

Airgent Skin Remodeling System Employs Innovative SMS Technology

By Birgit Hansen, Contributing Editor

Skin rejuvenation treatments focus on the alteration of activity and number of fibroblasts in aging skin. The theory behind controlled dermal-trauma, as a mode of skin rejuvenation, lies in the fundamentals of the wound healing process. Under this theory, damage afflicted to the skin initiates a two-phase wound healing process – the inflammation phase and the proliferation phase. Successful modification to skin is achieved by damaging the fibroblasts of aging skin, which in turn triggers the process of collagen formation, ultimately resulting in visible skin rejuvenation. This controlled dermal-trauma theory is utilized in many skin rejuvenation methods, ranging from chemical peels to intense pulsed light (IPL) or laser rejuvenation.

Subdermal Minimal Surgery™ (SMS) employs a novel approach to dermal remodeling. It uses controlled, minimally invasive mechanical damage, rather than thermal damage, to the dermal layer without any danger to the epidermis.

PerfAction's (Rehovot, Israel) Airgent™ system, powered by SMS technology, uses pneumatic pressure to deliver a carrier fluid

jet containing hyaluronic acid (HA) particles of relatively high mass into the skin. Once inside, these particles collide with and traumatize any dermal cells encountered, initiating the wound-healing process. This fluid jet passes through the epidermis via a small opening of less than 0.2 mm diameter and almost instantly begins spreading laterally within the dermis. A square spacer unit, in contact with the skin, controls both depth of penetration and area of lateral dispersion in the dermis, allowing uniform application over large predefined areas of the skin. Each individual application handles approximately one square centimeter of the dermis via this fine puncture in the epidermis.



Moshe Lapidoth, M.D.
Clinical Study Director

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In addition, the HA particles provide the skin with an immediately improved appearance by adding volume and attracting and retaining water molecules, which helps maintain this new fullness. “While the collagen remodeling process requires several weeks before becoming fully apparent, the patient can enjoy its visible effects within a day or two of the first treatment session thanks to the additional advantages of the HA,” explained clinical study director, Moshe Lapidoth, M.D. “While these immediate effects diminish over time due to absorption of HA by the body, the collagen remodeling process takes over and becomes visible, thus the patient enjoys immediate results which last for years. Ultimately we see a truly remodeled skin with a thicker dermal layer and a natural appearance,” Dr. Lapidoth concluded.

Utilizing a non-thermal, mechanical intra-dermal effect and almost completely bypassing

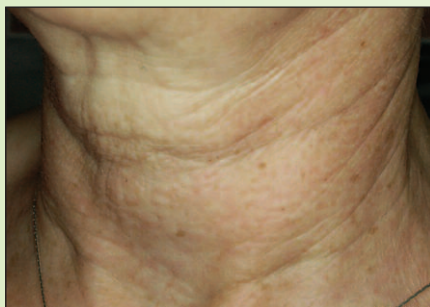
the epidermis, the Airgent SMS technology is an innovative approach to improved safety for long-term remodeling of all skin types.

Airgent is a computer controlled, pressure driven system, comprising a central console, an applicator and a disposable kit. Its console houses a detailed user interface to select treatment parameters enabling control of the penetration pattern. The sterile disposable kit, connected to the applicator, contains the HA fluid capsule, piston and nozzle, as well as an adjustable square spacer which sets the distance to the skin and shape of lateral HA dispersion within the dermis.

A typical treatment regimen requires two to four sessions per chosen location, at intervals of three to four weeks for areas such as the neck, hands, chest and face. Improvement is usually observed following either the first or second sessions. Patients have reported satisfaction with both the initial and longer-term visible results, in conjunction with the minimal pain sensation during treatment.



Neck before Tx



Neck after Airgent Tx



Cheek before Tx



Cheek after Airgent Tx

Photos courtesy of A. Levenberg, M.D.