CARNITINE AND DERMOELECTROPORATION A NEW APPROACH IN THE TREATMENT OF CELLULITE

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Researchers and clinicians have tried for years to find a therapy to solve the problem of Dermatomyoliposclerosis (DMLS), commonly called "cellulite". Both the various forms of this disorder and the different therapies that can be used to treat it are difficult factors to take into account.
Cellulite must be considered a complex metabolic disorder affecting the fat tissue. When it is combined with other complications, located in particular areas of the human body, the situation can become gradually worse.

Although this is not the rule, cellulite is more common in women than in men and on some typical areas of the body, (hips, thighs and buttocks). Many therapies have been successful when based on a correct diagnosis and on treatments that take into consideration all the various aspects of this pathology.
One of the most used procedures against cellulite is mesotherapy.

This is the intradermal penetration of medications capable to melt fat away through microinjections with very subtle needles of the length of 4 mm.

Among the various methods available to treat cellulite, that can be either substituted or combined with eachother, there is a simple technique called Dermoelectroporation.

BEFORE **AFTER**

TECHNICAL ASPECTS

The technique of Dermoelectroporation is based on the intuition that some American dermatologists had during the 1970s. They found out that a brief electrical impulse of adequate duration, could cause an alteration in the polarization of the cell-membrane. This process managed to open "special accesses" to the passing of different molecules through the cell-wall. The developments in technology and research (confirmed also by the publishing of more than 4000 scientific studies) have brought to further improvements in methodology and to the official formulation Dermoelectroporation as a therapy. (Ultrapeel Transderm – by Mattioli Engineering).

Dermoelectroporation favours the transdermal absorption of many molecules, thanks to electrical impulses given at controlled intensity. Such impulses don't waste the cell membrane and at the same time they allow the opening of "hydroelectropores" (electrical passages through which biologically active substances can pass).
This has been verified by recent clinical studies that have confirmed the passing of both micromolecules and macromolecules like lidocaine, collagen (Gulisano), the precursors of collagen and elastine, ribonucleic-polides (Pdrn) for different areas and clinical applications like bioresurfacing (Bacci-Cavallini), dermal cell-stimulation (Cavallini), treatments against strias (Bacci) and other possible future applications (Botox-similar substances against wrinkles, iperpigmentation, ecc).

BEFORE **AFTER**

APPLICATIONS IN THE TREATMENT OF CELLULITE

The treatment of cellulite is an extremely difficult field of application, due to the complexity of this pathology. As far as my personal experience is concerned, I tried to take the maximum advantage from a substance already known in the field of cellulite-treatments: L-carnitine (Vararo 1993-1997, Koverech 1996, Maggiori 1996). This substance was identified in 1905 as a natural component of cells, where it plays an important role in the utilisation of the lipidic substratum.

Carnitine is synthetized by aminoacids like lysine and methionine. It can be found in natural sources like red meat, milk-products and avocados, where RDA is still unknown and negative interactions with other drugs, vitamins, minerals or other substances are unknown too.
In order to understand the role of L-carnitine in the treatments against cellulite it's important to remember that this substance is the only means through which fat acids can pass through the mitochondrial membrane with beta-oxydation as their final target. Another important factor to remember, in order to completely understand the usage of L-carnitine in the treatments against cellulite, is that L-carnitine is the only means through which the process of lipolysis brings to a transformation of the tryglicerid in glicerol and fat acids, which must move from the cytoplasm to the mitochondrious, in order to be destroyed. All that is possible thanks to L-carnitine, which allows activated fat acids to pass through the internal mitochondrial membrane and to be oxydated through the creation of acetilcoa and the insertion in the Krebs cycle.

Following these scientific premises, I have adopted a method based on the usage of L-carnitine through Dermoelectroporation® (Ultrapeel-Transderm by Mattioli Engineering) and combined with treatments like mesotherapy with lipolytic drugs and / or electrostimulation or draining procedures. For this purpose 12 patients (all women) have been treated according to the following steps.
2-4 gr. of L-carnitine have been applied through a programmable dispenser and by means Dermoelectroporation on the trochanteric areas and on the internal part of the patients' thighs. At the beginning, the application of L-carnitine has been immediately followed by mesotherapy with teofiline. This substance has a lipolytic action through the inhibition of the Phospho dyertesays with the aim of deactivating the cycling AMP and prolonging this way the hydrolytic action of the lipase.
At this point a high dose of L-carnitine has been necessary to favour the demolition of fat acids (instead of a new transformation of the triglycerid). This is the reason why I have put Dermoelectroporation® with carnitine before mesotherapy. After 12 applications, the results obtained have been satisfactorily, with reductions both in the volume and in the aestethical aspect of the treated areas.

BEFORE **AFTER**

As for my personal experience, I have started a new study based only on Dermoelectroporation applied through a programmable dispenser, capable to progressively release given doses of a cocktail made up of L-carnitine and lipolytic substances in the form of xanthine-bases.
This procedure presents various advantages like avoiding injections and having the possibility to dose and program the combined and synergic penetration of bio-interactive substances (meaning this faster results).
Such results are now possible through a method which is fast (approximately 10 minutes are necessary) and easy to perform (just leaning the Dermoelectroporation® -plate on the skin area to treat)

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