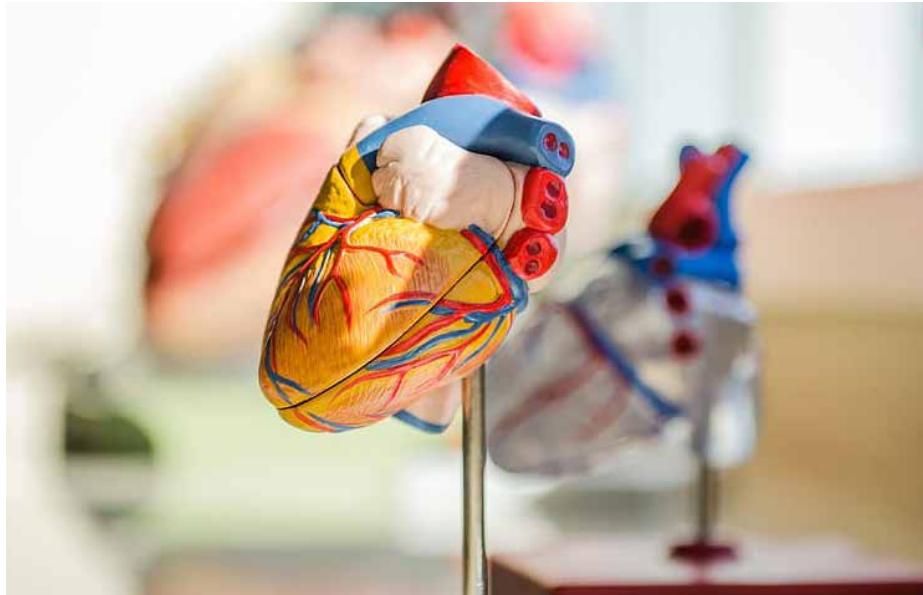


# SPARK OF LIFE®

*Orchestrating Music of Healing with Shock Wave*

Newsletter 2020/1

## Touching One's Heart



The treatment of calcifications of the shoulder was the first application of shock wave therapy, which was still in its infancy in medical history. However, since the introduction of shock waves to medicine in the 1970s, the therapy has made great progress in new areas.

One of the most recent areas of application is the treatment of circulatory disorders of the heart muscles. Here, shock wave therapy on the heart (CSWT) is used for revascularization, for improving the blood circulation of the heart.

There are basically two ways of doing this. On the one hand, as with other treatments, the shock waves are generated outside the patient's body. Ultrasound is used to precisely locate the area to be treated. This treatment

is painless and does not require anesthesia. Secondly, shock waves are applied directly to the heart during a bypass operation.

Shock waves directed at the heart muscles generate cellular stimuli that stimulate repair mechanisms. In the course of this process, tiny new blood vessels are formed. Vesicles with proteins and enzymes in the intercellular space, so-called exosomes, transmit the stimulus to the neighboring cells for regeneration.

In view of the severity of the consequences and the frequency of heart disease, shock wave therapy on the heart is a particularly important area of application. Promising results based on basic research, in which MTS and TRT were actively involved, are already emerging.

## 2020 – The Year that Changed our Lives

The year 2020 was a difficult start for everyone and brings with it many uncertainties. So how is MTS doing at the moment? The newsletter has been slightly delayed. First of all, the safety of the employees was a priority and we have taken all the necessary precautions to make the workplace safe for everyone. Nevertheless, customer satisfaction remains our top priority.

As the saying goes, difficult times usually show the best sides in each of us. Despite the current global social and economic situation, our team remains strong together and works efficiently to fully meet the needs of our customers. We would like to take this opportunity to thank all those who continuously support what we do here at MTS. We would also like to thank our customers in China who immediately sent protective gear to our team when these items were not available on our side. Their friendly act has not only improved the safety at our workplace, but also signified a cooperation beyond friendship. We would like to say «Xiè Xiè» (thank you) for the generous support.

### Congratulations DIGEST – 25 Years

This year, DIGEST celebrates its 25th anniversary. MTS Medical has been a member from the beginning and has since then supported the technical advisory board with an expert.

### New Paths for the Blood

The applicator OP155 is one of MTS/TRT (USA) innovations: It focuses on the biostimulative effect of shock wave and their healing properties are essential for erectile dysfunction therapy.

### Spark Wave® Against Cellulite

More than two-thirds of women over 20 years of age are effected by cellulite. Spark Wave® Therapy could possibly improve their appearance or ideally cure them completely.

We do not know exactly when the world will fully recover from the pandemic, but we are sure that things will change for the better. Regardless, we will continue to support our partners throughout the healthcare sector and ensure that patients receive the best possible treatment. Together we will overcome the challenges.

We wish you all the best for your health!

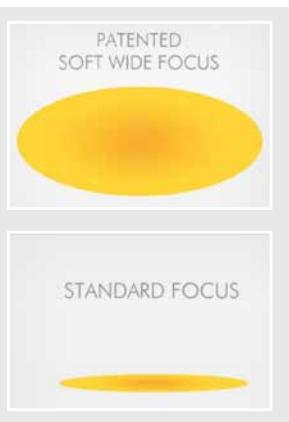
Yours truly,



Nikolaus Hopfenzitz  
CEO MTS



## SoftWave® – New Paths for the Blood



The applicator OP155 is one of the MTS / TRT (USA) innovations: It focuses on the biostimulative effect of the shock wave and is therefore an applicator for the formation of new blood vessels, tissue regeneration and stem cell migration.

Generated by an «unfocused» applicator, the sound waves are not aligned to a point, as is typically the case with the focused shock wave. The patented reflector (US patent) in the applicator head is shaped in such a way that the shock waves form a broad

sound field which can be applied over a wide area. The energy flux density is low because the energy is not focused and it varies between 0.005 and 0.176 mJ/mm<sup>2</sup>. The total energy in the 5 MPa focus is high and varies between 0.40 and 17 mJ.

In order to ensure that the coupling is also successful in problematic areas, the membrane is very elastic and adapts optimally to the treatment area.

The therapy with the OP155 is painless. The sensation of «small current

pulses», which patients report, are mechanical stimuli. The body reacts to these stimuli – to these microstimulations – with a healing impulse and activates the cell's own tissue regeneration: cell growth is stimulated, blood circulation is improved – among other things also by the formation of new blood vessels. In addition, chronic inflammations subside.

The applicator OP155 from MTS Medical is particularly used in the therapy of erectile dysfunction and in the treatment of poorly healing wounds, for example on the diabetic foot, skin changes such as cellulite, scars, stretch marks and lymphedema.



## Sexual Medicine

This year, the congress of the European Society of Sexual Medicine ESSM took place in Prague, in the «Golden City». The event was attended mainly by urologists and psychologists of sexual therapy. Dr. Dimitrios Hatzichristou, professor at the Department of Urology of the University of Thessaloniki and former president of ESSM, informed about the treatment of erectile dysfunction with shock

waves. With its unfocused applicator, urogold100® is known worldwide among experts worldwide for its efficient and painless treatment. MTS Medical has been supporting this important congress in Europe as an exhibitor for years. The innovations of MTS were again met again with great interest by visitors from the USA and Canada, from Europe and Asia as well as the Middle East and North Africa.

# Congratulations DIGEST – 25 Years



Every serious profession needs a forum for professional and economic discussion and for education. It also needs ambassadors who show the world what it does and who represent its interests.

In the world of shock wave therapy, DIGEST, the German speaking Society for Extracorporeal Shock Wave Therapy, was the first society to take up

this mission. This year, DIGEST celebrates its 25th anniversary.

MTS Medical has been a member from the beginning and has since then supported the technical advisory board with an expert.

The spectrum of activities ranges from quality assurance, standardization and further development of shock wave therapy to the training and further education of its members.

The specialist training course «Shock Wave Therapy (DIGEST)» with six different courses represents an invaluable contribution to the training of physicians. After successful completion, the participants are certified specialists in Shock Wave Therapy.

With the international expansion of the field of application, ISMST, as an international society, was able to draw on the foundations of DIGEST

and pass on its knowledge throughout the world.

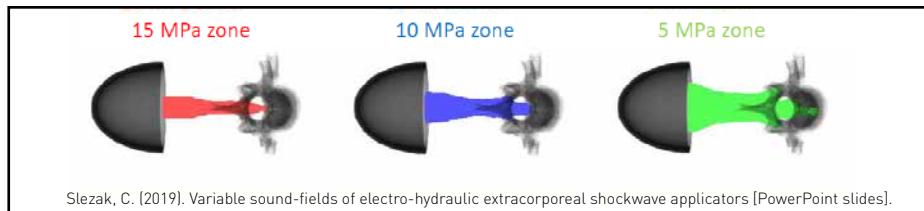
While shock wave therapy was limited in its beginnings to standard indications such as calcified shoulder, heel spur and tennis elbow, basic research has led to an enormous expansion of its application possibilities for the biostimulative field: Today, tendinopathies of all kinds, but also wound healing disorders, burns and the myofascial pain syndrome can be treated with shock waves. Shock wave research is doing pioneering work in the fields of Alzheimer's disease, spinal cord injuries and heart disease.

With this expansion of the indications, DIGEST's responsibility for standardization in application and further education is growing. It's only in co-operation with DIGEST, that MTS is able to worldwide meet the quality standards and we are glad that we and our users can count on this reliable professional association!

## Down to the Core



New research results from Prof. Cyril Slezak, from the Department of Physics at Utah Valley University, in Orem, USA, on Spark Wave® show interesting aspects of the therapeutic



shock wave focus. Up to now, the -6dB focus has been taken as the standard, i.e. the radius at which the energy density is about 50 % compared to the focus core. However, this standard comes from kidney stone fragmentation and is an inadequate description for biological effectiveness. As Cyril Slezak explained at the last congress of the International Society for Medical Shockwave Treatment ISMST in Beijing 2019, the therapeutic

focus of Spark Wave devices is much larger than the -6dB focus. Instead, the 5 MPa focus is used, i.e. the area of application where the pressure is at least 5 MPa. For a planned study on the spine, the applicator was held directly on the back with skin contact. It was shown that the pressure penetrates deeply and reaches the spinal cord. This may open up new possibilities in the treatment of spinal trauma.



## Penis Festival in Japan

Each year in April, tens of thousands of visitors make the pilgrimage to Kawasaki near Tokyo for the Kanamari Matsuri festival, a fertility festival where phalli of all sizes, colors and materials are on display. Huge penis sculptures in pink are paraded through the streets, candy in the shape of a penis can be bought and numerous photographers take pictures for the amazed

friends at home. Some participants even wear penis noses, others sell barbecue meat skewers in a matching shape – a colorful hustle and bustle with a traditional background. MTS Medical was not present at the festival, although the environment would be ideal for urogold100® with its innovative technology for treating erectile dysfunction.

# Spark Wave® Against Cellulite



More than two-thirds of women over 20 years of age are affected by cellulite and there are needs for a therapy to improve their appearance or, ideally, to cure them completely.

The development of cellulite is due to the female hormone oestrogen and it is associated with elastic female connective tissue of women. Men have hardly any cellulite because their connective tissue is firmer.

Cellulite is a non-inflammatory change in fatty tissue, especially on the thighs and buttocks. In these areas, the fatty tissue is divided into lattice-like structures by collagen fibres. If the lymph is slightly congested, the grid subdivision of the fatty tissue reveals itself as the typical picture of cellulite, as if a grid is imprinted on the skin.

The application of ointments and gels and creams, which are advertised in great variety, does not help because cellulite lies too deep for these products to be reached. Now, however, it has been shown that shock waves increase skin elasticity and regenerate the tissue, among other results. In this way, the visible structure of cellulite is significantly reduced for a longer period of time.

The short, powerful impulses of the shock waves work up to a depth of several centimeters and loosen the tissue more than a manual massage, which is often used for cellulite treatment. It is advantageous to apply the shock waves after cryotherapy (cold

therapy); then the fatty tissue reacts most to the shock wave. The shock waves stimulate the tissue metabolism and promote microcirculation. As a result, the tissue can regenerate faster and better, and more stem cells are formed. The elasticity of the connective tissue increases because collagen production is stimulated, and the connective tissue becomes firmer. The burning of fat in the cells is also stimulated. Connective tissue weaknesses and disturbances of the tissue metabolism can thus be alleviated.

About 2000 to 3000 shock wave impulses are necessary to change the skin's appearance in the desired form. Six to ten sessions over a period of five to six weeks are recommended. The treatment is painless.

Cellulite is a stressful condition for many women. For them it means an improvement in their quality of life, if an effective treatment is available. The Spark-Wave®-Therapy System dermagold100®, developed by MTS Medical, is successfully applied in this field.

## GET THE LATEST SPARK OF LIFE® NEWSLETTER ONLINE!

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**SPARK OF LIFE®**  
Celebrating life with cutting edge technology

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When shock wave therapy was limited in its beginnings to standard indications such as calcified shoulder, heel spur and tennis elbow, basic research has led to an enormous expansion of its applications and possibilities for the biostimulative field. Today, tendinopathies of all kinds, but also wound healing disorders, burns and myofascial pain syndrome can be

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wound healing and urology –  
as well as in areas which have  
previously been difficult to  
treat. Thanks to its participation  
in various clinical studies, MTS  
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in the field of non-invasive tis-  
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