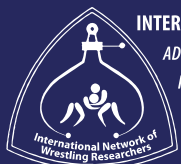


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ADVANCING OUR SPORT THROUGH KNOWLEDGE

FAIRE PROGRESSER NOTRE SPORT PAR LA CONNAISSANCE

ПРОДВИЖЕНИЕ НАШЕГО СПОРТА ЧЕРЕЗ ЗНАНИЕ

PROGRESO PARA NUESTRO DEPORTE MEDIANTE CONOCIMIENTO

MAGNETIC FIELD THERAPY FOR PREVENTION AND REHABILITATION IN COMBAT SPORTS

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Innovation is new or significantly improved introduction of a product (goods, services) or a process. In Anglo-American literature: "Innovation is a new idea, a more effective device or process", Also: "A novel device is often referred to as an innovation" (Funk & Wagnalls: Standard College Dictionary. Canadian Edition, Toronto, Montreal, Winnipeg, Vancouver. During the design work, when solving tasks and problems, the designers try to ensure the novelty and progress of the technical result.

The main task is to ensure the economy of the solution, in addition to the modernity and practicality of the product. In order to assess profitability, it is necessary to consider the entire innovation process by realistically planning the number of production batches.

The purpose of this work is to present the application technique of a new, modern, electronic device: SANZA. In our studies, we mainly deal with wrestling and combat sports in general.

The presented electronic device can be effectively used not only by athletes, but also by non-athletes, almost all age groups.

A new area of the prevention and rehabilitation in combatant sports was introduced using the pulsed electromagnetic field for therapy. Special electronic devices were developed to realize different electromagnetic signals and modulation systems to optimize the effects of this therapy method.

"The clinical use of this technique has revealed the fact, that the magnetic field possesses anti-inflammatory, anti-edema, painkiller, antihistamines actions, improves blood circulation in tissues and their regeneration. Consequently, the magnetotherapy decreases emotional tension, stabilize sleepeng, improves thropic tissues, and causes hypotonic effect." (Citation from Prof.Dr.V..N. Levenets, Director of the Central Traumatology, Kiev, Ukraine).

Maxwell's equations form the basis for describing electromagnetic parameters. Fourier analysis makes it possible to describe the stimulation signal for sine and cosine components and to evaluate the biological effects of the different signal compositions. /Prof. Dr. W.A. Kafka, Kottgeisering, Germany. /

Else Knaf MD (2017) gives a wide range of application descriptions and specifics when using stimulation with electromagnetic fields (EMF). The author summarized the Sanza user indications in infectious diseases, eye diseases, skin diseases, gynecological diseases, ear, throat, nose diseases, mental disorders and mental syndrome (stress).

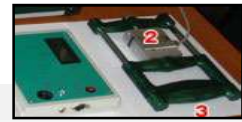
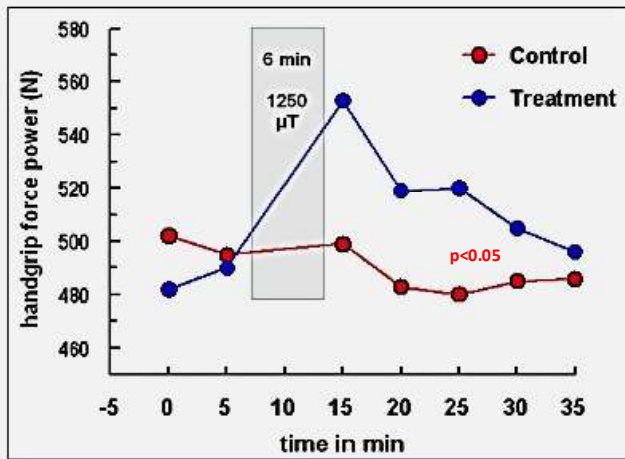
In our previous work on the study of human blood, we found a significant disruption of thrombotic accumulation of erythrocytes caused by electromagnetic influences with a parameter of 100 uT, bipolar stimulation, frequency: 20 Hz with quadratic envelope, 5 min. As Kafka (2000) interpreted his own research on this subject, "the resulting rejection of the erythrocytes leads to an increase in the individual surface areas and thus to an improvement in gas exchange in connection with increased oxygen release and better perfusion properties".

In our experiment, we used electromagnetic stimulation on the forearm. Students took part in the measurement. B = 1,250 uT, frequencies: 20/200 Hz, bipolar electromagnetic stimulation was applied, 6 min. We measured handgrip forces with a computer-connected universal electronic dynamometer prior to stimulation. After the stimulation, we immediately measured the hand grip forces and repeated them five times every five minutes. The results showed in most cases a significant increase in handgrip forces after stimulation, twenty-five minutes later they decreased and reached the original values.

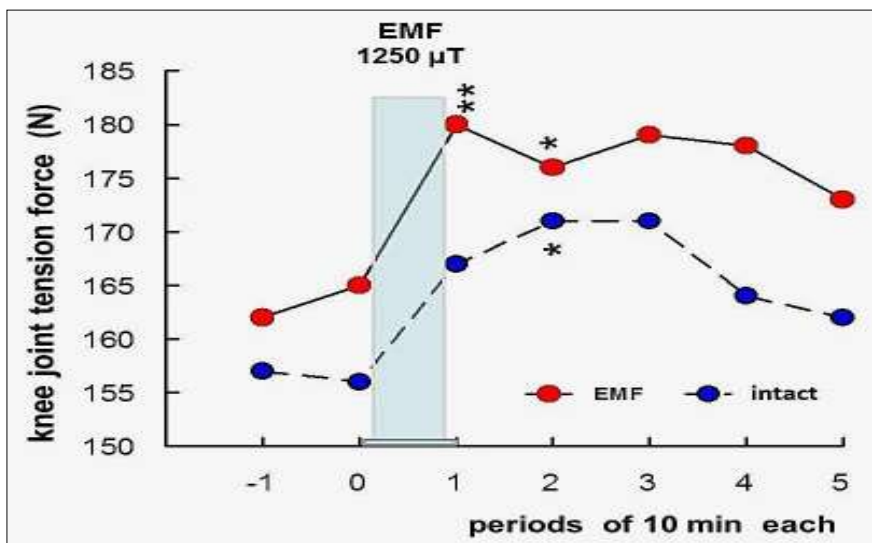
Measurement of Choice Response Time and Number of Choices During EMF Stimulation (300 μ T) and Discrimination Ability Neurological Response Speed



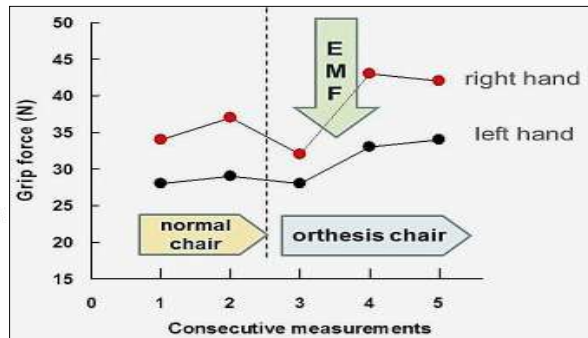
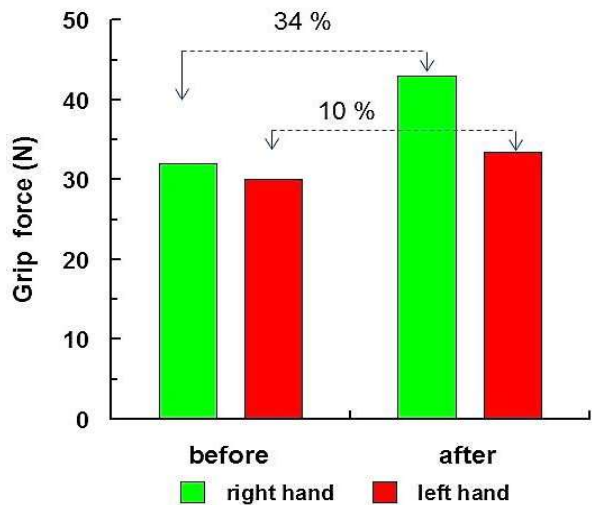
Influence of EMF stimulation of the right forearm on hand clamping force



Mid-thigh EMF stimulation increases knee extension strength on stimulated and intact legs (age: 76 years, n = 22)



Influence of EMF stimulation of the forearms on the clamping force of the hands (4 years, S.M.A.)



VITAL <i>In the morning:</i> stimulating, activating	ALPHA <i>Midday:</i> increases concentration	RELAX <i>Afternoon, evening:</i> relaxing, regenerating	ANTI STRESS <i>In the evening, if necessary:</i> muscle relaxing, facial acupuncture using PEN	SPORT <i>if necessary:</i> activating, increasing performance	SLEEP <i>In the evening, at night:</i> promotes sleep
LYMPH <i>If necessary:</i> promotes the removal of water accumulations, stimulates lymph flow	BONES <i>If necessary:</i> Has a supportive effect on all bony structures as well as tendons and cartilage	ACUTE <i>If necessary:</i> Supportive with bruises and acute injuries	INFLAMMATION <i>If necessary:</i> Used for all inflammatory forms or as a tolerance program for initial reactions	FAVORITES Speichern von frei wählbaren Parametern	MANUALLY Parameters can be freely selected

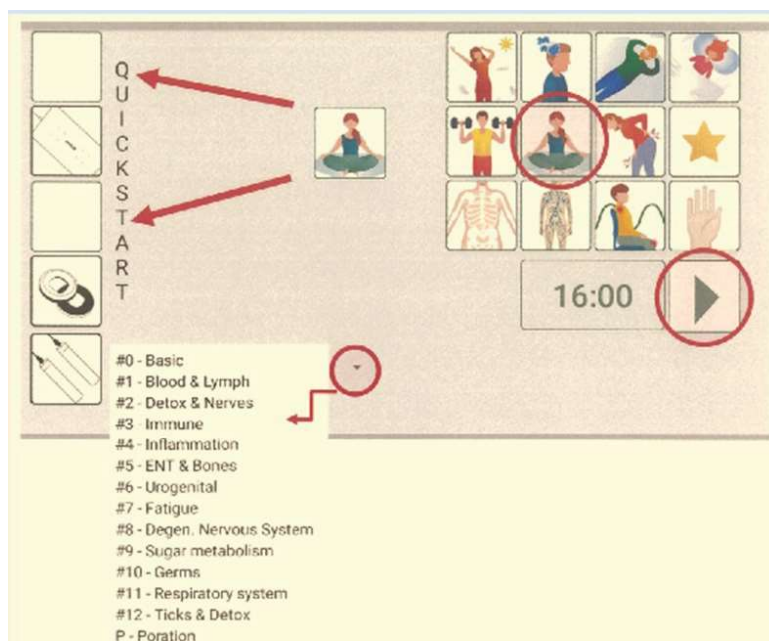
Special treatment possibilities - Sanza device

Parameter ranges for magnetic therapy-Sanza device

Two independent output channels for applicator coils, which are capable of generating independent waveforms, frequencies, intensities, modulation modes simultaneously

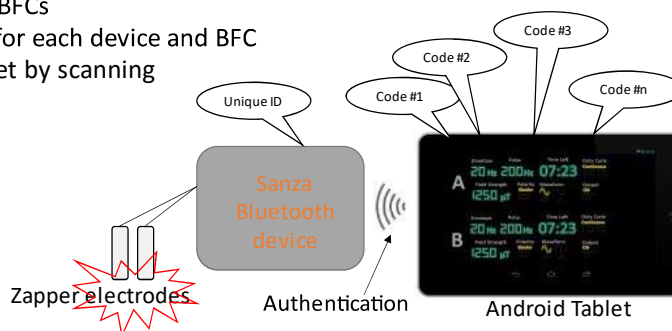
- Envelope waveforms: Sine, Sawtooth, Inverse Sawtooth, Square
- Envelope frequency: 0.1 – 60Hz
- Pulse modulation frequency: 150, 200, 250, 300, 400, 1000, 2500, 5000 Hz
- Pulse modulation duty cycle: 25%, 50%, 100%
- Intensity: 10 – 10.000uT (current: 6mApp – 3App)
- Polarity: Positive only, negative only, bipolar
- Time: 1 – 3600 sec
- Skip function: always on, 1:1 min on:off, 2:2 min on:off

The display of the tablet makes it possible for very easy handling, choice of treatment (pictures) and the bio-current spectra BFC No.: 0-12 (below) setting of the induction value of the electromagnetic field.



BFS Bio Frequency Current generator Sanza specialities

- Current generator with adjustable output peak current
- 250-450uApp output current
- Applied part meetshas isolated output
- Exact frequencies, waveforms, phase hops, etc are specified
- New method for basic chipset and optional extensions
- No physical device for different BFCs
- Specific code can be purchased for each device and BFC
- Code can be entered to the tablet by scanning on the virtual keyboard



All rights reserved for Santerra Forschungs- und Vertriebs GmbH (Germany) and the STA Vertriebs GmbH (Austria) for the patented therapy system, exclusively developed by the two companies.

The device and instruction services can be ordered at the following addresses:

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