-pearl appearance) and irregular. The structure of the skin in stretch marks appears as "torn" and is most commonly observed on the thighs, abdomen, female breast and upper arms in males. Most of the time they have a genetic component.

In pregnant women, conditions that can predispose to stretch marks are: younger age, maternal and family history of stretch marks, weight gain during the first pregnancy and before childbirth. In pregnant women, itchy stretch marks can be a sign of gestational herpes. In stretch marks, histological studies have shown a primary breakage of the normal elastic fiber network. Instead of normal fibrils, short, disorganized, thin and filiform fibrils emerge in the mid-to-deep dermis. These fibrils are rich in tropoelastin and persist in the postpartum period without forming elastic fibers of normal appearance. The interruption of the elastic fibers network results in changes in the viscoelastic properties of the affected skin, which is significantly less firm, less elastic and less deformable than normal skin. The maturation of stretch marks has a characteristic process: from striae rubrae, erythematous and sometimes edematous, they turn into striae albae or depressed atrophic scars with wrinkled surface.

TREATMENTS

The demand for body treatments has grown dramatically given the introduction into clinical practice of new non-invasive technologies in the field of aesthetic medicine and surgery, with long-term effects.

The objectives of treatments for laxity and stretch marks are linked to the stimulus for the production of dermal collagen and for the improvement in vascularity.

As part of my therapeutic choices, both for tissue laxity and stretch marks, I frequently use EndyMed Radiofrequency 3Deep® (RF EnM) microneedling with excellent results, but the association with biostimulation sessions with Profilo® Body (HCC) has absolutely amplified and speeded up the process of improvement in the tissues of my patients. Radio frequency (RF)

devices, in international bibliography, have also been widely used to firm the skin and it has been well documented that heating the dermis and subcutaneous tissues stimulates the remodeling of dermal collagen. It is well documented that one of the effects of dermal heating is an immediate change in collagen structure, followed by a long-term stimulation of neo-collagenesis starting at 4-6 weeks after treatment (Fig. 1).

These thermal effects can help reduce the appearance of wrinkles, laxity, stretch marks and thus improve the contours on both the face and body.

(1) Before treatment:

Reduction in the quantity and quality of collagen fibers distributed in the dermis. The skin is lax and there are wrinkles.



(2) During treatment:

Collagen fibers are heated and contract. As a result, immediate firming action is achieved.



(3) Immediately post treatment:

A physiological signal indicates damage to collagen fibers and urges the formation of new collagen.

(4) Few weeks after treatment:

New collagen is formed: the skin is firmer and the appearance of wrinkles improves.



Fig. 1 Collagen fibers and heat.

The thermal effects of monopolar and bipolar RF have been shown to be useful in firming the skin. These first-generation RF therapy systems have provided often unpredictable results, probably due to large differences in individual skin impedance. In my clinical practice I chose to use a new multi-source phase control system. In this medical device there are six independent RF generators. Each of these generators is controlled in phase, allowing a complex three-dimensional interaction between the electromagnetic fields produced in the tissue. Since the adjacent electrodes, on each side of the handpiece, have identical polarities, no current is created between these electrodes on the surface of the skin, and most of the energy is conveyed deeper into the skin with minimal epidermal flow.

Multi-source RF technology is based on the fact that the energy flow on the surface is minimal, while all energy is directed to the depth of the tissue. This is achieved by repulsion between the

electric field of the same polarity on each side of the handpiece.

The multi-source RF handpiece provides an average lower temperature on the epidermis (<43 degrees) and a higher temperature in the lower layers of the skin, without the need for cooling. This technology allows the system to keep the epidermal temperature below 43 degrees reaching up to 57 degrees in the depth of the tissue (Fig. 2).

In addition to the new RF dispensing technology, the tested system allows continuous real-time measurement of skin impedance delivering constant energy to the patient's skin regardless of changes in its impedance. The RF I used in this study has been FDA approved and can be used on all skin and ethnic phototypes, as such procedures are independent of skin type.

The purpose of RF EnM is to determine the heating of deep tissues and thus stimulate the formation of new collagen, which can achieve a

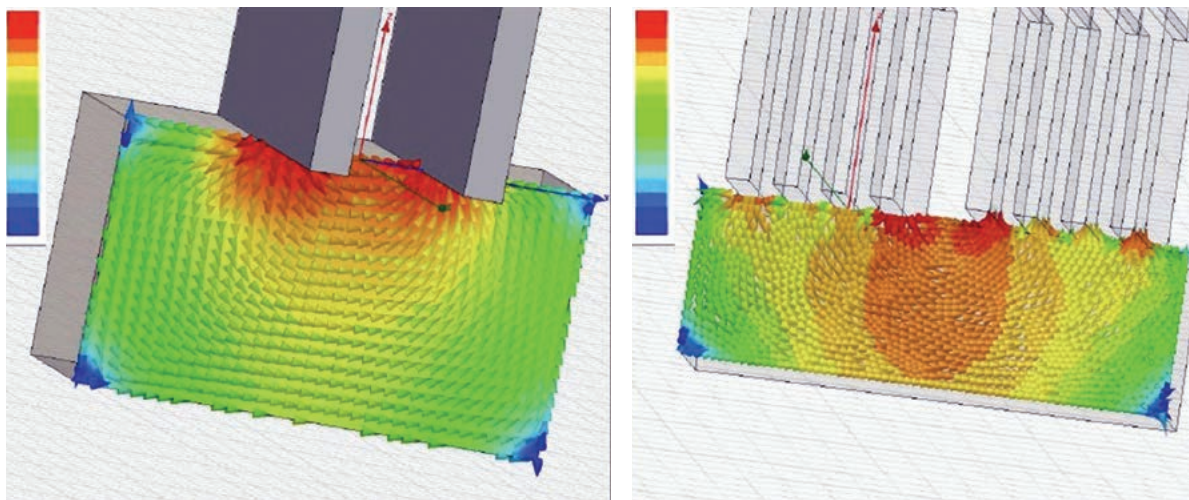


Fig. 2 Qualitative electromagnetic field simulation of the tissue effects of simple bipolar RF generators (left) and multiple phase-controlled RF generators (right).

strengthening of the skin, and therefore the association of HCC sessions infiltrated in the same areas is to amplify and improve the firming of the dermis and epidermis. The technology underlying hybrid cooperative complexes of hyaluronic acid has shown how it promotes a multi-level dynamic remodeling of the extracellular matrix in terms of elasticity by stimulating the normal vitality of fibroblasts, keratinocytes and adipocytes.

The distinctive elements of the product and its rheological properties are a high concentration of HA (32mg/2ml), easy handling, optimal diffusion in tissues and low viscosity: moreover, the absence of BDDE or other cross-linking chemical agents promotes a very low inflammatory response and a high safety standard. RF microneedling allows better penetration into tissues able to volumetrically heat the medium and deep dermis, promoting both collagen remodeling and skin firming, and at the same time selectively heating the threads of fibrous septa and the layer of the fascia.

Needle Radio frequency – Endymed 3Deep®

Radio frequency microneedling is a method that allows non-thermal penetration of the epidermis followed by RF coagulation at a certain depth of the dermis surrounded by a non-coagulation volumetric heating zone. The RF system I use (RF EnM) has special extra sharp non-insulated tapered microneedles and a special pulse mode, which allows full coagulation during treatment and a higher effective

volume of skin heat. The treated skin, immediately after treatment, shows erythematous punctiform papulae surrounded by undamaged epidermal tissue. The treated area shows no signs of bleeding. A few minutes after the treatment, mild to moderate erythema and edema appear, varying according to the total energy delivered. Over the next 7-14 days there is a replacement of scabs/debris with a normal-looking stratum corneum and complete healing of the epidermis and dermis. In this clinical experience, patients with skin laxity and stretch marks in the trochanteric area were treated with interaction between RF ENM microneedling and HCC.

Four radiofrequency sessions were performed. Two biostimulation sessions with 3 ml HCC per treated side were carried out in the weeks between the first and third RF sessions. Radiofrequency is useful in the treatment of skin laxity. The performance of the heat-inferred connective tissue and the degree of contraction achieved depend on factors such as the maximum temperature reached (peak temperature), the duration of exposure to radio frequency and the mechanical stress applied to the tissue during the heating process.

The thermal properties of the tissue may also vary depending on the quality of the skin, age, pH, electrolyte concentration, orientation and concentration of collagen fibers, and tissue hydration levels.

The treatment involves increasing the temperature of the tissue between

55°C and 62°C so that local vasodilation is activated and new collagen is formed (Fig. 3). Radiofrequency is a widely used treatment for skin laxity, thanks to the increase in tissue temperature and the subsequent reparative reaction it generates. The temperature gradients generated by radio frequency vary from patient to patient, as does the gradient required to induce restorative response and its intensity.

METHOD

The working technique was the following: an anesthetizing cream is applied to clean skin for 30-45 minutes. Once the anesthetic cream has been removed, the whole area affected by the treatment is disinfected. The operating parameters are set. The handpiece of the radiofrequency needle is applied both on stretch marks and on healthy tissue. It's important not to overlay the dots.

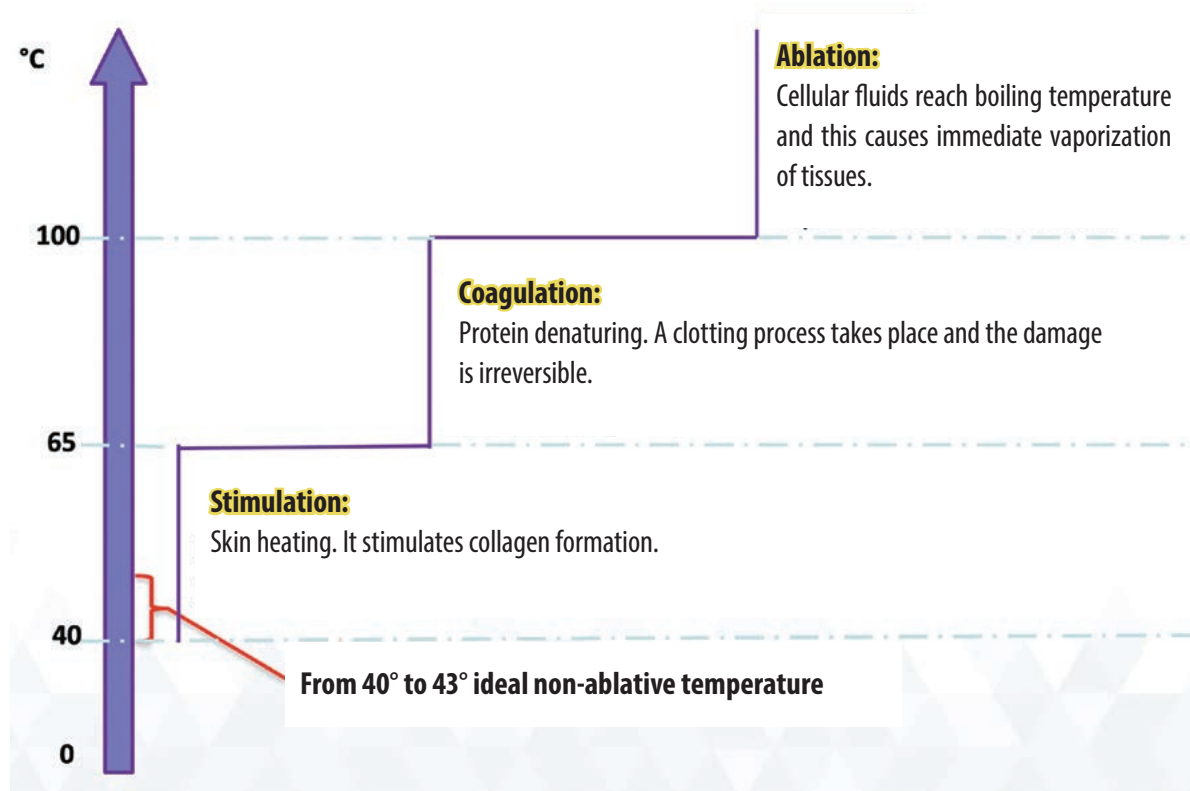


Fig. 3 Clinical effects of temperature on the dermis. Stimulation is determined from 40 to 65 degrees through heating of cutaneous tissue and stimulation of collagen formation. From 65 to 100 degrees there is coagulation with denaturation of proteins and therefore irreversible damage of the treated tissue. Ablation occurs over 100 degrees because cellular fluids reach a boiling temperature and therefore there is an immediate vaporization of the tissues.

After the procedure an antibiotic cream is applied and then a moisturizer is prescribed. If necessary, a cream with protection factor SPF 50 for areas exposed to the sun. If there are small scabs, they must fall on their own. Immediately after the procedure, small pink swellings appear on the treated area around the holes produced by microneedles. After 1-3 days of treatment, small dark red spots or small scabs appear in which radiofrequency currents have penetrated.

CONCLUSIONS

Combined treatments were performed with EndyMed 3Deep® Radiofrequency Needling and Profhilo® Body 3 ml per aesthetic side to enhance the improvement of the texture and the firming of the treated tissues, obtaining superior results compared to the single radiofrequency treatment.



Fig. 4 Phases of the treatment.



Fig. 5 Pre and Post treatment.

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