Preventable Chronic Diseases Are Now the World's Biggest Killers
by Sara Reardon
27 April 2011, 2:55 PM

"WHO Assistant Director-General Ala Alwan cited a World Bank report that found half of families who have a family member with cancer spend more than 30% of their income on treatment, driving 50% of these families below the poverty line as a result."

The chronic health problems of post-industrial societies have now spread to the developing world, says a new report by the World Health Organization.

Diabetes, heart disease, and cancer now cause more deaths worldwide than all other diseases combined, according to the first global status report on noncommunicable diseases (NCDs) released at the WHO Global Forum in Moscow today.

The Autoimmune Epidemic is an investigation into the reasons behind today’s alarming rise in rates of autoimmune diseases (multiple sclerosis, lupus, type 1 diabetes, rheumatoid arthritis, thyroiditis, and dozens of other autoimmune diseases).

Donna Jackson Nakazawa lays out the mounting evidence showing how our modern lifestyles, stress levels, chemical-laden environment and twenty-first century diet have created the “perfect storm” (the ripest possible conditions) for this epidemic to take hold. Nakazawa blends personal stories with the latest science to shed light on what we should know and do to halt this epidemic.
TOXINS

The average US city is home to approximately
77,000 toxins
which we breathe, drink, ingest and absorb
on a daily basis.

Our bodies are designed to release accumulated toxins through bowel
movements, urination, sweating or saliva; however, if we have poor
digestion or constipation, our systems will find other ways to release
toxins such as skin rashes, kidney and liver infections or colon cancer.

An ongoing detoxification program is critical to reduce
toxic buildup and prevent disease.

http://www.vitalhealthylife.com/files/VHL_eight_underlying-causes_to_all_health_problems.pdf
Modern Wheat a “Perfect, Chronic, Poison”
Doctor Says…
September 3, 2012

(CBS News) Modern wheat is a "perfect, chronic poison," according to Dr. William Davis, a cardiologist who has published a book all about the world's most popular grain.

Davis said that the wheat we eat these days isn't the wheat your grandma had: "It's an 18-inch tall plant created by genetic research in the '60s and '70s. This thing has many new features nobody told you about, such as there's a new protein in this thing called gliadin. It's not gluten. I'm not addressing people with gluten sensitivities and celiac disease. I'm talking about everybody else because everybody else is susceptible to the gliadin protein that is an opiate. This thing binds into the opiate receptors in your brain and in most people stimulates appetite, such that we consume 440 more calories per day, 365 days per year."

Lose the wheat… lose the weight

"If three people lost eight pounds, big deal," he said. "But we're seeing hundreds of thousands of people losing 30, 80, 150 pounds. Diabetics become no longer diabetic; people with arthritis having dramatic relief. People losing leg swelling, acid reflux, irritable bowel syndrome, depression, and on and on every day."
New research coming out of some of America's most respected institutions is starting to find that sugar is a toxin and is a driving force behind some of this country’s leading chronic diseases, including Cancer, obesity, type II diabetes, hypertension and heart disease.

(CBS News) If you are what you eat, then what does it mean that the average American consumes 130 pounds of sugar a year? Sanjay Gupta reports on new research showing that beyond weight gain, sugar can take a serious toll on your health, worsening conditions ranging from heart disease to cancer. Some physicians go so far as to call sugar a toxin.

Since the 1970s, sugar consumption has gone down nearly 40 percent, but high fructose corn syrup has more than made up the difference. Dr. Robert Lustig, a pediatric endocrinologist at University of California, San Francisco, says they are both toxic because they both contain fructose — and that's what makes them sweet and irresistible... and dangerous.
Blood lead levels and mortality

Archives of Internal Medicine (AMA Official Journal)
2002 Nov 25;162(21):2443-9
Lustberg M, Silbergeld E.
Department of Epidemiology and Preventive Medicine, University of Maryland

Despite declines in blood lead levels during the past 20 years, lead exposure continues to be a public health concern. Studies have linked lead exposure with increased risk for diverse health outcomes. Few studies have evaluated the association of lead exposure and mortality in the general population. METHODS: To evaluate the association of lead exposure and mortality in the United States, we used the recently released mortality follow-up data for participants of the Second National Health and Nutrition Examination Survey, a national cross-sectional survey of the general population conducted from 1976 to 1980. Survey participants aged 30 to 74 years with blood lead measurements were followed up through December 31, 1992 (n = 4292). RESULTS: After adjustment for potential confounders, individuals with baseline blood lead levels of 20 to 29 microg/dL (1.0-1.4 micromol/L) had 46% increased all-cause mortality (RR, 1.46; 95% confidence interval [CI], 1.14-1.86), 39% increased circulatory mortality (RR, 1.39; 95% CI, 1.01-1.91), and 68% increased cancer mortality (RR, 1.68; 95% CI, 1.02-2.78) compared with those with blood lead levels of less than 10 microg/dL (<0.5 micromol/L).
Lead Exposure on the Rise Despite Decline in Poisoning Cases
By Mark Fischetti – Feb 17, 2013

Leaded gasoline and lead paint are gone, but other sources are keeping the danger high. Lead is still present in drinking water in many communities, where it can leach from lead pipes in homes, apartment buildings and municipal water system, or from brass fittings or solder used in plumbing. Another 25,000 to 30,000 tons of lead enters the U.S. environment each year from hunting and shooting-range ammunition, fishing-line weights, discarded batteries and electronic waste, said Mark Pokras at Tufts University.

Coal-burning power plants in developed nations also generate some lead in emissions and more so in ash, and the steep rise in coal power in China has boosted levels worldwide because regulations are more lax. Larger lead particles fall to the ground within about 200 meters of the source (including tailpipes), but the smaller particles, about 0.5 micron in size, can remain airborne for a week before they settle out. According to Flegal, lead particles from China have been found in rainfall in Santa Cruz, Calif.

http://www.scientificamerican.com/article.cfm?id=lead-exposure-on-the-rise&page=2
Synergistic effects of toxic metals (mercury, lead, aluminum) are extreme.

Bernard Windham, M.D.

Mercury and lead are extremely neurotoxic and cytotoxic, but their combined synergistic effect is much worse. A dose of mercury sufficient to kill 1% of tested rats, when combined with a dose of lead sufficient to kill less than 1% of rats, resulted in killing 100% of rats tested(1). **Thus with combined exposure the safe dose is 1/100 as much as the dose individually.** Studies in Australia have confirmed similar relationships hold for people. This means most people in the U.S. are getting dangerous levels of these metals, enough to cause some neurologic effects.

Fluoride Increases Heavy Metal Accumulation in Your Body

http://www.youtube.com/watch?v=dKrcmOTmhxo

Studies confirm that hydrofluorosilicic acid increases lead accumulation in bone, teeth, and other calcium-rich tissues.

The free fluoride ion actually acts as a transport of heavy metals, allowing them to enter into areas of your body they normally would not be able to go, such as into your brain.

Fluoride is... the most aggressive seeker of another electron. It's the most electromagnetically negatively charged element in the entire world.

"There is a current and growing body of peer reviewed scientific publications showing that fluoridated water causes gene damage leading to birth defects and cancer and that humans are genetically different in their sensitivity to levels of fluoride in their drinking water."...
The Environmental Working Group studies that have shown:

134 chemicals are shown to cause CANCER
151 chemicals cause BIRTH DEFECTS
154 are HORMONE DISRUPTORS
186 chemicals contribute to INFERTILITY
130 chemicals cause IMMUNE SYSTEM TOXICITY
158 chemicals are NEUROTOXINS

Autism now 1 in every 150 children.
57% increase in childhood brain cancer.
84% increase in acute lymphocytic leukemia in children (1975 – 2002)

About 7.3 million American couples have trouble becoming pregnant, or carrying to term, a 20% increase in the last 10 years. Sperm count decrease one percent every year.

“The combined evidence suggests that neurodevelopmental disorders caused by industrial chemicals has created a silent pandemic in modern society.”  ~ Lancet, November 8, 2006.

WATCH THE VIDEO: http://video.yahoo.com/watch/6431545/16676271
Angelina Jolie Says She Had Double Mastectomy

By Associated Press | May 14, 2013 | 19 Comments

(LOS ANGELES) — Angelina Jolie says that she has had a preventive double mastectomy after learning she carried a gene that made it extremely likely she would get breast cancer.

The Oscar-winning actress and partner to Brad Pitt made the announcement in the form of an op-ed she authored for Tuesday’s New York Times under the headline, “My Medical Choice.” She writes that between early February and late April she completed three months of surgical procedures to remove both breasts.

(PHOTOS: Angelina Jolie Visits Pakistan Flood Victims)

Jolie, 37, writes that she made the choice with thoughts of her six children after watching her own mother, actress Marcheline Bertrand, die too young from cancer.

“My mother fought cancer for almost a decade and died at 56,” Jolie writes. “She held out long enough to meet the first of her grandchildren and to hold them in her arms. But my other children will never have the chance to know her and experience how loving and gracious she was.”
Radiation therapy is given to many cancer patients. Radiation will kill both cancer cells and normal cells.

Some normal cells that are not killed outright can be metabolically transformed into tumor cells.

Moreover, those tumor cells that survive the radiation treatment will sometimes grow back as more aggressive and less manageable cancers in the future.

Emerging evidence suggests that cancer is a metabolic rather than genetic disease.

Cancer is a disease of defective cellular energy metabolism, and most of the genomic defects found in cancer arise as secondary downstream effects of defective energy metabolism.
The Epigenetics Evolution

Lifestyle and environment are the major factors altering gene expression that results in disturbed metabolism.
ELECTROMAGNETISM

“The Missing Link?”

Pulsed Electro-Magnetic Frequency (PEMF) Therapy
Evolution with Natural Magnetism – Through scientific method magnetism has been shown to exist in two separate energy forms, described as negative and positive, which are similar to negative and positive energy forms existing in all biological systems and organisms on the Earth.

It is known that external energy forms of magnetism will affect the internal energy forms of biological systems, when programmed correctly. Negative magnetism will arrest disease and infection, and positive magnetism will strengthen life forms.

The predominant factor in man’s existence and his being, is the development of his brain and nervous system, his conscious awareness and perception of his being and his environment.

Magnetism, applied separately and distinctly, with known procedures and control factors, will increase the left and right hemisphere abilities of the brain. Life processes can be speeded up or slowed down. Nervous system structures and performances can be dulled or stimulated... healthy or ill, the biological system will indicate its own built-in rejection or acceptance of the separate and distinct natural energy forms of magnetism (excerpt from pg 11).
The Earth’s Electro-Magnetic Field is Weakening

Over the last 165 years, scientists have measured the Earth's magnetic field and have recorded a decline of its' strength. It is estimated that the field of the Earth 4,000 years ago was 5.0 gauss.

Today the magnetic field of the Earth is measured at 0.5 gauss…

*That is a decrease of 90%*

Every organism on earth (that includes people) has evolved under the influence of natural electro-magnetic signals of the earth, and the part of the solar radiation that is able to penetrate our atmosphere. These electro-magnetic signals are of great importance to internal regulation of every organism.
NASA and Russian Space Program Zero-field studies on Pulsed Electro-Magnetic Frequency

Studies with the Russian Space Program, NASA and Zero Field Studies on earth have PROVED BEYOND A SHADOW OF A DOUBT that in just a matter of hours of NO exposure to healthy PEMFs, cell metabolism begins to break down causing bone loss, muscle weakness, depressed metabolism, disorientation and depression.

Since the VERY FIRST space launch, PEMF generators have been used in spacesuits and space stations.

PEMF - Pulsed Electromagnetic Fields, is the FIFTH ELEMENT needed for human health and well being. And just as all the elements come from the Aether/Ether, so does all matter arise out of pulsed electromagnetic energy PEMF.

http://www.pemft.net/the-5th-element.html
A role for the geomagnetic field in cell regulation.
Liboff AR.
Center for Molecular Biology and Biotechnology, Florida Atlantic University

Abstract
We advance the hypothesis that biological systems utilize the geomagnetic field (GMF) for functional purposes by means of ion cyclotron resonance-like (ICR) mechanisms.

Numerous ICR-designed experiments have demonstrated that living things are sensitive, in varying degrees, to magnetic fields that are equivalent to both changes in the general magnetostatic intensity of the GMF, as well as its temporal perturbations. We propose the existence of ICR-like cell regulation processes, homologous to the way that biochemical messengers alter the net biological state through competing processes of enhancement and inhibition. In like manner, combinations of different resonance frequencies all coupled to the same local magnetic field provide a unique means for cell regulation.

PMID:20707644 [PubMed - indexed for MEDLINE]
Prolonged weakening of the geomagnetic field (GMF) affects the immune system

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We found that the long-term shielding of the GMF could influence the functioning of the immune system in a sex-dependent manner.

The deprivation of the GMF delayed physiological thymus involution, that effect being more strongly expressed in females. The weakening of the GMF resulted in an increased number of peritoneal macrophages, especially in males.

The shielding of the GMF diminished the ability of macrophages to release NO and to synthesize O2(-), those effects being more powerfully expressed in males and females, respectively.

It is proposed that the observed changes in the immune system occur as a consequence of the protective effect of GMF shielding on the circadian rhythm-dependent level of melatonin.
Do You Suffer from Magnetic Deficiency Syndrome (MDS)?

Kyoichi Nakagawa, MD, Director Isuzu Hospital, Tokyo, Japan has spent 20+ years researching magnetism and humans. His reported symptoms of MDS include:

- Stiffness of shoulders, back and neck
- Lumbago
- Chest pains for no specific reason
- Habitual headache
- Heaviness of the head
- Dizziness
- Insomnia for uncertain reasons
- Habitual constipation
- General lassitude
- Diseases of the digestive organs
- Diabetes
- Bone and nerve diseases
- Symptoms resist normal treatment regimens
- Symptoms with no objective pathological findings found
Power Failure

Does mitochondrial dysfunction lie at the heart of common, complex diseases like cancer and autism?

By Megan Scudellari

Over the last five years, a growing number of papers by researchers around the world have implicated dysfunctional mitochondria in many elusive diseases, including Parkinson’s, autism, and aging.

Leading the charge is a respected and renowned member of the National Academy of Sciences, Dr. Douglas Wallace, founder of the field of human mitochondrial genetics.

“Every one of the diseases we can’t solve is absolutely logical if we put energy at the center,” Dr. Wallace says.

Medicine fails to solve many of today’s common, complex diseases, Wallace asserts, because the fundamental paradigm is wrong: the medical establishment has spent far too long focusing on anatomy and ignoring energy—specifically, mitochondria.
Dr. Garry Gordon’s F²IGH²T For Your Health Program

F² = Food and Focus - related aspect and leaky gut, and Focus (positive mental outlook): Acidophilus, Avoid food sensitivities (wheat, dairy) food supps to include Vitamin C and D

I = Infections - causing cancer, cardiovascular disease, autoimmune diseases: Ozone/UVB, HBO, Silver, Vit A, C and D including IV Vit C

G = Genetics - and epigenetics and methylation issues needed for detoxing B-12, MSM, TMG, 5’MTHF

H² = Heavy Metals and Hormones - Daily detoxification of mercury, lead; Hormonal balance and support for both men and women: Oral Chelation, Zeolite, DHEA, HRT, Melatonin, GH Support, Thyroid

T = Toxins - BPA, phthalates, and other toxins including household chemicals and everyday products: Exercise, IR/FIR Sauna, PEMF, Magnetics, Electrotherapy, cold (soft) lasers.

E² = Energy and Exercise - PEMF or pulsed electromagnetic frequency therapy that promotes healing through

Magnetically Induced Cellular Exercise, or MICE
FIGHT with M.I.C.E. Magnetically Induced Cellular Exercise. Pulsed electro-magnetic frequency (PEMF) therapy recharges the body’s 70+ trillion cells. Like physical exercise, PEMF increases cellular bioporation, oxygenation, alkalinity, energy production, and nutrient uptake – while promoting vital autophagic processes and detoxification of harmful toxins and metals.

Multi-vitamin complex
Herbs & Minerals
Omega 3’s
Zeolite

EDTA (calcium edta)
Vitamin C
Zeolite
Fiber
With more than 40 years of clinical studies, researchers believe that the pulsed signal nudges the body's chemistry so the healing process may proceed more rapidly.
Dr. William Pawluk, MD, MSc, appeared as PEMF Specialist on the Doctor Oz TV Show in November 2011, where they discussed the most effective types of pulsed electromagnetic field therapy.

http://www.drpawluk.com/doctor-oz-article-on-pemfs/
http://www.doctoroz.com/videos/ask-your-doctor-about-pulsed-electromagnetic-field-therapy
Magnetic Therapy in Eastern Europe: A Review of 30 Years of Research
By Jiri Jerabek, MD, PhD and William Pawluk, MD, MSc

The book presents information summarizing conditions studied, magnetic field strength and type of field used, frequency and duration of application and summary of actual results. There are detailed descriptions of many studies on both static (permanent) and frequency (pulsed) fields.

Controlled human studies described include:

- Atherosclerosis
- Brain neurosecretion
- Breast fissures
- Burns
- Carpal tunnel syndrome
- Cervicitis
- Chronic bronchitis
- Controlled Studies Animals
- Corneal trauma
- Edema
- Endometriosis
- Femoral artery surgery
- Fractures
- Increased circulation
- Infected skin wounds
- Ischemic heart disease
- Limb grafts
- Liver function
And more…
Brief PEMF Background

Benefits of Pulsed Electro-Magnetic Field (“PEMF”) therapy have been demonstrated through more than 2,000 University level, double-blind, medical studies done in many countries with many different PEMF therapy devices.

Positive effects of PEMF therapy were well established by the mid 1900’s.

First commercial low power PEMF device entered the market in the early 1900s. These were used for studies and experimentation in healing and cellular wellness. They were sold to both consumers and as medical devices to doctors.

First commercially produced high power PEMF devices entered the market around 1975. They focused on the health of bones, muscles, nerves, tendons, ligaments and cartilage, on reducing pain and on cellular and tissue regeneration.


Israel has accepted the use of PEMF devices for migraine headaches. Canada has accepted PEMF devices for many uses. The European Union has many acceptances for the use of PEMF therapy in many areas including healing and recovery from trauma, degeneration and the treatment of the pain associated with these conditions.
Attributes of PEMF
How Does PEMF Work?

1. Atomic excitement/electron spin to increase and store energy.

2. Molecules tend to align slightly with each magnetic pulse, making them easier to combine, especially when excited.

3. The pH goes a hundred times more alkaline, which allows better oxygen uptake, and suppresses some harmful entities.

4. The viscosity shifts on the order of 16 fold, allowing liquids to flow into cell gates, or lymph to thin and flow.

5. Red blood cells separate (probably all take a positive charge and repel each other) in minutes, allowing more surface area to transport oxygen.
6. Relaxing of the vascular system within minutes of completing a session, which drops blood pressure by up to twenty percent thirty minutes after.

7. Wound healing increases by 30%. There is systemic response to the sessions as though the body’s functions have been fine tuned, or turbo charged. Many different problems get better, often not the targeted problems only, but things not expected to get better.

8. Bone mending, the quality of calcium, is one-third normal time, and the skin of the bone seems to develop cells more like the DNA dictates.

9. Electroporation is the phenomena wherein the cells gates open to allow more passage of solvent (H2O) to dissolve toxins, or allow better delivery of a medicine or herbs.

10. Sodium potassium exchange, which is documented in a US Army study to reduce pain, often within minutes of treatment.
Mitochondria combine hydrogen derived from dietary carbs and fats with oxygen to generate heat and ATP.

Electrons flowing through the electron transport chain, made up of OXPHOS complexes I through V, are used to pump protons out of the mitochondrial membrane. This creates an electrical charge used to generate ATP, which powers most of the cell’s biochemical reactions.

This creates an ELECTRICAL CHARGE used to generate ATP, which powers most of the cell’s biochemical reactions.
PEMF Therapy Increases Energy Storage and Cellular Activity

At the sub-atomic level, as the pulsed fields expand and collapse through a tissue, the protein molecules, such as the cytochromes in the cells’ mitochondria, gain electrons and, in doing so, store energy. The average total energy transmitted to the tissues does not create heat within the cells, nor cause the cells’ atoms to vibrate much causing a thermal increase, nor cause an electron to jump to a higher orbit and emit heat as it returns to its orbit of origin.

There is only sufficient average energy for the electron-spin to be increased, thus, energy gets stored in the cells’ mitochondria by converting ADP (Adenosine Di-Phosphate) to ATP molecules more rapidly by the addition of the phosphate radical to the ADP.
Pappas’ equation of nuclear fusion on the level of the living cell, indicating its relation to the involved vital energies as an exothermic reaction:

\[ _{11}^{23}\text{Na} + _{8}^{16}\text{O} + \text{Electrical Excitation} + \text{ATP Energy} = _{19}^{39}\text{K} + \text{Bio Energy} \]

The Sodium-Potassium pump is assumed a molecular exchange, but actually it is a nuclear process of fusion under electrical excitation of Na nucleus, firstly by the charged cell membrane, and secondly via an endothermic catalytic action of ATP.

The electrical excitation of the Na nucleus may be assisted externally by appropriate strong electrical nanopulses.

The nuclear fusion of Na to K by Oxygen seems to be the most important function of the cell and the key to its life and metabolism. A great number of other biological and medical functions and malfunctions are better understood by standard osmosis related mechanisms alone, and via the above nuclear fusion as well the equivalent to its reverse for example:

\[ _{19}^{39}\text{K} = _{11}^{23}\text{Na} + _{8}^{16}\text{O} - \text{Electrical Current Energy} \]
PEMF Therapy Increases Cellular Membrane Permeability and Cellular Metabolism

As early as 1940, it was suggested that magnetic fields affect the TMP and the flow of ions in and out of the cells and might therefore influence cellular membrane permeability.

It has since been established that magnetic fields can influence ATP (Adenosine Tri-phosphate) production; increase the supply of oxygen and nutrients via the vascular and lymphatic systems; improve the removal of waste via the lymphatic system; and help re-balance the distribution of ions across the cell membrane.

Healthy cells in tissue have a voltage difference between the inner and outer membrane referred to as the membrane resting potential that ranges from -70 to -80 mV. This causes a steady flow of ions through its voltage-dependant ion channels.

As the magnetic field created fluctuates, it induces an electron flow or a current in one direction through the living tissue. As electrons always flow from a negative (cathode) to a positive (anode) potential, when the magnetic field vanishes, the direction of the electron flow is reversed. Therefore such induced polarized currents stimulate the exchange of ions across the cell membrane.
Applied PEMF stimulates electroporation of the cell membrane, where tiny pores or “ion channels” are opened during pulses.

This effect increases trans-membrane potential, electron transport, and free radical scavenging, which is significantly important for anti-agine and treating chronic diseases including cancer.
The Dynamics of Pain and PEMF Therapy

For most individuals, aside from the multiple benefits of the therapy, one of the most relevant effects of PEMF therapy is the improvement of painful conditions regardless of their origin. Pain mechanisms are complex and have peripheral and central nervous system aspects.

During the last 100 years, theories of pain mechanism have evolved from specificity and summation models to the popular Gate Control Theory. The latter pain theory, proposed by Melzack/Wall/Casey (Wall and Melzack, 1989) has become the most important development in the field of pain management. Pain perception is no longer a straightforward afferent transmission of pain signal.

In biology, signal transduction is a mechanism that converts a mechanical or chemical stimulus to a cell into a specific cellular response. Signal transduction starts with a signal to a receptor, and ends with a change in cell behavior. Transmembrane receptors move across the cell membrane, with half of the receptor outside the cell and the other half inside the cell. The signal, such as a chemical signal, binds to the outer half of the receptor, which changes its shape and conveys another signal inside the cell.
“If you tally up everybody who has chronic, recurring back, headache and musculoskeletal problems, it includes almost everybody by the time people get into their 30s,” said Dr. Perry Fine, a professor of anesthesiology at the Pain Research Center and the University of Utah and incoming chairman of the American Academy of Pain Medicine.

Given the prevalence of chronic pain — often defined as recurrent pain that lasts more than three to six months — you might expect that by now medical science would have figured out how to alleviate it and that health insurers would routinely cover its treatment.

If only it were that simple. Pain is a sneaky opponent. What one person considers intolerable may be only moderately uncomfortable to another. This makes treatment challenging. And insurers often do not make it any easier.

http://www.nytimes.com/2011/02/05/health/05patient.html
PEMF Therapy Reduces Pain

Many studies have demonstrated the positive effects of PEMF therapy on patients with pain, even as opposed to receiving traditional treatment as well as against a placebo group getting no treatment. Some studies focused on the rapid, short-term relief while others demonstrate the long-term effects. The effectiveness of PEMF therapy has been demonstrated in a wide variety of painful conditions.

In a March, 2003 publication on Pain Management with PEMF Treatment, Dr. William Pawluk explains:

"Magnetic fields affect pain perception in many different ways. These actions are both direct and indirect. Direct effects of magnetic fields are: neuron firing, calcium ion movement, membrane potentials, endorphin levels, nitric oxide, dopamine levels, acupuncture actions and nerve regeneration. Indirect benefits of magnetic fields on physiologic function are on: circulation, muscle, edema, tissue oxygen, inflammation, healing, prostaglandins, cellular metabolism and cell energy levels… Short-term effects are thought due to a decrease in cortisol and noradrenaline, and an increase in serotonin, endorphins and enkephalins. Longer term effects may be due to CNS and/or peripheral nervous system biochemical and neuronal effects in which correction of pain messages occur; and the pain is not just masked as in the case of medication".
PEMF Therapy Blocks Pain

PEMF therapy has shown to be effective at reducing pain both in the short-term and in the long-term. The ways by which PEMF therapy relieves pain include pain blocking, decreased inflammation, increased cellular flexibility, increased blood and fluids circulation, and increased tissue oxygenation.

The trans-membrane potential, (“TMP”) is the voltage difference (or electrical potential difference) between the interior and exterior of a cell. An electrochemical gradient results from a spatial variation of both an electrical potential and a chemical concentration across a membrane. Both components are often due to ion gradients, particularly proton gradients, and the result is a type of potential energy available for cellular metabolism. This can be calculated as a thermodynamic measure, an electrochemical potential that combines the concepts of energy stored in the form of chemical potential, which accounts for an ion's concentration gradient across a cellular membrane, and electrostatics, which accounts for an ion's tendency to move relative to the TMP.

Differences in concentration of ions on opposite sides of a cellular membrane produce the TMP.
PEMF Therapy Reduces Inflammation

Several factors may contribute to inflammation including injury, tissue damage, a poor localized circulation with the formation of edema. Inflammation causes pain. Swelling and bruising is an inflammation and discoloration of soft tissue caused by an impact injury or trauma. It can also result from surgery.

Tissue cells are inherently like tiny electrically charged machines. When a cell is traumatized, the cell’s electrical charge is diminished; this causes normal cell functions and operations to shut down. Cells that are scarred or fibrotic with adhesions have a TMP charge of approximately -15 mV, degenerative or immune-compromised cells average -30 mV, both low TMPs.

With the raised TMP, the body releases chemical signals that cause inflammation swelling and bruising resulting in pain and inhibiting the cell communication pathways necessary for healing to begin. Numerous clinical studies have demonstrated that PEMF therapy has been successful in reducing inflammation.

PEMF therapy treats the cellular source of swelling by recharging the cells with a mild electromagnetic current. This stops the release of pain and inflammatory mediators, reduces inflammatory fluids and allows an increase in blood flow, therefore increased oxygen intake, to help the cells heal faster with less swelling, pain and bruising.
Exercise both reduces the risk of a heart attack and protects the heart from injury if a heart attack does occur. For years, doctors have been trying to dissect how this second benefit of exercise works, with the aim of finding ways to protect the heart after a heart attack.

Researchers at Emory University School of Medicine have identified the ability of the heart to produce and store nitric oxide as an important way in which exercise protects the heart from injury.

Nitric oxide, a short-lived gas generated within the body, turns on chemical pathways that relax blood vessels to increase blood flow and activate survival pathways. Both the chemical nitrite and nitrosothiols, where nitric oxide is attached to proteins via sulfur, appear to act as convertible reservoirs for nitric oxide in situations where the body needs it, such as a lack of blood flow or oxygen.

In experiments with mice, the researchers showed that four weeks of being able to run on a wheel protected the mice from having a blocked coronary artery; the amount of heart muscle damaged by the blockage was less after the exercise period. Importantly, the mice were still protected a week after the wheel was taken away.
PEMF Therapy and Nitric Oxide Production

Many cells in the body produce nitric oxide; however, its production by the vascular endothelium is particularly important in the regulation of blood flow. Abnormal production of nitric oxide, as occurs in different disease states, can adversely affect blood flow and other vascular functions. Nitric oxide is one of the few gaseous signaling molecules known and is additionally exceptional due to the fact that it is a radical gas. It is a key vertebrate biological messenger, playing a role in biological processes.

The March/April 2009 Aesthetic Surgery Journal published a study: “Evidence-Based Use of Pulsed Electromagnetic Field Therapy in Clinical Plastic Surgery” that summarizes the evolution in the understanding of the physiological effects of PEMF therapy on cells and tissues.

Studies emerged suggesting that PEMF could modulate the production of growth factors and began to focus on enzyme systems with well-characterized calcium (Ca2+) dependence.
Reversal of a Case of Advanced Coronary Artery Disease with Unstable Angina Using Pulsed Electromagnetic Field (PEMF) Cellular Exercise by Martin Milner, ND

It is wonderful to both the patient and physician when, after years of failed trials in both conventional and alternative medicine, a safe, natural method of cellular exercise makes dramatic change in a case of serious chronic disease. This case is an extraordinary example of reversing end-stage coronary artery disease with pulsed electromagnetic field cellular exercise (PEMF). The case also elucidates critical monitoring and decision-making horizons throughout patient management.

The Case

SH, a 65-year-old, very pleasant white Caucasian female, presented to our clinic with advanced coronary artery disease, diabetes, hypertension, and obesity. Her cardiac history began in 1996, when she went into cardiac arrest and was successfully defibrillated and brought back to life. She did lose sensation in two of her toes at discharge from this hospitalization. This loss of sensation was presumed to be a complication of chest defibrillation. During this hospitalization, significant ischemic heart disease was diagnosed on cardiac catheterization, and two stents were deployed into the left anterior descending and right circumflex coronary artery.

Progression to Advanced Coronary Artery Disease

As time progressed, her disease advanced, and a second angiogram involved the deployment of a third stent in her left anterior descending coronary artery. Her ischemic heart disease progressed further, and in 2005 she underwent three vessel coronary artery bypass graph surgery where the LAD stents were bypassed along with bypass surgery of the left circumflex and bypassing a new occlusion in the right anterior descending coronary artery. At the time of this
Reversal of a Case of Advanced Coronary Artery Disease using PEMF
by Martin Milner, ND

End Stage Coronary Artery Disease
Having failed EECP and progressing to unstable angina with extensive prior
CABG (coronary artery bypass graft) and stent deployments, conventional as well
as alternative medicine interventions seemed to be used up. I suggested we
begin a trial of pulsed electromagnetic field (PEMF) cellular exercise.

Remission of Unstable Angina at Rest
SH underwent PEMF sessions of 30 to 60 minutes two to three times a week. She
became able to perform activities of daily living without chest pain after the first
month of PEMF and was no longer experiencing chest pain at rest. Her isosorbide
dose was lowered from three times daily back to twice daily. Her BNP dropped
from a high of 699 to 126 by December 2008, confirming resolution of ischemic
heart failure.

Partial Relapse Followed by Remission
SH experienced a partial relapse with reduction of PEMF sessions from three
times weekly to once weekly. However, upon purchasing her own machine in June
2009 and increasing the sessions to one to two hours daily, her ischemia
improved further. She improved again to the point of never getting chest pain at
rest or with mild activities of daily living. She was able to mildly exercise without
chest pain, and her BNP was low at 134 as of July 2009.
Bone Mending and Non-union Fractures
In a long-term study entitled: “Spine fusion for discogenic low back pain: outcome in patients treated with or without pulsed electromagnetic field stimulation”, Marks RA. (Richardson Orthopaedic Surgery, TX, USA) randomly selected 61 patients who underwent lumbar fusion surgeries for discogenic low back pain between 1987 and 1994 and had failed to respond to preoperative conservative treatments. Average follow-up time was 15.6 months postoperatively.

Fusion succeeded in 97.6% of the 42 patients who received PEMF stimulation for only 52.6% of the 19 patients who did not receive electrical stimulation of any kind.

A similar study by Richard A. Silver, M.D. (Tucson Orthopaedic & Fracture Surgery Associates, Ltd., Tucson, AZ, USA) with 85 patients who had undergone surgery of posterior lumbar interbody fusion (PLIF) and had risk factors associated with a poor prognosis for healing, including smoking, prior back surgery, multiple spinal levels fused, diabetes mellitus, and obesity, roentgenographic examination and clinical evidence indicated that all but two patients achieved successful fusion. Of the 83 patients with successful spinal fusion, 29 (34.9%) were assessed as "excellent," 45 (54.2%) as "good," 3 (3.6%) as "fair", and 6 (7.2%) as "poor".

Adjunctive treatment with PEMF appeared effective in promoting spinal fusion following PLIF procedures across all patient subgroups.
PEMF, cartilage and bones

In a study entitled: “Modification of biological behavior of cells by Pulsing Electromagnetic fields”, 20 subjects of ages between 57 and 75 years with decreased bone mineral density as defined by a bone densitometer, were treated with PEMF therapy during a period of 12 weeks by Ben Philipson, Curatronic Ltd. (University of Hawaii School of Medicine, HI, USA). After a period of 6 weeks, the bone density rose in those patients with an average of 5.6%.

Properly applied pulsed electromagnetic fields, if scaled for whole body use, have clear clinical benefits in the treatment of bone diseases and related pain, often caused by micro-fractures in vertebrae. In addition, joint pain caused by worn out cartilage layers can be treated successfully, through electromagnetic stimulation.

PEMF application promotes bone union by electric current induction, which changes the permeability of cell membrane allowing more ions across, affects the activity of intracellular cyclic adenosine monophosphate (cAMP) and cyclic guanosine monophosphate (cGMP), and accelerates osteoblast differentiation by activation of p38 phosphorylation.

PEMF stimulation also increases the partial oxygen pressure and calcium transport. Repair and growth of cartilage is thus stimulated, preventing grinding of the bones.
Bone Has Electrical Qualities

Bone has electrical qualities in its healthy physiological condition. Healthy bone maintains a dynamic balance between positive and negative charges.

A bone fracture changes the polarity at the fracture site to an electronegative environment. This negative polarity indicates that the body's natural repair process has begun.

When human bone is bent or broken, it generates an electrical field. This low-level electrical field activates the body's internal repair mechanism, which in turn stimulates bone healing.

In some patients, this healing process is impaired or absent. The fracture fragments may not mend properly, and a nonunion results.

http://www.bonestimulation.com/physio/how_it_works.html
Electrical currents have been used to heal broken bones since the mid 1800s. However, it wasn't until the 1950s that scientists made an important discovery.

PEMF enhances the electrical polarity by inducing an electrical field at the fracture site which supports the natural healing process and stimulates fracture repair.

PEMF bone growth stimulation generates a time varying magnetic field within the body. The electric potential created by PEMF stimulates fracture healing.

http://www.bonestimulation.com/physio/how_it_works.html
Treatment of delayed- and non-union of fractures using pulsed electromagnetic fields.

Colson DJ, Browett JP, Fiddian NJ, Watson B.
Department of Medical Electronics, St Bartholomew's Hospital, London, UK.

Abstract
A prospective series of 32 consecutive patients, with 33 long-bone fractures suffering from delayed- or non-union were treated by pulsed electromagnetic fields (PEMF) or by PEMF with surgery. The management regime for the PEMF treatment was simpler and less rigid than that reported by Bassett et al. and our stimulation waveform was also different.

Nineteen fractures (100%) treated with surgery and PEMF united within nine months of the commencement of PEMF treatment. Fourteen fractures were treated with PEMF alone. Twelve (86%) united within ten months and two failed to unite.

The results of this study suggest that the stimulating waveform is less critical than is claimed by Bassett et al. and that a simpler and easier management regime for PEMF treatment can be just as effective. Alternatively PEMF may have no effect on fracture healing.

PMID:3266275[PubMed - indexed for MEDLINE]
Treatment of ununited tibial fractures: a comparison of surgery and pulsed electromagnetic fields (PEMF).

Gossling HR, Bernstein RA, Abbott J.
Department of Orthopedic Surgery, University of Connecticut Health Ctr

Abstract
The use of pulsed electromagnetic fields (PEMF) is gaining acceptance for the treatment of ununited fractures. The results of 44 articles published in the English language literature have been compiled to assess the effectiveness of PEMF vs surgical therapy.

After multiple failed surgeries, the success rate of PEMF is reported to be greater than with surgery; this discrepancy increases with additional numbers of prior surgeries. In infected nonunions, the results of surgical treatment decreased by 21% and were less than the results utilizing PEMF (69% vs 81%). In open fractures, surgical healing exceeded PEMF (89% vs 78%), whereas in closed injuries PEMF cases healed more frequently (85% vs 79%).

In general, PEMF treatment of ununited fractures has proved to be more successful than noninvasive traditional management and at least as effective as surgical therapies. Given the costs and potential dangers of surgery, PEMF should be considered an effective alternative. Experience supports its role as a successful method of treatment for ununited fractures of the tibia.

PMID:1608864[PubMed - indexed for MEDLINE]
Case Report

Management of a tibial periprosthetic fracture following revision knee arthroplasty using a pulsed electromagnetic field stimulation device: a case report
Ashtin Doorgakant, Mohammed A Bhutta and Hans Marynissen
Trauma and Orthopaedics, North Western Deanery, East Lancashire Hosp UK

Periprosthetic fractures associated with total knee arthroplasty are rare but present a challenging problem particularly when associated with revision arthroplasty. Fractures around tibial stems are particularly difficult with no accepted technique in their management.

This case describes a tibial periprosthetic fracture following a revision knee arthroplasty, which was successfully managed with a Pulsed Electro-Magnetic Field (PEMF) bone stimulation device. We believe this to be first reported use of a bone stimulation device in this clinical environment.

Eight months from sustaining the periprosthetic fracture and 7 months from the application of the PEMFD complete bony union was achieved clinically and radiologically (Figure 2C & 2D). At 21 months from fracture and 14 month from bony union the patient is mobilising fully weight-bearing and is asymptomatic.

http://www.casesjournal.com/content/2/1/8706
Cancer and Autoimmune Disease
EXERCISE is a "wonder drug" for cancer survivors and may even prevent the disease coming back, according to a report published today. Macmillan Cancer Support said physical activity should be "prescribed" by doctors after "hard evidence" showed it can significantly help recovery and prevent other long-term illnesses.

The research also showed exercise had an impact on preventing recurrence of a few specific cancers.

- Women with breast cancer who exercise for 150 minutes a week at moderate intensity have a more than 40% lower risk of dying and recurrence of disease compared to women who are active for less than one hour a week.

- Results of two studies on bowel cancer also show the risk of dying or the disease coming back is cut by about 50% in patients taking six hours a week of moderate intensity exercise.

- Prostate cancer patients have around a 30% lower risk of dying from the disease and a 57% lower rate of disease progression if they do three hours of moderate intensity exercise a week.
Brain cancer patients who are able to exercise live significantly longer than sedentary patients, scientists at the Duke Cancer Institute report.

The finding, published online June 20 in the Journal of Clinical Oncology, adds to recent research that exercise improves how cancer patients feel during and after treatments, and may also extend their lives. The study enrolled 243 patients at the Preston Robert Tisch Brain Tumor Center at Duke with advanced recurrent gliomas, lethal brain malignancies that typically result in a median life expectancy of less than six months.

The patients who reported participating in regular, brisk exercise - the equivalent of an energetic walk five days a week for 30 minutes, had significantly prolonged survival, living a median 21.84 months vs. 13.03 months for the most sedentary patients.

http://www.sciencedaily.com/releases/2011/06/110621114153.htm
WASHINGTON, April 15, 2011 /PRNewswire/ -- Novocure today announced that the U.S. Food and Drug Administration (FDA) approved the NovoTTF-100A System (NovoTTF) for the treatment of adult patients with glioblastoma multiforme (GBM) brain tumors, following tumor recurrence after receiving chemotherapy. The portable, wearable device delivers an anti-mitotic, anti-cancer therapy as patients maintain their normal daily activities. The NovoTTF is a novel, first-in-class treatment option for patients and physicians battling glioblastoma.
Alternating electric fields arrest cell proliferation in animal tumor model and human brain tumors

Yale University School of Medicine, New Haven, CT, April 5, 2007

We have recently shown that low intensity, intermediate frequency, electric fields inhibit by an anti-microtubule mechanism of action, cancerous cell growth in vitro. Using implanted electrodes, these fields were also shown to inhibit the growth of dermal tumors in mice. The present study extends these findings to additional cell lines [human breast carcinoma; MDA-MB-231, and human non-small-cell lung carcinoma (H1299)] and to animal tumor models (intradermal B16F1 melanoma and intracranial F-98 glioma) using external insulated electrodes. These findings led to the initiation of a pilot clinical trial of the effects of TTFIELDS in 10 patients with recurrent glioblastoma (GBM). Median time to disease progression in these patients was 26.1 weeks and median overall survival was 62.2 weeks. These time to disease progression and OS values are more than double the reported medians of historical control patients. No device-related serious adverse events were seen after >70 months of cumulative treatment in all of the patients. The only device-related side effect seen was a mild to moderate contact dermatitis beneath the field delivering electrodes.

We conclude that TTFIELDS are a safe and effective new treatment modality which effectively slows down tumor growth in vitro, in vivo and, as demonstrated here, in human cancer patients.
Differential sensitivities of malignant and normal skin cells to nanosecond pulsed electric fields.

Yang W, Wu YH, Yin D, Koeffler HP, Sawcer DE, Vernier PT, Gundersen MA.
Ming Hsieh Department of Electrical Engineering, Viterbi School of Engineering (VSoE), University of Southern California (USC), Los Angeles, CA 90089, USA.

Abstract
Pulsed electric fields with nanosecond duration and high amplitude have effects on biological subjects and bring new venue in disease diagnosis and therapy. To address this respect, we investigated the responses of paired tumor and normal human skin cells - a basal cell carcinoma (BCC) cell line, and its sister normal cell line (TE) - to nanosecond, megavolt-per-meter pulses. When BCC (TE 354.T) and TE (TE 353.SK) cells, cultured under standard conditions, were exposed to 30 ns, 3 MV/m, 50 Hz pulses and tested for membrane permeabilization, viability, morphology, and caspase activation, we found that nanoelectropulse exposure: 1) increased cell membrane permeability in both cell lines but to a greater extent in BCC cells than in normal cells; 2) decreased cell viabilities with BCC cells affected more than normal cells; 3) induced morphological changes in both cell lines including condensed and fragmented chromatin with enlarged nuclei; 4) induced about twice as much caspase activation in BCC cells compared to normal cells.

We concluded that in paired tumor and normal skin cell lines, the response of the tumor cells to nanoelectropulse exposure is stronger than the response of normal cells, indicating the potential for selectivity in therapeutic applications.

PMID:21517135 [PubMed - in process]
PEMF Therapy Increases Cellular Genesis
(Cellular Growth and Repair)

The many intra and inter cellular processes and activity stimulated by PEMF therapy lead to faster cellular and tissue regeneration. This fact is shown by the results of many studies on a variety of tissues, including bones, spine, cartilage, intestines, blood vessels, nerves, brain, and muscles.

In December 2004, the Swiss Medical Tribune stated that PEMF therapy provided:

“improvement of blood circulation, relief from pain, improvement of bone healing and the stimulation of nerve cells. Not only is the PEMF therapy effective in disease condition: it is an excellent means of preventing stress, assisting regeneration and recovery after sports exertion… Through metabolic activation and blood circulation more nutrients and oxygen are available to muscle cells, less damage is experienced, and efficiency is improved.”
This patient was diagnosed with parotid cancer and had surgery and radiation therapy in August of 2007. Following this, his face refused to heal. The side of his face stayed, pretty much as seen here for the next 3 1/2 years.

In late April, 2011, he started to apply PEMF to his face. 5 treatments and 2 weeks later, his face looked like this.

His face continues to improve with regular PEMF treatment sessions. The patient is, of course, very happy with the improvement in his face.

He is also very happy that the PEMF treatments have reduced the pelvic pain and frequent nighttime urination caused by an inflamed prostate!
Karen suffers from Guillian Barre Syndrome, a debilitating autoimmune disease that causes severe nerve damage and paralysis. She was wheelchair bound for 9 years, was in constant pain, had no feeling in her hands and fingers, was unable to care for herself or her family, and was suffering from chronic depression as well.

After daily treatments using Pulsed Electro Magnetic Field (PEMF), Karen is walking again.

She is no longer in constant pain and has regained sensation in her hands and fingers. She can cook and care for herself and her family, and is happy to be able to read a book once again… a favorite past-time that she was unable to do before PEMF because she couldn’t hold a book or feel to turn the pages.

Karen is also free from her chronic depression, which is also an indicated and FDA approved therapy that PEMF offers.

PEMF and multiple sclerosis

At the Biologic Effects of Light 1998 Symposium, Richards et al. explain the effects of pulsing magnetic field on brain electrical activity in multiple sclerosis:

Recently, a histologic study has also shown that widespread axonal damage occurs in MS along with demyelination. What is the possible connection between MS and bio-electromagnetic fields? We recently published a review entitled "Bio-electromagnetic applications for multiple sclerosis," which examined several scientific studies that demonstrated the effects of electromagnetic fields on nerve regeneration, brain electrical activity (electro-encephalography), neurochemistry, and immune system components. All of these effects are important for disease pathology and clinical symptoms in MS”.

MS patients were exposed to a magnetic pulsing device that was either active (PEMF) or inactive (placebo) for two months. Each MS patient received a set of tests to evaluate MS disease status before and after wearing the device.

There was a significant improvement in the performance scale combined rating for bladder control, cognitive function, fatigue level, mobility, spasticity, and vision. There was also a significant change between pre-treatment and post-treatment in alpha EEG magnitude during the language task.
Depression and Brain Disorders
Depression and Earth's weakening Magnetic Field

Earth’s declining magnetic field may be one of the factors leading to the alarming rise in cases of clinical depression and suicide.

In 2008, Russian scientists found a correlation between Earth’s declining magnetic field and suicide. Oleg Shumilov of the Institute of North Industrial Ecology Problems in Russia, told the New Scientist the Earth's magnetic field peaked in three cycles during the year; March to May, another in July with the last in October. Shumilov argues that many animals can sense the magnetic field, so why should this not be the case with humans?

Michael Rycroft, formerly head of the European Geosciences Society, quoted by the New Scientist, claims that around 10 to 15% of the population are affected by geomagnetic health problems.

Dementia, depression and mental disorders are on the rise worldwide. If it turns out Earth is entering a new phase of accelerated field declination, which I believe it is, and artificially induced electro-magnetic field disturbances continue on Earth; depression and rates of suicide on the planet could start spiking.

http://www.prometeus.nsc.ru/science/scidig/08/apr2.ssi
PEMF and the Brain

A four-week double-blind, placebo-controlled study conducted by Uni der Bundeswehr (Munich, Germany) assessed the efficacy of PEMF Therapy for Insomnia. One hundred one patients were randomly assigned to either active treatment (n = 50) or placebo (n = 51) and allocated to one of three diagnostic groups: sleep latency; interrupted sleep; or nightmares. The results showed 70% (n = 34) of the patients given active PEMF treatment experienced substantial or even complete relief of their complaints; 24% (n = 12) reported clear improvement; 6% (n = 3) noted a slight improvement. Only one placebo patient (2%) had very clear relief; 49% (n = 23) reported slight or clear improvement; and 49% (n = 23) saw no change in their symptoms. No adverse effects of treatment were reported.

Stunning results were obtained in a study entitled “Protection against focal cerebral ischemia following exposure to a pulsed electro-magnetic field”, Grant G et.al (1994 Department of Neurosurgery, Stanford University, CA, USA) stated: “There is evidence that electro-magnetic stimulation may accelerate the healing of tissue damage following ischemia. Exposure to pulsed electro-magnetic field attenuated cortical ischemia edema on MRI at the most anterior coronal level by 65%. On histological examination, PEMF exposure reduced ischemic neuronal damage in this same cortical area by 69% and by 43% in the striatum. Preliminary data suggest that exposure to a PEMF of short duration may have implications for the treatment of acute stroke”.

Transcranial Magnetic Stimulation (TMS) chair from Neurotronics. The FDA recently approved this chair/device as a treatment for depression. It is used to deliver pulsed magnetic fields (PEMF) to stimulate the parts of the brain thought to control mood.

It’s done very well in trials so far, with at least half of the participants reporting significant improvement after 30 in-office sessions. This could be a life-changing treatment for people who suffer from depression but have experienced intolerable side effects from medication. It’s done on an outpatient basis, in a psychiatrist’s office with the patient fully awake. **Cost of unit: $60,000 USD  Patient cost: $12,000 for 6 week treatment**
Pulsed Electro Magnetic Field Therapy and Depression

Transcranial Magnetic Stimulation (TMS) Therapy and Depression/UCLA/NeuroStar®
http://www.tmslosangeles.com/

Neuronetics® Uses Magnetism to Lift Depression
http://www.businessweek.com/globalbiz/content/sep2010/gb2010091_265881.htm

Sustained Use Of Anti-Depressants Increases Cell Growth And Protects Cells In The Brain

Popular Anti-depressants Boost Brain Growth, Hopkins Scientists Report
http://www.hopkinsmedicine.org/Press_releases/2005/12_19_05.html

Newly-Identified Exercise Gene (VGF) Could Help With Depression

VGF, a New Player in Antidepressant Action?
http://stke.sciencemag.org/cgi/content/abstract/sigtrans;1/18/pe19

**PEMF affects tissue and muscle in same manner as exercise (and in some cases, anti-depressants) with respect to treatment of depression… but also helps treat all other conditions, illnesses and disease.**

**Electro magnetic therapy stimulates cell growth and gene expression (without negative side effects of drugs) re-establishing and balancing the body’s natural energy fields/exchanges, that have been lost and/or negatively impacted by weakened terrestrial magnetic field, and proliferation of modern electric devices.**

**The body’s weakened magnetic field and interrupted/blocked energy flow is a common deprivation that we all suffer from, and is the missing link behind ineffective and/or failed treatment modalities.**
Stem Cells, Nutrients and Depression

Depression may be a symptom of the loss of stem cells. Many of the same factors that cause depression can inhibit neural stem cell growth and many of the same factors that promote neural stem cell growth alleviate depression.

Physiological as well as psychological stresses increase glutamate and aspartate levels that are toxic to stem cells.

Stress stimulates glucocorticoids from the adrenal glands that stimulate excitatory neurotransmitters (glutamate and aspartate) in the brain. The neurotransmitters then stimulate neurons to increase their metabolism. If the neuron doesn't have enough energy (ATP) and antioxidant protection to be "fired up" safely, the cell membranes then open to an influx of sodium and calcium which eventually begin the steps to programmed cell death (apoptosis). Proteolytic enzymes inside the neuron begin breaking up the cell into pieces and then immune cells (phagocytes) come in and engulf all the parts until nothing remains.

This research helps explain the relationships between stress, aging and memory loss.
PEMF and Stem Cells - Research

Stimulation of osteogenic differentiation in human osteoprogenitor cells by pulsed electromagnetic fields: an in vitro study.

Modulation of osteogenesis in human mesenchymal stem cells by specific pulsed electromagnetic field stimulation.
Tsai MT, Li WJ, Tuan RS, Chang WH.

Effect of pulsed electromagnetic field on the proliferation and differentiation potential of human bone marrow mesenchymal stem cells.
Sun LY, Hsieh DK, Yu TC, Chiu HT, Lu SF, Luo GH, Kuo TK, Lee OK, Chiou TW.
Bioelectromagnetics. 2009 May;30(4):251-60.PMID: 19204973 [PubMed - indexed for MEDLINE]

Osteoprotegerin (OPG) production by cells in the osteoblast lineage is regulated by pulsed electromagnetic fields in cultures grown on calcium phosphate substrates.

Pulsed electromagnetic fields enhance BMP-2 dependent osteoblastic differentiation of human mesenchymal stem cells.

EIGHTEEN YR-OLD YOUNG MAN RECOVERING FROM AUTISM WITH PEMF THERAPY!

Christian was diagnosed with Cerebral Palsy, Autism and ADHD. He had anxiety and anger issues stemming from associated problems including limited verbal and communication skills, stuttering, inability to focus or look people in the eye. He also had physical difficulty walking and maintaining his balance.

After just a month and a half of PEMF treatments, Christian no longer stutters or loses his balance. He is calmer, more peaceful, has energy and focus and feels like he has awakened from a long sleep. His mom Christine says “he even has a girlfriend now!”

View Christian’s story here: http://www.pemf.us/autism-video/
Could Light-Based Alzheimer's Devices Be 'The Next Big Thing'?

Published: March 23, 2011

Not only is Alzheimer's disease (AD) the sixth leading cause of death in the United States, it is also the only one in the top 10 that can't be prevented, cured, or slowed, according to the Alzheimer's Association. Although treatments for the brain disease traditionally have been drug-based in the form of cholinesterase inhibitors and memantine, recent research indicates that AD symptoms may be alleviated through the use of light-based treatments. If further studies support these claims, could light-based AD treatments soon emerge as a lucrative new medical device market segment? Will light-based AD treatments be the 'next big thing'?

"Progress towards effective treatments for this horrible disease has been uneven at best," according to the Alzheimer's Association's Web site. Conventional drug treatments typically target beta amyloid, which is a peptide that is considered the main ingredient in disease-related plaques often found in AD patients' brains. Many experts believe, however, that this approach has not proven to be very effective.

Alzheimer's disease: improvement of visual memory and visuoconstructive performance by treatment with picotesla range magnetic fields.

Sandyk R.
NeuroCommunication Research Laboratories, Danbury, CT 06811.

Abstract
Impairments in visual memory and visuoconstructive functions commonly occur in patients with Alzheimer's disease (AD). Recently, I reported that external application of electromagnetic fields (EMF) of extremely low intensity (in the picotesla range) and of low frequency (in the range of 5Hz-8Hz) improved visual memory and visuoperceptive functions in patients with Parkinson's disease. Since a subgroup of Parkinsonian patients, specifically those with dementia, have coexisting pathological and clinical features of AD, I investigated in two AD patients the effects of these extremely weak EMF on visual memory and visuoconstructive performance.

Treatment with EMF resulted in a dramatic improvement in visual memory and enhancement of visuoconstructive performance which was associated clinically with improvement in other cognitive functions such as short term memory, calculations, spatial orientation, judgement and reasoning as well as level of energy, social interactions, and mood. The report demonstrates, for the first time, that specific cognitive symptoms of AD are improved by treatment with EMF of a specific intensity and frequency.

http://www.pemf.us/docs/ScienStudies_Magnetic64.pdf
Detoxification
Electromagnetic Therapy
for energy production and cellular detoxification

In an article published in *Plos One*, November 2010, volume 5, issue 11 (Wang), page 4, Johns Hopkins’ researchers found a 38% increase in ATP production in P12 cells that were placed in a static magnetic field device that we supplied.

This increase could be much higher *in vivo* with the brain's pulsed DC electromagnetic field interacting with an enhanced earth-type field resulting in increased resonance of the mitochondria. All of this leading to enhance electron transfer in the creb cycle resulting in more ATP production.

\[ \uparrow \text{ATP equals} \uparrow \text{Na+ K+ pump function} \]
\[ \text{which leads to} \uparrow \text{charge of the cell wall and} \uparrow \text{metal excretion.} \]
Electromagnetic increase of ATP

Most toxins have a positive (+) charge. The higher amount of negative (-) magnetic energy enhances the efficiency of the mitochondria, which produces ATP, the vital element for charging up the cell walls.

When sufficiently charged, the cell will then expel toxins and waste products more efficiently.
PEMF Therapy Increases Blood and Lymphatic Circulation

The arterial and venal blood vessels are intimately associated with the lymphatic system. As the blood and lymphatic vessels bring oxygen and nutrients to the cells and remove their waste products, they are nourishing and detoxifying the cells, tissues, and body.

As PEMF therapy mechanically stimulates blood vessels and blood flow, the blood vessels pump blood and oxygen into the cells.

Simultaneously, PEMF therapy mechanically stimulates the lymphatic vessels and waste products are hauled away from the cells more efficiently. PEMF therapy supports immune health by mechanically stimulating lymphatic drainage and blood flow.
Recent developments reveal a crucial role for the autophagy pathway and proteins in immunity and inflammation. They balance the beneficial and detrimental effects of immunity and inflammation, and thereby may protect against infectious, autoimmune and inflammatory diseases.

Autophagy helps the cell fight infection by some kinds of invading bacteria and viruses, by cleaning them out of the cell's interior without having to discard the entire cell.

Sustained autophagy may also increase longevity by protecting cells against free radical damage and mutations in DNA.
Detoxification is a LIFETIME challenge

LEAD in bones requires years of continuous oral chelation with EDTA and/or Zeolite.

Because bones take an average of 15 years to fully regenerate, IV EDTA chelation therapy over several months only removes lead and other toxic metals from the body’s blood and tissues, NOT from bones.

Harvard studies prove that bone lead leads to heart disease and cataracts, as Bones are the MAJOR storehouse of lead in the body.

For more information see the 507 References Supporting Oral EDTA On the Gordon Research Institute Website at www.gordonresearch.com
FIGHT for Your Health with
Dr. Gordon’s Power Drink

Beyond Fiber - 1 rounded tsp
Bio En'R-G’y C - 1 rounded tsp
MACA Powder - 1/2 tsp
Dr. Gordon’s Organic
Best of Greens - 1 rounded tsp

ZeoGold* - 1 capsule (twist open and dissolve in drink)
FACT Membership is FREE to any Qualified Health professional desiring to achieve OPTIMAL WELLNESS for themselves and their clients. This includes Nurses, Nutritionists, Scientists, Researchers, and others on a case by case basis.
Health Consultations
Get a personalized health consultation! Dr. Garry Gordon offers his 53+ years of advanced medical experience to you personally via telephone for $450 per hour.

Appointments may include a review of all prior medical records and/or any new tests that can be ordered in preparation for your personalized consultation. Test panels can be more focused on ANTI-AGING, or cancer, depending on your concerns.

Since Dr. Gordon does not accept insurance, he has made arrangements for cash paying patients to obtain substantial discounts of 70% or more for any blood tests that he orders. In Addition, Dr. Gordon now offers the most advanced and comprehensive 72 gene test panel available anywhere for $425.

For more information please contact Gordon Research Institute Ph 928-472-4263 x134, Fax 928-474-0545, or email info@gordonresearch.com
THANK YOU