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Review Article

Fast Pulse Rise Time Combined with a Low Pulse Rate Found to Counter Inflammation While Providing Pain Relief, Cardioprotection, And Even Cartilage Regeneration with a Portable Device as Confirmed by NASA

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Summary

The non-invasive electrotherapeutic EM Pulser 78, designed by a Medical Doctor, has an anti-inflammatory response following individual NASA studies and subsequent patents that additionally include tissue repair, cardioprotection under stress, and cartilage regeneration. This article is a follow-up to "How Energy Medicine Will Save Health Care".

Overview

Researchers at Integrity Research Institute (IRI) partnered with physician Glen Gordon to develop a commercial square wave EM Pulser to activate the restorative and healing heat shock protein (HSP 70) within ten (10) minutes, with the unique "nanosecond risetime" of bio-magnetic pulses. Subsequently, a pancake coil PulsePad was developed in 2015 by IRI to make the longer-term application of the Pulsed Electromagnetic Field (PEMF) more convenient and ergonomic. Larger pancake coil designs in an OsteoPad line of products were also independently developed by IRI to address the historically valid discovery by Drs. Robert Becker, Andrew Bassett, and Arthur Pilla who found that such square-wave PEMFs can also halve the time it takes to heal a bone fracture and reverse osteoporosis by simulating weight-bearing exercise. Surprisingly, in each case, NASA Johnson Space Center investigating Time-Varying Magnetic Field (TVMF) therapies developed a square-wave, Pulsed Electromagnetic Field (PEMF) device in one case "enhance mammalian tissue repair" and in another case, that can alleviate cartilage degradation in synovial joints by promoting the growth of new cartilage. The NASA PEMF device as well as the IRI PulsePad and OsteoPad can simply be wrapped around synovial joints where cartilage-degrading inflammation is located or where tissue repair is needed. A third benefit of the same circuit design developed by IRI refers to the NASA study showing "cardioprotection under stress" with the IRI pulse rate of 7.8 Hz, which is also called the Schumann Resonance of the earth [1,2].

Bio-Magnetic Pulsed Electrotherapy

As mentioned previously, the development of the EM Pulser

78 from Integrity Research Institute (IRI) is credited to the medical doctor Glen Gordon (click here *https://youtu.be/5JW1Py9ph-g* for his video lecture excerpt) following an early NASA study. As Dr. Gordon explains, it was found to activate the heat shock protein (HSP 70) within just 10 minutes, offering a targeted, non-invasive approach to reducing, and if used quickly, completely stopping the localized inflammatory response and speeding recovery. Hardly believable, many examples have confirmed that swelling, contusions, and pain diminish quickly so much so that some of our doctor clients use the EM Pulser 78 in the Emergency Room (ER).

Magnetic field pulsed therapy is not just a futuristic concept-it's a proven method for reducing pain and promoting healing at a cellular level. The EM Pulser Model 78 brings this technology to anyone looking for a safe, non-invasive way to manage pain and recover from injuries even in the ER, according to medical records of IRI.

Designed for convenience, the EM Pulser device weighs just two ounces and features a rechargeable lithium-ion battery. It also has an AC recharger for home use, a soft rubber grip for comfort, and a magnetic compass to confirm the strength and oscillation of the pulsed magnetic field. The electrotherapy device comes with a special AC battery charger that allows one to recharge the 9V battery while still in the unit, much like charging your cell phone by plugging it in overnight. A soft rubber boot is supplied with the Model 78 at no extra cost, along with a manual and a magnetic compass so you can see the 7.8Hz flickering oscillations of the pulsed magnetic field coil.

NASA Discovers Noninvasive Therapy for Cartilage Regeneration

The new EM Pulser Model 78 Pulsed Electromagnetic Field (PEMF) therapy device is designed to relieve pain, accelerate healing, and support cardiovascular health. It delivers low-frequency magnetic pulses at a rate clinically validated by NASA scientists for its ability to promote *cartilage regeneration*. If we are out of sync with Earth's frequency (Schumann Resonance) we begin to exhibit signs of discomfort that can range from anxiety, insomnia, illness, suppressed immune etc. Conversely, IRI has discovered that when humans are in sync with 7.8Hz, the body is able to heal and increase its vitality. Having a source of this natural earth-heart frequency, along with the extra benefits of the nanosecond risetime of a magnetic pulse near to the body, offers restorative effects to inflammatory conditions [3,4].

NASA Discovers Noninvasive Therapy for Cardioprotection Under Stress

The EM Pulser Model 78 can also be used to treat a range of conditions, It also offers cardioprotection benefits as shown in a 2019 study published in Nature Scientific Reports (ref. 4). The study also emphasized its protocol of using weak magnetic fields in the Schumann Resonance band of 7.8Hz which duplicated the IRI invention available on the market several years before it. For enhanced functionality, the American-made EM Pulser 78 that is under three hundred dollars, can be paired with optional accessories, such as the near-infrared LED probe for deep tissue penetration, a UV probe for disinfection, a separate magnetic coil probe, and the PulsePad for broader coverage on tender areas. These add-ons are available separately or as part of the full package for around four hundred USD.

An independent long-term study of heart rate variability has also been performed showing responses to changes in the solar and geomagnetic environment, which shows how responsive the human physiology is to the earth frequencies. Another NIH study asks "Does Schumann Resonance (SR) affect our blood pressure?" This public access article suggested better health status for those who showed lower blood pressure on enhanced SR days [5,6].

The low, earth-pulsed frequency magnetic fields of 7.8 Hertz easily pass through the human body to heal deep injury and relieve pain. This feature is demonstrated in two minutes with a video experiment by the author online *https://youtu.be/v8XuoBHrK8c*. Since it is designed to activate the restorative and healing Heat Shock Protein (HSP 70) within ten (10) minutes, with the unique "nanosecond risetime" of the magnetic pulses, it has been found, to be effective, according to Dr. Gordon's off-label applications list, with Arthritis, Bruises, Swelling, Sprains, Cuts, Trauma, Carpal Tunnel, Backache, Joint pain, Sciatica pain, post-surgical healing, migraines, gynecologic pain. and fracture.

NASA Discovers Bio-Magnetic Device to Enhance Mammalian Tissue Repair

For the third time, NASA has also presented a patent collection for a pancake coil pad, with a square wave PEMF design and this time with additional details such as being driven by a 9 V battery that can be wrapped around an area of the body that needs healing. Released in 2023, it comes years after IRI has been selling exactly the same type of product with our **EM Pulser 78** combined with a small **EM PulsePad** or optionally an **OsteoPad** accessory pad. However, NASA has a better technical name for this invention. Therefore, people can either apply to license the NASA invention or visit the IRI dedicated webpage *www.BioenergyDevice.org* and try one for themselves today, with a 30-day return policy, which also includes the other two NASA-discovered benefits of cardioprotection and cartilage regeneration [2].

Lastly, a late development at the time of this publication seems to be the removal of their public advertisement for this third type of application for a square-wave electrotherapy circuit of low frequency pulse rate. Therefore, a reproduction of their two-page summary of their bio-magnetic device is reproduced here (Figures 1,2).

National Aeronautics and Space Administration

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TECHNOLOGY SOLUTION

Health, Medicine and Biotechnology

Bio-Magnetic Device To Enhance Mammalian Tissue Repair

Portable sleeve uses electromagnetism to manipulate blood vessels

Innovators at NASA Johnson Space Center have designed a therapeutic device that applies a time-varying electromagnetic force to damaged mammalian tissue and is intended to enhance healing. The device is mainly comprised of a sleeve that encircles the affected appendage and operates using an internal electromagnetic coil. The sleeve encircles the target appendage and applies a carefully titrated electromagnetic field for a predetermined amount of time – using only a compact commercially available electrical generator, and a 9-volt battery.

The device is easily portable and intends to mend soft tissue and enhance the repair of bone fractures.

The Apparatus for Enhancing Tissue Repair in Mammals is technology readiness level (TRL) 2 (technology concept and/or application formulated) and is now available for patent licensing. Please note that NASA does not manufacture products itself for commercial sale.

BENEFITS

- Portable: small form-factor requires minimal space for implementation
- Lightweight: requires minimal effort to transport
- Inexpensive: main component generator is commercially available
- Low energy consumption: system runs off of simple 9-volt battery
- Versatile: main component sleeve can be adapted to various mammalian appendages
- Easy to assemble/use: system requires only two connections and two switches

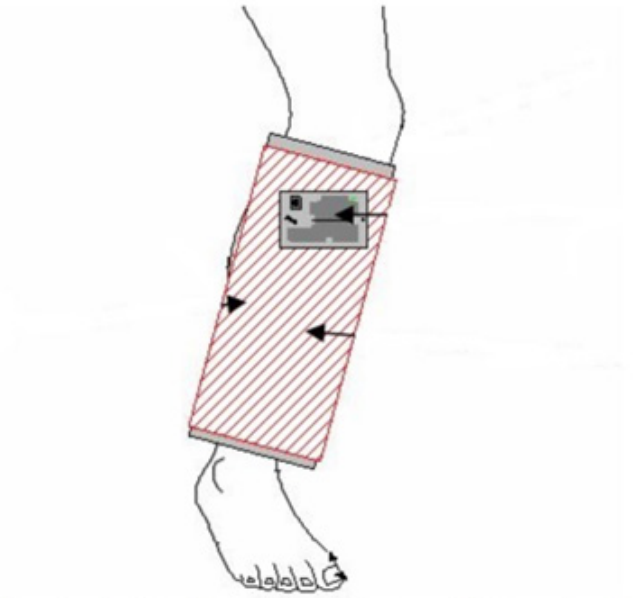
Figure: 1

THE TECHNOLOGY

Most magnetic therapy research and resulting devices have centered around pulsed unidirectional bioelectric systems. The technology available here for licensing utilizes a square-wave time-varying electrical current, which generates an electromagnetic field, via a wound coil incorporated into a sleeve and encircles the affected appendage. An external and commercially available time-varying compact electrical generator connects to the wound coil within the sleeve and is powered by a 9-volt battery.

Prior industry attempts to use electromagnetic therapy on mammalian tissue have historically applied higher than necessary levels of electromagnetism, typically at 50 gauss or more. Researchers found that by inducing a Fourier-curve, time-varying electromagnetic wave at levels within 0.05 – 0.5 gauss for a pre-determined time-period, was optimum to achieve successful mammalian tissue regeneration.

It is theorized that magnetic fields can alter the flow of positively charged calcium ions that interact with the muscles around small blood vessels causing them to relax. This effect in turn, causes constricted blood vessels to dilate, and dilated blood vessels to constrict. Depending upon the type of injury, enhanced tissue repair may occur through the suppression of inflammation, or the increase in blood flow.



Shown is an illustration of the device sleeve encircling an affected appendage. The device is easily portable and is designed to mend soft tissue and enhance the repair of bone fractures.

APPLICATIONS

The technology has several potential applications:

- Contemporary Medicine: may expedite healing of hard and soft tissue in humans
- Veterinary Medicine: may expedite healing of hard and soft tissue in other mammals

PUBLICATIONS

Patent No: 7,179,217; 7,601,114

technology.nasa.gov

NASA's Technology Transfer Program pursues the widest possible applications of agency technology to benefit US citizens. Through partnerships and licensing agreements with industry, the program ensures that NASA's investments in pioneering research find secondary uses that benefit the economy, create jobs, and improve quality of life.

MSC-23981-1, MSC-23981-2, MSC-TOPS-112

More Information

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NP-2023-01-3096-HQ

Figure: 2

A recent client shared, "I love this new model 78. I just had to buy a second one, so I am never without it. It has helped me to sleep soundly, and I feel more alert. I am 78 years old and have lots of aches and pains, and this device is helping a lot. So grateful for this product, great price too."

Interested parties can find additional information by visiting *https://integrity-research-institute.myshopify.com/collections/em-pulsers-and-em-pulsepads*. It is also helpful to mention that IRI also has a produced an educational video *https://www.youtube.com/watch?v=zF76DXdTexs* to answer many clients' inquiries about the EM Pulser 78. The range of the magnetic field is measurable with a gaussmeter. So we have an inexpensive *ElectroSensor-Milligaussme-*

ter that has a variable LED readout scale so it is very visible without a lot of numbers. There is a video on the website showing the magnetic field range of 30mG (milligauss) right next to the EM Pulser, attenuating up to a distance of about 30cm. This distance also happens to be about the thickness of an average slim human torso from the tummy to the person's backside. Not shown is the fact that technical staff also verified that the magnetic field goes right through the subject's tummy to their back without attenuation. The testing of the magnetic field range for the EM Pulser 78 is also duplicated with the flat EM PulsePad attachment, which has the same effectiveness over a large distance of 30cm (Figure 3).

Figure 3: EM PulsePad is a Slim, Flexible Attachment for the EM Pulser 78 shown here.

"The EM Pulser Model 78 brings this technology to anyone looking for a safe, non-invasive way to manage pain and recover from injuries."

- Jacqueline Panting, N.D.

Acknowledgements

None.

Conflicts of Interest

None.

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