

**From:**

**“Treatment pearls from Europe”**

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Recently a new apparatus which generates emisinusoidal waves opportunely modulated with a low frequency, Skin Master has been introduced for the wrinkles’ treatment caused by the cutaneous ageing. The stimulus is generated through the application of 3mm needle electrodes on the wrinkle, perpendicular to the skin and non invasive. The study has made use of the cooperation of three patients respectively 50, 56 and 60, two women and one man.

The three patients have been undergone two biopsies (4mm): one before the treatment with “Skin Master” and a second one after the treatment, consisting of six applications, each one lasts 40 seconds. The ultrastructural studies on the biopsic tissue have been conducted through a contrast colouring with Alcian Blue, which ties up, in a selective way, to the acid polymers of the glucosaminoglicans chain (GAGs) making them thicker in the electrons when they are matched with tetraoxydum osmium.

The wrinkles’ treatment choice with the Skin Master has been done according to the pre-existent works relative to the studies conducted in vitro on the effects induced on fibroblasts cultures undergone electromagnetical fields, for example there is the DNA synthesis and collagen increase and likely the GAGs production. The GAGs are polymers known thanks to their ability to tie the water, which decreases significantly with the passing of the time and in those tissues where there are the wrinkles. The ultrastructural study has provided interesting indication about the biological effects obtained thanks to the currents generated with the Skin Master.

Before the treatment the elastic fibres and collagen appeared fragmented, furthermore the collagen’s molecule had lost its typical three-dimensional organization. After the treatment significant structural or architectonical changes haven’t been noticed in the tissue but the most part of the fibres above has appeared interested in the presence of a significant reduction ( $p < 0.005$ ) of the basal membrane thickness. The colouring with Alcian Blue shows, after the treatment, a remarkable increase ( $p < 0.005$ ) of the high density granules which correspond with the hyaluronic acid presence placed near the collagen and elastic fibres and the supporting gelatinous matrix and the GAGs tertiary structure.

The right action mechanism of the treatment isn’t well defined yet, likely and reassured by the data picked in similar studies, it’s supposed that the GAGs quantity increase must be tied up to the activation mechanism of the fibroblasts’ synthesis, after the trigger of the AMP cycle (ATP production....).

The experimental data suggest that the GAGs increase and the following dermic edema can be responsible of the clinic changes observed after the treatment with the Skin Master, for example there is the softening and the real attenuation of the wrinkle.

These clinical changes (which persist in the patient for a long period after the treatment giving up) must not be adduced at the only edema production as the result caused by the microelectrodes. The edema, clinically clear, must be considered as a macroscopic manifestation of the severe increase in the substances synthesis which are able to tie the water which is present in the superficial dermis (GAGs rules) and of some microscopic changes according to the cross-linking arrangement in the

collagene molecule after the Skin Master treatment, which restoring the optimal watery stress gives dermis the turgidity with the wrinkle which appears immediately flattening.

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