wellcomet® TECHNOLOGY

Skin regeneration with LDM®-MED

LDM®-MED

LDM®Plus (Local Dynamic Micro-massage) of Wellcomet® is an innovative technology which was specially developed to treat different aesthetical and dermatological conditions. This technology is based on dual-frequency ultrasound waves and is able to modulate dynamic processes of production and destruction within connective tissue which is of primary importance in different aesthetical applications or dermatological diseases. After an extensive research Wellcomet® could integrate within this technology an ultrasound wave with the frequency of 10 MHz, which is normally used only in diagnostic applications. More than 800 experiments *in vitro* (some of which were published) provided the basic knowledge about LDM® which was then tested in different clinical applications.

The LDM® product range of Wellcomet® involves four high effective machines:
LDM®-MED and LDM®-HP for medical and aesthetical applications as well as pain treatments and LDM®-Sonoskin and LDM® Medical-SPA for cosmetic applications.

LDM®-MED is the advanced version of Wellcomets®' LDM® product line and is widely used in many dermatological clinics and practices as well as in aesthetic plastic surgery in different countries of the world.

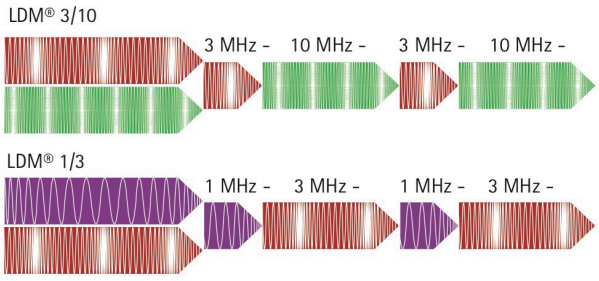
What makes the LDM® method such unique and versatile? The scientific director and managing partner of Wellcomet® Ilja Kruglikov, PhD, Dr.Sci answers this question.

What does LDM®Plus stand for?

LDM® is a dual-frequency ultrasound technology which combines different frequencies up to 10 MHz in one LDM® wave, alternating thereby between two frequencies up to 500 times per second. There are two possible wave combinations in LDM®-MED machine– ultrasound waves with 1 and 3 MHz frequencies as well as waves with 3 and 10 MHz frequencies. Such hybrid waves produce special pressure gradients in tissue, influencing cells as well as extracellular structures of connective tissue.

LDM®Plus is an advancement of LDM® technology that enables to mix the single ultrasound frequencies within one LDM® wave with a different weighting to fulfill the special demands of modern aesthetical and medical applications.

Dynamic pressure distribution



Which effect does LDM®Plus have on skin and connective tissue?

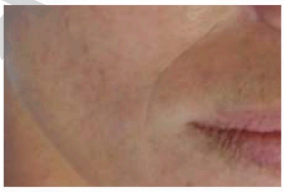
Different frequencies as well as their combinations used in LDM®Plus technology can specifically modulate the structure of connective tissue. They can directly affect the activity of matrix metalloproteinases (MMPs) which are responsible for degradation of this tissue as well as influence the production of so called heat shock proteins (HSPs) that are necessary for the proper protein observation. They can also distinctly modulate the content of hyaluronan (HA) within skin, changing thereby turgor and internal structure of tissue.

All these molecular components (MMPs, HSPs and HA) are of primary importance in modern anti-aging and dermatologic science and their proper modulation is considered to be indispensable for effective aesthetical and dermatological treatments.

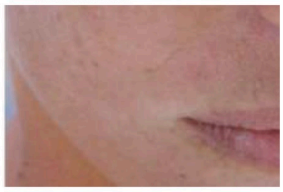
Stimulation of collagen production through fibroblasts shows the best results if supported by simultaneous suppression of MMPs that can cleave new collagen. HSP molecules account for correct protein folding – a process which is tremendously diminished in aged skin. Production of HA is essentially important for skin regeneration, its reduction is responsible for skin aging. Specific modulation of all these components can lead to significant improvement of skin appearance and consequently reduce signs of aging.

Treatment examples

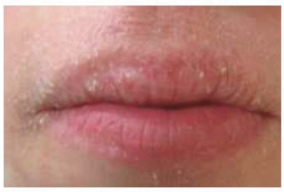
Wrinkle reduction
before



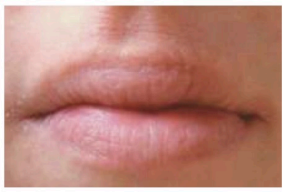
after
1st treatment



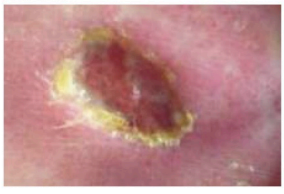
Eczema
before



after
5th treatment



Ulcus cruris
before



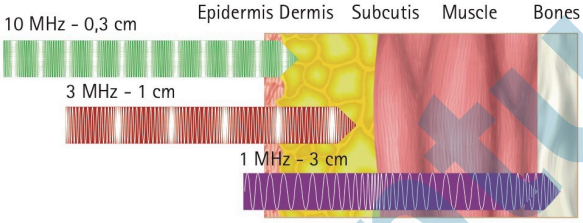
after
9th treatment

Dysfunctions in dynamic ratio of collagen production and degradation are often supposed to be cornerstones of skin aging and different dermatological diseases, e.g. acne, eczema, ulcus cruris, etc. Through the use of the LDM®Plus technology specific changes of such ratios in connective tissue metabolism can be regulated individually.

Which advantages has the use of 10 MHz frequency?

Conventional ultrasound systems use the frequencies of 1 MHz and 3 MHz. Ultrasound waves of these frequencies can effectively penetrate into the body to the depths of several centimeters, which is clearly below epidermal and dermal layers where the main aging processes take place. LDM®plus technology applies additionally an ultrasound wave of 10 MHz frequency with a penetration depth of nearly 0,3 cm which is consequently almost fully absorbed in upper skin layers.

Pressure distribution and depth of penetration of different ultrasound waves



The wave of this frequency has additionally a very small wavelength of 150 µm and can so directly influence single cells or small cell groups within tissue. This property is responsible for some very specific reactions of different cells to ultrasound waves of 10 MHz frequency.

Which effect does LDM®Plus have on fat and connective tissue?

One important application of LDM®-MED is its assignment by body-treatments (e.g. for circumference reduction). Especially for this purpose Wellcomet® designed an elaborate body concept with the so called TWL-method (Thixotropy - Washout – Lipolysis). Therefore a lot of theoretical background was collected and many experiments were done. First step of TWL is the transformation of bounded water with LDM®Plus into free water molecules in problem zones like hips, thighs or abdomen. After this significant step, water can be washed out with supportive applications to activate adipocytes for lipid metabolism. This happens in the third step through special lipolysis stimulation as well as diet and sport.

Because LDM®Plus can produce a strong loosening of subepithelial connective tissue it is also interesting in applications like pre- and post-treatments in aesthetic and plastic surgery (e.g. by the liposuction or facelift) as well as in combination with fillers and injections.

What is the treatment schedule of LDM®-Med?

Improvement of the skin appearance can be often seen directly after the first session. Dependent on customer age and skin condition aesthetical treatments are recommended twice per week for 4-6 weeks while maintenance sessions should be done once every 2-3 months.

Dermatological applications may need 6-8 and in complex cases 10-16 sessions, depending on disease picture.

As support for aesthetic-plastic surgery LDM®Plus can normally be applied 1-2 times before and 2-3 times after surgery.

Some applications

Aesthetic Medicine

- Wrinkle reduction
- Skin tightening (face and body)
- Skin rejuvenation
- Anti-Aging
- Cellulite reduction
- Pre- and post-liposuction
- Pre- and post-facelift
- Strech marks
- Circumference reduction
- Sonophoresis

Dermatology

- Acne
- Atopic/ perioral dermatitis
- Ulcus cruris
- Hypertrophic scars / Keloids
- Acne scars
- Eczema
- Psoriasis

Why use it?

- Quick visible results
- Painless & marginal side-effects
- Can be applied year-round, with any skin type
- Can be used in conjunction with other treatments
- Very profitable

LDM®Plus–your technology of success

LDM®Plus adapts to any anti-aging and dermatology concept

LDM®Plus can be effectively combined with light and radio-frequency treatments, filler and injections, and be used by pre- and post-operative treatments in aesthetic and plastic surgery. This injections technology will optimize your clients' results. **Once tried, clients will want to continue with LDM®.**

On behalf of SKIN MANAGEMENT and BODY MANAGEMENT concepts of Wellcomet, LDM®Plus has been developed and tested for several anti-aging therapies as well as dermatological applications and body treatments.

For any further informations please do not hesitate to contact our sales representatives.

Technical informations

Frequencies:	1 MHz, 3 MHz, 10 MHz, LDM® 1/3 MHz, LDM® 3/10 MHz
Sonotrodes:	1/3 MHz 2,5 cm^2, 1/3 MHz 5,0 cm^2, 3/10 MHz 10,0 cm^2
Intensity:	up to 3 W/cm^2
LDM®Plus:	1-20 ms with 1/3 MHz and 3/10 MHz
Programs:	10 for aesthetical applications 9 for dermatological applications Free settings
Regimes:	cont., 1:2, 1:5, 1:10, LDM®Plus
Electric connection:	230 V ± 10%, 50 Hz
Input:	55 VA
Weight:	8 kg without trolley

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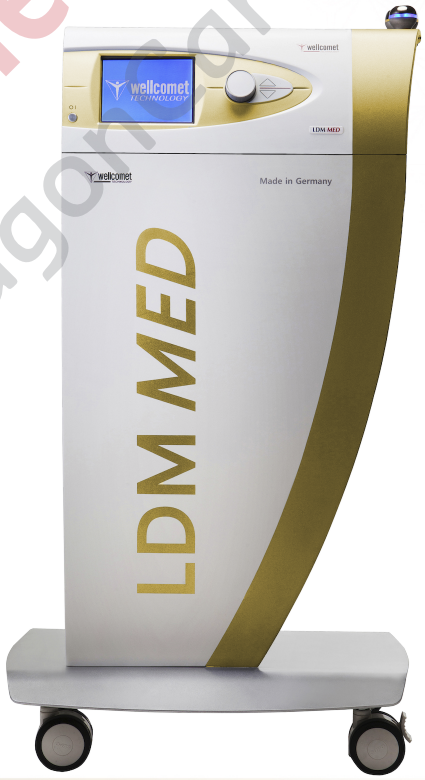

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