

BIOELECTROMAGNETIC HEALING, Tesla, and PEMF Devices

Thomas Valone, PhD, PE

Integrity Research Institute

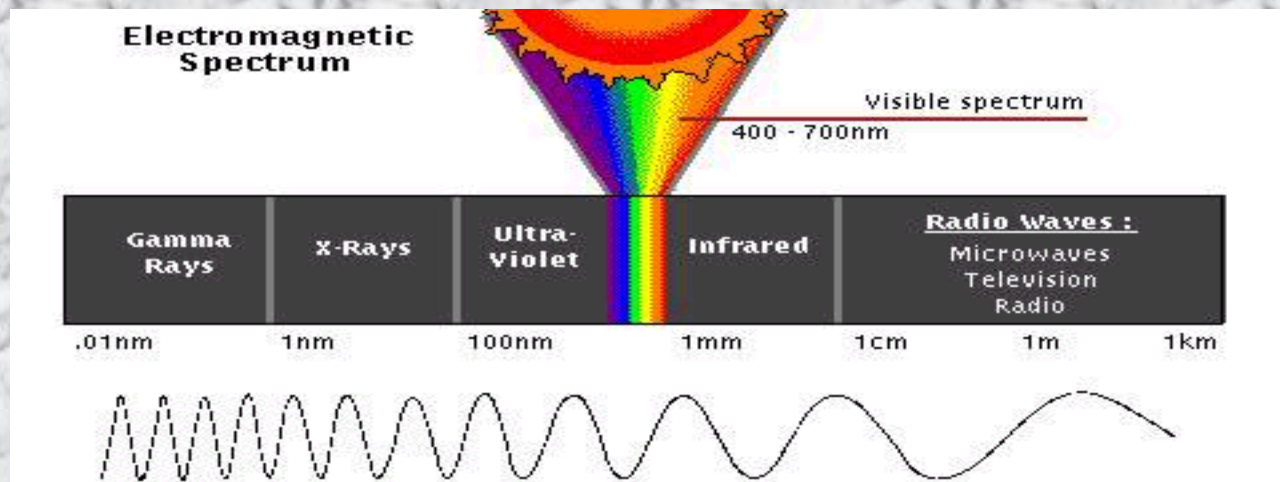
www.Integrity-Research.org

No diagnosis or cure is implied by this presentation. None of these statements have been evaluated by the FDA.

7/31/2025

Bioelectromagnetics (BEMs)

- The study of the effects of electromagnetic fields **on biological systems**, in particular, human beings
- Includes electrostatic fields, sine wave (AC), and pulsed electromagnetic fields (PEMFs)



Today's BEMs Presentation

- Basics of EMF Effect on Humans
- Pulsed EMFs (PEMFs) and Products
- Tesla and High Voltage Effects
- Historical Tesla Coil Devices
- Modern High Voltage (HV) Products



Electrons are Antioxidants

FREE RADICALS STEAL ELECTRONS

creating more free radical DAMAGE in a chain reaction (10,000 times) – buy a shower filter for chlorine in city water – powerful free radical

Damaged mitochondrial DNA causes aging

ANTIOXIDANTS STOP FREE RADICALS WITH ELECTRONS

References

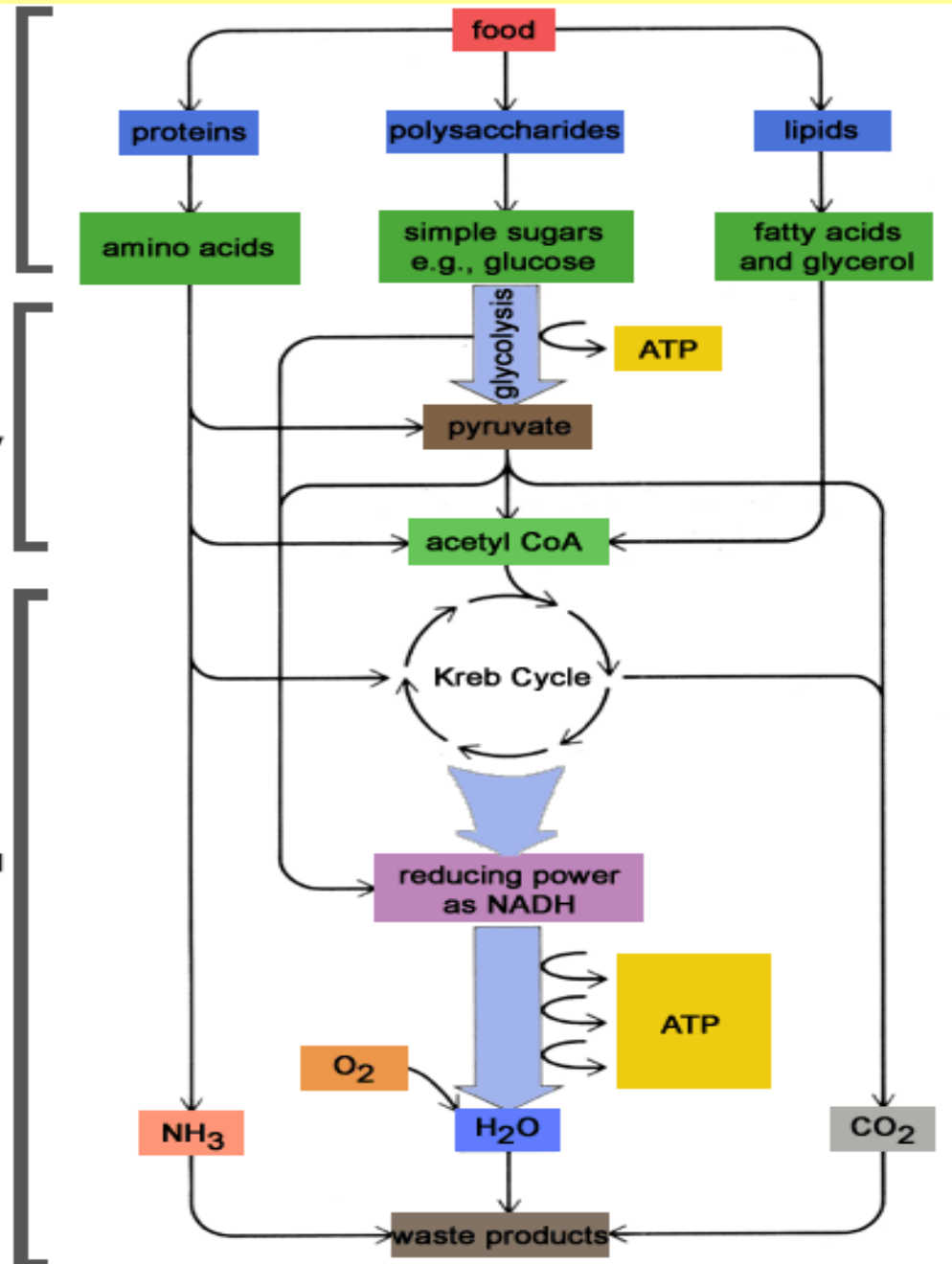
- **“Oxidative damage causes aging”** - *Life Enhancement*, Oct. 2004
- “Dying before their time: studies of prematurely old mice hint that DNA mutations underlie aging.” *Science News*, July 10, 2004, p. 26
- “Mice and mitochondria” Martin, *Nature*, 2004, V. 429, p. 357,417

Biological Respiration Overview

stage 1:
breakdown of large macro-
molecules to
simple subunits

stage 2:
breakdown of
simple subunits
to acetyl CoA
accompanied by
production of
limited ATP
and NADH

stage 3:
complete oxida-
tion of acetyl
CoA to H₂O and
CO₂ involves
production of
much NADH,
which yields
much ATP via
electron
transport

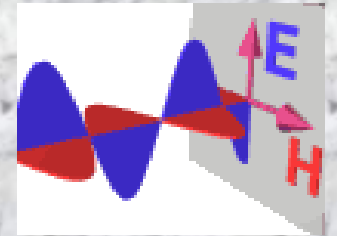


Key is
electron
transport



Electromagnetic Fields (EMFs)

- Created by oscillating electrons or magnetic fields
- EMFs usually have E (electric field) and H (magnetic field) perpendicular to each other
- Resultant traveling wave may be continuous or pulsed on and off
- Excites vibrational changes and transfers energy at speed of light



Magnetic Pulses Regenerate

- Induces expression of HSP 70*
- Quenches inflammation and trauma
- Stabilizes free radical chemistry
- Stimulates the calcium channel transport
- Upregulates growth and restorative genes
- Downregulates dysregulatory genes
- Fast rise time of pulse is the key (dB/dt)



Dr. Glen Gordon is heard here from his DVD, "Speaking of your Injury" on magnetic pulse technology applications and HSP 70

* "Heat Shock Protein and PEMF", Goodman, Reba. Columbia Univ.



Animals with higher heat-shock protein levels can thrive in triple-digit temperatures.

the heat-shock response could be augmented in humans.

New asthma treatments could become

to perfect the therapy.

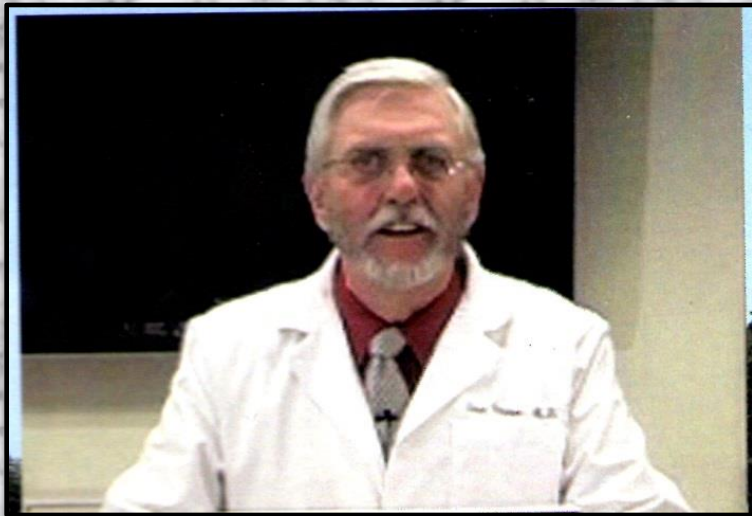
In a warmer, more humid, and crowded world, people will also come in contact with pathogens more frequently.

Scientists are working on ways to respond more quickly to pandemics. Vaccines

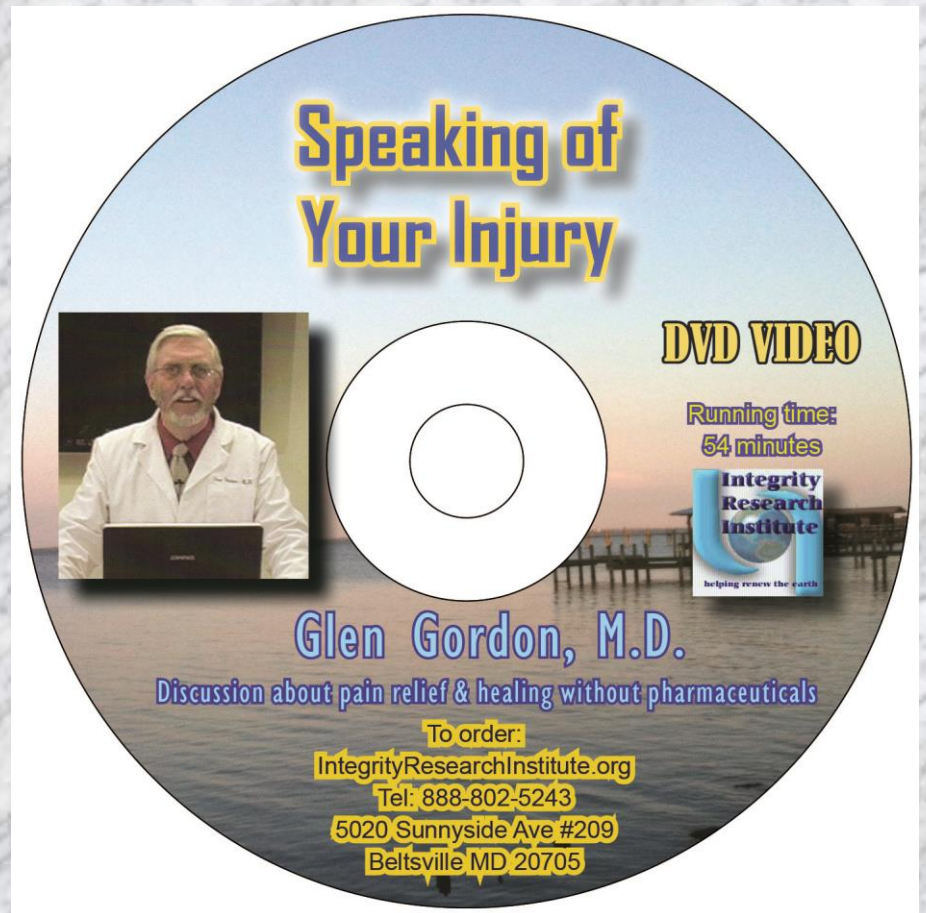
cause the body to create an immune response against the invader, but complete immunity takes several weeks. Even against an exotic and unfamiliar virus, a quicker, more foolproof method could be developed. People could be given lab-produced antibodies for immediate protection if a pandemic breaks out, says Antonio Lanzavecchia, an immunologist at the Institute for Research in Biomedicine in Switzerland. As scientists know which antibodies

Personal Instructions from Glen Gordon M.D.

Presented to an IRI conference audience
Explains the benefits of pulsed EMF therapy



**FREE copy with every
EM Pulser order**



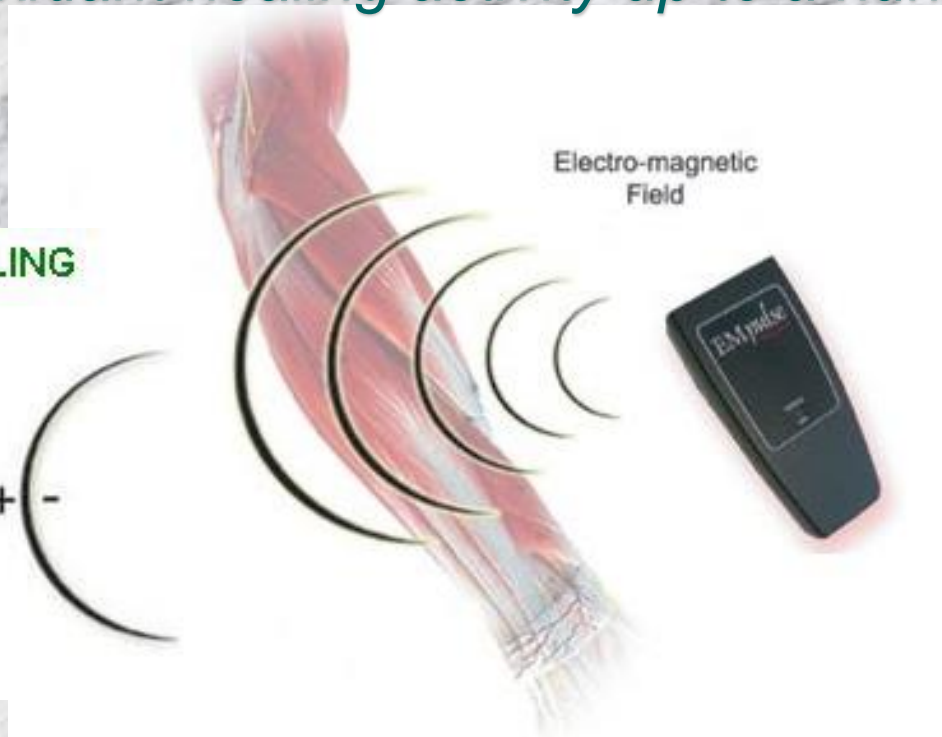
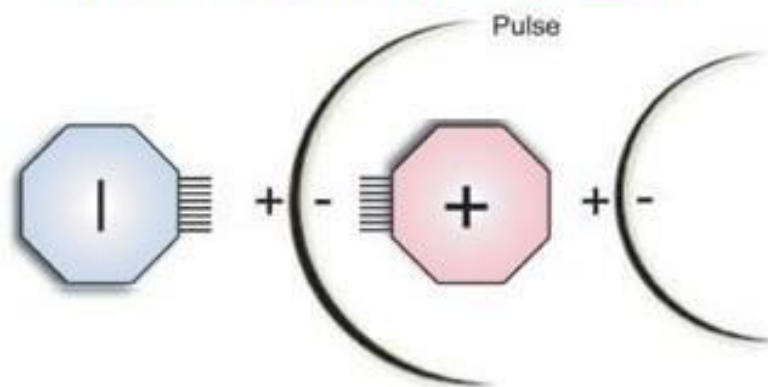
The Solution: Pulsed Electromagnetic Fields

Injury & Disease = Free Radical Event

PEMF Increases Neutralization by Antioxidants

Increases antioxidant healing activity up to a hundredfold

PEMF = ALIGNMENT = HEALING



Example: fracture healing in 10-12 days instead of six weeks

Inflammation vs. Healing

Must stop one to start the other



Must be able to upregulate tissue and
tissue restoration genes

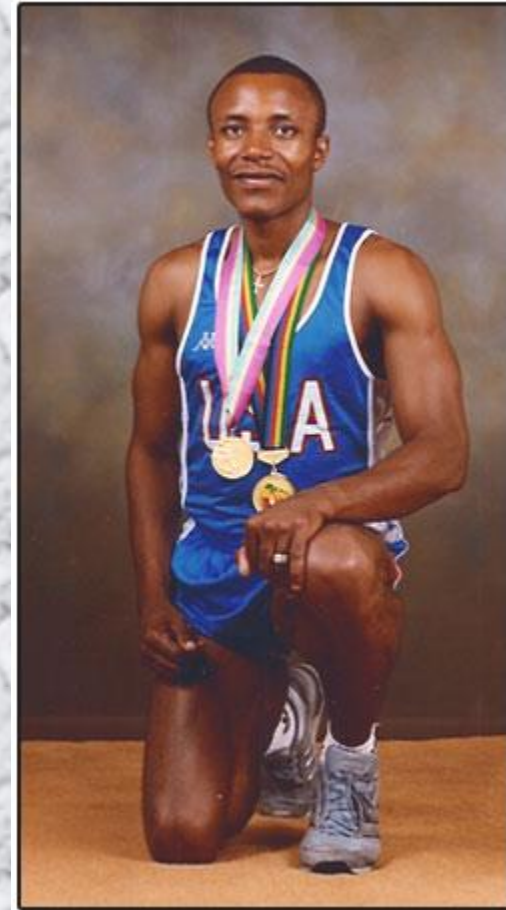
Testimonial

"I tore a hamstring so badly I thought the Olympics were history before they started.

We treated several days, two or three times per day, results were spectacular. I'd never seen a hamstring injury recover with such speed.

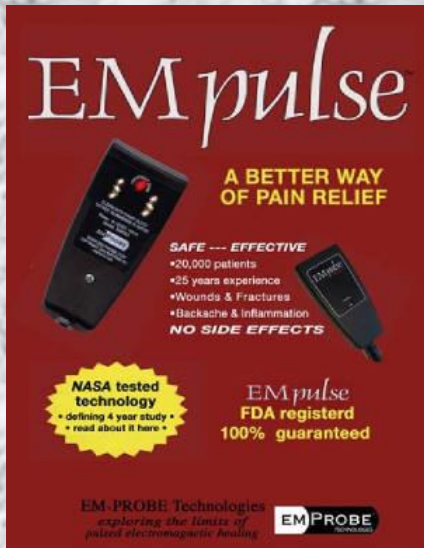
We treated several days, two or three times per day. I'd never seen a hamstring injury recover with such speed. "

Calvin Smith - Former World Record Holder & Former Olympic Gold Medalist



Note: The FDA reviewed and approved the original EMpulse

Dr. Glen Gordon's EMpulse



← Old model

New Model
Developed
By Dr. Valone for
Integrity Research

- Fastest nanosecond rise time on market
- 7.8 Hz pulse rate
- Anti-inflammatory
- Stimulates HSP 70 in just 10 min.
- Upregulates restorative genes



Visit BioEnergyDevice.org

Dr. Gordon's Spectrum of Use

Inflammation/Pain

- Bites, stings, trauma
- Arthritis, muscle injury
- Neuritis, neuropathy
- Carpal tunnel
- Back Pain
- Pain Relief
- Tissue healing
- Menses and childbirth

Tissue Restoration

- Nerve repair
- Fracture healing
- Prosthesis stabilization
- Myocardial ischemia, congestive heart failure
- Cerebral ischemia, stroke
- Spinal Cord Injury



OPEN

Cardioprotection from stress conditions by weak magnetic fields in the Schumann Resonance band

G. Elhalel¹, C. Price¹, D. Fixler¹ ² & A. Shainberg³

The Schumann Resonances (ScR) are Extremely Low Frequency (ELF) electromagnetic resonances in the Earth-ionosphere cavity excited by global lightning discharges. This natural electromagnetic noise has likely existed on the Earth ever since the Earth had an atmosphere and an ionosphere, hence surrounding us throughout our evolutionary history. The purpose of this study was to examine the influence of extremely weak magnetic fields in the ScR first mode frequency range on the spontaneous contractions, calcium transients and Creatine Kinase (CK) release of rat cardiac cell cultures. We show that applying 7.8 Hz, 90 nT magnetic fields (MF) causes a gradual decrease in the spontaneous calcium transients' amplitude, reaching 28% of the initial amplitude after 40 minutes of MF application, and accompanied with a gradual decrease in the calcium transients' rise time. The mechanical spontaneous contractions cease after the ScR fields have been applied for more than 30 minutes, when the calcium transient's amplitude reached ~60% of its initial value. The influence of the ScR MF was reversible, independent of the field magnitude in the range 20 pT-100 nT, and independent of the external DC magnetic field. However, the effect is frequency dependent; the described changes occurred only in the 7.6–8 Hz range. In addition, applying 7.8 Hz, 90 nT MF for 1.5 hours, reduced the amount of CK released to the buffer, during normal conditions, hypoxic conditions and oxidative stress induced by 80 μ M H₂O₂. We show that the ScR field induced reduction in CK release is associated with a stress response process and has a protective character.

ed: 14 September 2018

ed: 19 November 2018

ed online: 07 February 2019

NASA Findings on PEMF

- *NANOSECOND Speed = 2-4 times healing power*
- *PEMF upregulates approx. 150 repair genes*
- *Transforming growth factor-1 - bone*
- *Vascular endothelial growth factor (VEGF) – improves blood vessels*
- *Increases mitochondria 300-400%*
- -----
- ***Antioxidant healing activity up hundredfold***

NASA's Conclusion*

“Nanosecond speed is up to 4.0 times as effective as DC, sine wave, and millisecond technology [all of] which was found to be little better than placebo”

* “Physiological and Molecular Genetic Effects of Time-Varying Electromagnetic Fields on Human Neuronal Cells”, NASA Tech. Paper, TP-2003-212054, 9/1/2003

EM Pulser Has Nanosecond Speed

Pulsed Electromagnetic Fields - interesting...

- *Used internationally for 150 years*
 - *Approved for fractures in US (1979)*
 - *Marginally effective! Why? Millisecond speed*
-

Nanosecond Pulsed Electromagnetic Fields are revolutionary!

- *NASA 4-year study- nanosecond speed >4.0 times better at restoring tissues following injury or trauma.*
- ***EM Pulser*** is the only ***NANOSECOND*** PEMF device

Testimonials

“My daughter used EMPulse many times a day following ACL replacement surgery. It reduced her pain level – in two days she no longer needed pain meds. The swelling was VERY minimal, I attribute this directly to the use of EMPulse. At approx. 11 weeks out her PT said this was by far the fastest he had ever seen anyone recover from this type of surgery.” – Virginia L



EM Pulser user:

“Just to let you know. I put one of the new devices on my knee and am holding it in place with an ace bandage. I was in much pain going up and down stairs and up hill. What i noticed immediately putting it on is I felt like something was holding my leg gently so it could do what it is supposed to do which is heal itself. My knee feels stronger just having the device on it continuously. As I walk up the stairs I am not in as much pain having had it on for only ten minutes so far. It is not placebo because I am being very careful to see what the body is doing and not want it to work so to speak. So I am so happy it is reducing my pain immediately. It feels like a warm protective shield around the injured area.”

-- Thanks, *Rozanne*

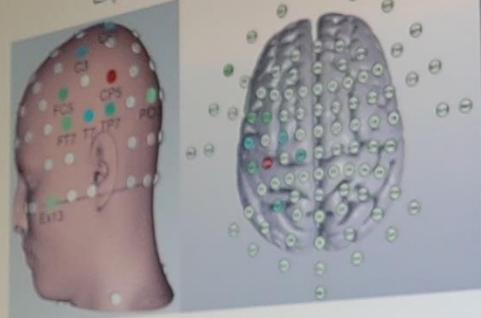
Working Memory Improvement
20 minutes/day for 3 days in a row
(Use PEMF above left ear)



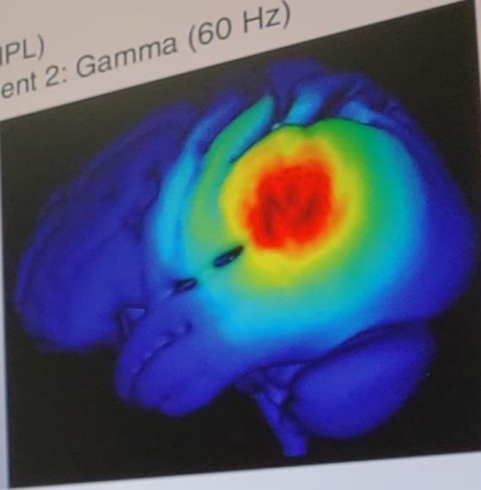
Long-lasting, dissociable improvements in working memory and long-term memory in older adults with repetitive neuromodulation

Shrey Grover¹, Wen Wen¹, Vighnesh Viswanathan¹, Christopher T. Gill¹ and Robert M. G. Reinhart^{1,2,3,4,5}

Working Memory Improvement = 4 Hz for 20 minutes



Current intensity (mA)
-1.58 1.58



Electric field intensity (E)

nature
neuroscience

ARTICLES

<https://doi.org/10.1038/s41593-022-01132-3>

Check for updates

Long-lasting, dissociable improvements in working memory and long-term memory in older adults with repetitive neuromodulation

Shrey Grover¹, Wen Wen¹, Vighnesh Viswanathan¹, Christopher T. Gill¹ and Robert M. G. Reinhart^{1,2,3,4,5}

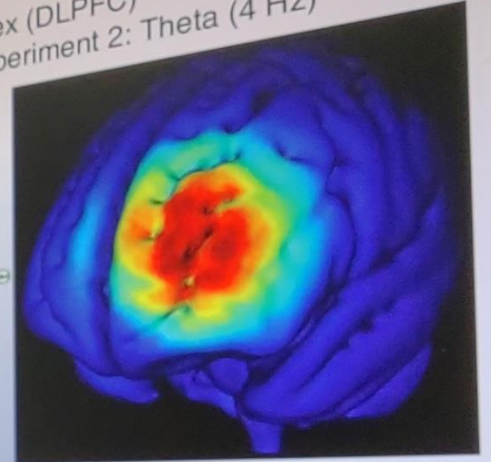
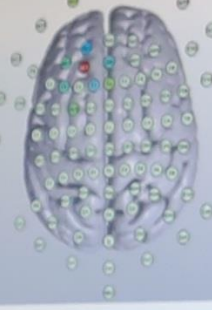
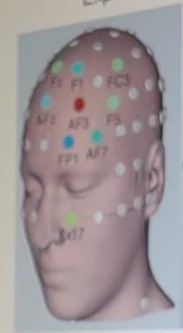
The development of technologies to protect or enhance memory in older people is an enduring goal of translational medicine. Here we describe repetitive (4-day) transcranial alternating current stimulation (tACS) protocols for the selective, sustainable enhancement of auditory-verbal working memory and long-term memory in 65–88-year-old people. Modulation of synchro-

Long-lasting, dissociable improvements in working memory and long-term memory in older adults with repetitive neuromodulation

Shrey Grewer¹, Wen Wei¹, Vignesh Viswanathan¹, Christopher T. Giff¹ and Robert M. G. Reinhart¹✉

The development of technologies to protect or enhance memory in older people is an exciting goal of translational medicine. Here we describe repetitive low-frequency transcranial alternating current stimulation (tACS) protocols for the selective enhancement of auditory verbal working memory and long-term memory in 60-year-old people. Modulation of posterior theta (4 and 8 Hz) and posterior alpha (10 and 12 Hz) activity in posterior parietal cortex (PPC) improved working memory on day 1 and long-term memory on day 3. In contrast, modulation of anterior theta (4 and 8 Hz) activity in dorsolateral prefrontal cortex (DLPFC) improved working memory on day 1 and long-term memory on day 3. These results suggest that selective modulation of posterior theta and alpha activity in PPC and anterior theta activity in DLPFC can be used to enhance working memory and long-term memory in older people. The frequency of the ongoing brain activity can be selectively and continuously modulated using repetitive and highly focused neuromodulation: powerful in enhancement of memory-specific cortical activity.

Long Term Memory Improvement = 24 – 70 Hz gamma for 20 minutes 3 days in a row
Dorsolateral prefrontal cortex (DLPFC)
Experiments 1 & 3: Gamma (60 Hz); Experiment 2: Theta (4 Hz)



Current intensity (mA)
-1.59 1.59

Electric field intensity (E)
0 0.2

Long Term Memory Improvement
20 minutes/day for 3 days in a row
(Use PEMF above left eyebrow)

Rationale for Healing with PEMFs*

- HF EMF penetrate several centimeters into body
- Diseased cells have low TMP**
- Low TMP = Na-K pump, ATP impairment and increased bacterial and viral reproduction
- Membranes rectify AC; Proteins = Rectifier
- External HV EMFs can stimulate the cell's TMP
- Electroporation transmigrates ions & nutrients
- Boosting TMP with HV electrons helps restore the immune system
- Noticeable energy boost from PEMFs in diseased patients

*Pulsed ElectroMagnetic Fields

**TMP = TransMembrane Potential

Magnetic Pulses = Induced PEMFs

A New Treatment for Arthritis: Vagus-Nerve Stimulation > Studies will soon show whether electroceuticals outperform pharmaceuticals

26 DEC 2022 | 5 MIN READ |

Inducing only 1 mA

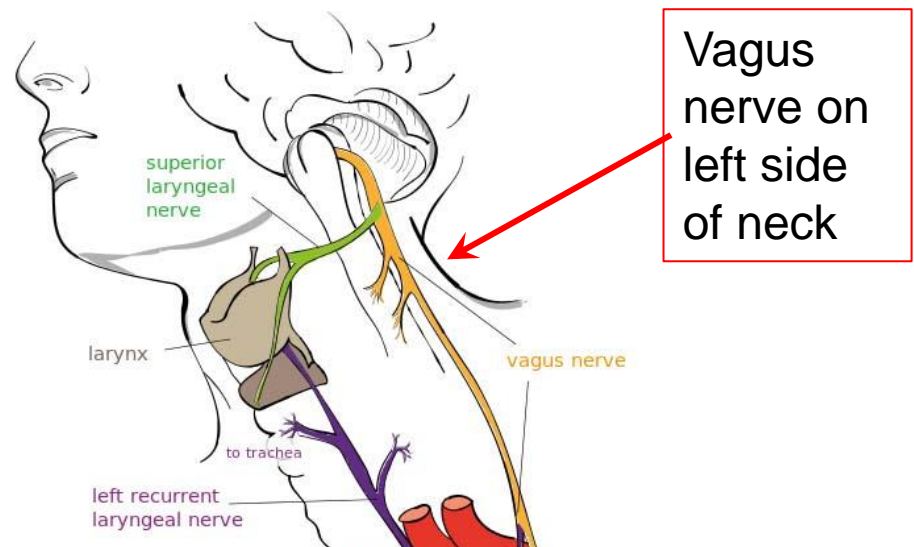
VIDEO

BIOMEDICAL

Vagus Nerve Stimulation Fights Rheumatoid Arthritis > Surgically implanted bioelectronic devices

may one day treat inflammatory conditions with electrical nerve stimulation

25 JUL 2016 | 1 MIN READ |



Vagus nerve stimulation inhibits cytokine production and attenuates disease severity in rheumatoid arthritis

Frieda A. Koopman^a, Sangeeta S. Chavan^b, Sanda Miljko^c, Simeon Grazio^d, Sekib Sokolovic^e, P. Richard Schuurman^f, Ashesh D. Mehta^g, Yaakov A. Levine^h, Michael Faltys^h, Ralph Zitnik^h, Kevin J. Tracey^b, and Paul P. Tak^{a,1,2,3,4}

^aAmsterdam Rheumatology and Immunology Center, Department of Clinical Immunology, Amsterdam, 1105 AZ Amsterdam, The Netherlands; ^bLaboratory of Biomedical Research, Department of Immunology, University of Groningen, Groningen, The Netherlands; ^cUniversity Clinical Hospital, Mostar 88000, Bosnia and Herzegovina; ^dClinical Center of Bosnia and Herzegovina, Sarajevo 71000, Bosnia and Herzegovina; ^eDepartment of Neurosurgery, Hofstra Northwell School of Medicine, 11105 AZ Amsterdam, The Netherlands; ^fDepartment of Neurosurgery, Hofstra Northwell School of Medicine, 11105 AZ Amsterdam, The Netherlands; ^gDepartment of Neurosurgery, Hofstra Northwell School of Medicine, 11105 AZ Amsterdam, The Netherlands; ^hDepartment of Neurosurgery, Hofstra Northwell School of Medicine, 11105 AZ Amsterdam, The Netherlands

Edited by Ruslan Medzhitov, Yale University School of Medicine, New Haven, CT

Rheumatoid arthritis (RA) is a heterogeneous, prevalent, chronic autoimmune disease characterized by painful swollen joints and significant disabilities. Symptomatic relief can be achieved in up to 50% of patients using biological agents that inhibit tumor necrosis factor (TNF) or other mechanisms of action, but there are no universal

FEATURE BIOMEDICAL

A New Treatment for Arthritis: Vagus-Nerve Stimulation

> Studies will soon show whether electroceuticals outperform pharmaceuticals

26 DEC 2022 | 5 MIN READ

PNAS, July 19, 2016, Vol. 113, N. 29, 8284-8289

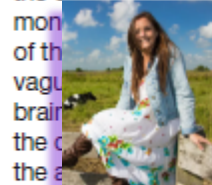
Spectrum.IEEE.org

Correspondence

Restoring consciousness with vagus nerve stimulation

Martina Corazzol^{1,2,4}, Guillaume Lio^{1,2,4}, Arthur Lefevre^{1,2}, Gianluca Deiana^{1,2}, Laurence Tell³, Nathalie André-Obadia³, Pierre Bourdillon³, Marc Guenet^{2,3}, Michel Desmurget^{1,2}, Jacques Luauté^{2,3,4}, and Angela Sirigu^{1,2,4,*}

and afferents distributed throughout the central nervous system, either



mon of th vagu brain the c the a [5]. In incre thala [6]. in th to m in th nora arousal, alertness and the fight-or-flight response [7].

NEWS BIOMEDICAL

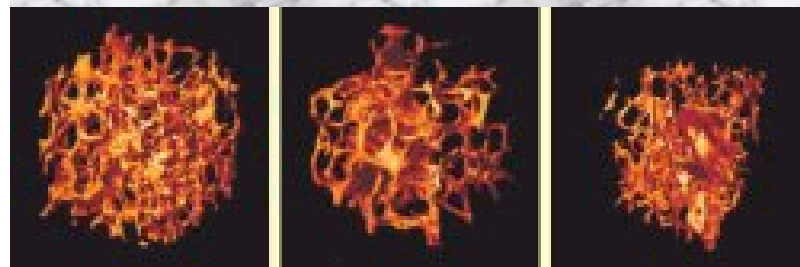
Battling Crohn's Disease with Vagus Nerve Stimulation

> A woman debilitated from Crohn's disease tells how vagus nerve stimulation changed her life

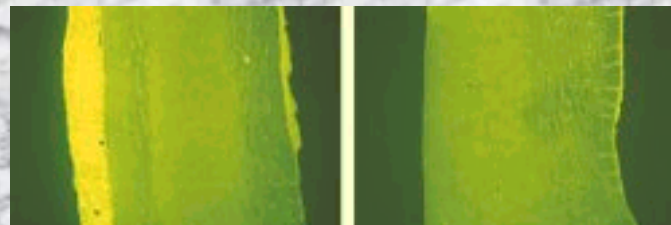
14 JUN 2018 | 5 MIN READ

“Medicinal EMFs” by J. Raloff

- *Science News* 11/13/99 V. 156, N. 13, p.316 - online at www.sciencenews.org
- OrthoLogic, Tempe AZ makes bone stimulator
- Dr. Sisken-U of Kentucky EMFs accelerate nerve recovery



Healthy EMF treated No ovaries
J. Kinney, Law. Livermore Nat. Lab

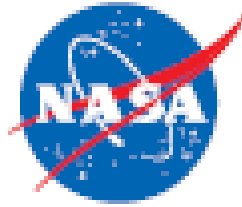


Yellow shows new growth in wing bones of live turkeys with coil EMFs vs. control on right
K. McLeod, Creighton U Sch of Med

Exogen, Piscataway NJ vibrates 8 min/day, platform for those at risk for **osteoporosis**



**“High rising and falling slew rates”
PEMF stimulates
new cartilage growth**

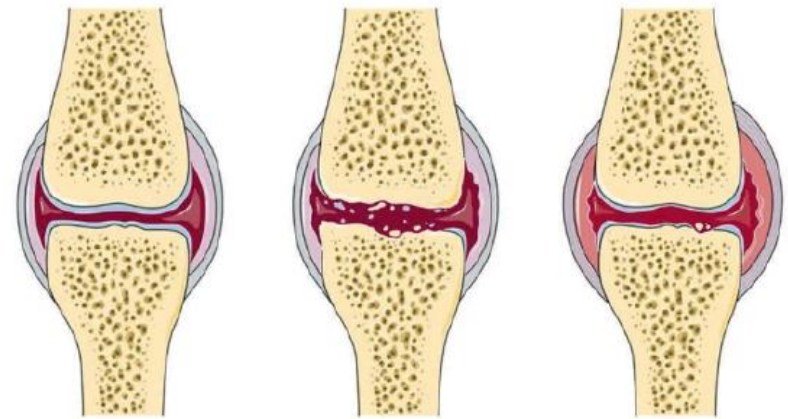


Noninvasive Therapy for Cartilage Regeneration

A device that can alleviate cartilage degradation in synovial joints by promoting the growth of new cartilage.

Johnson Space Center, Houston, TX

Osteoarthritis and rheumatoid arthritis



Normal joint

Osteoarthritis

Rheumatoid arthritis

A comparison of healthy and inflamed synovial joints. (Image: NASA)

Innovators at NASA Johnson Space Center researching time-variance magnetic field (TVMF) therapies have developed a pulsed electromagnetic field (PEMF) device that can alleviate cartilage degradation in synovial joints by promoting the growth of new cartilage.

“Frequencies were generally low...from 6 Hz – 500 Hz”

Health Medicine And Biotechnology

**Noninvasive Therapy for Cartilage Regeneration
(MSC-TOPS-96)**

Magnetotherapy can restore damaged joints

Ask a Question

Apply to License

(12) **United States Patent**
Goodwin et al.

(10) **Patent No.:** **US 8,795,147 B1**
(45) **Date of Patent:** **Aug. 5, 2014**

(54) **MODIFYING THE GENETIC REGULATION OF BONE AND CARTILAGE CELLS AND ASSOCIATED TISSUE BY EMF STIMULATION FIELDS AND USES THEREOF**

7,179,217	B2	2/2007	Goodwin et al.	
7,456,019	B2	11/2008	Goodwin et al.	
2006/0229487	A1*	10/2006	Goodwin et al.	600/13
2007/0105769	A1*	5/2007	Simon	514/12
2008/0138415	A1*	6/2008	Hussain et al.	424/486
2009/0234417	A1*	9/2009	Pastena et al.	607/40
2011/0105959	A1*	5/2011	O'Connor	601/2

(75) Inventors: **Thomas J. Goodwin**, Houston, TX (US); **Linda C. Shackelford**, Webster, TX (US)

OTHER PUBLICATIONS

(73) Assignee: **The United States of America as represented by the Administrator of the National Aeronautics and Space Administration**, Washington, DC (US)

Au et al in “Interactive effects of surface topography and pulsatile electrical field stimulation on orientation and elongation of fibroblasts and cardiomyocytes” (Biomaterials: 2007, vol. 28, No. 29, pp. 4277-4293).
Hussain et al in “Optimized magnetic surface topography and...”

Patents 8,795,147 9,896,681 10,724,030

History: Dr. Gordon invents the *EMpulse* for his own congestive heart condition, dreams of a “mat”

- *Stops inflammation faster than any drug or technology*
- *Cost effective healing technology*
- *Synergistic with drug therapy*
- *Spinoff to pad style product*

Example: Osteoporosis -
Fosamax at \$6000 annually -or-
the new **OsteoPad**, based on
Original *EMpulse* design which
Stimulates Calcium Transport
electromagnetically to
Restore Bone & Joint Density



Bone-Cartilage OsteoPad™

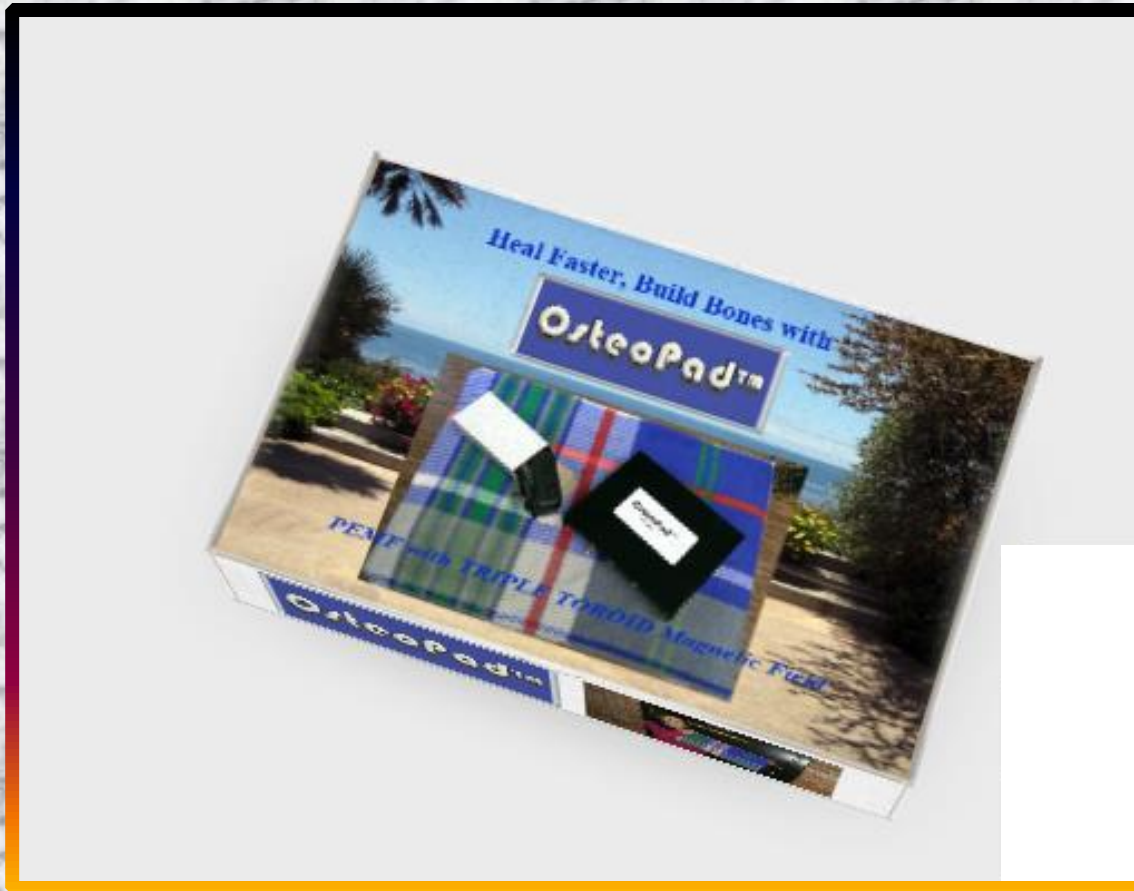
- ◆ 1 out of 2 people will develop **osteoporosis***
- ◆ 20 **million** Americans have **osteoarthritis**
- ◆ **OsteoPad™** provides a patented EM signal proven to stimulate calcium transport across bone and cartilage cell membrane, just like weight bearing exercise, creates piezoelectric signals
- ◆ **Heals bone fractures in ½ of the time**
- ◆ Strengthens bones and cartilage *while you sleep*, reversing osteoarthritis, osteopenia, osteoporosis
- ◆ Fulfilling the patented **PEMF** work of Drs. Robert Becker, Andrew Bassett and Arthur Pilla

*Time, October 25, 2004, p. 101

OsteoPad

Designed to Restore Cartilage & Bone

Three models:
OsteoPad **Original**
14" x 20",
OsteoPad **MiniMat**
10" x 36"
and
OsteoPad **MaxiMat**
14" x 60"



OsteoPad **MaxiMat** is 5 feet long and about 14" wide

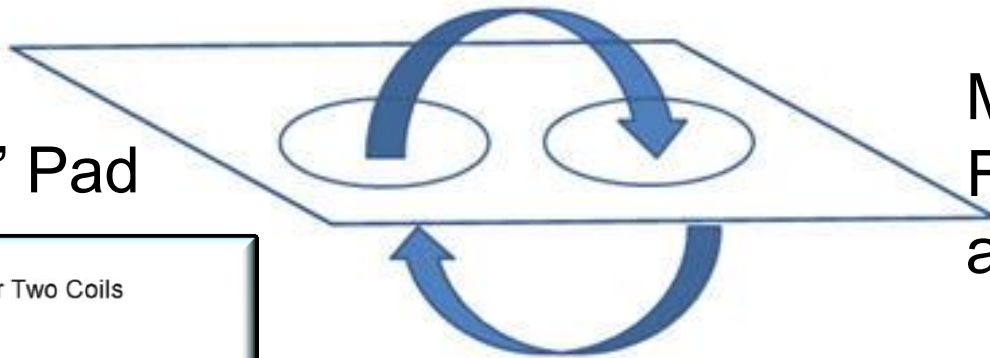
OsteoPad

Pairs of Coils Make a DoubleToroid™

Spiral Toroid Design

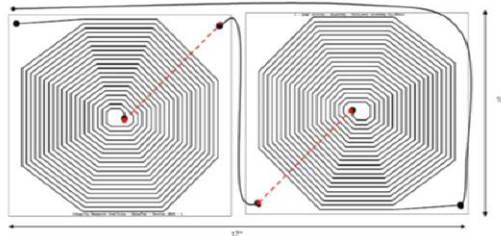
means better magnetic field penetration

14" x 20" Pad



Magnetic
Field Line
arrows

OsteoPad Circuit for Two Coils



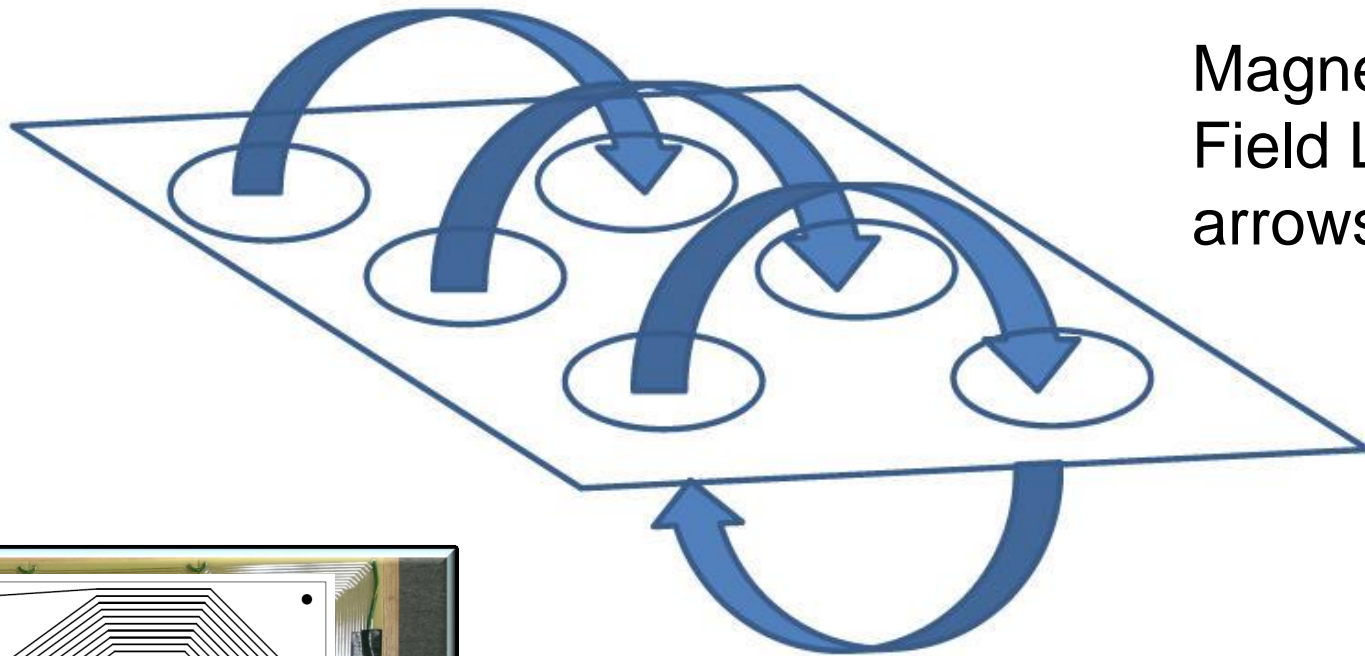
Proprietary - OsteoPad Ver. 4 - Two Coils - Integrity Research Institute 2015 - Thomas Valone

Exclusively from
Integrity Research Institute

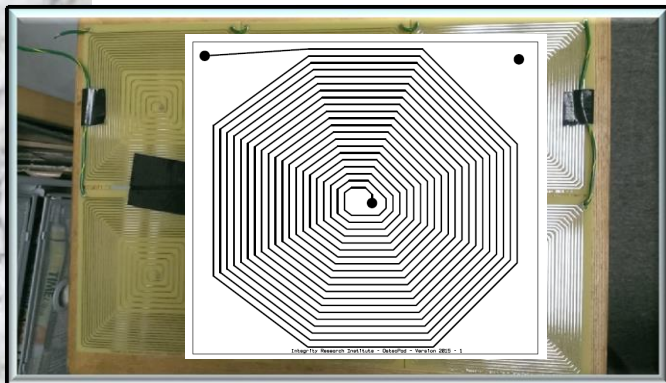
OsteoPad.org

OsteoPad

Special Pancake Coils Used in Pairs to Make a TripleToroid™



Magnetic
Field Line
arrows



Exclusively from
Integrity Research Institute
OsteoPad.org

The Secret of NIKOLA TESLA

THE MOVIE

STARRING
ORSON
WELLES
As J.P. Mogan

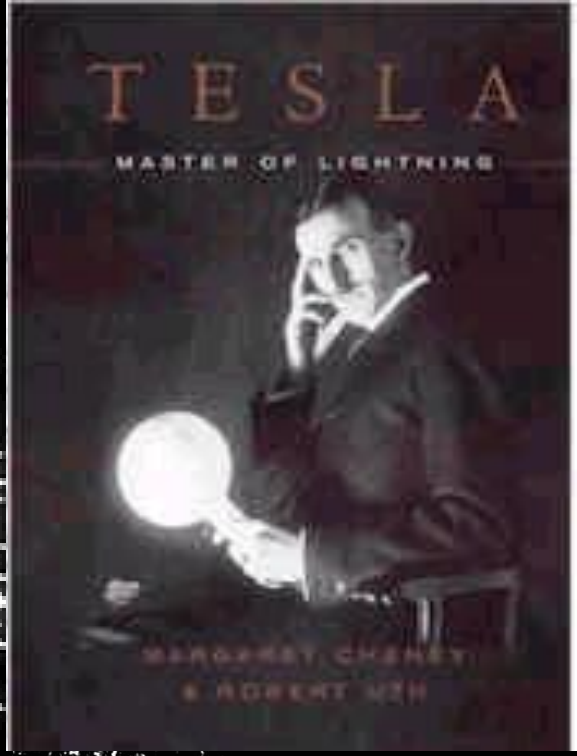
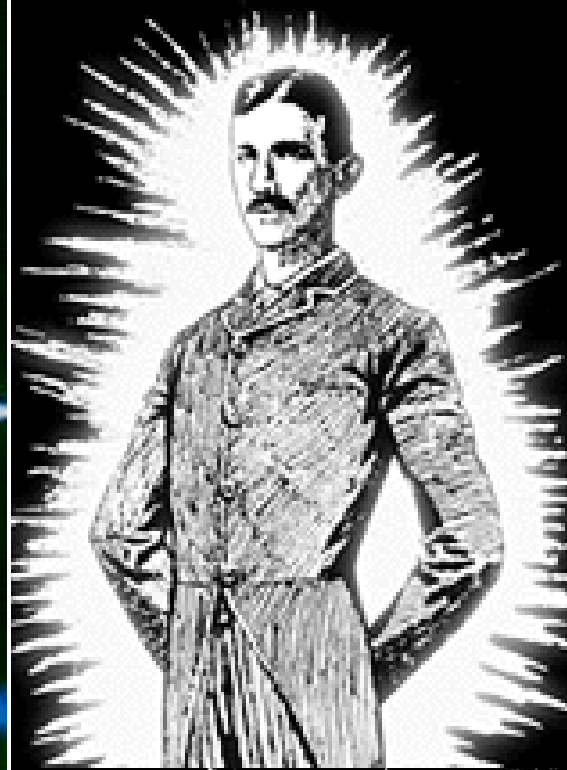
PETER BOZOVIC
As Nikola Tesla

STROTHER MARTIN
As George Westinghouse

DENNIS PATRICK
As Thomas Edison

Directed by KRISTO PAPIĆ

THE GENIUS WHO LIT THE WORLD



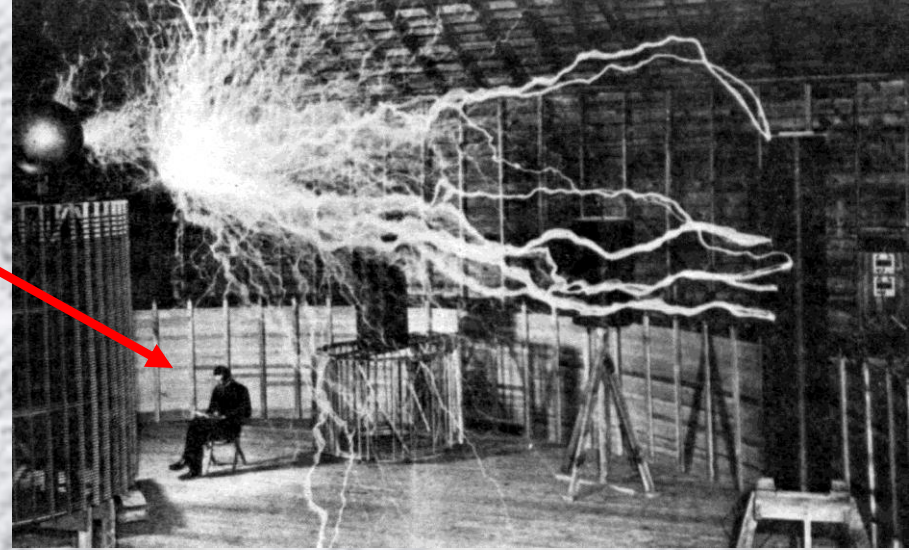
MANUFACTURED FOR
THE NIAGARA FALLS POWER CO.
BY
WESTINGHOUSE ELECTRIC AND MFG. CO.

— PATENTED —

NO 381368	TESLA	MAY 1 1888	PITTSBURG, PA. U.S.A.	NO 382282	TESLA	MAY 1 1888
NO 381369	TESLA	MAY 1 1888		NO 390413	TESLA	OCT 2 1888
NO 381370	TESLA	MAY 1 1888		NO 390414	TESLA	OCT 2 1888
NO 382279	TESLA	MAY 1 1888		NO 402776	SCHMID	JULY 9 1889
NO 382280	TESLA	MAY 1 1888		NO 428283	SCHMID	MAY 20 1890
NO 382281	TESLA	MAY 1 1888		NO R 11031	KENNEDY	SEP 24 1889
NO 382282	TESLA	MAY 1 1888		NO 469609	STANLEY	MAR 1 1892

1897

Nikola Tesla



- **Invented Tesla Coil**

- 1898 paper “High Frequency Oscillators for Electrotherapeutic and Other Purposes” read at the eighth annual meeting of the American Electro-Therapeutic Association in Buffalo NY

- **Physicians responded**

- 1932 Dr. Gustave Kolischer “Tesla’s HF electrical currents ... highly beneficial results in dealing with cancer”

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Jeff Behary

HIGH FREQUENCY OSCILLATORS FOR ELECTRO-THERAPEUTIC AND OTHER PURPOSES

Nikola Tesla

This paper appeared in The Electrical Engineer, November 17, 1898 (Vol. XXVI, #550); it was read at the eighth annual meeting of the American Electro-Therapeutic Association, held in Buffalo, New York from September 13-15, 1898.

Some theoretical possibilities offered by currents of very high frequency and observations which I casually made while pursuing experiments with alternating currents, as well as the stimulating influence of the work of Hertz and of views boldly put forth by Oliver Lodge, determined me some time during 1889 to enter a systematic investigation of high frequency phenomena, and the results soon reached were such as to justify further efforts towards providing the laboratory with efficient means for carrying on the research in this particular field, which has proved itself so fruitful since. As a consequence alternators of special design were constructed and various arrangements for converting ordinary into high frequency currents perfected, both of which were duly described and are now—I assume—familiar.

One of the early observed and remarkable features of the high frequency currents, and one which was chiefly of interest to the physician, was their apparent harmlessness which

that is, those principally dependent on the quality of electrical movement or current's strength through the body, and third, effects of a distinct nature due to electrical waves or oscillations, that is, impulses in which the electrical energy is alternately passing in more or less rapid succession through the static and dynamic forms.

Most generally in practice these different actions are coexistent, but by a suitable selection of apparatus and observance of conditions the experimenter may make one or other of these effects predominate. Thus he may pass through the body, or any part of the same, currents of comparatively large volume under a small electrical pressure, or he may subject the body to a high electrical pressure while the current is negligibly small, or he may put the patient under the influence of electrical waves transmitted, if desired, at considerable distance through space.

The Electrical Engineer, 11/17/1898 and *Infinite Energy*, V. 15, N. 89, 2010 and <http://www.tfcbooks.com/tesla/1898-11-17.htm>

Quote from “**High Frequency Oscillators for Electrotherapeutic and Other Purposes**” - Nikola Tesla

- “The body of a person may be subjected without danger to electrical pressures vastly in excess of any producible by ordinary apparatus, for they may amount to several million volts, as has been shown in actual practice.”
- “...will likewise prove to be of value in electro-therapy.”
- **American Electro-Therapeutic Association, 1896**

Tesla's HF Electrotherapy Circuits

★ = patient's body

The Electrical Engineer, 1898

Fig. 1

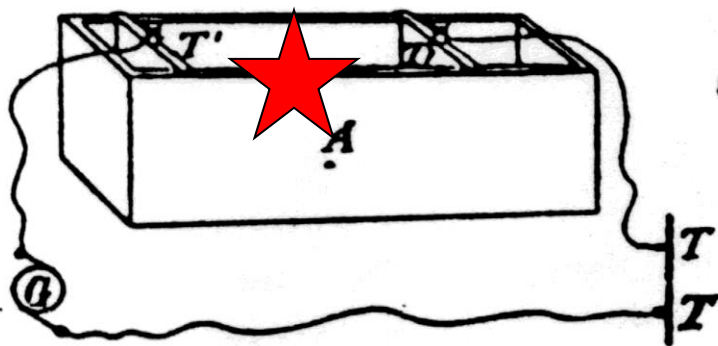


Fig. 2

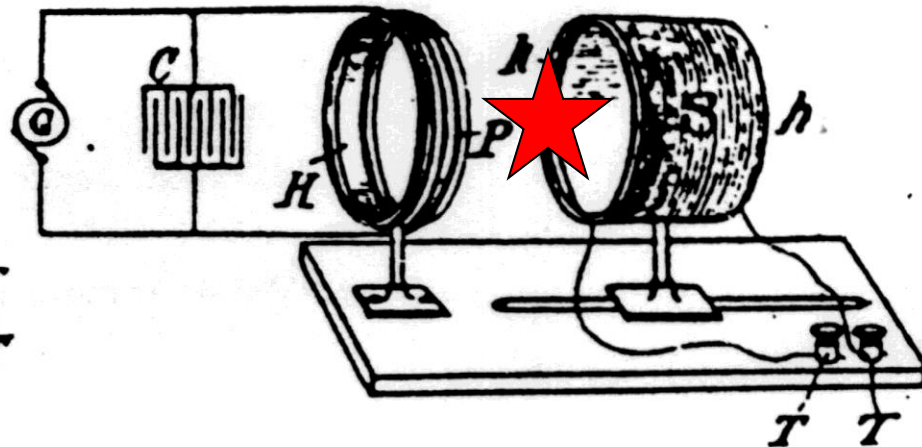


Fig. 5

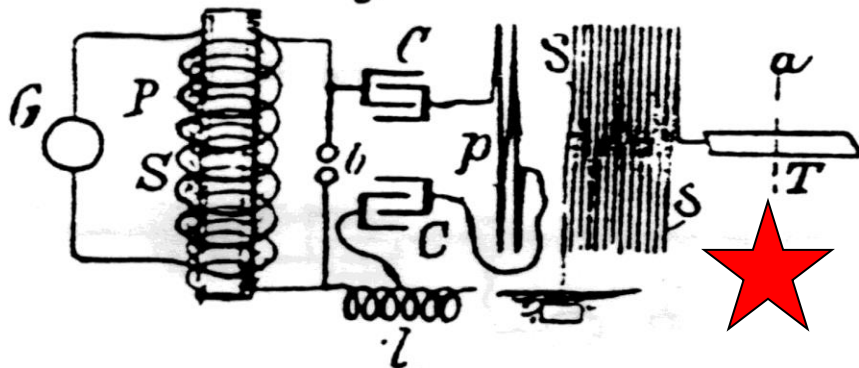
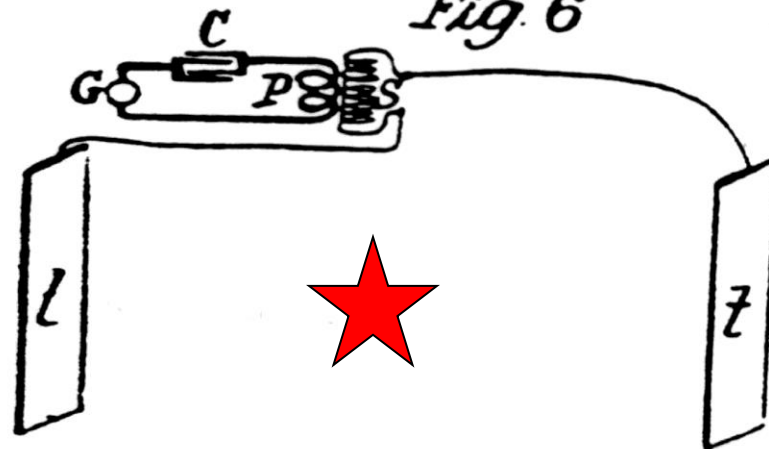
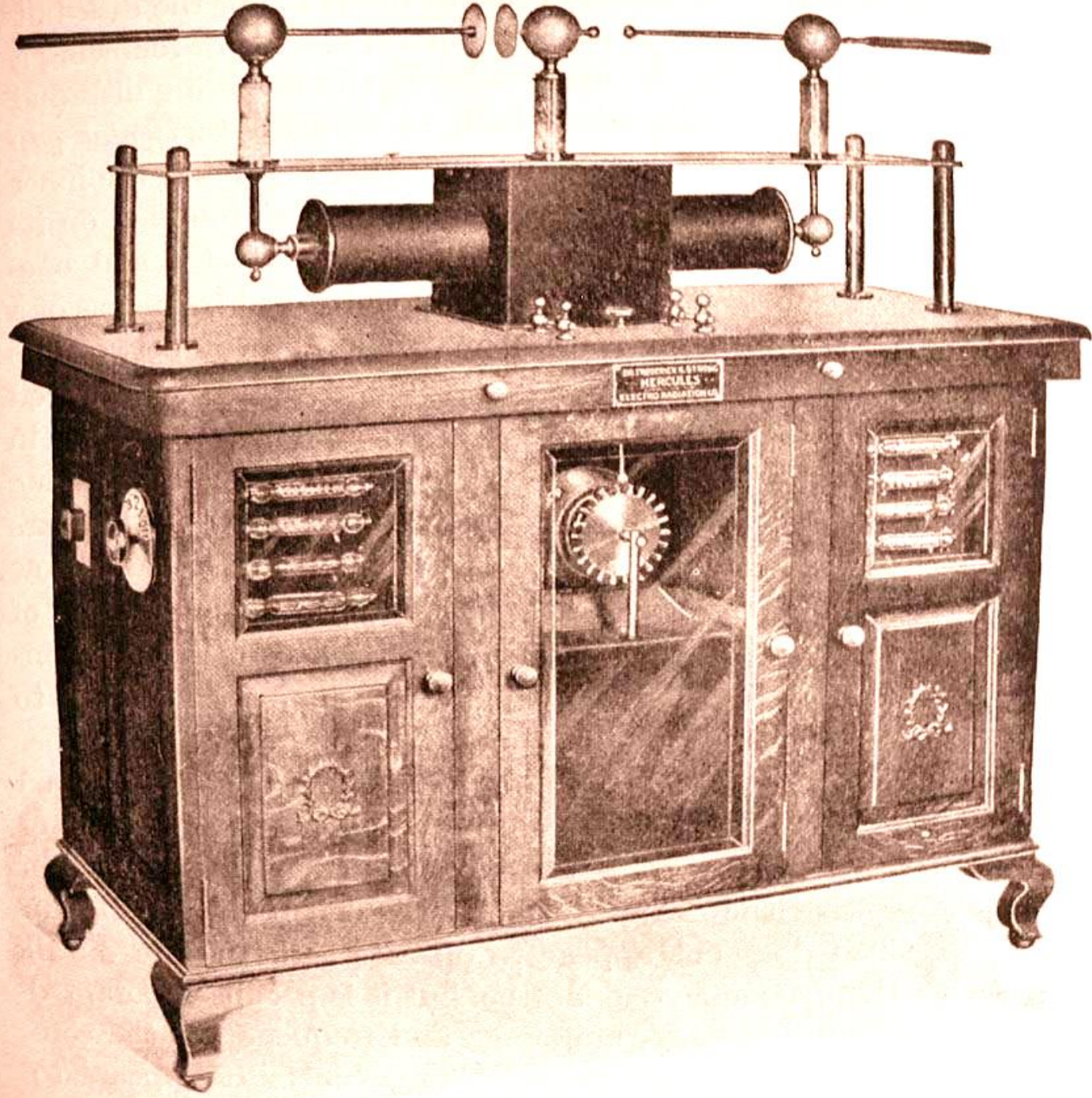


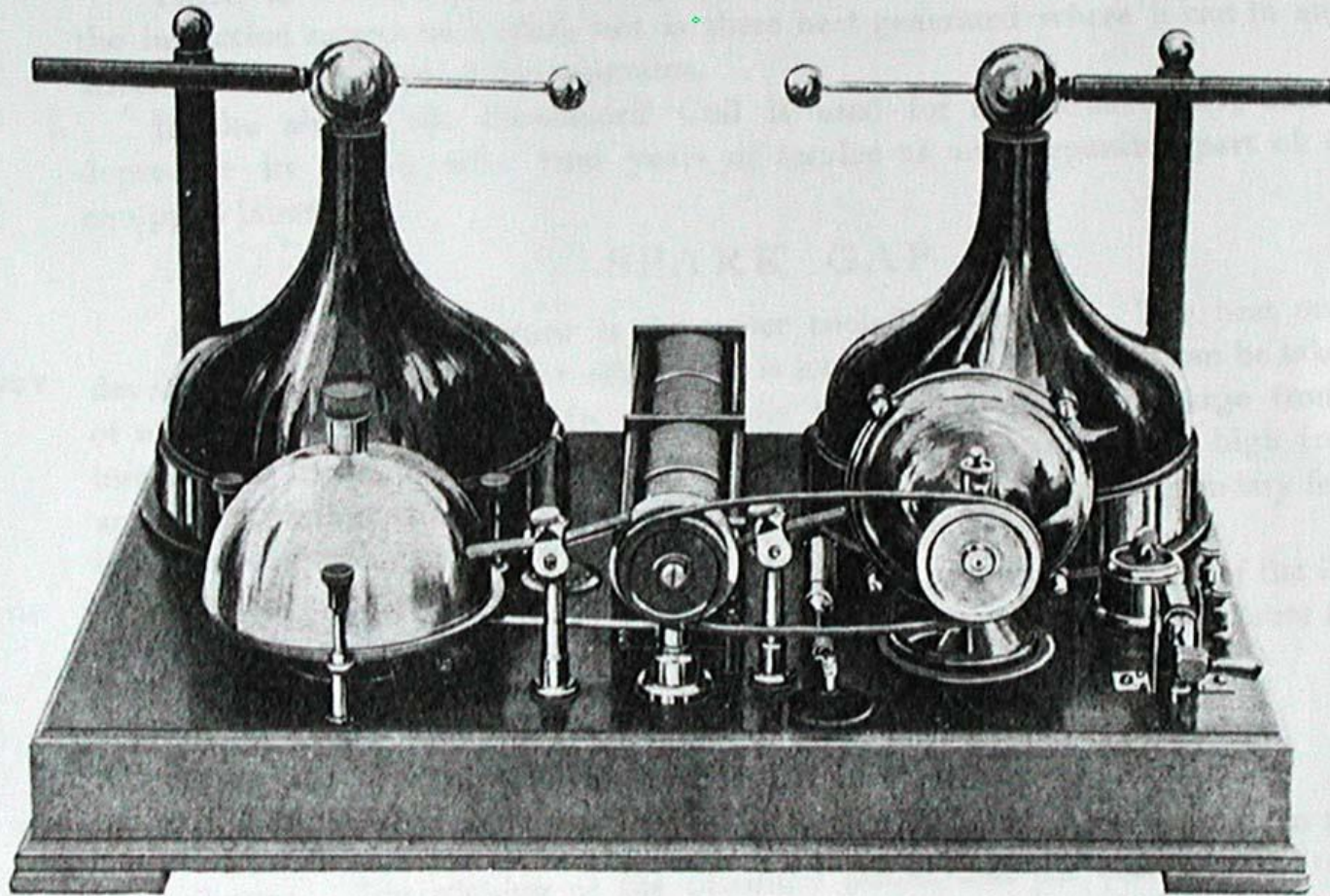
Fig. 6





Hercules Machine - 1908
Dr. Fred F. Strong

Kinraide Coil



THE KINRAIDE HIGH FREQUENCY COIL

Kinraide Coil Discharge



Gigahertz EMFs Reduce Tumors

Effects	Species	In Vivo Exposure condition				Ref.
		Frequency (GHz)	Intensity (W/m ²)	SAR (W/kg)	Duration (days × min)	
Decreased response to PWM	Rabbit	2.45 (CW)	100	1.5	180 × 1,380	438
No change	Quail	2.45 (CW)	50	4.03	12 × 1,440	474
<u>Decrease in tumor development</u>	Mouse	2.45 (CW)	—	35	11—14 Day of gestation or 11—14 and 19—45 × 20	97
Decreased granulocytic response	Rabbit	3 (CW)	30	0.5	42—84 × 360	475
<u>Tumor regression and increase in antitumor antibodies and anti-BSA</u>	Rabbit	1.356	(Near-field application)	(Local hyperthermia)	1 × 10 — 15	476
<u>Tumor inhibition and immune stimulation</u>	Rat	2.45 (CW)	(200 W)	(Local hyperthermia)	3 or 6 × 45	477
<u>Increased tumoricidal activity in lymphocytes and macrophages</u>	Mouse	1.356	6,000—9,000	(Local hyperthermia)	1 × 5	478
<u>Tumor regression</u>	Mouse	3 (CW)	400	28*	1—14 × 120	479
Increase in lung cancer colonies and inhibition of contact sensitivity to oxazolone	Mouse	2.45 (CW)	500	36*	4, 7, 10, or 14 × 120	480
Decrease in response to BSA	Rabbit	1.356	(Near-field application)	(Local hyperthermia)	3 × 60	481
Decrease in CFU for erythroid and granulocyte-macrophage series	Mouse	2.45 (CW)	150	10	9 × 30	470
Reduction in CFU granulocyte-macrophage precursors exposed in vitro	Mouse	2.45 (CW)	600—10,000	120—2,000	1 × 15	482

“Tissues are Condensers”

-Nikola Tesla

- How can tissue remain uninjured with HV?
- Metal heats up so tissues cannot be metallic
- Great resistance? No, tissues conduct “well enough”
- High specific heat? Estimates from experiments makes this “view is untenable”
- “Only plausible explanation found is that tissues are condensers” (capacitors in today’s language)
- “This only can account for the absence of injurious action”

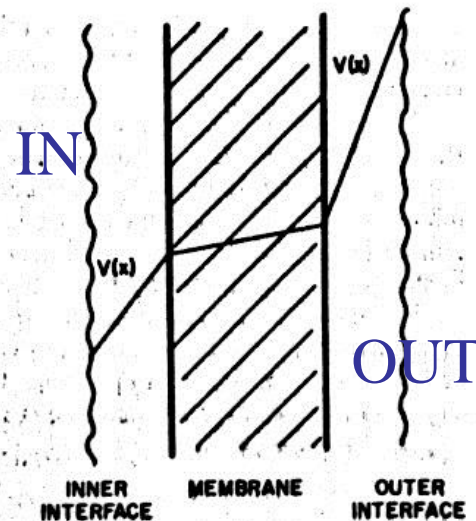
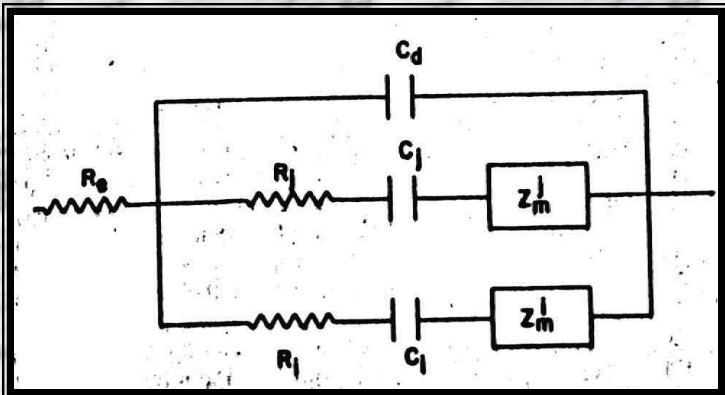
CELL MEMBRANE



1 microfarad/cm²

Animal Plasma Membrane

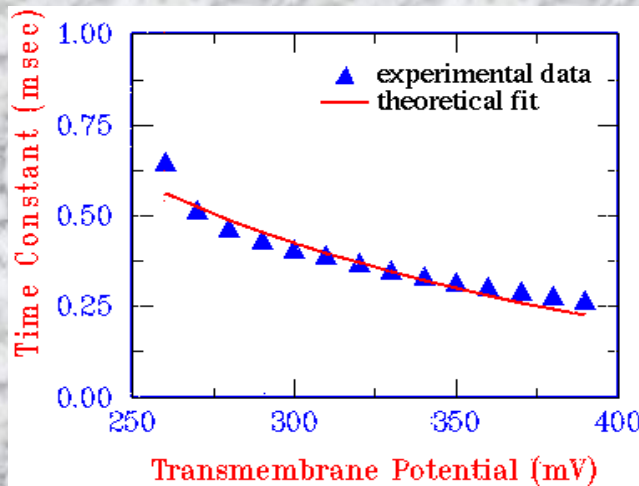
(Magnified approximately 4.5 million times)



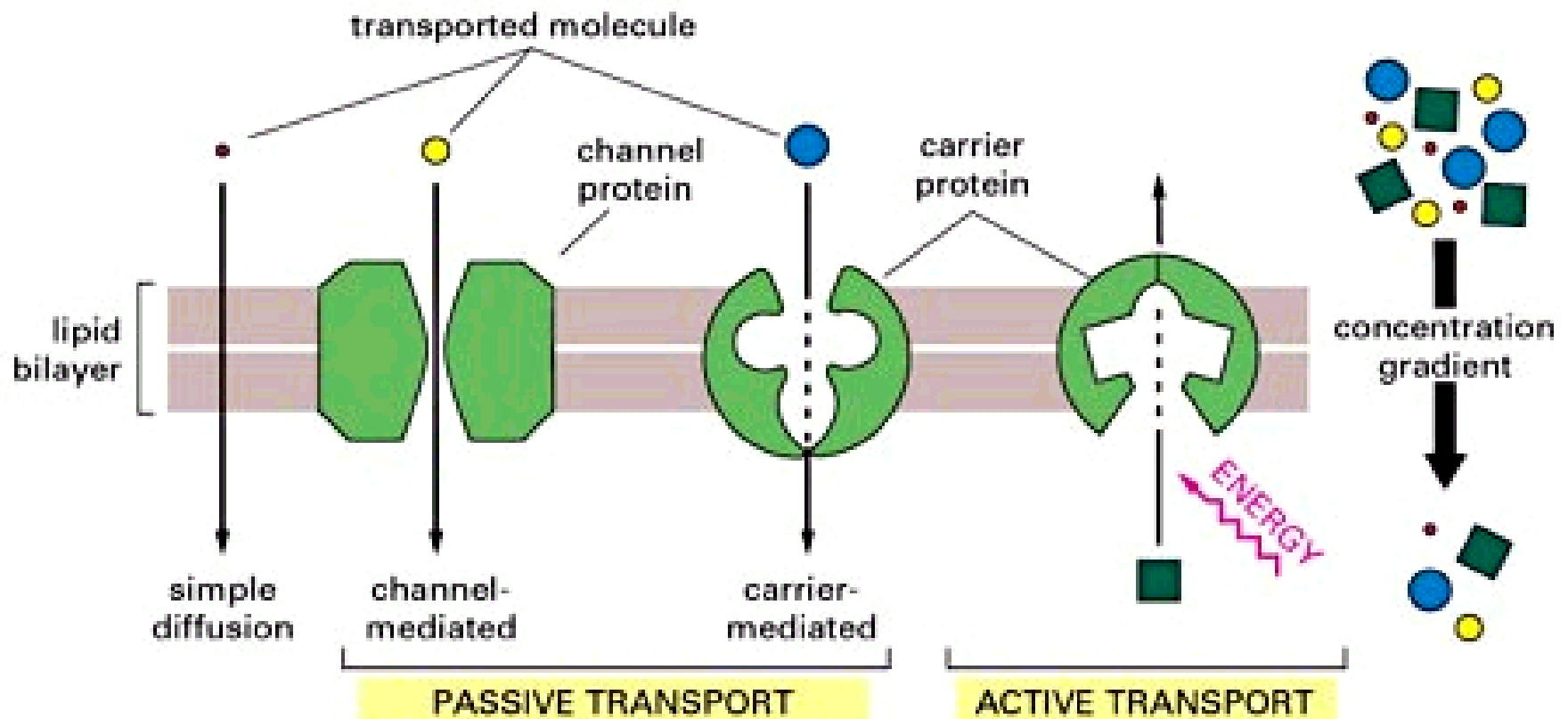
TransMembrane Potential = -70 to -100 mV only in healthy individuals. HV PEMF devices can boost TMP in diseased patients.

Membrane equivalent circuit
TMP is 100 kV/cm

Transmembrane Activity



- Molecular transport by active and passive means
- Energy mediates the active transport mode
- TMP is at least 100 mV across 1 nm lipid bilayer
- TMP therefore can withstand 100 kV/cm (10x air!)
- Electroporation happens in the range of 1 kV/cm



Secrets of Your TMP

Cell Membranes Reflect a Person's State of Health

• TMP = measure of normal cell metabolism

The cell membrane is electrically charged by the sodium-potassium NaK pump

- Microorganisms will reproduce when TMP gets low so keeping TMP maximized is a protective measure for a strong immune system!

• Low TMP = Low Energy

Low TMP also causes ATP impairment, increased bacterial & viral reproduction

- **HV PEMFs raise TMP and destroy viruses and microorganisms* ...“trauma-healing”**
- Adequate TMP is needed by Schwann cells (replacement cells) or nonfunctional undifferentiated scar tissue results**

*Jorgensen, Eur. J. Surg., 1993, V. 160, p. 85

**Becker, Ann NY Acad Sci, 1974, V. 238, p. 451

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Fig. 354.—Application of vacuum electrode by means of the author's completely insulated handle.

Fig. 380 shows a cavernous epithelioma or endothelioma of the face which resisted x-ray treatment and which was completely destroyed by a single application of sparks from a metallic electrode connected with one pole of the resonator.

Tousey CD



Fig. 380.—Cavernous endothelioma of face cured by high-frequency sparks.

Fig. 381 is of a case of flat, scaly, pigmented keratosis, apparently threatening to become epithelioma, which made such slow progress under



Fig. 381 -Pigmented keratosis of face cured by high-frequency sparks.

x-ray treatment that a single application of high-frequency sparks was made with complete removal of the lesion.

[High-voltage electrical stimulation improves nerve regeneration after ...](#)

www.ncbi.nlm.nih.gov/pubmed/21975682

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OBJECTIVES: To investigate the effect of *high-voltage electrical stimulation* (HVES) on the morphometric and functional characteristics of the regenerated *nerve ...*

[High-voltage electrical stimulation improves nerve regeneration after ...](#)

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High-voltage electrical stimulation improves nerve regeneration after sciatic crush injury. Rev Bras Fisioter 2011 Aug-Sep;15(4):325-31. Epub 2011 Aug 5.

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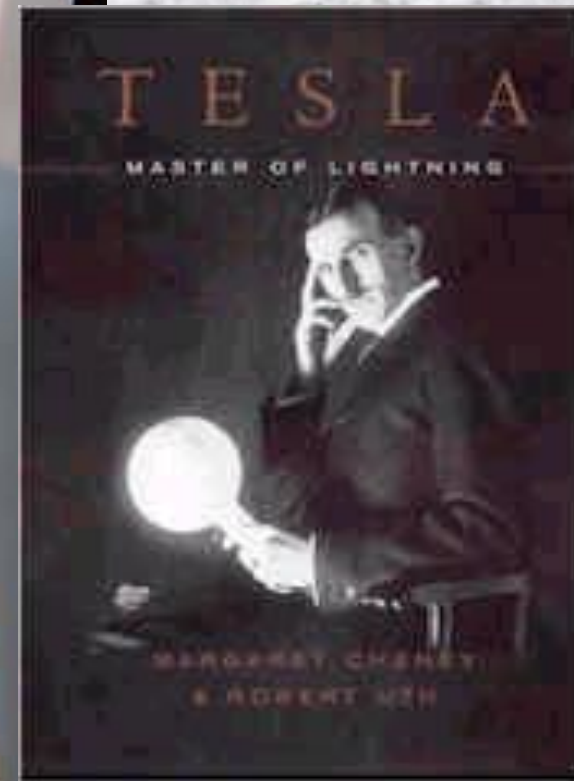
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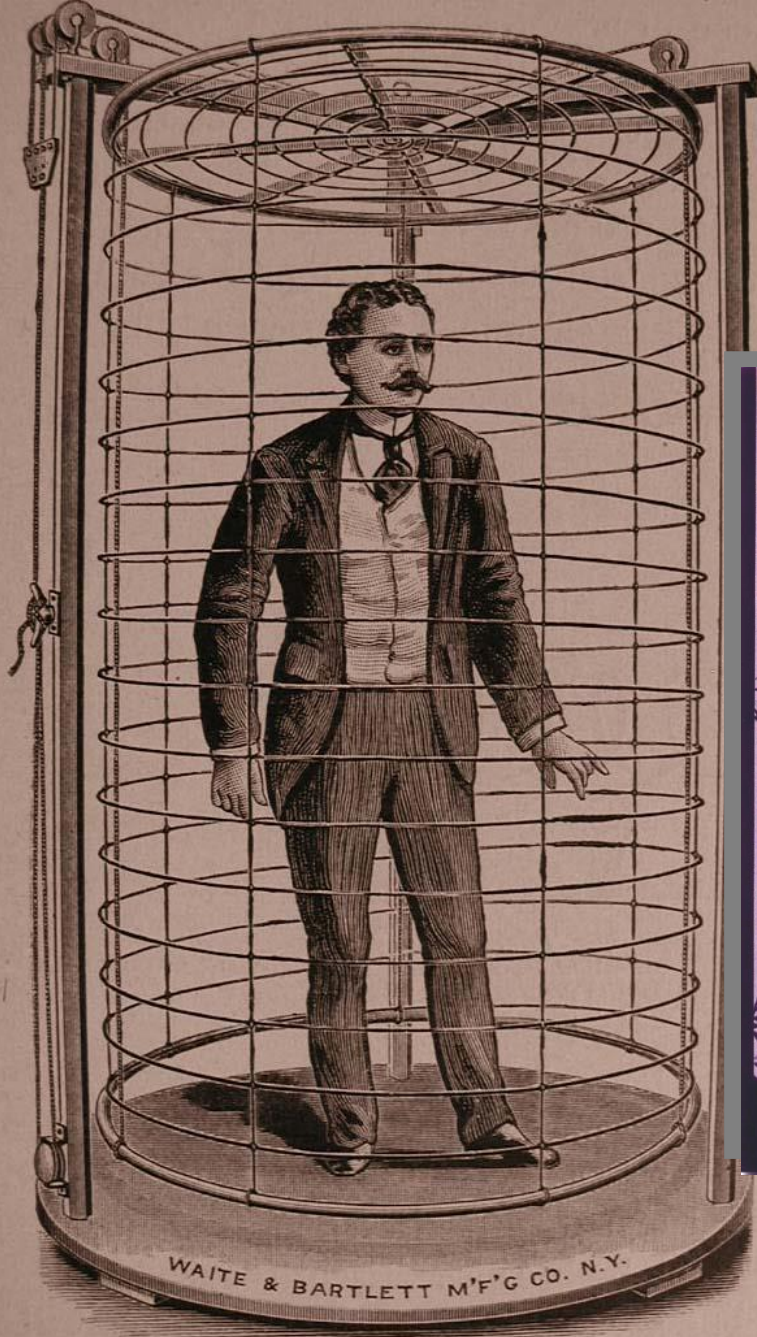
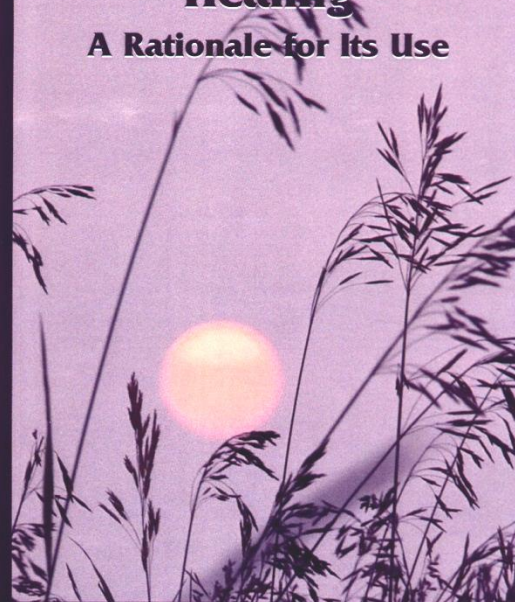


FIG. 2.—D'Arsonval Auto-Conduction Cage; Upright Form. (Piffard's.)

Bioelectromagnetic Healing A Rationale for Its Use



by Thomas Valone, Ph.D.

Pulsed Electromagnetic Field Health Effects



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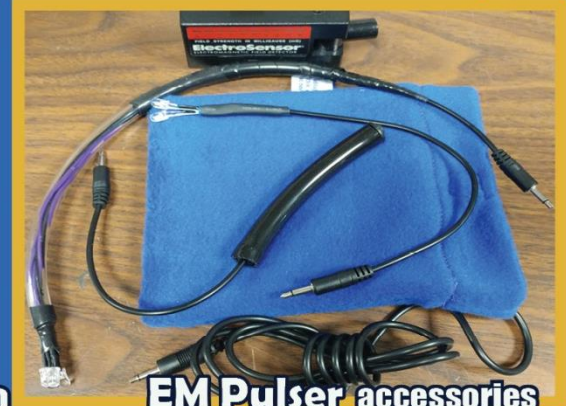
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