

PEMF

The 5th Element of Health

Learn Why Pulsed ElectroMagnetic Field (PEMF) Therapy
Supercharges Your Health Like Nothing Else!



Bryant A. Meyers

PEMF—The Fifth Element of Health

Learn Why Pulsed Electromagnetic Field (PEMF)
Therapy Supercharges Your Health Like Nothing Else!



SAMPLE

BRYANT A. MEYERS



BALBOA
PRESS

A DIVISION OF HAY HOUSE

Copyright © 2013 Bryant A. Meyers.

All rights reserved. No part of this book may be used or reproduced by any means, graphic, electronic, or mechanical, including photocopying, recording, taping or by any information storage retrieval system without the written permission of the publisher except in the case of brief quotations embodied in critical articles and reviews.

Balboa Press books may be ordered through booksellers or by contacting:

Balboa Press
A Division of Hay House
1663 Liberty Drive
Bloomington, IN 47403
www.balboapress.com
1-(877) 407-4847

Because of the dynamic nature of the Internet, any web addresses or links contained in this book may have changed since publication and may no longer be valid. The views expressed in this work are solely those of the author and do not necessarily reflect the views of the publisher, and the publisher hereby disclaims any responsibility for them.

The author of this book does not dispense medical advice or prescribe the use of any technique as a form of treatment for physical, emotional, or medical problems without the advice of a physician, either directly or indirectly. The intent of the author is only to offer information of a general nature to help you in your quest for emotional and spiritual well-being. In the event you use any of the information in this book for yourself, which is your constitutional right, the author and the publisher assume no responsibility for your actions.

Any people depicted in stock imagery provided by Thinkstock are models,
and such images are being used for illustrative purposes only.
Certain stock imagery © Thinkstock.

Printed in the United States of America.

ISBN: 978-1-4525-7922-1 (sc)
ISBN: 978-1-4525-7924-5 (hc)
ISBN: 978-1-4525-7923-8 (e)

Library of Congress Control Number: 2013914291

Balboa Press rev. date: 9/20/2013

An Important Note: This book is not intended as a substitute for the medical recommendations of physicians or other health-care providers. It is essential that you consult with a physician before trying any of the recommendations in this book, and in no case should you try any of them without the full concurrence of your physician. It is important that you do not discontinue the treatment and plan prescribed by your doctor.

CONTENTS

<i>Foreward</i>	ix
<i>Introduction</i>	xi
1 The 5 Essential Elements of Life.....	1
2 Newtonian Medicine – The Problem with Doctors, Drugs and Hospitals	27
3 Quantum Fields, Zero Point Energy & The Holographic Universe	39
4 Energy Medicine and the Bio-Energetic Holographic Body.....	57
5 Schumann Resonance, Earth Frequencies & The Body-Mind-Earth Connection	87
6 PEMF – The Whole Body Battery Recharger.....	113
7 The 2-Fold Problem – Magnetic Field Deficiency & Electrosmog	127
8 The Solution – Supplementing with an Earth-Based PEMF Device	155
9 The Top 8 Benefits of PEMF Therapy	179
10 Action Steps to Reconnect to Nature and Its Elements.....	195
<i>Bibliography</i>	201

FOREWARD

In my primary function as a global energy medicine expert and ambassador, I was gifted to accompany many authors writing PEMF-related books during the last 2 decades from all over the world. Looking back I must admit, that one of the first PEMF books I was involved with (published in Germany), was a brilliant scientific oeuvre, well researched and professionally written. There was just one major problem occurring: Almost nobody understood the content! Why? Because at that time common knowledge about Quantum Physics and Energy Medicine as well as perception of using “energy“ for medical purposes was equateable to teach a horse how to play baseball.

Well, time has finally changed! Classical medicine is not able anymore to keep up and compete with the health challenges mankind is facing nowadays, our environment becomes extensively polluted and destroyed by our own species and fortunately people are starting to create interest in alternative and complementary modalities to protect and regain their own health. Most importantly, energy medicine is no longer on the fringes. Almost every day articles, books, clinical studies and scientific publications referring to successful medical applications with all kinds of energy become published and find their way to the public. We finally begin to understand the so important correlation and dependency between ourselves and the environment we are surrounded by. We start realizing, that we as human beings are just a tiny part of a perfectly designed natural ecosystem. And we also start believing in the fact, that our existence, our health and our diseases are inextricable linked to the space we live in.

Every fundamental shift in our understanding, in our education and in our personal behavior requires time, interest, knowledge, motivation,

evidence and most importantly action. Unfortunately human beings are educated in the fact, that one always needs evidence before something works! However, you can consult 10 specialists, read 100 books, study 1000 scientific publications - unless you do not try and experience, you will never benefit!

Is PEMF - The Fifth Element of Health, just another book? Honestly it is much more than this. For the first time in history a PEMF related opus is published in North America, which explains the entire history, the development, the practical experience and the fundamental health benefits of pulsed electromagnetic fields for home use. All of this in a language, that everybody will easily understand and be able to follow eagerly - riddled with numerous scientific evidence and yet plausible and easily comprehensible.

Bryant Meyers is truly a “nerd“ when it comes to PEMF. His personal journey and most of all his inclination to try everything before sharing with and referring to others, sets a new benchmark of providing experience based knowledge of PEMF combined with existing scientific and physical laws as an evidential back up. His deliberations about the dependency of natural frequencies and it's impact for humans and animals followed by the transition how PEMF can be utilized for people's health is a completely new and very fascinating pathway.

Knowing Bryant since over 6 years now, I feel very honored and proud to congratulate him on publishing such a powerful and interesting achievement with PEMF, the Fifth Element of Health. May this book encourage all readers to start thinking outside the box and helping a lot of people to overcome their personal health challenges by opening themselves to a fascinating, very powerful and in the same time safe and easy to use modality: PEMF – Energy Medicine!

Wolfgang Jaksch
June, 2013

INTRODUCTION

There's a saying that you write a book because you cannot "not write" it. Over the past 6 years I have dedicated myself full time to researching, testing, marketing, sharing, training, and personally helping hundreds of people with a research proven, natural, non-invasive form of energy medicine called Pulsed Electromagnetic Field Therapy or PEMF therapy. PEMF therapy devices use a computer or control unit to administer precise natural pulsating magnetic fields to the body (with specific frequencies and intensities) through various applicators such as a full body mat, localized pad applicators and pinpointed probe or pen "spot" applicators.

I have seen this technology help numerous people in such profound and life changing ways, that I feel compelled to write this book to metaphorically "shout from my rooftop" to the world why this technology is, in my opinion, the very best investment you can make when concerning your health.

On November 16th, 2011 the Dr. Oz Show aired a special broadcast on the pain-relieving effects of Pulsed Electromagnetic Field Therapy devices. Dr. Oz and his panel of experts appearing on his show claimed that numerous individuals might get relief from chronic pain without pills or surgery with the daily use of a PEMF therapy device. Dr. Oz also cites PEMF therapy machines as one of the most important breakthroughs in pain management that he's ever discovered. He specifically recommended devices that have a full body mat along with localized applicators (in chapter 8 we'll go into detail on what to look for in a PEMF device). Many thanks to Dr. Oz, for with this great exposure and sharing of knowledge, thousands of Americans now know of this amazing technology.

We'll see in this book that the earth has natural PEMFs (the Schumann

resonance and the geomagnetic frequencies). These energies are absolutely essential for life, just like food, water and oxygen. Modern science has now developed PEMF devices that simulate and duplicate the earth's natural PEMF frequencies, and we'll see in chapter 7 why it is essential to supplement with a good earth-based PEMF therapy device (a device that closely duplicates the earth's natural PEMFs).

PEMF, The Whole Body Battery Recharger

You can think of PEMF therapy as a “whole body battery recharger”. By using a PEMF therapy mat just 2 times a day for 8 minutes you recharge your 100 trillion cells, improving ATP production, increasing oxygenation, enhancing circulation, promoting hydration, facilitating detoxification, and gaining a better overall absorption of nutrients. It's like putting little “tiny jumper cables” on all your cells and “jump-starting” them back to health.

Figure 1 shows the pulsed magnetic fields (the 3D concentric circles) coming from a good PEMF therapy mat (control unit and local applicators not shown). The natural pulsating magnetic energies penetrate throughout your entire body. One of the benefits of PEMF therapy is that the magnetic fields effortlessly pass through your all your tissues and cells for deep healing; giving your body more energy and vitality.



Figure 1 PEMF is a Whole Body Battery Recharger

I've seen pulsed magnetic therapy help so many people with so many different conditions. In fact, I can *almost* guarantee it can help anyone to

improve their quality of health. Of course I cannot make any claims for treating or curing any disease, but when you see not just one.... not just a dozen, but hundreds of people benefit in such profound ways you begin to speak with passion and confidence. I'm speaking of the hundreds of people that I have personally worked with.

More than 10,000 Scientific Papers and 2000 Double Blind Studies

More than 10,000 scientific papers have been published about the effect of PEMF. Many of the initial studies have been carried out in Russia and Eastern Europe, but more and more research is now taking place in the United States. PEMF is a non-contact, non-invasive, non-pharmacological and effective treatment for many conditions. Worldwide more than 2,000 double blind studies have demonstrated that PEMF therapy is a safe and effective treatment for a variety of conditions, as well as to promote and maintain general cellular health and function.

PEMF therapy has been used extensively for decades for many health issues, and results can be seen in animals as well as humans. The National Institutes of Health have made PEMF therapy a priority for research. In fact, the FDA has already approved many PEMF devices, some specifically to fuse broken bones, wound healing, pain and tissue swelling, and also to treat depression. Most therapeutic PEMF devices are considered safe by various standards and organizations.

Just to be clear, PEMF therapy or any energy medicine device for that matter does not heal or cure disease. What it's really doing is jump-starting our body's own natural healing process. The body is self-healing, self-regulating and self-regenerating. It has the natural ability to heal when given the proper energy and elements needed for sustaining life (more on the five essential elements in the next chapter).

My 18 Year and \$500,000+ Journey in Energy Medicine

When I was in college at Georgia Tech in the early 1990's, I had a deep interest in biology, biochemistry and physics. I graduated with high honors earning a bachelor's degree in physics, and obtaining enough credits

to have a second degree in biology minus only a couple of lab classes. I eventually went on to get a master's degree in physics.

My love of physics stemmed from a deep yearning for understanding the big questions. Where did we come from? What is the origin and nature of the universe? What is consciousness? Who am I? It also stemmed from my interest in energy medicine, health, and wellness. I followed a very unorthodox career path and spiritual journey that led me to teaching physics for 5 years, living at a yoga retreat center for 4 years, and spending 6 months in India with a focus on mediation. I also worked 10 years part time for a health food store all while teaching the incredible benefits of natural healing, nutrition and energy medicine. I became a certified nutritionist and helped hundreds of people with one on one nutritional counseling. I also wrote a book on health called *Love it or Lose it*. I've written dozens of articles for a health magazine in Michigan and hosted my own TV show on health and wellness called "Forever Young" (I did around 50 episodes from 2003 to 2006). During this time I finished my master's degree in physics and continued teaching physics part time for Central Michigan and Muskegon Community College.

I have an interest and passion that combines all of these disciplines in a branch of alternative healing and wellness called energy medicine. I currently have around 18 years experience in researching, testing, and trying over \$500,000 worth of energy medicine devices. During my final year at Georgia Tech my senior research project was on radionics and healing with frequencies. Even though my audience left me with a lot of blank stares and some half hearted applause... these years of learning frequency medicine left me with a home where I can combine all my passions for physics, biology, consciousness, health, wellness and longevity into an evolving mission statement which has led to my teaching about PEMF therapy.

For the last 6 years I have dedicated myself to researching, testing, and investigating PEMF specifically. I feel it is the crown jewel of energy medicine. It is the first and most important device I personally use every day, and something I highly recommend for you to invest in. The many reasons for this will be revealed to you in this book.

When I say "energy medicine", I mean using natural energy rather than chemistry or surgery to help assist the body in healing itself. If you've

ever watched Star Trek then you know they had this healing device called the tri-quarter that they could scan the body and then administer the frequencies and energies that would heal the various characters that were aboard the Star Trek USS Enterprise. The days of the tri-quarter are upon us! So the ability to heal our bodies with energy is becoming less science fiction and more scientific fact.

Discussing all the different modalities of energy medicine is beyond the scope of this book, but I want to give you a sample of the various types of machines on the market, and just how vast and fast this field of energy medicine is growing. Over the past 18 years I've personally invested in and owned over \$500,000 worth of equipment, spent countless hours researching and talking directly to owners, inventors and experts. Here is a sample of some of the machines I have owned, tested, used and researched.

From A-Z:

- **Biofeedback Machines:** QXCI, SCIO, Zyto devices, Inergetix CoRe
- **Chi Machines:** The original Chi Machine and a few others
- **Scalar Wave Devices & Pendants:** EE System®, Scalar Laser, Scalar Pens, Scalar Bracelet, Scalar Pendant, Crystal Matrix Generator and others
- **EMF Protection:** Biopro, Q-link, EarthCalm, Scalar pendants, ewater pendant, Slim Spurling pendants, plus many more
- **Ed Skilling Devices:** Photon Genie, Photon Genius, Photon Sound Beam and others
- **Homeopathy Preparation:** Eagle Research & Others
- **Infrared Therapy Beds:** Migun Bed, Ceragem Bed, Soqi Bed, Abaton bed
- **Far Infrared (FIR) Therapy:** Lux Sauna, Clearlight Sauna, Therasauna®, Sunlighten® Sauna
- **Near Infrared Therapy (NIR):** SaunaLite, Custom made Light Infrared System
- **Ionic Footbaths:** Q2, Aqua Chi, EB-Pro™, IonCleanse®, Pure Charge and others

- **Lasers:** Terraquant®, Scalarwave Laser and others
- **LED Therapy Devices:** Warp 10, Lumen Photon, and others
- **Multiwave Oscillators:** Biocharger, VIBE, SEAD/Tesla Energy lights machines
- **Oxygen Therapy:** Activated Air (Airnergy, Valkion®, Active Air), Ionized Air, oxygen concentrators, EWOT (exercise with oxygen training), hyperbaric chambers
- **PEMF Therapy Devices:** iMRS®, MRS 2000®, Bemer® 3000, QRS, Magnopro, MAG PEMF, Medthera, Earthpulse, Sota pulser, Magnapulse/PEMF 100/PMT 100, MG-33, Ondamed®
- **Radionics Devices:** Radionics Black Boxes , Biophoton Analyzer plus others
- **Rife Machines:** Beam Ray, Perl, GB-4000, Energy Wellness Machine plus others
- **Scenar:** RITM, Dove, Tenant Biomodulator® plus others
- **Static Magnetic Products:** Local magnetic wraps for just about every body part, magnetic pillows, magnetic mattress pads, magnetic bracelets, magnetic shower filters and water pipe magnets + much more
- **Water Ionizers/Water Systems:** Alkaviva® Vesta, Kangen water® (Enagic® SD 501), Ionways Athena, Jupiter (3 models), Pi Water, John Ellis, several distillers, RO machines and in total over \$50,000 on water machines alone.
- **Whole Body Vibration:** Noblerex K1®, Powerplate® My3®/My5®, Vibraflex, , Crazyfit, Vibraslim, Galileo, Turbosonic® + several others
- **Zappers:** Terminator, Ultimate, Hulda Clark plus many more

After trying and researching all these devices (and more), PEMF therapy is the one energy medicine device I use every day, and it may also be the most important health and wellness device you can invest in; because as we'll see it's essential for life - like food, water and oxygen. When I first tried an earth-inspired PEMF device, I immediately experienced better sleep on the first night and had significantly more energy the following day. Overall I felt, and still feel a daily sense of being lighter and more energetic. Six years later, PEMF is my most trusted form of energy medicine. I still

use the PEMF device daily before any of my other equipment because it consistently delivers great results.

Pulsed magnetic therapy has a distinct advantage over all other forms of energy medicine, (lasers, TENS units, etc.) in that your body is transparent to magnetic fields. This means magnetic and pulsed magnetic fields have the ability to penetrate deep into your body and energize your cells at the core level. Also, PEMF devices are also some of the easiest and safest to use.

Laser therapy, LED therapy, electric current therapy (TENS units, contact Rife machines, zappers, scenars, etc.), and electric field therapy devices have limitations in that the skin and body attenuates the energy and can misdirect the signal. Also the electrical signals from these devices do not penetrate deep into your tissues and cells in the core of your body, like PEMF therapy can. And finally, many of these devices are NOT in alignment with nature, using frequencies, energies and intensities that are foreign to our body and planet. As we'll see in this book, the earth DOES have its own natural Schumann and geomagnetic PEMF frequencies that are *essential for life* on earth.

There is a lot to say about the limitation of many energy medicine devices on the market, but I would rather focus this book on the many benefits of using an earth-inspired pulsed electromagnetic field (PEMF) therapy device, which as we'll see is the 5th essential element of health.

Preview of PEMF, The Fifth Element of Health

In this book you are going to learn some really cutting edge information on physics and biology along with energy medicine. In many ways this book is a grand compendium of my 18 years and \$500,000+ of research in physics, biology, consciousness, health, wellness and energy medicine, with a specific emphasis on the earth's PEMFs. I'll promise you that the information in this book, if carefully pondered and integrated into your mind and consciousness, WILL CHANGE YOUR LIFE! It will not only give you the tools to radically improve your health and longevity, it will also open your mind to a new way of thinking about the human body and the universe we live in.

The main adventures we'll explore in this book together are:

- **Chapter 1:** This chapter is all about the 5 elements essential to life and how earth-based pulsed magnetic fields are the fifth essential element.
- **Chapter 2:** We'll uncover the problem with our current worldview on healthcare and why you need a SHIFT in understanding how the body works in order to take responsibility for your health and start using natural alternatives.
- **Chapter 3:** We'll explore the exciting new physics of quantum field theory, with new understandings in the zero point field, and the holographic model of the universe. Understanding the "new physics" will provide the first foundation for understanding energy medicine, specifically pulsed electromagnetic field therapy.
- **Chapter 4:** We'll look at new breakthroughs in biochemistry, biology and biophysics - the human body is now understood as a holographic field of energy and information that is coupled with the physical form. These new understandings in biology, biophysics and energy medicine provide the second main foundation for this book.
- **Chapter 5:** We'll dive deeper into the body, mind, and earth connection. You'll be amazed to see just how deeply connected you are to the earth and its natural geomagnetic and Schumann frequencies. When I first understood the contents of this chapter, my hairs stood on end... It's that exciting!
- **Chapter 6:** This is one of my favorite chapters because it explains how PEMF works at the cellular level as a whole body battery recharger. The benefits of PEMF and the reason it works from A-Z for just about every health condition will be understood after you read this.
- **Chapter 7:** We'll investigate the two-fold problem, or rather epidemic as to why we need PEMF therapy more than ever in the history of our species. Think you can simply get enough of the earth's natural magnetism by just lying on the grass or walking barefoot? Think again! This chapter explores why we

are not getting enough of the good frequencies and energies of the earth, and how we're getting way too much of the negative EMFs or electrosmog based on our modern technological lifestyle. Some of this information will "shock" you (pun intended), but the purpose is to light a fire under your caboose so you begin to take action!

- **Chapter 8:** I'll reveal to you "the solution" to the 2-fold problem discussed in chapter 7 – earth inspired PEMF therapy! We'll also talk about what to look for when investing in an earth-based PEMF device.
- **Chapter 9:** We'll go into detail on all the wonderful benefits you'll receive by supplementing your life with an earth-inspired PEMF device. This book is pro-health not anti-disease, so we'll focus only on the health of your body and the benefits you'll get by using PEMF therapy on a daily basis. Health should not be looked upon as the absence of disease, but instead a process of growing stronger and more energetic every day.
- **Chapter 10:** I'll reveal *action steps* you can take right away to reconnect to nature and its elements, which will supercharge your health and change your life. I'll also share what I feel are the best devices to invest in after trying and testing over \$500,000 worth myself. Follow my advice and *I'll help you save over \$490,000* in devices you DON'T need to waste your money on.



The 5 Essential Elements of Life

The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science. He to whom this emotion is a stranger, who can no longer pause to wonder and stand rapt in awe, is as good as dead: his eyes are closed.
— Albert Einstein

The greatest mystery is that of existence itself; that the universe and life within it exists - that there is something at all, rather than nothing. In the midst of this spiraling growth of our universe that began at speeds faster than light, a “Goldilocks” planet (Earth) evolved with conditions and elements that are not too hot and not too cold, but “just right” for life. Life has been a hero’s journey of 13.77 billion years, a long pilgrimage on the razor-like thin path of eternity from the ineffable big bang, to the present moment where we can stand together and gaze at the night sky in awe and wonderment.

Stargazing connects us to this vastness we call our universe, but as many stars that seemingly pop out on a clear night we are only seeing roughly 10,000 of them with our naked eye. Our galaxy alone contains some 300 billion stars! On top of that, our nearest galaxy Andromeda is much larger than ours and yet appears as only a small fuzzy patch on a dark night sky. Also, leading cosmologists estimate there are AT LEAST 100 billion galaxies in the universe. Think about that!

This book is an amazing journey through the cosmic body of the universe and onto the body of our planet earth (or Gaia), and then to the body of man and his 100 trillion cells. This book is an exploration into the

elements needed for life. What man needs to create, maintain and sustain an ever-increasing level of health and energy. Health is Life and Life is Health. There is nothing more auspicious to our sojourn here on earth than to live in a body full of health, married to a mind and spirit open to all of its incredible wonders.

Modern physics is now shedding light on the great serendipity of life and the conditions needed to create it. The great mystery that modern physics puts in front of us, is the precise balance that all the forces and elements strike for the universe, our galaxy, our solar system, our planet and its over 7 billion humans and uncountable other life forms to exist and be alive. Before we dive into the essential elements needed for the health of our body, lets take a brief journey into the amazing circumstances that were needed for life in the universe to exist at all. The purpose of this is to expand your mind while opening up your imagination to the world and universe we live in with a greater sense of appreciation and wonder.

Our Bubble Universe is “Tuned” for Life to Exist

Mystery creates wonder and wonder is the basis of man's desire to understand.

—Neil Armstrong

According to Stephen Hawking, M-Theory (the source of all prevailing versions of string theory) allows for some 10^{500} possible universes as different permutations in the fundamental constants. Whether that is correct or not, modern cosmological evidence is already hinting that there are adjacent universes to ours corroborating the idea that our universe is only one of many within a grand Multiverse (collection of all universes). However, our universe is not just an average face in the crowd. It's a very special anomaly that is both geared for sustainable growth and “dialed in” for the possibility of life.

According to modern physics, there are 4 forces (gravity, electromagnetism, the weak force and the strong nuclear force) and 12 fundamental particles (the various quarks and leptons). If the strength of these forces (called the coupling constants) or the mass of the particles were off by just a little, life would not be possible.

For example, if the strong nuclear force was changed by just .5%, or the electromagnetic force was off by 4%, the fusion process needed for carbon and oxygen (our body is 65% oxygen by weight and 18% carbon) would not occur in stars and life, as we know it would not exist. Or if the weak force (responsible for radioactive decay) were weaker, all the hydrogen in the early universe would have been converted to helium and as a result there would be no normal stars. If the weak force were stronger, supernovas would not produce the heavier elements we need for life. If the mass of a proton were .2% heavier, they would decay into neutrons and thereby destabilize the atom. Also, the masses of quarks are optimized for the creation of a large family of stable nuclei as seen on our periodic table. If the quark masses were off by just a little, there would be far fewer stable atoms and again no life (our bodies require a broad spectrum of some 40+ elements on the periodic table). There are many more examples of this “fine tuning” for initial conditions, but the bottom line is that our universe is optimized and tuned for existence and life¹.

As a metaphor, consider someone blowing bubbles... Many of the bubbles immediately pop, some last for a short period, but every now and then you get one that expands and stays together and flies away as far as you can see. Similarly most of the variations of possible universes are short-lived bubbles with only a few getting large enough to expand significantly and even fewer with the ability to host life. We live in a bubble universe where all the fundamental constants are harmoniously adjusted for the symphony of life.

Planet Earth - The Goldilocks Planet

To arrive at life as we know it on earth, the amazing journey continues. Not only do we need a universe that has the fundamental constants precisely tuned, life needs a favorable solar system as well. The three main components that make a solar system able to sustain life are:

- A *single* star (not a binary or multi-star system),
- A star that is “*second generation*”,
- And a hospitable planet with a *nearly circular orbit at just the right distance* from its sun.

First, a single star is necessary for life. This may sound simple, but half of all the stars in the universe are binary stars, which means that two stars are orbiting each other. While there are stable orbits in such systems, all possibilities are not compatible for life to exist because the conditions would either get too hot or too cold at certain points in the orbit. Multiple star systems (3 or more stars clustered together) are even worse. Biological life needs a solar system with a single star.

Secondly, the star needs to be a second-generation star, which means it formed from a supernova explosion of an earlier primordial star. This is critical because elements heavier than iron require a supernova explosion for their creation. Iron has the atomic number 26 and all fusion reactions up to iron are exothermic; that is, they release energy. Beyond iron, energy must be supplied to create the heavier elements, which could only come about by a supernova explosion. Our planet has around 65 naturally occurring elements heavier than iron. What this means is that our sun is a second-generation star and our solar system was formed from the remnants of a supernova explosion. Our bodies require several elements heavier than iron such as zinc, copper, iodine, selenium, cobalt (vitamin B-12), plus more. As Carl Sagan put it “We are made of star stuff”!

Finally the orbit of the planet around the singular sun needs to be almost perfectly circular, and not too elliptical like mercury or Pluto. If the orbit is too elliptical, conditions can get too hot or too cold. The planet also needs to be just the right distance - called the “*Goldilocks Zone*” by physicists - from the sun. Since the stars mass determines the amount of energy it gives off, this Goldilocks zone can be graphed as a plot of star mass versus distance (See Figure 2). It’s a very narrow range. Why? Think of water, which we know we need for life. Water, on the cosmic scale exists in its liquid state only in the tiny range of 0-100 degrees Celsius (273-373 Kelvin) or 32-212 Fahrenheit. If you consider our sun gets up to 5.4 billion degrees Fahrenheit (3 billion Kelvin) at its core and many stars in the Universe get even much hotter, this is a very small range of temperatures on the cosmic scale. As you may have guessed, the earth is in the perfect center of this Goldilocks zone. As a comparison, our closest planets Venus and Mars fall just outside of this zone¹.

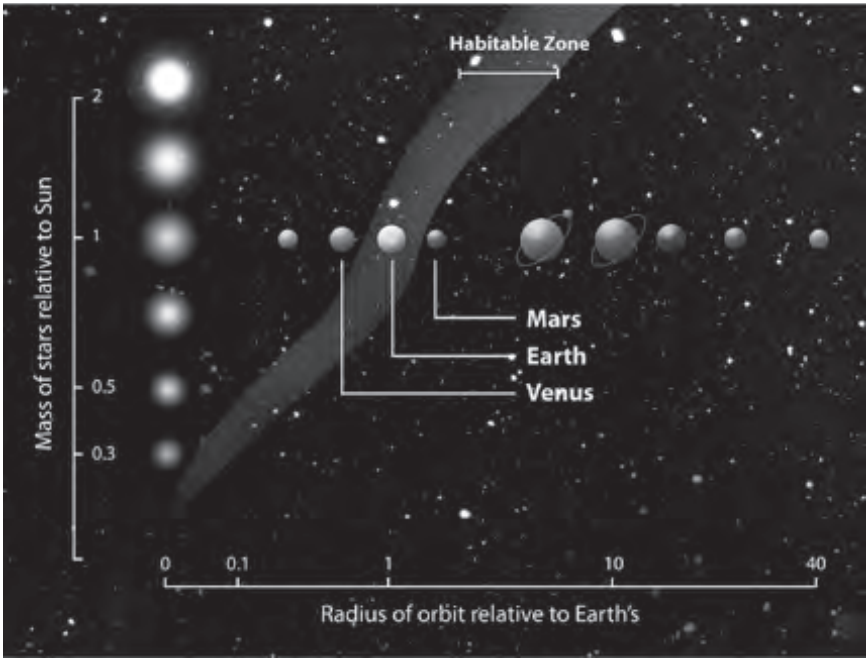


Figure 2 Planet Earth is a Goldilocks Planet

The Elements of Life

In a classic paper presented by George Wald in 1964 to the US National Academy of Sciences, it was established that life requires (at least) the following elements²:

- The presence of *liquid water*
- The *elements* needed for metabolism and reproduction
- *A source of energy*
- *Suitable environmental conditions (which includes the earth's magnetic field)*

Much of what was discussed on life needing an ideal solar system with one sun, and a planet that was the perfect distance away, in a nearly circular orbit revolves around an environment that supports *liquid water*. Having a second-generation star and solar systems gives all the necessary

elements or building blocks of life, but life requires even a much more delicate balance.

The earth itself is considered a living organism (see chapter 5 on the Gaia Theory), because of its ability to maintain homeostasis amidst the chaotic activity of the sun and the complex cycles of life on earth. The earth maintains certain conditions such as a stable global temperature, atmospheric content (high oxygen, low CO₂), ocean salinity, the right balance of elements in its crust, and several other factors that are “just right” for life.

The human body is also a paragon of perfect balance and homeostasis, with an inner environment of 100 trillion cells kept in perfect balance to give us life and health. There are several parameters the human body needs within very precise ranges. Below are 5 of the most important:

- **Glucose level:** between 80-110 mg/dl (< Hypoglycemia, >Diabetes)
- **Blood Pressure:** [120-140]/[80-90] (< Hypotension (dizziness), > Hypertension)
- **Temperature:** 98.6-100 (< Hypothyroidism, > Fever)
- **Oxygen level:** paO₂ > 95% (< Hypoxia, > Doesn't occur)
- **pH:** 7.35-7.45 (< Chronic pain, > Throbbing pain (inflammation response))

If your body has an abundance of health and vitality, it will be able to maintain these healthy ranges via several feedback mechanisms. For example, bicarbonate helps to buffer acidity in the body, while the acid in the stomach can neutralize an overly alkaline condition. The pancreas (and liver) keep a stable blood sugar level; the kidneys help stabilize blood pressure; your body sweats to cool off; breathes faster to absorb more oxygen, etc. Sickness and disease results from low vitality and/or excessive stress from diet, dehydration, poor breathing, emotional/psychological stress (work, relationships, etc.) that knocks the body out of homeostasis, which usually means outside one or more of the above parameters.

These are a few examples of the razor's edge life walks on to create the balance of life. Fortunately, as we'll see in this book our bodies are an amazing field of matter, energy, information and consciousness. We have a

perfect blueprint for health, providing we give it the right elements and do not over-stress ourselves. Also, in light of new advancements that can better detect and understand the human body’s bio-energetic field (see chapter 4), we’ll see that modern science is more and more proving an amazing connection between the energetic fields of the earth, and those of the human body and mind. We’ll reveal new “Star Trek”-like devices that can recharge and re-energize the human body, its organs, tissues and cells.

Life has been 13.77 billion years in the making. It’s the ultimate balancing act, a remarkable evolution at the cosmic, galactic, solar, and planetary levels that has created life on earth. For our own life and health, that balance is created by giving the body the essential elements it needs for health, and removing the stressors, toxicity and unhealthy elements that throw us out of balance, out of homeostasis and into disease. Next we’ll look into the five essential elements needed for the human body to maintain its balance, health, and vitality.

The 5 Elements of Health: Earth, Water, Fire, Air, & Aether

Health is not everything, but without health everything is nothing.

—German Philosopher Arthur Schopenhauer

What is health anyway? Is it just an absence of disease, surviving to live another day? Is there a limit to how much energy we can have and how long we can live? Or are those limits self-imposed through our education and upbringing?

We’ve seen the amazing journey life has taken. We’ve looked at the elements needed for the universe, our solar system, and our planet to be hospitable for life. Let’s now look closer at how we can preserve and extend the precious life-force within us, and what elements our bodies need to thrive, not just survive. In this book, we are going to take a pro-health approach to longevity and wellness. This pro-health approach is simply reconnecting to the earth and its elements and it is in alignment with new breakthroughs in physics, biophysics and biology. This pro-health approach puts YOU in the drivers seat as pro-active and responsible for

your own health. This is opposed to the anti-sickness approach of modern medicine that views health as simply an absence of disease, and makes you a helpless patient or victim needing to be fixed if something goes wrong.

It's important to understand that your body has an innate intelligence knowing how to sustain, maintain, and create perfect health if the right elements are introduced into your body while the "wrong" elements are eliminated and removed. We'll see the *five essential elements* the human body needs for optimal health. The first four essential elements may be obvious, but the 5th element of health might surprise you as being essential. It's that 5th element that this book is primarily dedicated to, but all of these elements work together to enliven and innervate your amazing holographic and energetic human body.

The "Real" Science of the Four Elements

The philosophical system of the elements dates back to ancient civilizations including the Babylonian, Greek, Hindu, Japanese and Medieval alchemy. All of these systems have closely related concepts of the four elements of nature: earth, water, fire and air, along with a fifth element. We'll explore the four elements of nature in this section and the fifth element in the next, and then we'll connect these five elements to the five elements of nature, life, and health of the human body.

We know today there are 92 naturally occurring elements on earth. We can better understand the philosophical idea of the 4 elements when thinking of the states of matter: solid, liquid, gas and plasma. These are the four primary phases that all elements can be categorized in so perhaps the ancients did understand the elements. These phases correspond to earth (solid), water (liquid), air (gas) and fire (plasma).

These states of matter are obvious and easy to understand with perhaps the exception of plasma. Plasma is an ionized gas, a gas into which sufficient energy is provided to free electrons from atoms or molecules and to allow both species, ions and electrons, to coexist. It is plasma from the sun that generates the sun's energy, which is then emitted to the earth for warmth, energy, and life. Plasma is the most common state of matter in the universe.

It turns out we need these elements as they exist on our planet in the

form of food (earth), water (liquid), air (oxygen) and fire (plasma on the sun that creates the electromagnetic frequencies we need in the infrared, visible and UV spectrum). Fire can also be thought of as temperature, namely the right temperature for life to exist (and the other necessities related to keeping a stable temperature are clothing, shelter, AC and heat).

Because we've evolved on this planet, our bodies are made of the elements of this earth; it follows logically that we require natural foods, water, air and sunlight (along with the right temperature) as close as possible to what the earth provides to survive. I want to briefly go over these four elements: EARTH/FOOD, WATER, FIRE/SUNLIGHT and AIR/OXYGEN plus a fifth we'll explore in the next section.

The 1st Element of Health - Earth/Food

Look deep into nature and understand everything else better.

—Albert Einstein.

The element “earth” gives us the primary foundation and structure for our human body. On planet earth, there are 92 naturally occurring elements, 40 of which are needed by our body. Along with these 40 elements, which are mainly minerals, we also need vitamins, essential amino acids, glucose, and essential fatty acids. And nutritional science is now discovering we may also depend on countless more phytochemicals, antioxidants and other complex molecules found in fruits, vegetables, herbs, sprouts, nuts, seeds, beans, etc. Many of these essential elements can be obtained by eating a well-balanced, whole food organic diet that includes a wide variety of foods (especially fruits and veggies).

There is a lot of confusion as to which foods to eat and which diet is the best. I am a certified nutritionist and I am familiar with most of the popular diets. What's interesting to me is that even diets that seem diametrically opposite (like the Atkins diet and various vegetarian diets like McDougall Program, Dr. Dean Ornish Diet, etc.) share a lot in common in what to AVOID eating. There is no diet I am aware of that recommends fast food, white bread, soft drinks, sugar, fried foods, trans-

fatty acids (like hydrogenated or partially hydrogenated fats), processed foods, canned foods, etc.

The longest-lived people on earth have always fascinated me. The Hunzas' in Pakistan, the Vicabamban's in Ecuador, and the Abkansians in the former Soviet Georgia. These long-lived societies have the highest per capita centenarians in the world (people that live over 100 years). It always made sense to me to look at what THEY ARE DOING along with other long-lived individual examples. I don't care what some short-lived or overweight author or so-called expert has to say, let's learn from the people that are really living the longest.

These long-lived societies eat a whole-food, organic, non-gmo diet with very little processing. Their diets consist of whole grains, fruits and vegetables, with varying amounts of beans, legumes, nuts, seeds, eggs, dairy and meat (typically only small amounts of meat and dairy). They are not vegetarians, but they do eat a high percentage vegetarian. They also live in areas with highly energized water, fresh mountain air, and they exercise rigorously by the work they do, live with very low stress, and have a strong sense of community.

So following the guidance of the long-lived, I recommend consuming a diet that is *mostly* organic and non-GMO consisting of fruits and vegetables (especially non-starchy green veggies), sprouts, herbs, gluten-free whole grains, raw or sprouted nuts and seeds, legumes; & grass-fed, pesticide-free, hormone-free and antibiotic-free meat, eggs and dairy (in moderation). Also, set yourself up for success by stocking your refrigerator and cupboards with healthy foods and snacks.

I honestly don't think there is one perfect diet for everyone, because we are all unique, but the more we can eat like the super long-lived societies and individual examples of longevity, the better. There is an apropos quote by Tony Robbins, "Success Leaves Clues".

There is one caveat. Our soils are so stripped of minerals due to faulty farming practices (especially here in the U.S.), it is important to supplement with a high quality food based vitamin and mineral supplement OR a green superfood that has sea vegetables like spirulina, chlorella, dulse, etc. You can in theory get all of your nutrition in food, but you really have to eat a lot of superfoods and sea veggies to get optimal levels of minerals, vitamins

and antioxidants. I mention sea vegetables, because typically they have higher concentrations of essential minerals than most land vegetables.

Besides what foods you eat, it's equally important to eat while relaxed, and chew your food well. Make every bite count! Also, don't overeat and eat with the rhythms of the earth (i.e. don't eat late at night).

Also consider that fresh, whole foods tend to be high in fiber, water content and essential oils, which will naturally keep your colon moving regularly so that toxic byproducts can be removed. Your colon is your waste removal system; so make sure you are moving 2-3 times a day.

As we'll see in this book, natural earth-based PEMFs help your body to digest, absorb and assimilate the nutrients found in high quality organic foods.

Fact related to Food: During your lifetime, you'll eat about 60,000 pounds of food, that's the weight of about 6 large African elephants.

The 2nd Element of Health - Water

The second element of health is water. About 70% of an adult's body is made of water. About 70% of the earth's surface is covered by water. Water with all its amazing properties is a prerequisite for life. It is the universal solvent able to dissolve and absorb more compounds than any other liquid. As the primary ingredient of both blood and lymph, water transports nutrients and oxygen to all your 100 trillion cells and carries away waste products and carbon dioxide. Water is a lubricant, which prevents friction between the moving parts in your body, and allows the slippery movement of food through your digestive system. Overall it keeps your body fluid and flexible. Water additionally stabilizes body temperature because of its high specific heat (property of water that makes it difficult to heat up or cool down).

Water is absolutely essential to the human body's survival. A person can live for about a month without food, but only a few days without water. After oxygen, it is THE most essential element for life and good health. Water is the fundamental and primary terrain or matrix in the human body and it's essential you stay hydrated by drinking at least half your body

weight in ounces of pure water a day (or more). Personally I drink about double that (at least 5-6 quarts a day).

Most people do not drink enough water and/or drink too many diuretic soft drinks, coffee, tea, and alcohol that reinforce dehydration as one of the main stresses we subject our bodies to. The only way to hydrate the body is by drinking pure water. Studies have shown that seemingly unrelated conditions like dyspeptic pain, stress and depression, high blood cholesterol, high blood pressure, excess body weight, chronic fatigue, arthritis, asthma and allergies, insulin-independent diabetes, rheumatoid arthritis, back problems and a host of lesser complaints are due to dehydration in some way³.

Here are 8 Benefits of Drinking More Water:

- Water helps to maintain healthy body weight by increasing metabolism and regulating appetite.
- Water leads to increased energy levels. The most common cause of daytime fatigue is actually mild dehydration.
- For a majority of sufferers, drinking water can significantly reduce joint and/or back pain.
- Water leads to overall greater health by flushing out wastes and bacteria that can cause disease.
- Water can prevent and alleviate headaches. Dehydration is the main cause of headaches.
- Water naturally moisturizes skin and ensures proper cellular formation underneath layers of skin to give it a healthy, glowing appearance.
- Water aids in the digestion process and prevents constipation.
- Water is the primary mode of transportation for all nutrients in the body and is essential for proper circulation.

Also make sure your water is clean and energized. Tap water is not an option, or should not be. The best water is spring water from a reputable source – the higher in the mountains and the further away from civilization the better. Be careful not to buy generic spring water that might just be bottled tap water, or tap water put through poor filtration. Aquafina®

and Dasani® are terrible choices as they are just filtered tap water and highly acidic (and they are made by Pepsi® and Coca-Cola® respectively). PepsiCo even admitted Aquafina® comes from tap water. Unfortunately, good springs are becoming harder and harder to find.

The best option in my opinion (and probably the most practical for most people) is a good water ionizer, but make sure it has good filtration for fluoride, chloramines and other difficult to remove chemicals that carbon filters don't get.

There is so much to say about water, but please do your research and find a good clean spring to get your drinking water. Or better yet, invest in a high-end water ionizer with a good filtration system (because even good springs are becoming more polluted). Also, make sure you get a good quality shower filter as showering in tap water is as bad as drinking it (chlorine becomes a gas in a hot shower). An entire whole-house water filtration system is recommended, but start with getting good drinking water and a good shower filter. Remember, if you do not filter your water or get clean water, your kidneys become the filter.

As we'll see in this book, natural earth-based PEMF therapy can help energize, oxygenate, alkalize, and lower the surface tension of water making it more healthy and hydrating. Since your body is mostly water, PEMF therapy will improve the transfer of essential elements and nutrients to the cells thus improving energy production in the cells, and helping to better facilitate waste removal out of the cells and body.

Facts Related to Water:

1. *Baby's have as much as 90% water at birth & elderly people near death are as low as 50% water.*
2. *The ashes of a cremated person average about 9 pounds giving you a sense of just how much we are made of WATER!*
3. *The kidneys filter over 400 gallons of blood each day!*
4. *The average Person drinks close to 4 glasses of plain water a day (which is NOT enough).*

The 3rd Element of Health - Air/Oxygen

There is a joke about a young seeker who made a pilgrimage to a seer and sage and asked what the secret to living a long life is. The wise man replied, “Keep breathing as long as you can.” There is much truth to this humorous parable in that breathing gives us life-promoting oxygen, especially when it’s from air that is highly energized and oxygenated.

There is nothing as rejuvenating to the human body as fresh, clean air. Oxygen is the most essential nutrient. We can live a month without food, a few days without water, but only a few minutes without oxygen. In chapter 6 we’ll examine in detail how crucial oxygen is for energy production in the body, namely ATP. The body creates almost 20 times more energy with oxygen than without (38 molecules of ATP during aerobic respiration compared to 2 measly molecules of ATP during anaerobic respiration). Also, oxygen kills ALL germs, bacteria and viruses. This is not new information. Nobel Prize winner Otto Warburg, proved that cancer cannot flourish in a high oxygen environment.

The Number One Predictor of a Long Life

Findings resulting from a 5,200 clinical study group observed over a 30-year span showed that pulmonary function measurement is an indicator of general health and vigor and literally the primary measure of potential life span. The vital capacity (lung volume) falls with age – 9 percent to 27 percent each decade depending on sex and age at the time the test is given. Long before a person becomes terminally ill, *vital capacity can predict life span perhaps better than any other biomarker of aging^A*. Cardiovascular exercise and deep breathing are the two main ways to increase lung volume.

The best air to breathe deeply is highly energized and oxygenated air from the forests, mountains and nature. City air can have as little as 12-15% oxygen compared to 20% in nature (plus all of the pollutants)! As oxygen levels decline in polluted cities, the reduced oxygen levels cause or worsen feelings of lethargy, ill health, sickness, anxiety, desperation and depression. So get outdoors into nature and breathe deeply.

Unfortunately, the average American spends almost 90% of their time indoors. Indoor air was shown in one EPA study to be 30 times

more polluted than downtown Los Angeles. Air-borne bacteria, virus, molds, dust, smoke, paints, solvents, cleaners, detergents, new carpet, new furniture, radon, carbon monoxide, natural gas and hundreds of other chemicals pollute our indoor air at home and in the workplace. Mold is one of the worst offenders, and if you have a mold problem you really need to look into correcting it quickly. Get a good HEPA vacuum and regularly vacuum under furniture, beds and dressers to keep the mold down. Another important point is that with every exhalation, 55 gallons of air becomes polluted. It is crucial for good health to always have a window open or cracked to have some access to fresh air.

A high quality air purifier is a MUST for anyone wanting to be healthy and energized. I also recommend a good air ionizer. Air ionizers are important because air conditioners, metal fans, and forced air heat are creating unhealthy positive ions, which like free radicals, lack electrons and become oxidative. Also, keep as many plants in your house as you can manage. Plants absorb carbon dioxide and toxins and give off oxygen. And remember, if you don't filter your air, your lungs become the filter!

Along with deep breathing of clean air, exercise is the best way to oxygenate the body. Try to exercise outdoors as much as possible. Oxygen is not only the key to good health, but it is also essential to preventing disease. Research has proven that cancer, candida and many other diseases are due to apoxia (lack of oxygen). It has been indisputably shown that cancer cells die in an oxygen rich environment and they thrive in a system lacking oxygen. A case in point is that athletes have a one in seven chance of getting cancer, whereas the average person has a one in three chance. This is because athletes exercise more and oxygenate their bodies. So exercise outdoors while breathing fresh air, and live to your fullest potential.

As we'll see in chapter 9, PEMF therapy improves oxygen uptake, binding to hemoglobin, transferring into the cells and assisting directly in ATP production. Along with deep breathing of fresh air, natural earth based PEMF is the best oxygen therapy that there is! Also PEMF helps assist in better circulation to and from the lungs.

Fact related to oxygen: The surface area of a human lung is equal to a tennis court. In order to more efficiently oxygenate the blood, the lungs are filled with thousands of branching bronchi and tiny, grape-like alveoli.

The 4th Element of Health - Fire/Sunlight

The “fire” element is essential for life to exist on earth. Because our atmosphere filters out most radiation and wavelengths, we primarily receive infrared, visible light and UV (ultraviolet light) from the sun with only small amounts of radio, x-ray, and gamma-ray frequencies. There is much to say about the importance of the sun and the creation of life on earth, but regarding the health of the human body it directly helps us in three important ways.

First, it gives us warmth because our planet is the perfect distance from the sun, making life on earth possible. Maintaining a stable body temperature is essential, otherwise our bodies become stressed by temperatures too cold or too hot. The infrared component of sunlight gives us the sensation of “warmth”. Infrared saunas are a great investment for detoxifying your body while keeping your body looking and feeling great.

Secondly, natural full spectrum light is vital to our health. Full spectrum light comes from the visible portion of the sun. Studies have shown that acquiring an average 30-minute session of full spectrum light a day may help prevent what is known as Seasonal Affective Disorder (S.A.D) or the “wintertime blues”. This disease is recognized by the medical community and is easily remedied with direct sunshine or high intensity full spectrum lighting. This disease typically only affects people in far northern areas of the world during times when sunlight is scarce. The symptoms include depression, lethargy, carbohydrate cravings, weight gain and increased desire to sleep. If you live in an area with long winters or lots of rain, invest in a high intensity full spectrum lamp or light box and use only full spectrum bulbs in your house. When the sun is readily available it’s healthful to sunbathe in the late morning or late afternoon for around 30 minutes. The lighter your skin the more careful you must be. Our ozone layer is diminishing and the U.V. radiation is higher than

ever. But moderate amounts of sunlight during the proper time of day can be very rejuvenating.

Also, make sure you use ONLY incandescent full spectrum lights in your house. See chapter 7 for the dangers of the prevalent and very harmful compact fluorescent lights (CFLs).

Thirdly, ultraviolet UVB frequencies of natural sunlight convert steroids in your body to the very important vitamin D needed for healthy bones, immunity and longevity. Vitamin D is one of the most important supplements to take if you live in an area that gets little sunlight. Even if you live in areas with plenty of sunlight it is still recommended. A simple blood test can determine your levels, but it is advantageous to take a couple thousand IUs of natural Vitamin D₃ (cholecalciferol) a day (avoid the synthetic D₂ ergocalciferol).

PEMF therapy improves peripheral circulation, and blood flow to the skin while helping to keep the skin younger so you can enjoy the many benefits of the sun!

Fact: Your body gives off enough heat in 30 minutes to bring a half-gallon of water to a boil.

Exercise and Sleep

Sleep and exercise are essential for the overall health of our bodies. Life is a cycle of activity and rest, and we need to have these actions in balance. Activity and rest are not really “elements” of health per se, but they are actions or process we must partake in to stay alive.

It is vital to get 6.5 to 8 hours of sleep per night. When the body is rested you feel more alive with better mental focus for a more productive and fulfilling life! Each day the human body loses 10-20 billion cells, but fortunately it replaces those cells during sleep by a process called mitosis (the dividing of cells). Sleep is what rejuvenates and heals the body, so be sure to get plenty of it. As we’ll see in chapter 9, PEMF therapy helps to improve sleep by relaxing both the body and the mind, along with

facilitating the release of GHG and Melatonin, two hormones vital for deep sleep and longevity.

Along with sleep, exercise is also essential. Life is movement; death is stagnation. You need to move your body for at least 30 minutes a day. Even a brisk walk will work wonders! I like to focus on deep breathing while walking to fully oxygenate my body. By walking an extra 20 minutes every day, an average person will burn off seven pounds of body fat in a year! So walk more, take the stairs instead of the elevator, park further away, and do whatever you can to increase your body's movement. For those serious about fitness, strength training is very energizing as well as beneficial for a healthy weight and youthful hormone production. It also strengthens bones, joints, tendons, ligaments and muscles. I also like to do whole body vibration exercise for 10 minutes a day.

Wait...we left out an important and *essential* element to the physical health and well being of our human bodies.....drumroll please — earth PEMF - The fifth element of health!

The 5th Element - The Earth's Natural PEMFs

The philosophical system of the elements of the Babylonian, Greek, Hindu, Chinese, Japanese and Medieval Alchemy all contain a fifth element that is the source of the other four, the Aether of the Greeks and Alchemists, the Akasha (space) of Hindus and Buddhists and the Void of the Japanese. According to Medieval science, the Aether is the material that fills the region of the universe above the terrestrial sphere. It was called Quintessence (from *quinta essentia*, literally “fifth element”). Quintessence was also thought to be heavenly, and *not of the material world*. Quintessence was also said to have the *power of life*.

Although the connection to the classical elements of ancient lore is not as intuitive and obvious as the other four elements, there is a fifth element needed for life on earth, that is “not of the material world” and that does have “the power of life”. This fifth element is the earth's magnetic field and Schumann frequencies, which together we'll refer to as the earth's PEMFs (pulsed electromagnetic fields).

The earth's magnetic field (also known as the geomagnetic field) protects us from the harsh radiation, solar winds, bursts and flares from the

sun and it is essential for life on earth. It takes dangerous highly charged particles (energetic electrons and protons) from the sun's solar winds and flares and bends them in safe orbits around the earth. The Aurora Borealis is a visual example of the charged particles interacting with the outer layer of the earth's magnetic field.

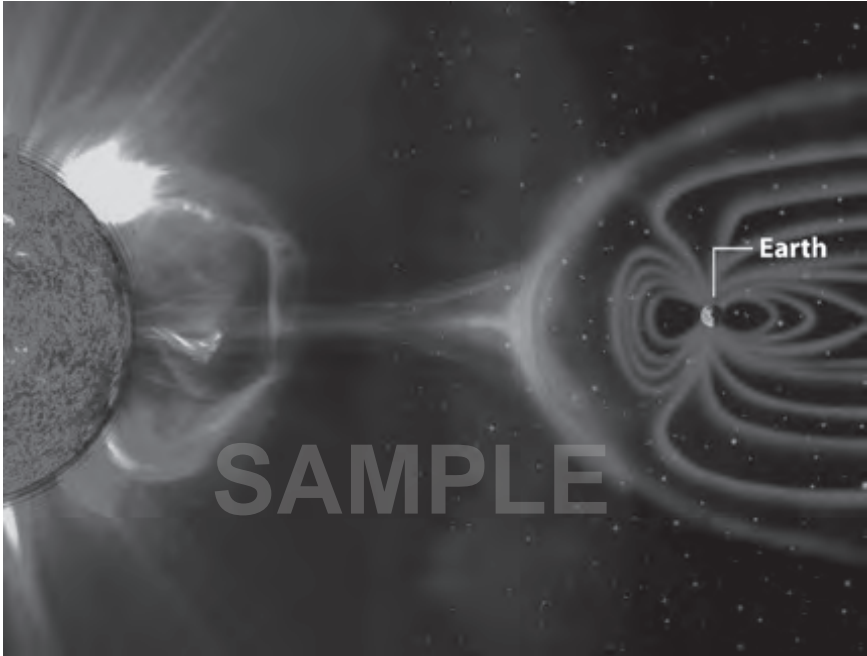


Figure 3 The Highly Energetic Geomagnetic Field, which Protects and Nourishes Life on Earth

The earth's magnetic field not only serves as a protective shield from the sun, but its Schumann and geomagnetic frequencies are an ESSENTIAL element for health, just like food, water, sunlight and oxygen (along with a balance of activity and rest). This hypothesis is firmly supported by research on the Schumann resonance and magnetic fields on human biology, the Russian and U.S. space programs, along with research studies that have been done on earth in a zero field environment with both laboratory animals and human subjects. We'll explore this hypothesis during the course of this book. This chapter will introduce the idea that the earth's PEMFs are essential for life and health with the inspiring and serendipitous

story of discovery of *four men*. These four men were all pioneers in showing the connection between the frequencies of the earth and the human body and mind.

1. Dr. Winifred Otto Schumann - The Pulse of the Earth

In 1951 an unknown scientist made a discovery that should have changed the way we understand our deep connection to the earth's frequencies. His name was Winifred Otto Schumann of the Technical University of Munich and he predicted that there are electromagnetic standing waves in the atmosphere, within the cavity formed by the surface of the earth and the ionosphere.

This discovery came about when Dr. Schumann was teaching his students about the physics of electricity. During a lesson about spherical condensers (capacitors) he asked his students to calculate the frequency between the inner and outer sphere; and as an example he gave the earth and ionosphere layer. Not knowing the answer himself, and to be able to examine the students' work, he came up with a frequency of 10 Hz.

It seemed incredible to Schumann that the planet has a pulse, a measurable frequency that surrounds the earth and all life upon it. Although Dr. Schumann was proud of his discovery, he did not see it as significant. Nevertheless, his discovery was published in a small German science journal, *Technische Physik* and found its way into the back pages under the title "Schumann-Resonanz". It would take several years and an incredible serendipitous event before the professor understood the true significance of Schumann resonance.

2. Hans Berger and the Schumann/Brain Wave Connection

This incredible story actually began many years earlier in 1924 with the work of Hans Berger. Hans Berger, using an EEG (electroencephalogram) machine he made himself, was able to measure the first recording of electrical frequency transmitted by the human brain. He was able to describe the alpha wave rhythm (7.8 Hz–13 Hz), also known as "Berger's wave".

Shortly after Schumann published his work, Dr. Ankermueller, a colleague of Hans Berger, stumbled across a copy of the small scientific

journal. Dr Ankermueller read the article several times with astonishment, realizing the magnitude of what was in front of him. The frequency of the alpha waves recorded by Hans Berger was almost identical to Schumann Resonance, the frequency of the earth. Dr. Ankermueller found it exciting the earth has the same natural resonance as the brain and contacted Professor Schumann, who in turn asked a doctorate candidate to look into this phenomenon with him.

This candidate was Herbert König who became Schumann's successor at Munich University. They studied in detail how tension is discharged by lightning in the earth's ionosphere cavity. Eventually they came up with a frequency, the pulse of the earth/Schumann resonance, at exactly 7.83 hertz. Schumann resonance was not just similar to alpha brain waves but identical. The brains frequency, which controls our creativity, our performance, stress, anxiety and immune system, was tuned to the frequency of the earth!

3. Dr. Rutger Wever – The first Underground Bunker Studies

The next key piece of the puzzle came from acclaimed scientist Dr. Rutger Wever from the Max Planck Institute. Dr. Wever constructed an underground bunker in the early 1960's in order to study the circadian rhythms of man. Over a 30-year period he conducted experiments with student volunteers who spent several weeks at a time in the bunkers; completely shielded from the natural resonances of the earth (Dr. Wever used only young and healthy students, because he knew there would be an effect).

In his studies Dr. Wever noted some remarkable findings. When the Schumann resonance was filtered out from the bunker, the students experienced mental and physical health challenges. After just a short period with no Schumann resonance, the students began feeling sick, experienced headaches, emotional problems, stress and depression. Basically their circadian rhythms were disrupted. By introducing a magnetic pulse generator of exactly 7.83 hertz, he immediately remedied the problems. Ill effects disappeared completely or saw dramatic improvement, all by the simple introduction of Schumann resonance.

He introduced various cycles into the shielded rooms and found that

only a weak 7.83 PEMF signal had any effect. Wever concluded that this frequency also within the micropulsations of the earth, was the prime timer for biorhythms in the body. This fundamental frequency is not only exhibited as the alpha brain wave pattern in humans, but is the primary EEG in ALL animals and can be used to restore normal circadian rhythms in humans and animals cut off from the earth's electromagnetic field. Dr. Wever's results showed an incredible connection between human health and the frequency of the planet⁵.

Looking at earth's history, Schumann waves have been integral since the onset of life. Life literally evolved surrounded and tuned into these energy waves and frequencies. In fact our sensitivity to frequency became deeply connected to our ability to sense another of the planet's phenomenon, magnetic fields.

4. Dr. Wolfgang Ludwig & the Earth's Magnetic Field

Two billion years ago aquatic magnetotactic bacteria evolved containing magnetite crystals allowing them to swim along the earth's magnetic field lines and find food. As organisms became larger and more complex, so did their reliance on this magnetic field. Bees are sensitive to magnetic fields and also have magnetite. Bees use magnetic fields to travel away from the hive, pollenate and return. Monarch butterflies migrate from Hudson Bay to South America without getting lost. The arctic tern is perhaps the most incredible. These birds breed in the summer on the North Pole, relocating to Antarctica for the South Pole's summer. Many other animals orient themselves to the earth's magnetic field with this same "internal compass". There is mounting evidence humans possess a similar, yet perhaps unconscious, internal sense intimately connecting us to the magnetic field of the earth. Like the Schumann resonance, it was discovered that the earth's magnetic field has a frequency as well.

Inspired by the research of Dr. Schumann and his successor Herbert König, Dr. Wolfgang Ludwig (considered by some the father of pulsed magnetic therapy) did further studies on the Schumann resonance with hopes to achieve more accurate measurements. He became aware of the fact that because of unnatural EMF signals (power lines, etc.) in the city, accurate readings would be next to impossible. In response, Dr. Ludwig

decided to take measurements far away from the city, in underground mines. What he found was not only confirmation of the 7.83 Schumann resonance, but also that the earth's geomagnetic field fluctuates as well. This is the commonly known magnetic field detectable with a compass. But if you look at a compass under high magnification, you will see it vibrating, even fluctuating. The earth's geomagnetic field is not a constant like a bar magnet, but varies with time with a measureable frequency just like the Schumann resonance⁶.

Dr. Ludwig uses a metaphor to describe the two connected, yet distinct types of natural pulsed electro-magnetic frequencies of the earth (earth PEMFs). In classical Chinese medicine it is said that man needs environmental signals of two kinds - yang input from above (Schumann waves) and yin input from below (earth's geomagnetic field). Both of these, it is said, must be in balance.

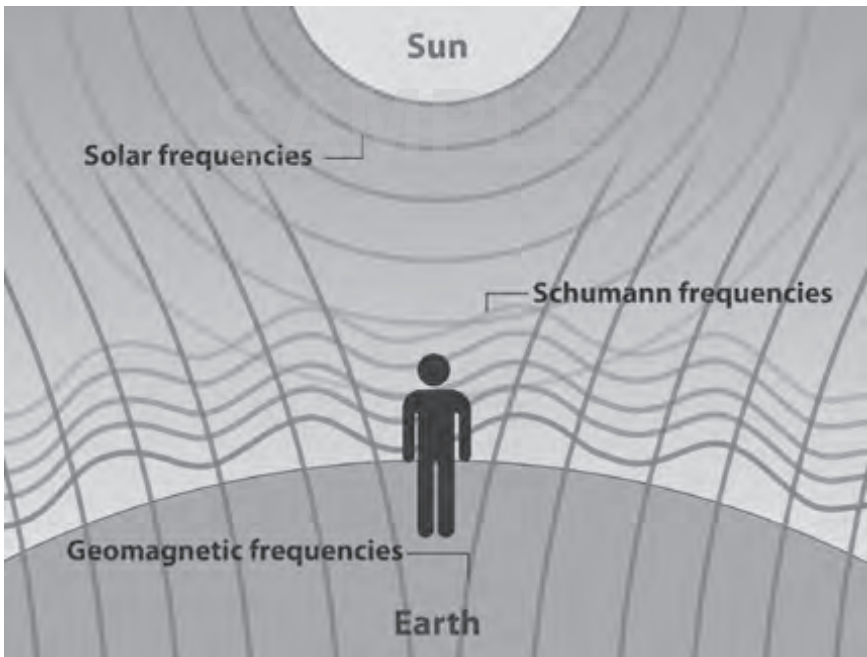


Figure 4 The Earth's Naturally Occurring PEMFs

Chapters 5 & 7 explore in detail the nature of the earth's magnetic field and the Schumann Resonance's vital role for true health. In this

book we'll interchangeably use various terms such as earth PEMFs, earth energies, and the earth's geomagnetic and Schumann frequencies. But the bottom line is that we need them both, the Schumann frequency from above and the geomagnetic field and frequency from below.

Beyond Research – Feeling the Fields of the Earth

Have you ever wondered why it feels so good to go outdoors? Imagine how you feel walking barefoot on the beach, venturing into the deep woods, gardening with your knees nestled in rich soil or simply having a picnic on a grassy field. Can you feel the rush of energy from direct exposure to the earth, how energizing it is to be removed from the city?

From the dawn of time, our ancestors lived intimately with and worked on the land. We were hunters, farmers, gatherers, builders and herders. We spent a great deal of time outdoors, connected to earth's frequencies.

Americans now spend approximately 90% of their time indoors, watching on average four or more hours of TV a day. We are not only removing and shielding ourselves from earth's health benefits; we are increasingly exposed to harmful electrosmog frequencies direct from power lines, cell phones, cell towers, Wi-Fi, Bluetooth, cordless phones, computers, and televisions.

There is compelling evidence in support of the hypothesis that the earth's magnetism, frequencies and energy are essential for life; but remember that no amount of research or theory takes the place of the actual experience and vitality you can receive by venturing outside and connecting to nature. In fact, take a break right now, go outside and bathe in the energies of planet earth.

The Five Elements - Conclusion

Thus far we explored the five essential elements for total health and vitality (and the balance of activity/exercise and rest/sleep). I hope it makes intuitive and logical sense, that the elements our bodies need are exactly the elements nature has provided in their purest and most energized form:

- Fresh, non-GMO, and organic whole foods (earth).

- Mature, clean and pristine spring water or clean ionized water (water).
- A comfortable temperature and full spectrum sunlight (fire).
- Fresh oxygenated and negatively charged air (air).
- The earth's natural magnetic and Schumann frequencies (aether).

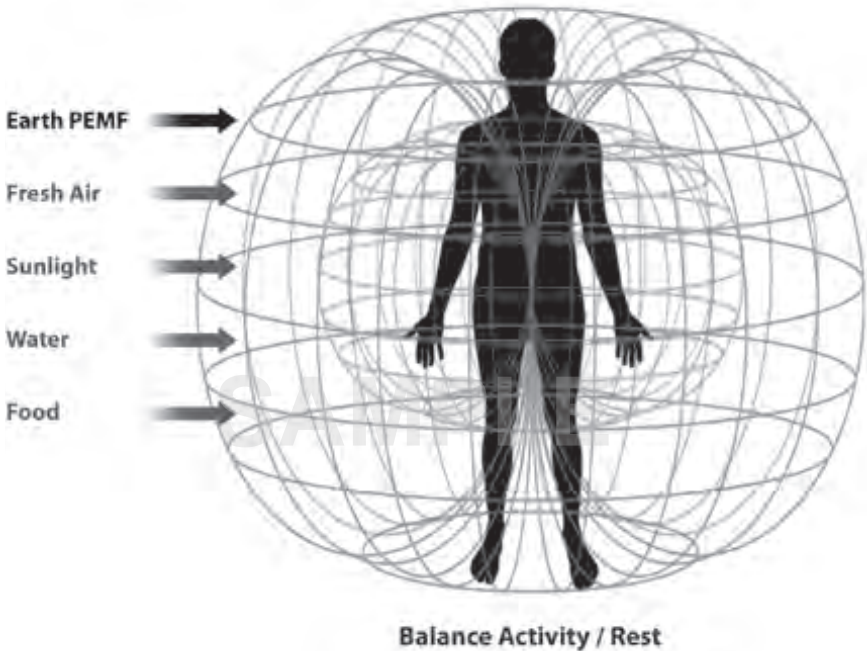


Figure 5 The Human Body Requires 5 Elements for Health

So what's the problem? Why are so many people sick and in pain? The next chapter exposes the outdated paradigm guiding our worldview and beliefs on healthcare and introduces a NEW model of energy medicine, the future of health and wellness. Fasten your seatbelts; the journey is just getting started!

Chapter 1 Notes

(Detailed Bibliography in Back of Book)

1. Stephen Hawking, *The Grand Design* (Random House Publishing, 2010).
2. George Wald, *The Origins of Life* (1964).
3. F. Batmanghelidj, *Your Body's Many Cries For Water* (Global Health Solutions, 1995).
4. *Science News*, Vol. 120 (1981) p.74.
5. R. Wever , *The Circadian System of Man: Results of Experiments under Temporal Isolation* (New York: Springer-Verlag, 1979).
6. W. Ludwig, *Informative Medizin* (VGM Verlag für Ganzheitsmedizin, Essen, 1999).

SAMPLE



2 Newtonian Medicine - The Problem with Doctors, Drugs and Hospitals

The doctor of the future will give no medicine, but will interest his patients in the care of the human frame, in diet and in the cause and prevention of disease.

—Thomas Edison

The map in Figure 6 reveals a connection between obesity, depression, lack of exercise, diabetes and heart disease. Interestingly enough the cancer map (not pictured here) is almost identical. Could there be a basic underlying problem that modern allopathic medicine is just “missing” that is at the root of all disease?

The base cause of disease could be outlined simply as a physical and energetic disconnect from nature and the five essential elements (including the earth’s PEMFs); AND getting too much stress and toxicity from bad foods, pharmaceutical and recreational drugs, bad water quality and dehydration, poor air quality, lack of exercise, not enough sunlight, not enough sleep, too much electrosmog and overall too much emotional and psychological stress. And as we’ll see, our *reliance* on the current allopathic medical system is part of the problem as well. I emphasis “*reliance*” because many people do not take responsibility for their health and are always looking for symptomatic relief, magic bullets and quick fixes.

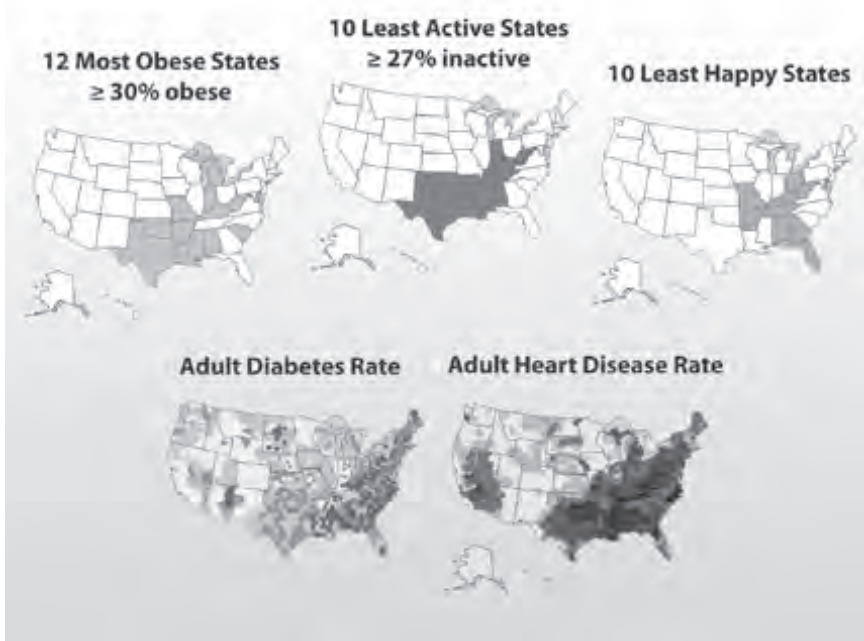


Figure 6 *Overlapping* Disease Maps for the United States

The bottom line is that most of us are out of sync with nature and because of that our bodies are stressed. In this hypothesis the converse is also true: by taking initiative and action via reconnecting to nature and its elements AND eliminating stress and toxicity from our body, we can heal ourselves and get better. Not only that, but we can enter a path to ever-increasing levels of health and energy. But before we can enter the road to perfect health, we need to first understand why and how we are so disconnected from nature, mainly because of our outdated worldview and our current beliefs on healthcare.

The Shift to Energy Medicine and Natural Healing

Nature Heals and the Doctor Takes the Fees.

—Benjamin Franklin

What is the *fundamental* problem with our medical paradigm and the way we live our life? Our medical model is based on sickness and disease,

and many drugs prescribed provide only symptomatic relief with harmful and unwanted side effects.

Hospitals in the U.S. are very good for emergency care, including stitches, broken bones, car accidents, fires, falls, poisoning and various intentional and unintentional injuries. In fact, the United States has the most advanced traumatic and emergency care technology in the world. So I am in no way saying we don't need our medical system, because we absolutely do! But... when it comes to chronic diseases, like cancer, type 2 diabetes, heart disease, stroke, etc., our medical system has failed us by NOT teaching us how to prevent these chronic diseases in the first place. AND yes, these diseases are preventable *as long as you don't wait until it is too advanced!* In fact, over 70% of all costs associated with health care are due to preventable conditions¹.

The goal of natural healing and energy medicine is to take *preventative action*, by reconnecting to the earth and the 5 elements of health AND avoid toxicity and stress to the body. If you do this, you will never need to go to the hospital in the first place, unless you have an accident (and even accidents are preventable by cultivating more awareness and being careful). The overall problem with our medical system (as we'll see) is the overemphasis on treating disease, instead of focusing on health and prevention.

We need a shift!

A shift from disease centered medicine to healing centered, preventative medicine. Within this healing model we need a new understanding of the human body as primarily a holographic field of energy, information and consciousness and secondarily physical. The other problem is our outlook on life as victims needing a savior, which is the doctor when we are sick. We put our lives into THEIR hands? Why?! We tend to not take responsibility for our lives. We eat, drink, and party-hardy, burning the candle of our health at both ends, expecting the doctor to fix us if we're sick. I've got news for you; it will never work! The doctors are sharpening their blades, ready to slice into you; and give you prescriptions, which will at best only mask the symptoms of your problem.

Why not start today by living a healthier life? You don't have to be a

monk and be super-strict. Your daily practice and what you do *most of the time* is what really matters. Also, become empowered with the knowledge of nature's laws and it's principles of healing. We'll explore the new field of energy medicine (especially PEMF therapy), which includes devices that naturally recharge and energize the health of your cells.

I do believe most doctors have good intentions and sincerely want to help people, and in this book I am definitely reaching out to them to look into this new field of energy medicine, specifically PEMF therapy. In the allopathic medical model the treatments are rooted in an outdated science of Newtonian physics. The pharmacological and invasive surgery protocols of modern medicine view the body from a Newtonian perspective (as we'll see in the next section) as a biological machine. If a part is broken, the protocol is to simply cut the body open and surgically fix or replace it. If it's diseased and infected they may just remove it altogether.

We should fear messing with something as complex as the human body (as we'll see in chapter 4). Drugs, surgery and many approaches in allopathic medicine are subject to the various side effects that result by the intake of unnatural substances. There are times drugs and surgery may be needed, but it should be a last resort. Drugs are administered to treat *symptoms* of different conditions, which is akin to cutting the wire to the oil light in your car. It doesn't fix the issue it just helps you forget the problem. Pain is an important alarm alerting your consciousness that something is wrong.

It's ironic that our nearly three trillion dollar medical system actually has some of the most sophisticated diagnostic equipment available in the world, which detects and measures energies and frequencies in the body. This diagnostic equipment includes devices you probably heard of like MRIs (Magnetic Resonance Imaging), PET scans (Positron Emission Tomography), CAT scans (Computed Axial Tomography), EEGs (Electroencephalograms), EKGs (Electrocardiography), ultrasound devices and more. *Our medical system diagnoses the body energetically with modern physics (Quantum Field Theory), and then treats with drugs and surgery (Newtonian Science). What is wrong with this picture?*

The Book Of Science is Constantly Being Rewritten

Nothing is so fatal to the progress of the human mind as to suppose our views of science are ultimate; that there are no new mysteries in nature; that our triumphs are complete; and that there are no new worlds to conquer.

—Humphry Davy (from a public lecture given in 1810)

We tend to look at science as an absolute truth, a story already written. In reality science is more like a story told in installments and each new chapter refines, subsumes or completely revises the previous. Quantum field theory has completely rewritten the book of science at the most fundamental level. However, modern biology and medicine continue to reference from a moldy, outdated book based on Newtonian science.

Are we only simple biological machines that have learned to think with this pesky phenomenon called the placebo effect? Are we victims of our parents' and ancestral genetics? Do germs truly cause disease, making us sick? Does a billiard ball sort of chemistry regulate the billions of reactions taking place in our body every second? Modern medicine seems to say yes to all these questions spending billions attempting to solve them. The real problem is that the overall science, philosophy and worldview modern medicine continues to subscribe to is based on Newtonian physics. Our health is treated as though we are biological machines that can be fixed mechanically. We are treated pharmacologically with harmful chemicals and toxic vaccines that at best suppress symptoms with varying degrees of side effects (think of commercials for drugs and the long lists of side effects *stated very quickly* at the end).

In order to move forward into the exciting science of energy medicine (specifically PEMF therapy) with an empowering attitude of taking responsibility for our own health; we need to see why this paradigm is flawed by first looking at the basic concepts of Newtonian physics. Then we'll introduce the exciting new physics, namely quantum field theory, and the latest developments in science.

Newtonian Physics - A Model of Reality that Stubbornly Won't Go Away

*Nature and Nature's laws lay hid at night:
God said, Let Newton be! And all was light.*
—Alexander Pope

Isaac Newton (1642-1727) is regarded as the founder of modern Western science that dominated for at least 200 years until the early 20th century with the discovery of quantum mechanics. A whole new universe opened up in the early part of the 20th century and here we are 100 years later still gazing through the tinted windows of Newton's physics.

Newtonian physics are rules of the everyday world you are familiar with. It's also the basis of our sensory worldview, language, as well as the predominant perceived model of reality. If you think "reality" is the world you can see, hear, taste, smell and touch than be prepared for a quantum leap in understanding the world you live in. If you think your body is solid and governed by fixed laws, take a seat and brace yourself.

The Newtonian model of the universe depicts a well-behaved, deterministic world with fixed rules. A reality created from separate objects in an empty vacuum of space-time. Objectivity is viewable by a conscious observer, with consciousness itself a mere byproduct of the physical brain. In this model, we are reduced to separate beings residing on an isolated planet in a lonely universe, victims to fate and deterministic laws. Let's take a closer look at these five fundamental *flaws* of "classical" or Newtonian physics.

1. Determinism/Fate

Newtonian physics aka classical mechanics is a set of logical rules that attempts to describe all phenomenon in the universe. The job of Newtonian mechanics is predicting the future. If you know everything about a system at some point in time and its initial conditions; and also if you know the equations of how the system changes, then you can predict the future. This is what is meant by determinism in the classical laws of physics.

With Newton's mechanics, the universe, nature and our bodies can

be studied just like the workings of a machine. In fact a giant ticking clock was a popular metaphor in the time of Newton. The “clockwork universe” wound up by God ticks along like a perfect machine, with its gears governed by the laws of Newton’s physics. God’s only contribution to the universe was to set everything in motion or wind the clock, and from there, the laws of science took hold and have governed every sequence of events since.

Everything, humans included, has been governed by Newtonian law. If something could not be determined, it was only because of lack of proper measurement. Telescopes were not powerful enough at that time in history to see other galaxies and really grasp the vastness of space. But the idea of there being ONE universe composed of solid celestial objects, planets, stars, etc., dominated science until the 20th century.

The biggest flaw with Newtonian logic is that on a large scale, one cannot know with infinite precision the initial conditions. Small deviations results in chaos (non-linear dynamics) which rule most physical systems, especially in nature and all of life. There is a quote well known in physics circles, “*The study of non-linear physics is like the study of non-elephant biology*”. What this means is that linear systems that *can be* determined are RARE in nature, while chaos and non-linear dynamics are the norm. Even more radical is quantum mechanics in which uncertainty reigns at all times.

2. Newton’s Solid & Static Universe

Generally this view is taught in schools and perhaps you mistakenly believe this outdated version of the universe as well. From a young age we are generally taught to believe in a solid or material reality. Even the atom is viewed like the solar system with the nucleus being analogous to the sun and the electrons the planets. You may be shocked in the next chapter as we delve deeper into shattering the false illusion of a solid reality. The truth is that your body, our planet and the universe are made up of mostly empty space! And yet, paradoxically this empty space has a near infinite amount of energy (more on this in the next chapter).

Not only is Newton’s universe solid, it’s also fixed, static and unmoving. Even Einstein himself thought the universe was static overall and added a

cosmological constant to his equations of general relativity to counteract the attractive force of gravity, which would otherwise cause the universe to collapse or expand forever. Modern cosmology with the discoveries of Edwin Hubble and others has shown that the universe began with a BIG BANG, and is in fact EXPANDING, with space itself moving all galaxies apart from each other at increasing speeds.

3. Illusion of Separateness and Reductionism

In Newtonian physics, all things, including human beings are considered to be isolated objects surrounded by empty space. Space itself is considered an inert, passive stage for the universe to play out. There are only segregated objects, whether they are large celestial bodies, human bodies or atoms. These separate objects exist surrounded by the empty vacuum of space and time. Within this model, humans are separate beings on an isolated planet residing in a cold and lonely universe.

Also, there is the idea of reductionism in Newtonian mechanics. If we are to understand the inner workings of anything, we must deconstruct it. When we're done and discovered the last smallest sub- particle, the tiniest cogwheel of the clock so to speak, we will have finally come to understand all there is to know about the object of study. This reductionist approach has given us much valuable information in biology and medicine, but has led to an over-emphasis on the physical or material nature of things. It has also limited our sight to seeing things in isolation and not collectively and holistically. The holographic model of the universe and our bodies is in true alignment with modern physics, and yet has not found its place in allopathic medicine.

4. Objectivity - “Outer Reality” is Real and the Observer is a Passive Watcher

In Newton's universe, we are passive spectators observing the grand stage of creation, falsely believing our subjective thoughts have no bearing on the universe around us. The “observer” and the “observed” are separate, an outer reality exists “outside” our perception whether we view it or not.

This objectivity (in theory) allows scientific laboratories around the world to replicate experiments without subjectivity influencing the outcomes. According to Newtonian physics, the outer physical world is strictly objective, meaning scientific experiments are not dependent on the observer performing the experiment. So science must formulate a protocol which all experiments must be performed before they are accepted. This protocol stipulates that experiments must be reproducible by other scientists anywhere in the world. The experimenter or observer in no way influences the result.

From this flawed outlook, the reality we perceive through our five senses is real, concrete and distinctly separate from our own inner subjective awareness. It is an outside reality with precise, determined laws that govern the amazingly complex machine of the cosmos, the earth and even our bodies and minds!

Could quantum field theory possibly shatter the brittle glass separating our subjective experience from outward objective reality? We'll take a look in the next chapter.

5. Consciousness is an Epiphenomenon of Matter and The Physical Brain

In Newton's universe consciousness is an epiphenomenon of the physical brain. It's simply a by-product or secondary effect of the brain's chemical and electrical impulses with no cause in itself. Modern quantum field theory has a new story to tell, placing consciousness in the drivers seat as causal and most fundamental.

As we'll see in the "new physics", namely the most recent breakthroughs in quantum field theory, these FIVE foundations of Newton's physics don't simply come crumbling down, they are blown to smithereens.

Unfortunately, *treatment* with modern medicine is still under the suppressive dictatorship of Newton's science.

We need a SHIFT!!

In the next chapter we'll review the new physics, namely quantum field theory, and a new paradigm to consider in the health and healing of your

body, mind and spirit. The dark ages of allopathic medicine are OVER! It's time to usher in a new science of energy medicine with PEMF therapy and natural and holistic healing at the forefront. It's also time to take action and take responsibility for your OWN health.

The transition to the new physics is Einstein's theories of special and general relativity. These ideas radically changed the landscape of space/time, as well as matter being merely a form of energy. Keep in mind however that Einstein's relativity is still a CLASSICAL model with some of the aforementioned flaws. It's just a much more accurate one! Einstein's ideas further paved the way for a paradigm shift in physics at the beginning of the 20th century; coupled with the advent of quantum mechanics, which Einstein was an important contributor with his Nobel Prize winning paper on the photoelectric effect.

Newton Under Fire - Special and General Relativity Theory

In 1905, Albert Einstein changed the prevailing worldview of Newtonian physics for good with the introduction of his special relativity theory, followed in 1915 by general relativity. He proved Newtonian laws of physics are by no means static, but relative to the observer and the observed. Depending on the difference in speed between the observer and the object under observation, space begins to either shrink or expand and time slows down or speeds up.

In Newton's universe, there are notions of absolute space and time. Space was seen as a three dimensional stage, and time the ticking of a well-made clock. The two were separate and distinct. In Einstein's special relativity, space and time form one 4-dimensional space-time continuum with the speed of light being the only fundamental absolute measurement. Measuring distance in time may seem strange but consider the following examples.

In the time of pioneers distance was measured in time, for example getting from one city to another might have been agreed upon as a four days journey. Cosmologists use light-years to measure distance. For example our nearest star (besides the sun) is Alpha Centauri, which is about 4 light years from earth. 4 light years is the distance light travels in 4 years. Our moon is about 1 light second away and the sun is 9 light minutes away. When

you see the sun, you are actually viewing it 9 minutes in the past. One of the illusions of space-time is that to see anything “out there” in space, you are always seeing it backwards in time. But because light travels so fast it is almost instantaneous for distances on earth, so this illusion is not apparent. To give you a sense at how fast light travels, light can take 7.5 laps around the earth in ONE SECOND!

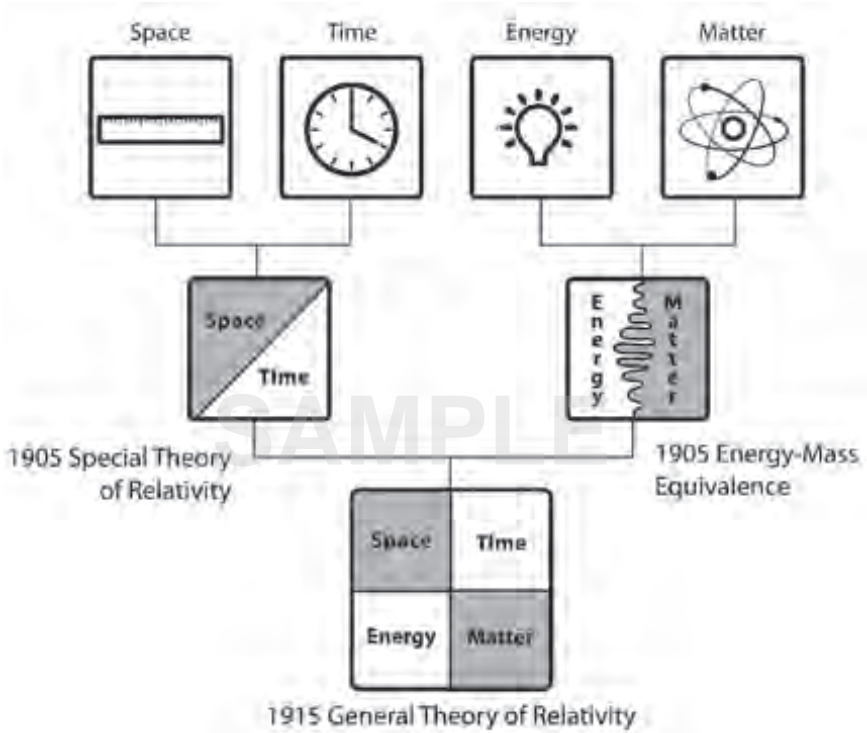


Figure 7 Einstein’s Special & General Relativity
Unifies Space-Time & Energy-Matter

Also, energy and matter were two distinct notions in Newton’s mechanics, and there were separate conservation laws for both: the conservation of matter and the conservation of energy. Einstein with his famous equation $E = mc^2$ forever changed this notion as well. Matter and energy are interchangeable with energy being the more fundamental unit. This is one of the most important new scientific notions in this book

that we can apply to new understandings of the human body; namely that we are primarily energetic beings and secondarily physical ones!

Finally, general relativity supplants Newton's action at a distance with the curving of space and time. Simply put, mass curves space and curved space guides mass in a way that follows Einstein's elegant field equations of general relativity. The force of gravity is now known to be a curving of space and time, rather than forces acting at a distance.

However, Newton's physics was "good enough" to send a man to the moon, so it is a good approximation at speeds significantly less than the speed of light and space that is mainly flat (both conditions hold in the lunar landing triumph).

Relativity is a refined version of Newton's laws to take into account high speeds and intense gravitational fields; but it is still pre-quantum and classical in a sense, unable to describe the nature and motion of atoms and "very small" things which the next chapter we'll literally shed "light" on! Get ready to go small, its time to take a dive into the world of the quantum, the foundation of the universe, which includes YOU in a totally new paradigm of reality!

SAMPLE

Chapter 2 Notes

(Complete Bibliography in Back of Book)

1. <http://fitness.mercola.com/sites/fitness/archive/2013/07/12.aspx>



3 Quantum Fields, Zero Point Energy & The Holographic Universe

There is no place in this new kind of physics both for the Field and Matter, for the Field is the only Reality.

—Albert Einstein

Even though quantum theory delivered a decisive coup de grace to Newton's physics, this outdated Newtonian worldview still persists stubbornly in medicine, biology, chemistry, geology and many other areas of science.

It's time for a SHIFT!

It's time to wake up to a much more accurate picture of reality or "actuality" which as we'll see is NOT reality as you know it.

What if reality is not solid at all, and can exist in multiple places simultaneously? What if our universe is only one of a nearly infinite number of universes in a much larger, all encompassing Multiverse? What if the future affects the past? What if particles manifest themselves out of the vacuum of space? What if supposed empty space contains a near infinite amount of energy? What if every atom in the universe is truly interconnected? What if communication can take place faster than the speed of light? What if bilocation (being two places at once) and teleportation are true possibilities? What if consciousness creates reality? Modern physics is showing us that these are real possibilities, and yet our worldview is still dominated primarily from a Newtonian perspective.

Newton Loses His Throne - Enter Quantum FIELD Theory

As was fore-mentioned in the last chapter, the Newtonian paradigm is derived from: Determinism, Solidity, Separability (illusion of separateness), Reality (as objective), and Consciousness (as secondary to matter). As we examine the five pillars of Newton, we can see how they have been completely turned upside down and inside out by modern quantum field theory. It should be duly noted that quantum field theory is the basis of modern computers, electronic devices, lasers as well as the human body. Experimental evidence has shown quantum field theory to be accurate within 10 parts per billion making it one of the most accurate theories ever conceived.

Understanding the basics of quantum field theory will help give you a deeper appreciation of the new science of energy medicine (especially PEMF therapy) and why it *will be* the medicine of the future!

1. Overturning Determinism - Quantum Randomness and Free Will

The first pillar of Newton's that was shattered by the new science of quantum mechanics was the discovery of the inherent uncertainty in nature. Heisenburg's uncertainty depicts the uncompromising randomness in nature. At the fundamental level of the atom, Newton's determinism is forever lost, because the very act of measurement disturbs and alters the elements under study (electrons, atoms, and molecules). Newton's giant clock-like universe ticks randomly and chaotically in the foaming universal sea of energy and information.

But we are not talking about some heartless and cold randomness. Consider that free will is the flip side of uncertainty. It's because you and I have free will, that we are NOT determined! Our actions may be random to others, but our personal conscious choices and decisions are our own and we know full well what we are doing. This is a totally different perspective from determinism and fate as espoused by Newtonian physics.

Erwin Schrodinger developed a complementary approach to Heisenburg's uncertainty principle using a wave equation and extending the idea of wave-particle duality. Solutions of the wave equation had the

peculiar property of allowing a superposition of states. So particles exist as both waves and particles simultaneously until observed by a conscious observer.

Richard Feynman's sum over histories model of quantum mechanics is the most elegant and revealing. According to this accurate view of quantum mechanics, a quantum element will follow all possible paths or trajectories simultaneously creating multiple parallel "universes" at the quantum level. The sum over the probabilities of all possible paths must equal one, but any path is possible.

This overturns the mistaken notion that we live in ONLY ONE SOLID universe. Which leads us to the next paradigm shift relating to matter itself...

2. Atoms are NOT Solid particles - Turning Newton's Apple Upside Down

We have all heard the story of Newton sitting under a tree and getting hit on the head with an apple and having a "Eureka" moment in his discovery of the laws governing gravity.

But Newton's laws DO NOT work at the level of the atom, or the very small. To give you a sense of how small atoms are, imagine all the atoms inside one of Newton's apples. To make this fun lets imagine the apple as big as the earth, and visualize ripe, red cherries from George Washington's childhood tree.

Imagine filling this earth-sized apple with normal size cherries; the size of an atom inside a real apple is proportionally the size of a cherry inside our fictitious earth-sized apple. Big things are made of little things, and quantum field theory most accurately describes little things, like atoms, electrons, protons, neutrons, quarks, photons, gluons, etc. So lets take a closer look at the nature of particles.

It turns out that these tiny atoms are actually 99.9999999999% nothing! That is, atoms are only .0000000001 matter! We are only about one billionth physical.

Here's an analogy to the emptiness of matter... Imagine a basketball at the 50-yard line of a large football stadium. Next, imagine flies buzzing in the upper bleachers. In this illustration, the basketball is analogous to

the nucleus, and the flies analogous to the electrons. Do you see the VAST amounts of empty space?

The rabbit hole goes even deeper. The nucleus is the most physical part of an atom, and guess what? It is additionally 98% more nothing. The nucleus of an atom is made of protons and neutrons, which are made of quarks; and the mass of quarks is only 2% the mass of a proton (or neutron). 98% of the mass of a proton is due to the strong force (or just energy).

And the quarks and electrons themselves in quantum field theory are infinitely small “point” particles with zero volume? *So what is really solid at all?*

So much for Newton’s solid, physical universe! As we’ll see later, this nothingness has near infinite amounts of energy. What we view as solid is really nothing, and the vacuum of space we view as nothing, is really infinite! Think about that!

3. Dissolving Separateness- Bell’s Theorem, Quantum Entanglement and Wholeness

We are here to awaken from our illusion of separateness.
—Thich Nhat Hanh

Space is not emptiness; rather it is an interconnected web of fullness. And space IS NOT an inert, passive background stage for the universe to play out; it is the actors, directors, setting, script as well as the stage.

In quantum field theory, space is a universal field or source of energy and information, and all the particles and forces arise out of this unified field. Every cubic centimeter of space contains a near infinite amount of energy.

Space connects us all, defying even the speed of light. Bell’s theorem and entanglement proves that the universe does not exist as separate elements distanced by space, rather the universe is a relationship; a completely whole and ultimately interconnected web. It enables quantum entities to influence each other INSTANTANEOUSLY across any distance of space/time with no exchange of force or energy.

The basic idea of entanglement (fundamental to quantum field theory) is that whenever two quantum elements, like photons or electrons (or

you and I), interact with each other, they remain forever entangled or connected in a nonlocal way such that communication is instantaneous.

Quantum entanglement is at the heart of understanding how significant events across the universe operate at the macro- and microscopic level in split-second synchronicity despite considerable distance between them. Quantum entanglement suggests that information is exchanged faster between quantum-entangled particles than the speed of light, which was once deemed impossible per Einstein’s special theory of relativity proposed in 1905.

Entanglement will be very important when we talk about quantum biology and the miracle of our bio-energetic bodies.

4. Shattering the Subject-Object Boundaries – The Illusion of the Objectivity.

The doctrine that the world is made up of objects whose existence is independent of human consciousness turns out to be in conflict with quantum mechanics and with facts established by experiment.

—Bernard d’Espagnat

The Newtonian paradigm of observing a fixed outer reality is difficult to shake. Our five senses give us a clear, unadulterated perception of a very real, solid universe that exists “out there” or outside our subjective processes of thinking, dreaming, and experience of life within. But consider how *real* dreams seem *while you are dreaming* (especially if you have experienced lucid dreaming).

“Outer” reality is the sensory illusion of a 3-D solid universe that our sense of sight, hearing, touch, taste and smell constructs within our holographic mind and brain (as we’ll see later in our section on the holographic universe).

But what *really* exists “out there”? According to quantum theory, the universe “out there” exists in “all possible states” as a superposition and ONLY becomes fixed or frozen by the act of observation. This leads us to the idea that consciousness, or the act of observation, is the primary, initiating element that assists in the creation of our reality!

5. The Observer Effect or Measurement Problem in Quantum Theory

“In the beginning there were only probabilities. The universe could only come into existence if someone observed it. It does not matter that the observers turned up several billion years later. The universe exists because we are aware of it.”

—Martin Rees

The term “observer effect” in physics refers to changes that the act of observation will make on the quantum phenomenon being observed.

In quantum theory this is sometimes referred to as the “measurement problem” and it’s an enigma that has stumped, baffled, puzzled, and left physicists looking the other way at trying to understand quantum mechanics and using it for engineering and practical purposes only. Richard Feynman, Noble Prize winner said, *“I think I can safely say that nobody understands quantum mechanics”*.

Behind all the uncertainty in quantum theory, the measurement problem brings consciousness to the rescue. It seems very clear that a living observer halts the randomness. That is, things exist in all possible states until a conscious observer freezes, or pins it down to a single state. This is referred to as the collapse of wave function. The wave function describes the probability of a quantum entity existing in certain states.

The world at large (our perception of reality) stays molded in its real and concrete state so long as conscious observers are involved. Consciousness creates order out of the foaming sea of quantum randomness!

In Newton’s physics, there is no need for a conscious observer. The universe and our world exist independent of us. A tree exists whether someone is watching it or not. But that is not the way the universe works according to the more accurate quantum field theory. The tree and everything in the universe exist ONLY because we observe it. Without a conscious observer the universe is only a superposition of states, a sea of randomness where all possibilities exist, but no reality is formed.

This was one of the tenets of quantum mechanics that troubled Einstein who refuted, *“I like to think that the moon is there even if I am not looking at it”*. Unfortunately for all his debates and thought experiments,

Einstein lost his battle trying to disprove quantum mechanics, even though paradoxically, he was one of the founding fathers (with his Nobel Prize winning paper on the “Photoelectric Effect”).

The next section introduces quantum field theory, especially the idea of a “field” being the fundamental element in the universe, not the particle. This is the foundation for understanding the “new physics” and the “new biology” and the basis of the new science of energy medicine and PEMF therapy.

The Shift from Particles to Fields - Introduction to Quantum Field Theory

Quantum field theory is the modern theory of particle physics, based on the idea that FIELDS are the essential elements in nature (not particles). Here, fields obey the laws of quantum mechanics – the superposition principle, Pauli’s exclusion principle, Heisenberg’s uncertainly principle, the particle-wave duality, quantization, and Einstein’s special relativity.

Fields get excited: Think of a field metaphorically as a mattress, with a child jumping up and down on it. This excitation of the field creates a wave - a vibration of the springs that propagates through the mattress. According to quantum mechanics, waves are particles and particles are waves, so the excitation of the field creates a particle.

Quantum field theory includes special relativity, so that mass and energy are equivalent, and this equivalence allows the energy that is produced in the field excitation to potentially be transformed to mass. Also, unlike quantum mechanics alone, quantum field theory can actually explain how particles create and annihilate from the void of space, how quarks interact, how mass is created, how electrons and photons interact and much more!

Electric and Magnetic Fields

The first fields to be studied were the electric and magnetic fields unified by James Maxwell into electromagnetic fields. Let’s look at a common magnet to get a visual understanding behind the idea of a field.

Magnets have a North and South pole and the magnetic FIELD that

surrounds a magnet is such that the field lines project out from the north pole and enter into the south pole. We all have seen this with a piece of paper and iron filings. Magnets always have two poles. If you cut a magnet in half, you still have a north and south (so you create two magnets). With magnetic forces, opposites attract, so a south pole will attract a north pole (and vice versa). Also, like poles repel, so a south pole will repel another south pole (and likewise with two north poles).

When you pick up staples or paperclips with a magnetic bar, the magnetic field in the horseshoe aligns the electrons in the staples or paperclips and creates a temporary magnetism. Electric fields have similar properties between charged particles, and both electric fields and magnetic fields are unified in electromagnetism by Maxwell's equations (four equations that classically describe the forces of electricity and magnetism and their relationship to each other).

Gravitational Fields

The next field to be studied was the gravitational field. Newton's original formulations DID NOT include the idea of a field. In its original concept, gravity was a force between two or more masses, an action at a distance.

Laplace was the first to model gravity as a form of radiation field or fluid (like a magnetic field), and since then, the explanations for gravity have usually been sought in terms of a field model, rather than a point attraction. But in early attempts to use fields to describe gravity, it was just a mathematical model, with no real existence (unlike the very real fields of electricity and magnetism).

Einstein's general relativity revolutionized the gravitational field into a very real phenomenon as the actual curvature of space. In Einstein's field model, rather than two particles attracting each other, the particles distort space-time via their mass, and this distortion is what is perceived and measured as a "force". In such a model one states that matter moves in certain ways in response to the curvature of space-time. That is, the force of gravity is determined solely by the geometry of the field of space-time itself.

Quantum Field Theory - QED ,QCD and the Standard Model

Quantum field theory was first introduced by Paul Dirac when he reworked quantum mechanics to incorporate special relativity (high speeds and mass/energy equivalence). A surprising result came out of Dirac's first version of quantum field theory; the existence of "Star trek"-like antimatter! It's fascinating that antimatter was discovered first in Dirac's equations, where it was at the time, difficult to believe, but later experiments proved antimatter is REAL! PET (Positron Emission Tomography) scans at hospitals are BASED on antimatter detection.

Richard Feynmann further developed quantum field theory with his incorporation of electromagnetism. His theory, called quantum electrodynamics (QED), describes interactions of electrons with photons. In this theory, photons and electrons are not "little billiard balls" but rather viewed as field quanta OR ripples or excitations that "look" like particles. Ubiquitous electrons interact with the electromagnetic field through the action of force carrying particles - the photon, our usual ray of light!

In modern physics, particles and their interactions can now be viewed in the context of fields, which is the current model used to describe all the forces in nature AND all the fundamental particles!

This theory paved the way for the Standard Model, which is the most complete quantum field theory we have today with actual experimental evidence which includes QED (electron-photon), QCD (quark-gluon) weak interaction - Neutron or beta decay (radioactivity) and the Higgs field/Higgs boson (gives mass to particles) which was purportedly seen the summer of 2012!

The notable exclusion from the standard model is gravity. Many other unification theories have been proposed such as string theory, supergravity, and the all-encompassing M-Theory. These theories have the bonus of unifying gravity; however, they require 10 or 11 dimensions AND they are still lacking experimental evidence. As Richard Feynmann once said: "It doesn't matter how beautiful your theory is, it doesn't matter how smart you are. If it doesn't agree with the experiment; it's wrong".

The Zero Point Energy Field and the Holographic Universe

So what is space made of? If the universe and our bodies are made mostly of empty space, then let us take a closer look at what space is, and something called the zero point field. The zero point field is space itself. It connects us at a rate faster than the speed of light! It's the matrix, the mother of all that is, and it's all around us in every moment with every breath we take. It's like the "Force" in Star Wars. It's the most primal and fundamental of all the fields we have discussed.

The zero point energy field is primarily created by the exchange of energy between subatomic particles. These particles engage in an energy dance by exchanging virtual particles. Each energy exchange is only around half of a watt, but when you add up the staggering number of interactions in a tiny region of empty space...it then becomes an unfathomable amount. Particles come into existence out of the zero point field and collide into pure energy before returning back into the zero point field. The vacuum of space is a seething foam, a vast cauldron of energy bubbling across the infinite expanse of space-time.

When you look into the night sky, it seems like space is an empty vacuum. It seems devoid of matter in between the celestial bodies. Quantum field theory provides shocking results that obliterate this outdated Newtonian notion.

Space is not an empty vacuum devoid of matter at all. It's the Source of all energy, matter, and information. Richard Feynman (Nobel Prize Laureate and co-founders of quantum field theory) said, "In one cubic meter of space there is enough energy to boil all the water in all of the oceans on Earth." Even that may be grossly underestimating it.

David Bohm, another pioneer in quantum theory remarked, "that every cubic centimeter of empty space contains more energy than the total energy of all the matter in the known universe!"

Quantum Electrodynamics (QED) and Stochastic Electrodynamics (SED), consistent with the principle of Lorentz covariance and with the magnitude of the Planck constant requires it to have a value close to 10^{113} Joules per cubic meter^{1,2}.

Regardless of the actual value of zero point quantum field theory, the amount of energy in the vacuum of space is near infinite. These messy

infinities are subtracted out of the Standard Model, which many cutting edge physicists feel that would be like throwing the baby out with the bathwater.

First Proof that the Emptiness isn't quite Empty came from Mayonnaise?

What's wonderful about the proof that emptiness isn't empty is that the first clue came from a jar of mayonnaise. I'm not kidding!

In 1948, a physicist named Hendrik Casimir was working at the Philips Research Laboratories in Holland on the bizarre problem of colloidal solutions. Colloids are just tiny particles suspended in a fluid. As crazy as it sounds, no one knew why mayonnaise wasn't runny. As if some strange unknown force was holding it together.

So it was this idea that got Casimir thinking. He eventually realized that the mysterious force that attracts molecules of mayonnaise together is related to the mysterious virtual particles in empty space. He then came up with an experiment that would reveal these particles, and demonstrate their influence. It took ten years of lab work to carry out his experiments, but the essence of it is quite simple.

You suspend two very thin metal plates very, very close to each other in a vacuum. These plates aren't magnetically or electrically charged so they should be unaffected by each other. Well astonishingly, they eventually start to move towards one another due to a force that mysteriously pushes them together. The force doing this pushing was caused by the virtual particles that fill the vacuum of space. This is called the Casimir Effect.

Like wind pushing the sails of a boat at sea, the stuff that the emptiness of space is made of pushes the plates together. The fact that pure nothingness could exert a small, but very real mechanical force has to be one of our universe's greatest magic tricks.

Many physicists speculate that vacuum energy may one day be harnessed in ways that will make the imagination soar, like powering intergalactic spacecraft's propelling humans across the cosmos. It's hard to see into the future, but perhaps the inspiration of mayonnaise may one day lead to space travel!

Information Fields

To summarize our discussion of quantum field theory, the universe, galaxies, stars, planets, human beings, animals, plants, bacteria, fungi, algae, cells, molecules, atoms, quarks, electrons, photons, and everything else arises out of matter and energy fields. Fields are the source of particles, which are just excitations or ripples in the field. Going even deeper is the zero point field of space itself, whereby all of these fields have originated. The zero point field is the matrix or mother of all matter and energy.

So far we have spoken of matter and energy fields. If the universe were just purely energy, then it would exist as a chaotic mix of energy and matter. In physics this would equate to ever increasing entropy and disorder into oblivion. So what brings order to the chaos? Why does the universe exist at all?

There is another field we need to talk about called informational fields. To complete the big picture of the universe we need matter, energy, and information (plus the magic ingredient of consciousness). The holographic theory of the universe includes information fields which is the glue bringing everything together. Information fields are related to the idea of entropy, or rather reversing entropy. Entropy is the 2nd law of thermodynamics and states that left alone, a closed system will favor increased entropy or disorder/chaos. But life is not a closed system! Life and the human body is an open system that receives energy and information from its environment. Life itself is self-organizing, self-sustaining, and self-healing, and defies entropy due to the life supporting energy and information fields of our planet and body. But the idea of information fields goes much deeper than entropy alone.

In a fascinating article, *Information in the Holographic Universe*, Dr. Jacob D. Bekenstein, gives a nice introduction to modern information and holographic theory, and the physics of black holes. The holographic principle is being proposed as a potential Holy Grail of physics—providing a model in which all of the main unification theories can relate to including quantum field theory, quantum loop theory, as well as string theory and M-theory³.

The Holographic Universe

The idea of the entire universe and everything in it (including you and me) is one gigantic hologram projection is perhaps not just a metaphor, but an actuality. Everything we've said about quantum field theory and the illusion of reality being solid is best explained and understood by the holographic principle and by understanding what a hologram is and its connection to the way we perceive our world.

Energy fields are decoded by our brains into a 3-D picture, and this 3-dimensional hologram gives us the illusion of a solid physical world. The human brain mathematically constructs reality by interpreting these frequencies and interference patterns that exist within information fields. What was once a nice metaphor, is turning into a viable scientific theory with support from some highly respected physicists such as Lee Smolin, Martin Susskind, Brian Greene, Jacob Beckenstein, David Bohm and the current director of Fermilab, Craig Hogan.

The universe and our bodies are literally all 3D holograms projected from the boundary of the universe. Evidence coming from a large and powerful gravitational wave detector called the GEO600, began emitting an unexplainable noise which was a mystery to the scientists operating it. Then, a researcher by the name of Craig Hogan approached them with an explanation that he predicted before this noise ever began...

According to Craig Hogan, a physicist at the Fermilab particle physics lab in Batavia, Illinois, the GEO600 had discovered a fundamental limit of space-time. A point where space-time stops behaving in accordance to Einstein's general relativity theory (which is a smooth continuum), but instead becomes grainy. Quite similar to a newspaper photograph that breaks down into dots as you zoom in. Craig Hogan is known for his theory of holographic noise. He predicted this outcome before it was measured, and if it gains substantial support and confirmation from other physicists, it could be one of the greatest discoveries in physics history⁴.... That we are holographic beings, living in a holographic universe!

The Universe is a Hologram projected by a Distant 2D Surface?

Are you still skeptical? The idea itself has solid backing by our best theoretical understanding of black holes. Particularly what will happen at the event horizon. If any object falls into in a black whole, it's lost forever in an abyss of extreme space-time warp. But is it?

It may not be completely lost, as the information is stored on the event horizon. This means the object was lost from sight inside the black hole, and there's a copy of the information on the event horizon.

So if the idea that we live in a hologram still sounds absurd, think of it as a natural extension of what we know about black holes.

According to several leading physicists, our everyday experiences may be holographic projections of a physical process that takes place on a distant surface at the edge of our known universe.

The Whole in Every Part of a Hologram

This theory is so important to understanding our holographic bio-energetic body that we're now going to take a closer look at what holograms are, and how they're made. The hologram you are familiar with is a three-dimensional photograph made with the help of a laser. To create a hologram, the object to be photographed (an apple for example) is first exposed to the light of a laser beam. A second beam is split by being bounced off of a mirror and then combined with the original beam, resulting in an interference pattern. This combined pattern is captured on film. When the film is developed it looks like a meaningless pattern of light and dark lines (upper left image of figure 8). But as soon as the developed film is illuminated by another laser beam, a three-dimensional image of the original object appears!

The 3D aspect of holograms from a two dimensional plate isn't the only astonishing result of holograms. If the original holographic plate of our apple is cut into little pieces, and each piece becomes illuminated by a laser at the right angle; then each piece is still found to contain the entire image of the apple (though a little blurrier). Unlike normal photographs every part of a hologram contains all of the information possessed by the whole!

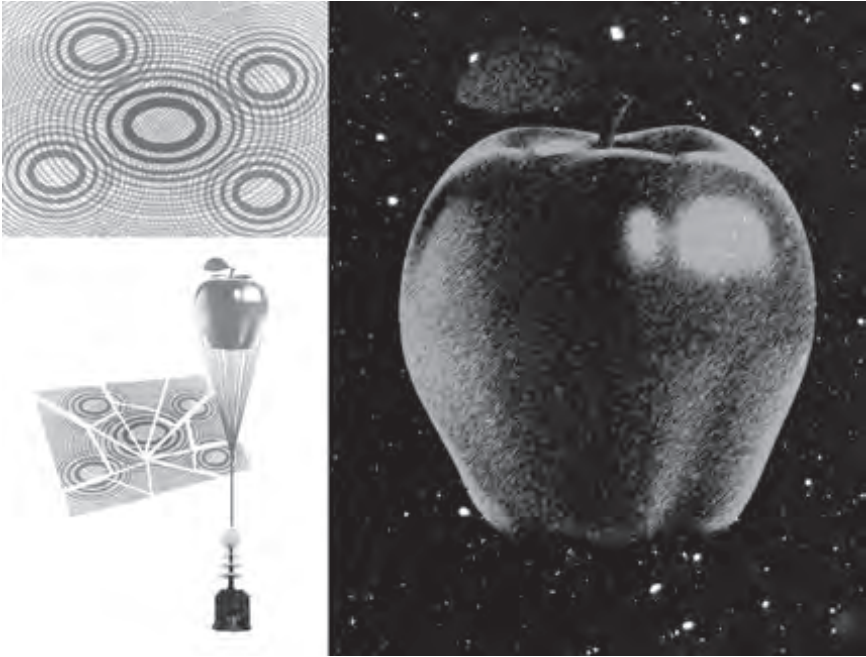


Figure 8 Creating a Hologram

NOTE: this does not work with the holograms on credit cards and other commonly seen holograms on many products in the marketplace, because these are NOT the *original* holographic images.

The whole in every part of a hologram gives us an entirely new way to understanding the organization and order of all things. The Newtonian and classical way of understanding something was from a reductionist approach. In order to understand the whole, you “dissect” it, whether it’s an atom or a frog and then study the individual parts to better understand whatever is being studied. The holographic principle teaches us that the universe does not work this way. If you dissect or cut apart a hologram you just get smaller “wholes”. As an analogy to health and medicine, Western allopathic medicine uses a reductionist approach whereas holistic and integrative therapies (including energy medicine and PEMF therapy) employ more of a holographic approach.

Another characteristic of holograms is that they’re fractal and self-similar. Fractals are found everywhere in nature, from mountains, to trees, to shorelines, and even systems inside the human body such as

Bryant A. Meyers

the lungs, vascular system, brain, nervous system, kidneys and more. Many plants also exhibit a fractal nature, broccoli is a prime example. The essential nature of a fractal is self-similarity, which is when you zoom into a fractal object, you see the pattern of the object at all scales and degrees of magnification, no matter how much you zoom in. This also holds true in a hologram, which reminds me of a beautiful quote from Sir William Blake:

*To see a World in a Grain of Sand,
And a Heaven in a Wild Flower,
Hold Infinity in the palm of your hand,
And Eternity in an hour.*

Holographic Interference Patterns and Information

Quantum waves are analogous to holographic interference patterns in the way they encode information. They have the potential to store enormous amounts of information. Waves are encoders and carriers of information. Consider the television and radio for example. T.V. and radio waves are complex waves that contain a carrier frequency (wave-packet) and within that encoded packet is the television show or song on the radio station, resulting in a very complex waveform inside the wave-packet.

The mathematics of encoding this information is described by what is called Fourier transforms. The mathematics of Fourier converts or transforms the random interference patterns (like upper left of Figure 8), into our holographic apple. Conversely, Fourier transforms work the opposite direction converting 3D objects, video, audio, etc. into complex waveforms.

The average human accumulates 280 quintillion bits of information in his or her lifetime. It is said with holographic wave interference patterns that you could store all the books in the library of congress on a sugar cube (virtually every book ever published in US)⁵. Interference patterns amount to a constant accumulation of information of waves and their infinite capacity.

The human body has an amazing complexity that needs something

like a hologram to help encode the seemingly infinite intelligence needed to guide and coordinate all of our organs, tissues and 100 trillion cells with billions of chemical reactions per second (more on this in chapter 4).

The Holographic Mind and Consciousness

The stuff of the universe is mind stuff.

—Sir Arthur Eddington

We are conscious TV sets! Our minds operate holographically by decoding the myriad of interference patterns into meaningful images, sounds, tastes, smells and feelings. If there were an objective universe at all, it would appear as a sea of “seemingly” random energies, patterns and waveforms.

Nature uses the mathematical language of frequency and vibration in many complex ways to produce the holographic universe; and it turns out that our sense of sight, and the phenomenon of memory are mathematically isomorphic (has the same form) to the Fourier transform mathematics of holograms, TV sets and radios.

Karl Pribram has shown us that memory is distributed everywhere and non-locally in the brain with each part containing the whole. Specific memories are not stored in a specific brain cells, but rather stored holographically throughout the entire brain and the body’s energy field beyond the physical brain. The human brain in more ways than one, analogous to a holographic projector.

Fact: The human brain is 2% of the body’s weight but uses 20% of its energy

Summary of the Holographic Universe - The Body - Mind and Soul of the Cosmos

More and more evidence is proving that we live in a holographic universe based on consciousness, information, energy and matter (in that order). The Information field of the universe can be likened to a universal intelligence, a universal mind or infinitely complex universal computer. This guiding intelligence creates order out of chaos and helps to intelligently

direct the flow of energy and matter to create this remarkable and awe-inspiring universe we live in, which includes the amazing human body. And at the heart of creation, lies the mystery of consciousness that enlightens and creates all things. As quantum theory has shown, it's consciousness that ultimately creates our universe! Below is a simplified version of the hierarchy of fields in the Holographic model of the universe.

Consciousness → Information Fields → Zero Point Energy Field → Matter Fields

The next chapter we'll take a closer look at holographic energy fields that are the guiding blueprint or template for our physical bodies. Like the universe, our bodies are holographic and contain consciousness, information, energy and matter fields.

The remarkable quality of energy medicine, specifically pulsed magnetic therapy is that these modalities work on all levels! Modern medicine deals mainly with the physical and ignores the energy and information fields of the body. The new science of energy medicine, in conjunction with a proper diet, hydration, sunlight, fresh air, exercise and rest provides a TRUE WHOLEistic approach to health and wellness.

Let's now delve into the mysteries of the quantum mechanical, bio-energetic and holographic human body!

Chapter 3 Notes

(Complete Bibliography in Back of Book)

1. Peter G. Millonni, *The Quantum Vacuum: An Introduction to Quantum Electrodynamics* (Academic Press, 1994).
2. De la Pena and Cetto, *The Quantum Dice: An Introduction to Stochastic Electrodynamics* (Kluwer Academic Publishers, 1996).
3. Jacob D. Bekenstein, *Information in the Holographic Universe* (Scientific America: July 14, 2003).
4. Craig Hogan, *Our World May be a Giant Hologram* (New Scientist: Jan. 2009).
5. Michael Talbot, *The Holographic Universe* (HarperCollins Publishers, 1992).



Energy Medicine and the Bio-Energetic Holographic Body

The cosmos is within us. We are made of star-stuff. We are a way for the universe to know itself.

— Carl Sagan

The human body is perhaps the most amazing and complex entity that science has looked at in the *entire universe*! Even galaxies and stars pale in comparison to the workings of the human body. Unfortunately, modern medicine, biology and biochemistry are still rooted in a Newtonian mechanical model of the body, billiard ball collision chemistry, Darwinian evolution and genetic determinism; which as we'll see are only partly accurate based on discoveries that began over a hundred years ago with the discovery of quantum mechanics.

The human body is a grand design of unfathomable proportions with nine distinct systems (skin, skeletal, muscular, nervous, endocrine, digestive, circulatory, urinary and reproductive) with multiple organs in each system, layers of tissues within each organ, and trillions of cells in all the body's tissues. Then inside each cell are countless organelles, biological macromolecules, micro-molecules, atoms, electrons, and quarks.

The Amazing Human Body - 100 Trillion Cells

There are approximately 100 trillion cells in the human body, and they all synchronize and regulate the entire body's processes, most of which we don't even have to think about (like your heart beating, your

food digesting, etc.). It is estimated that the body has somewhere around 100,000 complex macromolecules performing an estimated 400 billion or more chemical reactions each second! These molecules (like ATP for example) perform very complex tasks within your 100 trillion cells.

To give you a sense of how big 100 trillion is, imagine yourself counting from 1 to 100 trillion. If you counted 1, 2, 3, 4...for each second of a 100-year lifetime, you would only get to about 3 billion seconds. You would need about 33,000 lifetimes to count from one to 100 trillion! Here's another staggering example of how big this number is - if you laid 100 trillion U.S. dollar bills end to end lengthwise, it would span a distance equal to the sun and back 50 times (which also gives you a sense of the enormous deficit our government has which could make it to the sun and back 8 times or more). You have that many cells in your body! In fact you have 300 times more cells in your body than there are stars in the entire Milky Way galaxy!

The Amazing Human Cell - 100 Trillion Atoms

Ok, so the human body has about 100 trillion cells, but each cell consists of organelles and 100,000+ distinct molecules with specific structural and functional purposes carrying out complex processes such as energy production, protein synthesis, ion transport, nutrient assimilation, waste removal, cell division, and reproduction!

And each organelle in the cell is made of complex macromolecules, smaller molecules, and ultimately atoms (which are constituted of quarks and electrons). And according to an estimate made by engineers at Washington University...drumroll please... **There are 100 trillion atoms in an ordinary human cell!**

By a remarkable numerical coincidence, the number of cells in the human body is about the same as the number of atoms in each cell. Both are staggering numbers to think about and reflect the self-similar and holographic nature of your body. Remember our example about how big 100 trillion is, and each one of your cells has 100 trillion atoms! That's roughly 10 octillion total atoms in the human body or 1×10^{28} (that's a 1 followed by 28 zeros). It's a fact that there are more atoms in *your body*, then there are stars in the *entire universe!* Ponder that.

Then consider that 90% of our body mass is in fact stardust, because all of the elements except hydrogen and helium are created in stars, with elements heavier than iron coming from supernova explosions! **We are truly made of starstuff!**

Scaling Law of the Human Body:

Atoms → Molecules → Macromolecules → Organelles → Cells → Tissues → Organs → Organ Systems → Organism (Human Body).

I'm presenting you the unfathomable complexity of the human body, so we may further explore how outdated and inadequate the Newtonian paradigm is for explaining our body and its 100 trillion cells. This Newtonian and mechanistic universe and worldview needs to be subjugated as a crude approximation to the quantum and Einsteinian universe within biology, biochemistry and medicine as it has been in physics for over 100 years now. We'll need to shed some light on the errors of our current medical, biochemical, and biological models before looking at a new model of the holographic and energetic human body.

Shedding Light On Newton's Mechanical Universe in Modern Medicine & Biology

In chapter 2 we looked at the five main flaws of Newtonian physics, and the revisions quantum field theory brought to reverse those incorrect notions. Unfortunately modern medicine, biology, and biochemistry still adhere to these outdated principles.

The *first* idea is that of determinism being strongly rooted in the current model of medicine. Determinism means that we are victims of a fateful universe, and we have no power to change the outcome of events. In medicine the two deterministic principles are genetic determinism and the germ theory of disease. Genetic determinism means we are victims of our own genetic heritage, where disease runs in the family and there is nothing we can do to change our genetic fate. The other deterministic model is the germ theory of disease, and that we are victims of germs, bugs, bacteria, viruses, etc. and modern medicine “tries” to come to the rescue with antibiotics and vaccines to kill these invaders (we'll see in this chapter

just how wrong these outdated notions are!). Unfortunately both these approaches have side effects and complications. Antibiotics kill the good intestinal flora needed for digestion and immunity, while vaccines have toxic chemicals such as thimerosal (mercury), formaldehyde, aluminum, MSG, etc. that have been linked to autism, and several other problems.

The *second* Newtonian principle is the notion of solidity that we live in a physical, material, and mechanical universe. Modern medicine looks upon the human body with 17th century eyes, with the body being a machine to repair with surgery, organ replacements, and artificial parts. The doctor is a mechanic, plumber, and repairman for the body. At the level of chemistry the body is still solid but seen as a big bag of chemical reactions in which artificial drugs and chemicals can fix any chemical problems or imbalances. Again, we'll see how new breakthroughs in biophysics shatter this archaic understanding.

Thirdly, there is the idea of separation and reductionism in which medicine understands the body by dissecting and learning about the individual pieces. The body is then tagged and labeled with the finest detail, while diseases are also tagged and labeled as a malfunctioning of the various parts. This approach loses sight of how the body works as a whole, and the staggering degree of interconnectedness within the human biology.

Fourthly in this outdated model of science, consciousness plays a secondary role. Even in light of the placebo effect (which we'll look at in detail in chapter 9), medical schools and textbooks hardly mention this placebo phenomenon; even though it is perhaps the biggest breakthrough medicine has ever stumbled upon.

We are now going to unearth and expose these faulty notions in modern medicine, and reveal more current ideas in alignment with modern physics, biophysics, and energy medicine.

1. The Human Body is a NOT a Machine

I remember back to high school when my appendix was removed (the only surgery I've ever had); and I was put under anesthesia for the procedure. It was one of the strangest experiences I've ever had. It was a total blackout, a dreamless sleep. A feeling of non-existence for the time I was under. In fact there was no sense of time at all.

I have always been interested in longevity. At an early age I envisioned death as this sort of non-existence. I remember reading the book, *Life Extensions* by Sandy Shaw and Dirk Pearson and I started taking antioxidants, exercising, and doing whatever I could to stay young. I was only 20 years old! I had this notion that science would be able to replace my parts if there were organs that malfunctioned or ever stopped working. I even imagined that my brain could slowly be replaced by computer chips if necessary. Becoming a cyborg seemed all right with me at the time, as long as I didn't die and return to that eerie state of non-existence.

In my early adulthood naivety, I was viewing the body as a biological machine where parts could be fixed, replaced, or removed to make it work again. But this outlook was skewed by my studies in biology, evolution, biochemistry, and medicine. It was not until later that I changed my major to physics and opened my mind to a whole new universe.

The idea of the body as a machine, where parts can be replaced is very dominant in modern medicine today. Not only are there organ replacements or transplants for many of the major organs, but also mechanical hearts, valves, blood vessels, joints, arms, legs, kidneys (dialysis), etc. The doctors' become the ultimate mechanics and plumbers for the human body and the hospital literally a “body-shop” – pun intended.

Some of these breakthroughs can be helpful and necessary (like someone losing a limb and receiving an artificial replacement); but this view of the body completely disregards the true nature of an intelligent, energetic and holographic body with self-healing and self-regenerating abilities. We need all of our organs, even our tonsils and appendix, which are lymphoid aggregates that aid our immune system. Modern stem cell therapy is getting closer in regards to cultivating our own stem cells to regrow tissue, but even this model forgets that the body's intelligent holographic blueprint is what's ultimately guiding the stem cells into action.

2. The Body is not a Big Bag of Random Chemical Reactions - The Problems with Drugs

The old idea of a mechanical universe has to be dropped. We've seen how new understandings in physics and biology are emerging with scientific validation to replace these old, crusty, and outdated notions.

Chemistry and biochemistry are also culpable for holding on to outdated Newtonian principles. The idea that the human body can be described by the chemistry of molecules in water needs to be drastically upgraded.

Chemical reactions are supposed to explain how the body creates energy, and carries on with its almost infinitely complex functions. More specifically, its chemical reactions occurring via “billiard-ball”-like collisions, in which one molecule collides into another. This is how information is transferred in the body, by a cascade of chemical processes. According to modern biochemistry, and pharmacological approaches to healing the body, this model is supposed to explain (and also treat) the human body’s amazing complexity?

According to current theories of biochemistry, the cell is analogous to a large swimming pool and the molecules are like tennis balls in the swimming pool. According to this analogy, one tennis ball is supposed to find another tennis ball in this vast body of water and do so instantaneously!! This is supposed to account for the billions of activities that occur every second in the human body and its 100 trillion cells? This is also supposed to explain how drugs work at the cellular level.

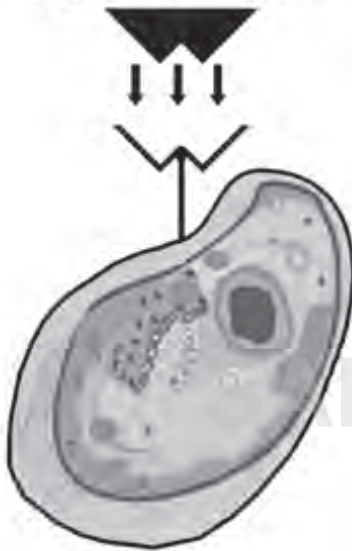
The existing model in medicine states the body has a biochemical communication control system that is governed by enzymes and hormones (the tennis balls in our analogy). The human body’s energy field, information field, and consciousness have no say in the standard medical paradigm. This is absurdly inadequate to explain the majesty of human body. There’s no doubt hormones and enzymes play an important role, but new research is showing that it isn’t the entire story, or even close. Also, the old paradigm uses a “lock and key model” for information transfer into the cells. That’s where a ligand and receptor are involved in unlocking the communication of energy and nutrients to and from the cells.

The shift in chemistry is a big one, just as in biology and physics. Instead of the billiard ball model of signaling for energy and information transfer, there’s new evidence that molecules can communicate at the speed of light (or faster) via electromagnetic signals and phase entanglements. The old model is similar to our body using the pony express, versus the near light speed of email and cellphone communications. The new model is called coesonance and it states that signal molecules can activate their corresponding receptor sites without physical contact. Even more exciting

is that signals can work via frequency alone without the need for a hormone or antigen (in homeopathy electromagnetic signatures of molecules can work without the molecule being present)¹.

Newtonian Model

"Lock and Key -
Ligand & Receptor"



Quantum Model

"Coresonance &
Molecular Signaling"

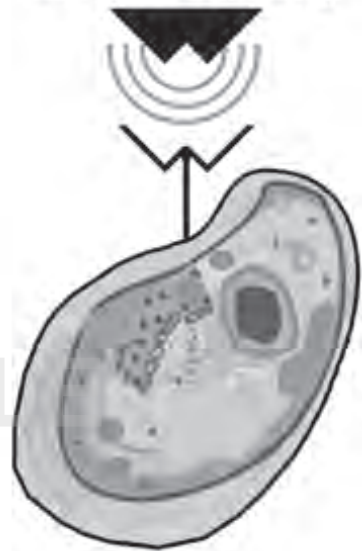


Figure 9 Molecular Signaling and Coresonance

In molecular signaling, molecules interact by coresonance similar to radio transmitters and receivers. In living systems, long-range electromagnetic fields transmit messages between distant molecules so long as emission and absorption spectra match. Non-resonating and random signals are excluded. For example, the adrenaline molecule tells various receptors to make the heart beat faster, etc. to get ready for fight or flight and can do so from a distance via coresonance. It does not have to make collisions with other molecules (like the cell membrane receptor sites, for example).

According to modern physics, there are 100 billion more photons in the universe than matter particles. So it shouldn't be much of a stretch to

imagine our body is not only composed of physical atoms and molecules, but a vast photonic web of energy. We'll see this in more detail in the next section, but start thinking of the human body more from a photonic and energetic perspective instead of a physical and material one. Also remember that photons are carriers of electromagnetic waves, and the force particles for transmitting electric and magnetic forces.

Dr. J. Benevise suggested in his research that the actions of biomolecules (histamine, caffeine, nicotine, adrenaline, insulin, etc.), as well as the antigens for viruses, bacteria and parasites were due more to electromagnetic interactions than direct contact. This is perhaps why PEMF therapy, homeopathy, radionics, frequency specific therapies, and flower essences can have such profound effects. It's because the body can be treated just as effectively, perhaps more effectively with electromagnetic energy versus chemical supplements and drugs.

Let's now look at the flaws in genetic determinism and the germ theories of disease. Modern medicine preys on these outdated models, making you a victim to genes and germs. There is a dirty little secret they don't want you to know - You are not a victim of your genes and you don't get sick because of germs!

3. Darwin was WRONG - Genes are NOT Controlling Our Biology!

In light of new evidence, our understanding of biology based on Darwinian evolution and genetic determinism is dying fast. Like Newtonian physics, these diehard notions seem to persist as a collective belief throughout academia, medical and scientific communities. Darwinism has received much criticism over the last couple of decades. Although Darwinism has been around since 1859, it is still unable to answer many questions related to the evolution of species.

Darwinism cannot explain the spike in new species that have appeared on earth some 530 million years ago. This sudden burst of new life forms came into being with a strikingly greater level of biological complexity than previous species. This dramatic explosion of new life cannot be explained by Darwin's evolution theory. His theory states that new species gradually evolve via a spontaneous increase in the natural mutation of genes.

Fossil evidence shows that evolution occurs in quantum leaps, whereby there are long periods of stasis or little change at all. Then suddenly a quantum leap occurs where a new species appears without any transitional evidence. This model of evolution is called punctuated equilibrium, but no one understands why this is. What's interesting for me as a physicist is that punctuated equilibrium mirrors quantum mechanics whereby electrons make “all or nothing” jumps from one energy level to another in atoms with no transition or intermediary steps.

Another difficult question for staunch Darwinists is to explain the sudden leap in intelligence that occurred with the Neanderthals around 35,000 years ago. The ancestors before them were hunter-gatherers yet there was a sudden boom in intelligence along with the origins of what may be called technology. Techniques like tool making, farming, agriculture, animal keeping, and many other practices allowed mankind to live a more comfortable existence.

Perhaps the real problem with Darwin's evolutionary theory is rooted in incorrect assumptions and theories about genetic mutations. Or even the role of genes themselves is misunderstood. Our current genetic model of the human body teaches us that genes control and regulate the body with DNA being the master. What this is saying is our biology is determined by our genetics. We'll see next from the new science of epigenetics that this view is just wrong!

Overtuning Genetic Determinism - Stop Blaming Your Genes!

Genes are not controlling our biology!

—Dr. Bruce Lipton

Did you know that the human body has *only* 33% more genes than a roundworm? It is well known that there are 100,000+ unique proteins in the human body, and only 30,000 genes. This means that the old theory of a gene coding a protein is wrong or only partially true. Science now shows only a very small percentage of diseases are genetic (<5%, typically only where someone is born with a birth defect - but even those have been known to heal!). You are not a victim of your genetics!

One of the hottest topics in health today is the emerging science of epigenetics, which is the study of the complex interactions of genes and the environment's impact on human development.

We've believed that our health and biology are determined solely by our genes. What the cutting-edge research of epigenetics demonstrates is how our thoughts and our environment have a powerful influence on our health and can actually activate chemical switches in the body that regulate gene expression.

Dr. Bruce Lipton, a pioneer of epigenetics, disagrees with this axiom of Darwinism completely and claims that cells have the ability to perfectly reprogram their own DNA when the external environment demands it. Furthermore, even our beliefs, thoughts and perceptions can shape our DNA along with diet, the water we drink, the air we breathe, electromagnetic energy, etc.

When we get issues running in the family such as cancer, doctors immediately look to a genealogy chart and look for cancer in the genes. A doctor will even TELL you, that you are a risk for cancer if it runs in the family.

Studies have now been done with adopted children who are brought into a family with a history of cancer. *The startling discovery is that the adopted children have the same probability as the natural born children to develop cancer.* What IS passed on is not the genetics for cancer, but rather perceptions, beliefs, habits, and other attributes of the family.

Harvard geneticist John Kearns did an amazing experiment that shows how powerful environmental factors can be in our genetics. What Dr. Kearns did is he placed bacteria that could not digest milk sugar (lactose) into an environment that *only contained lactose*, so it was their only possible source for food. Instead of dying, these bacteria did the impossible. The bacteria actually reprogrammed their DNA so they were able to digest the lactose and survive! Think about that! If unintelligent bacteria can reprogram their DNA, then we can too!

What's astounding about epigenetics is its discovery that environmental or perceptual triggers can produce over 30,000 variations from every gene blueprint - WOW! Genes are no longer deterministic; they are only potentials (again mirroring quantum field theory).

Our genetic blueprint is also holographic in that each one of your 100

trillion cells has the entire blueprint of your body. The only variances are that different genes and genetic sequences are turned on for specific organs and tissues.

We'll see a new model in the next chapter about how your genes are not the controllers of your biology; they are merely antenna's that take orders from your body's energetic and intelligent holographic field via biophotons.

4. The Germ Theory of Disease is WRONG - Stop Blaming Germs!

I was wrong. The microbe (germ) is nothing. The terrain (milieu) is everything.

—Louis Pasteur (Recants his germ theory on his deathbed)

In Louis Pasteur's germ theory of disease, we are basically victims of germs (virus', bacteria, parasites, etc.), which are supposedly the cause of most disease. This outdated theory is still the prevalent theory of much disease according to modern medicine and biology. This "germ theory" of illness is not limited to only infectious diseases like the common cold, influenza, pneumonia, measles, chicken pox etc., but is associated with even cancer as well. For example, liver cancer is linked to the hepatitis virus, cervical/vaginal cancers are associated with the human papilloma virus (HPV), herpesviruses are linked to nasopharyngeal carcinomas and some cases of lymphoma; and the *Helicobacter pylori* bacteria is associated with stomach cancer.

According to this germ theory of disease, we are victims of germs and these bugs can strike anyone unknowingly. Then doctors and hospitals tell us the only way to protect ourselves is by building up our defenses with vaccines or killing the microorganisms with antibiotics and other drugs.

Pasteur also describes germs as non-changeable, in both form and function. Medical tests take your blood and then fix it with a dye. The blood remains in a frozen or fixed state. These germs are frozen in time, so with this approach there is no way to see the microorganisms in a live and changing state. However germs do change in the body, your blood does move, and life is a process in motion, not a fixed state.

We now know through the use of darkfield microscopes, that microorganisms are pleomorphic (from latin pleo = “many”; morph = “form”) that they can often change forms. A virus can become a bacterium, which can mutate into a yeast or fungus. To understand how pleomorphism works, let’s look at the pioneering research of Antoine Bechamp and Claude Bernard.

Bechamp discovered little organisms, which he called *microzyma*; they are seed bacteria that morph into beneficial or malevolent organisms depending on the environment or terrain. Much like a stem cell can differentiate into all the organs and tissues in your body, a microzyma can morph into any type of bacteria, virus or parasite depending on the terrain; hence the term pleomorphism.

The idea of pleomorphism is that bacteria and virus’ change depending on the environment. The type of organism is a result of the chemical environment in which it lives; and it can change both its form and function.

It was Bechamp who discovered the pleomorphic nature of germs, but it was Claude Bernard who further developed the idea of the “biological terrain” and more clearly explained how pleomorphism works. A healthy terrain or environment in the body creates healthy and beneficial organisms (like acidophilus for example); an unhealthy terrain creates pathogenic organisms.

So here we can better appreciate Louis Pasteur’s deathbed quote, saying that the “*the microbe (germ) is nothing. The terrain (milieu) is everything*”.

However, since the “germ” is so profitable for modern medicine, it seems that the medical world has written off Pasteur’s final statements as the madness of a dying man. Perhaps he was finally getting clarity on the truth, or feeling remorse for his plagiarism of Antoine Bechamp.

In Ethel Douglas’s excellent book, *Pasteur Exposed*, she describes Louis Pasteur as an ambitious self-promoter. She shows how Pasteur blatantly plagiarized Bechamp’s work in his research on the mysteries of fermentation and also the causes of disease in silkworms.

So while Bechamp spent years proving that germs were only *the consequence* of disease and not the cause; Louis Pasteur’s theory ended up being much more simplified (and tremendously more profitable).

Bernard's Biological Terrain

Lets take a closer look at the idea of the “biological terrain” and why it's critically important to a holistic and energetic understanding of the human body. If plants require healthy soil, then the cells in our body also need a healthy terrain or soil to thrive. Only in the case of our 100 trillion cells, the soil is primarily fluid based.

The quality of our health is dependent on the health of our cells, and the health of our cells is dependent on the health of our terrain or internal fluidic “soil”. Here are some commonly known parameters of a healthy fluid or terrain that we mentioned in chapter 1, but it bears repeating:

- **Glucose level:** between 80-110 mg/dl (< Hypoglycemia, >Diabetes)
- **Blood Pressure:** [120-140]/[80-90] (< Hypotension (dizziness), > Hypertension)
- **Temperature:** 98.6-100 (< Hypothyroidism, > Fever)
- **Oxygen level:** paO2 > 95% (< Hypoxia, > Doesn't occur)
- **pH:** 7.35-7.45 (< Chronic pain, > Throbbing pain (inflammation response))

Along with the above parameters we need to minimize toxicity to maintain a healthy terrain (heavy metals, radioactive compounds, pesticides, GMOs, drugs, and any unnatural or toxic compounds).

In contrast to Louis Pasteur's germ theory of disease, the “biological terrain” model is very empowering in that it no longer makes us a victim to germs (just as we saw we are no longer a victim to our genetics). Disease does not come from outside of us, but is developed within us, as is our health. Creating a healthy terrain is what I've been preaching in this book, which simply means giving yourself every element the body needs: organic whole foods, clean and energized water, sunlight, oxygen, and the earth's PEMFs.

The theories of Bernard and Bechamp totally reverse our understanding of disease, by shifting the focus to the terrain within us, and not some microbe outside of us.

Many of us don't realize that although there were 50 million deaths during the black plague, there were over 200 million survivors. That's because the germ is not the only causative factor in disease; in fact, it takes a back seat to your biological terrain.

NOTE: This is not to say germs have no place in disease, because **THEY DO** if your terrain is out of balance (i.e. too acidic, low cellular voltage, too much sugar in your blood, high blood pressure, etc.). I just want to be clear that the road to natural healing is not a quick fix or magic pill and may be difficult at first, because it involves a whole new way of living, eating, breathing, and reconnecting to the earth and its elements. But **YOU CAN CHANGE**, and I promise you if you establish good habits and discipline in maintaining a healthy body with a balanced terrain, the fruits of your actions will be oohh sooo sweet!

Comparison of Pasteur's Germ Theory & Bechamp's/Bernhards Terrain Theory

The germ theory states that the body is sterile, and disease is caused by external germs (microbes). The terrain theory states that microbes naturally exist in the body and it's the disease that permits the microbe to express itself. The terrain, in response to various forces, fosters the development of germs from within. Below the "germ theory" is contrasted with the "biological terrain theory".

Germ Theory Of Pasteur

- We are victims of germs.
- Disease comes from micro-organisms **OUTSIDE** the body.
- The form and function of micro-organisms are constant.
- Every disease is associated with a particular micro-organism.
- Disease can strike anyone.
- To prevent disease we have to build our defenses via vaccination.
- To kill disease we have to take antibiotics, chemotherapy or other toxic drugs.

Biological Terrain of Bechamp & Bernard

- We control our health by taking responsibility. We are not victims of germs!
- Disease comes from within the body from an unhealthy terrain.
- The form and function of micro-organisms can morph and change (Pleomorphism).

- Disease is not caused by micro-organisms, they are a secondary effect of a poor terrain.
- Disease only strikes weak and sickly people with an unbalanced terrain.
- To prevent disease we have to take responsibility and create health by reconnecting to nature and its 5 essential elements!

Conclusion

In this section the blatant errors of our modern healthcare system have been exposed as an outdated model resting on physics of the 17th century. We are not victims of determinism, our bodies are not physical machines or bags of chemical reactions; and our bodies cannot be understood by dissection and reductionism alone. As we'll see in the next section, the human body is holographic, interconnected, and primarily energetic. We reside as consciousness empowered to create health and take control of our lives. We are not the victims of genes and germs, but we have to START taking responsibility and STOP playing the role of victims.

Natural and holistic medicine requires a certain amount of discipline and effort. You have to give your body the elements of health it needs while removing all sources of toxicity (including toxic people!). Depending on where you are with your overall health and diet, it may take some willpower and coaching to get on the right path to better health, but it's well worth the effort. Start by eating better, drinking *more* clean water, exercising more, sleeping well, getting outside barefoot on the ground (and supplementing with an earth-based PEMF device). Then do whatever it takes to get off drugs, cigarettes, alcohol, fast foods, soft drinks and other unhealthy habits.

Hopefully it makes sense to you that our current model of health and medicine should be based on current understandings in physics and not the physics of the 17th century! Next we are going to explore the current understandings in quantum field theory and the holographic model of the universe as applied to the human body with recent breakthroughs in biophysics and quantum biology. This new understanding will help you better understand and appreciate why and how energy medicine (including PEMF therapy) works its wonders at recharging and energizing your body.

The Bio-Energetic Holographic Body

There is only one health, but diseases are many. Likewise, there appears to be one fundamental force that heals; although the myriad schools of medicine all have their favorite ways of cajoling it into action.

— Dr. Robert Becker

We've seen modern physics turn Newton's universe upside down, we've revealed the deterministic, solid, and mechanical universe as an outdated and incorrect model of reality. Quantum field theory shows the primacy of energy and information fields in the universe, the interconnectedness of all things, and the reign of consciousness, choice and free will.

We are not victims of determinism and fate. We are not skin-covered bags of chemical reactions. We are certainly not biological machines that have learned to think, with consciousness only being a byproduct. Let's propose a new model of the human body that's in line with quantum field theory, the holographic universe, recent discoveries in biophysics and holistic integrative medicine.

In this chapter we'll get a better understanding of what we'll call the bio-energetic holographic body. This body forms a holographic field of energy and information around our physical body. It consists of measurable electric fields, magnetic fields and even detectable photons of light (called biophotons which we'll explain soon). This highly energetic body constantly interacts with both the physical body and the surrounding environment. We source energy from the food we eat, the water we drink, the sunlight we are exposed to, the air we breath, and from the surrounding geomagnetic and Schumann frequencies of the earth. We are an open system deeply connected to the planet we live on, capable of reversing entropy while creating order and life.

In this chapter we'll see that the human body is not only physically made from the building blocks of earth, food, water, air, and oxygen. It also has a complex photon network of energy and information. It's not separate from the physical body but it's intimately coupled and connected at a very deep level.

The pendulum is swinging in modern science from the old Newtonian mechanistic and reductionist approach, to a holistic and integrative

approach that looks deep into how our entire body's system works together. Modern medicine looks at how the cell works via chemical reactions, but we know that's an outdated model that cannot begin to describe how the body works as a **WHOLE!**

Since modern quantum field theory is currently based on the idea of fields and the holographic model of the universe, we need to look at the human body in a way that is congruent with 21st century physics (not 17th century physics).

Scientifically Measuring the Human Energy Field

In the last chapter we discussed that the universe is primarily made of energy and information fields, while particles and matter are simply excitations emerging from the field. Perhaps you are thinking this is a bunch of new age talk with no real science to back this up. Well, think again. The human bio-energetic holographic body is measurable up to 15 feet into space as proven by modern science².

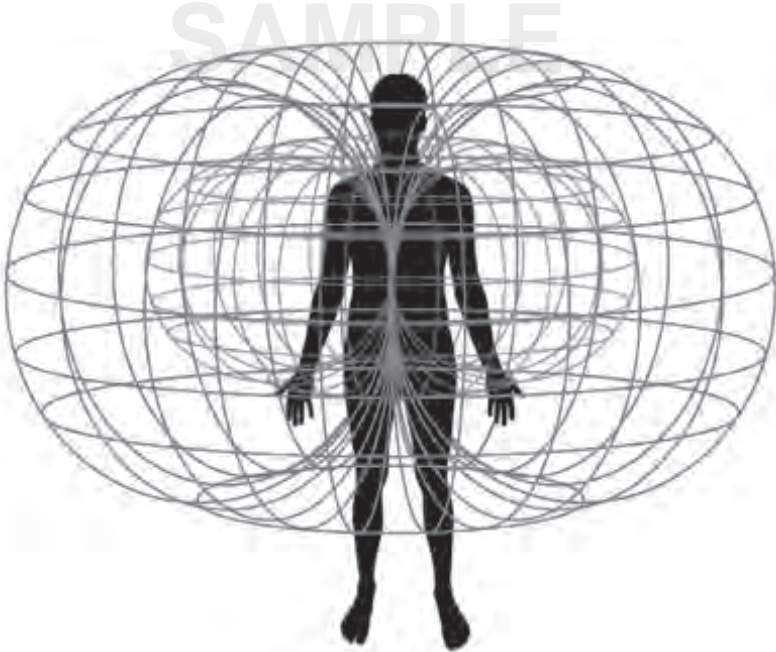


Figure 10 Your Bio-Energetic & Holographic Body is Measurable up to 15 feet in Space!

The proof comes from a very sensitive magnetic field detection device called a SQUID (superconducting quantum interference device) magnetometer. This device is a probe outside of the body and reads the brain's fields, heart fields, and muscle fields several feet away from the body! This equipment is for use in universities and hospitals. These SQUID devices are more sensitive, accurate and provide a better picture than MRI's, CAT scans, EEG's, EKG's, EMG's, NCV's, etc. that less accurately measure the electrical and energetic fields in our body.

Let that sink in for a moment, *you have a detectable magnetic field that extends 15 feet or more into space!* When you are close to someone, your field is directly interacting, intersecting and combing with theirs! Ever have the experience of someone walking into a room and the whole mood shifting either in a positive or negative way (depending on their mood)?

So the shift is here! Newtonian physics and the primacy of matter is just a thing of the past. The human body is primarily energy and information. Conventional medicine is finally confirming what natural medicine has taught for centuries. The ancients knew of the body's energy fields and called the energy qi (or chi), prana, life force, life energy, energy flow, etc. Acupuncture and other Eastern therapies are based on an understanding of the body's energy fields. The Indian system of the chakras and the nadis is based on this understanding (The meridian and chakra system, that were once thought to be ancient and new age lore, now have scientific evidence to support their very real existence).

If the magnetic field around a bar magnet guides the iron filings along the field lines, so too does our body have a guiding energetic and holographic field that analogously guides matter and molecules inside our bodies.

The Fountain of Life

When you view a water fountain from afar, it appears to have a static form, but as you move closer you begin to see that the fountain is "flowing", self-renewing and regenerating (with the aid of a pump).

Our bio-energetic holographic body is a blueprint, a guiding template for the flow of information, energy and matter. As solid and static as

the human body seems, it's really an interconnected flow of energy and information that's not as solid and constant as you might think.

Consider that Radio Isotope Studies have shown:

- The skin you're sitting in is only about 4 weeks old.
- Your stomach lining is only about 5 days old.
- You get new rods and cones in your retina every 48 hours.
- Your liver is 5 months old.
- Your nervous system is 8 months old.
- Your bones are a year old.
- 98% of the atoms in your body are replaced each year!
- And you have a new body completely about every 7 years!

The cells in our bodies are constantly dividing, regenerating, and dying, but each cell's life cycle is different. The cells lining the stomach, because they're exposed to acid, replace themselves about every five days. Cells in the epidermis of the skin last *at most* about 4 weeks. Red blood cells live for approximately four months in the body, while hepatocytes (liver cells) live about five months. These hardworking but disposable cells take a lot of punishment; they're easily manufactured and easily replaced. In fact, throughout the entire body, 10-20 billion cells die every day. Fortunately, 10-20 billion new ones are created (via mitosis, the dividing of cells) to maintain homeostasis. That's how dynamic your holographic body is! We flow more like a fountain than remain constant like a fixed statue.

Consider the fact that the average American eats around a ton (2000 pounds) of food every year. We digest and assimilate the atoms and molecules of that food into "what appears" to be a relatively static non-changing form of your body. Of course one can overeat and gain weight, but the average person looks *roughly* the same over the course of his or her lifetime (once adulthood is reached). Very slowly we show changes as aging sets in during our 40s, 50s, 60s and beyond.

If you think you are only your physical body, you certainly have a problem. Think of yourself as consciousness residing in a holographic field of energy and information, which then directs, guides and continuously rebuilds the physical form (remember our thoughts and beliefs can guide and change our genetic expression). Let's take a deeper look at evidence that

shows our holographic and self-similar nature. Remember our discussion on the holographic universe, and how our bodies are holographic, whole, and interconnected so if you cut a holographic plate into little pieces and shine a laser on each piece, you'll get the whole image in every little piece. This self-similarity is a property of holograms, but it's also something defined in mathematics called fractals. Let's take a look at living proof that the human body is a holographic, self-similar and interconnected by looking first at the fractal nature of the body.

Fractals, Self-Similarity, and Wholism in the Body

A fractal is an object or quantity that displays self-similarity on all scales. The object doesn't need to exhibit the same structure at all scales, but the same "type" of structures must appear on all scales.

Fractals exist all over nature in lightning, trees, mountains, shorelines, plants, animals and throughout the human body. We have fractal or self-similar/holographic patterns in our brain, lungs, kidneys, circulatory, lymphatic system and even our cells and organelles. Fractals are nature's fundamental mathematical pattern for growth and organization. They are a fundamentally important concept to grasp in holistic and energy medicine. The idea of wholism in the human body is deeply tied to the body's holographic and fractal structure (this holism and self-similarity is ignored by conventional medicine which views the body in a mechanical and reductionist way).

Fractal canopies are one of the easiest-to-create types of fractals. All you have to do is take a line segment and "split" it into two smaller segments at the end. Then you take the two smaller segments and split them as well. To create a *fractal canopy*, this process has to be continued infinitely (at least in theory).

Does the picture of a fractal canopy in Figure 11 remind you of broccoli? Notice if you take a little piece of broccoli from the whole, it LOOKS like the whole, but much smaller. This is the essence of self-similarity in fractals, where the whole is encoded in each part, and all parts are together one interconnected whole.

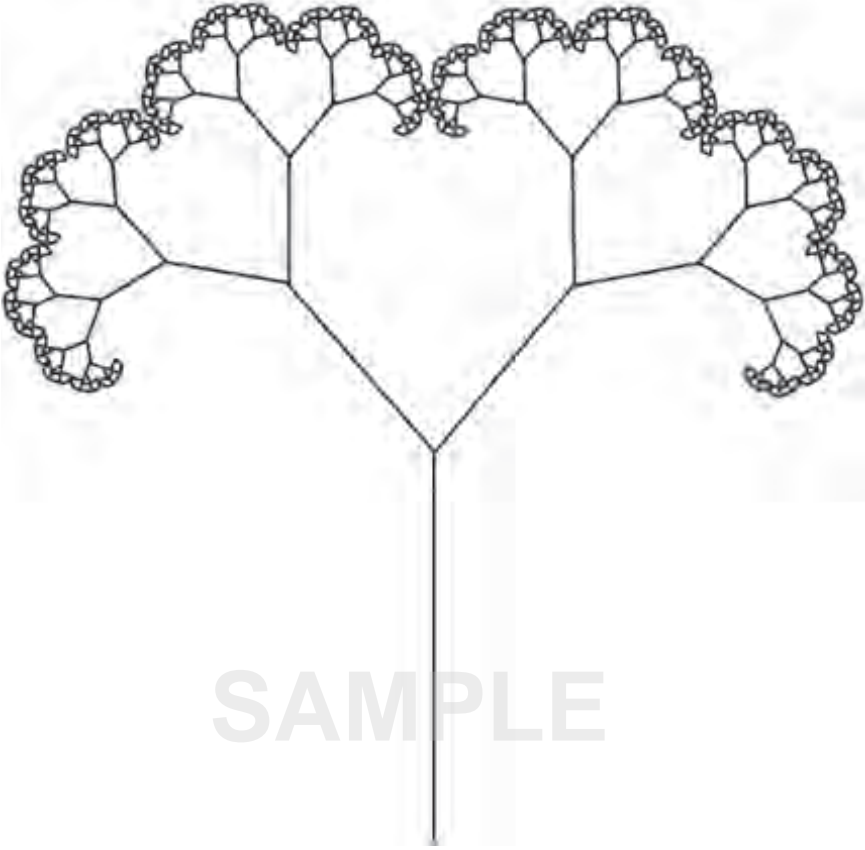


Figure 11 Fractal Canopies exist all over the Human Body

Fractal Branching in the Human Body

One prominent place in the human body exhibiting fractal branching is the lungs and pulmonary system. The primary tube of this system is the trachea, which splits into two smaller tubes leading to two lungs, called the bronchi. The bronchi are in turn split into smaller tubes, which are further split into the smallest tubes, called the bronchioles that lead into the alveoli. The endpoints of the pulmonary tubes, the alveoli, are extremely close to each other to the point of touching. This property of endpoints being interconnected is another property of fractal canopies. Broccoli and your lungs are 3-dimensional fractal canopies. Notice that the top of a bunch of

broccoli is like a continuous surface with all the endpoints closely touching each other. The lungs are even more dramatically interconnected.

There is more supporting evidence that our lungs are fractal. It comes from measurements of the alveolar area, which were found to be 1500 square feet! That's the surface area of a small house! From the geometric method we know that the increase in size with magnification is one of the properties of fractals! Healthy lungs are not empty sacs at all, but very heavy and densely packed with alveoli and fluids (blood, lymph, etc). Aging, smoking, lung cancer, and especially tuberculosis can hollow them out thus dramatically reducing the surface area, which means less absorption and assimilation of life-nurturing oxygen.

Similar to the pulmonary system, this fractal branching is also found in blood vessels. Arteries, for example start with the aorta, which splits into smaller blood vessels splitting and dividing until they eventually reach the capillaries. Just like the alveoli, the capillaries end up being packed very close together. This also applies to the lymphatic system and your brain, nervous system, kidneys, nasal membranes, cells and even organelles have these fractal properties. Also, you have the entire genetic blueprint for your entire body in each of your 100 trillion cells. The whole of your body is in every cell!

The main reason this fractal branching is so important is that it shows the highly interconnected and efficient nature of our physical bodies. It also allows a very large surface area to fit into a small volume. These properties reflect the holographic, self-similar, holistic and interconnected nature of the human body!

The Body Whole-a-gram - Reflexology, Iridology and More!

Let's recap, holograms emerge from interference patterns of light; these interference patterns encode and store vast amounts of information in a fractal and self-similar pattern so that the whole is in every part. The holographic body is a guiding blueprint for the amazingly complex anatomy and physiology of the human body, which very clearly displays a fractal and holistic geometry from your organs all the way down to your cells and DNA.

We have seen clear evidence of fractals in anatomy; but there are

more amazing examples in the human body as discovered by ancient and modern healing methods.

Consider disciplines such as reflexology, iridology, sclerology, and phrenology. These disciplines work with different parts of the body to treat the WHOLE. For example, in foot reflexology, the entire body is mapped out from head to toe. All the organs and systems of the body can be invigorated and healed by applying pressure to the appropriate area on the foot. The same applies to hand reflexology and ear reflexology, though with the ears, usually a kind of small acupuncture pin is used.

Iridology and sclerology study the iris (colored part of the eyes) and sclera (white of the eyes) respectively to see a diagnostic map. This is an amazing science, whereby non-invasively you can get a picture of health for all the organs and systems in your body. The saying that the “eyes are the windows of the soul” can also be extended to the eyes being the windows to your physical body as well.

Phrenology studies the relationship between a person’s character and the morphology of the skull. There are teeth reflexology charts in which each of your teeth is connected to a different organ system. There are also colon reflexology charts used by colon hydrotherapists that map out the entire body by different regions of the ascending, transverse and descending colon.

There is a key point in this fractal and holographic structuring of the human body. I haven’t heard this anywhere, but as a physicist it’s a profoundly obvious fact once you understand the human body in light of new biology and physics... In sick people, these fractal structures in the body (lungs, kidneys, blood vessels, etc.) get broken down towards the endpoints (alveoli, capillaries, etc.) so the surface area in the lungs, vascular system, digestive tract, etc. becomes greatly reduced. This short-circuits the body’s ability to deliver water, oxygen and nutrients to our cells to produce energy (We’ll see this more clearly at the cellular level in chapter 6). Keeping our body’s complex fractal pathways open, fluid, and functioning is definitely one of the most important keys to health and longevity.

One of the central points of this book is that energy medicine, and PEMF therapy helps to keep all pathways open and connected so the body can THRIVE, and not just survive. This means better oxygenation, better hydration; and better assimilation of food, nutrients and delivery of these

Bryant A. Meyers

essential elements to the cells (along with removing waste and toxicity). If you give your body the elements of health it needs, which includes earth PEMFs, the body can thrive and perform optimally. I also recommend colon hydrotherapy, holistic dentistry, massage, reflexology, acupuncture, chiropractic and other holistically oriented modalities. The medicine of the future is going to be centered on the bio-energetic holographic body, and its interconnected, self-similar and whole-istic nature.

Fact: 1/2 of the bones in your body are in your hands and feet

The Living Matrix - The “Key” To Energy Medicine and Human Health

Do you have goose bumps yet? Isn't this amazing? The human body is such an interconnected and self-similar web of energy and information it totally boggles and baffles the human mind (which is also fractal)! Think about it, you have 100 trillion cells performing some 400 billion chemical reactions involving around 100,000 complex macromolecules!

The next piece of the puzzle that better explains this amazing bio-energetic and holographic body is what is referred to as, the “*living matrix*”, a word coined by James Oschmann, author of the excellent book *Energy Medicine: The Scientific Basis*. The “*living matrix*” extends this holographic model of the body by depicting a vast web of high-speed communications and interconnections within the body that reaches from the cell to the tissues, organs and body while extending into the environment. Then this matrix connects us from the environment, into all of the body's organs, tissues, and cells. The body is not some centralized, localized system that ends at the skin; but a dynamic holographic field of energy and information that forms an intelligent feedback loop between the body, the environment outside, and the cells within.

Simply put, the “*living matrix*” is the lowest resistant and most conductive part for the flow of energy and information in the human body. Your 100 trillion cells are even a part of this matrix. They contain an internal framework known as cytoskeleton that connects all parts of the cell, from the nucleus to outer cell membrane. This scaffolding includes molecules that conduct energy and information inside each cell

and outward to the environment, and in the opposite direction from environment to innermost parts of cells and nucleus.

Surrounding the cells in the human body is a vast 3D network of conductive collagen and other proteins that are “hard-wired” to cell membranes. This body-wide network for conducting energy and information gets into every nook and cranny of your physiology, from the largest organ (the skin), down into the cells and organelles. The boundaries of anatomy are gone, replaced with a continuous web of connective tissue, along with nervous, cardiovascular and other tissues that comprise this dynamic network. There is no fundamental unit or central aspect, all parts of the body work together synergistically and holographically.

The connective tissue of the body and cytoskeleton in the cells is much more than scaffolding holding the body together. These connective tissues form a continuous interconnected semiconductor network that science is just now discovering. Every part of the body is bathed in a constant stream of vibratory information through this “living matrix”, which is similar to a great information superhighway in the body. The body’s defense and repair systems can repair themselves if any and all blocks to this flow are removed (i.e. energy medicine, PEMF therapy, acupuncture, bodywork, emotional release, etc.).

From an optical perspective, the connective tissue matrix in the body is very transparent to light or photons and is akin to a fiber optic network. Photons are carriers of energy (directly proportional to frequency $E=h\nu$) and also carriers of information in the form of complex interference patterns (like in our discussion on holograms). As we’ll see next, there is a special type of photon the human body absorbs, emits and transmits, called the biophoton. It utilizes this fiber optic energetic network of the body and even transcends it.

Biophoton emissions are a highly ordered kind of light, like lasers but much more complex (think of lasers creating holograms). We are quantum things. While quantum theory typically describes the very small, there are several kinds of macroscopic (large scale) quantum phenomenon. Superconductors exhibit large-scale quantum behavior as do Bose-Einstein condensates (super cooling gases like liquid helium). Lasers are also a large ensemble of highly coherent photons that are all in synch. In fact, you can think of the body’s holographic bioenergy body as a macroscopic quantum

phenomenon that is sustained by highly coherent biophotons that are laser-like in their degree of order.

The human body defies chaos and entropy by maintaining a high degree of order and coherence. Coherence in quantum theory refers to particles/waves cooperating with each other. It's like a well-rehearsed marching band, where each member of the band is in rhythm. In classical wave mechanics, this is also referred to as constructive interference.

A good way to understand the power of coherence is by comparing a normal incandescent light to a laser. Incandescent lights are very random, chaotic and incoherent. Most of the phase angles cancel out (via destructive interference) with only a small fraction reaching your eye. By comparison, if somehow you could create a light bulb with light as coherent as a laser, it would be 100,000 times brighter than the sun. That is the power of coherence³!

Lighting up the Holographic Body - Biophotons.

Biophotons are highly coherent. A very sensitive photomultiplier is needed to detect these photons, but it is real and measurable! You and all living things EMIT LIGHT! This is proven by science. Fritz Popp (the pioneer in biophoton research) found these biophotons, which in sum total comprise the body's holographic field and blueprint of information; is what controls the body's metabolism and processes... NOT DNA! DNA are just antennas for biophotons which has also been proven (DNA absorbs and emits biophotons).

Popp saw organisms as biological lasers of optically coupled emitters and absorbers operating at the laser threshold (highly ordered and coherent). The solid part of an organism is coupled with a highly coherent, holographic biophoton field, which is the basis of communication on all levels of organization. The components of the organism are seen to be connected in such a way by phase relations of the field, that they are instantly informed about each other at all times. It is the phase relations that create the order and coherence in the body, which allows the extraordinarily complex process to take place in the body.

Phase relations are the basis of quantum entanglement, which we talked about in chapter 3. Simply put, these phase relations are the guiding

intelligence of the near infinite interconnections and biological processes in the human body whereby communication happens faster than light (remember Bell's theorem). Phase relations are intimately connected to the information fields and holographic interference patterns that create the body's holographic field, maintain order and coherence, and are capable of storing near infinite amounts of information. But never forget, that consciousness is ultimately the guiding influence behind ALL *fields* in the body (information, energy and matter fields).

FACT: Our bodies actually emit more energy/light than the sun! The sun (kilogram for kilogram) is a thousand times LESS efficient than the human body at converting mass into energy/light. One kilogram of the sun generates only 1/5000 of a watt on average, whereas the human body typically generates more than 1 watt per kilogram. The sun is a 10 trillion times more massive, so it more than compensates with its size. Pound for pound you shine brighter than the sun! Think about that!

Information Fields - Going Deeper

In physics, there is also the idea of potential fields, which are the guiding fields of all forces. This includes the phenomenon of electricity and magnetism. It's a little abstract but these scalar potentials and vector potentials are informational based via phase relationships and form the basis of organization and structure in the universe including our physical bodies.

As pure informational fields, they have no direct physical effect, but an experiment by David Bohm in 1959 proved their existence via the AB effect (after Aharonov and Bohm) and they form an important part of quantum field theory⁴.

Their experiment proved these abstract fields are real potentials, and more fundamental than electric and magnetic forces. In the experiment they proposed that potentials exert a physical effect on charged particles in a field free volume, but not in the way forces do - They only influence the phase, and are thus fields of information.

In our holographic model of the universe, the phase relations represent the interference patterns, which exist in precise complex relationships such

that the information of the objects is 100% encoded. Quantum interference patterns are the informational field for the universe and human body. We are primarily holographic fields of energy and information, and secondly physical.

NOTE: Advances in biology and biochemistry have shed light into understanding the *physical component* of the human body to a meticulous and detailed level, but as new understandings in biophysics are showing, it's only a partial understanding.

As Above, So Below

In our current understanding of the universe, there are two main sets of particles: matter particles called fermions (quarks and leptons) and force carrying particles called bosons (photons, gluons, gravitons, etc.). Quarks are the building blocks of protons and neutrons, which make up the nucleus of an atom, and the most common lepton, the electron, surrounds the nucleus. Photons are the most notable boson or force-carrying particle, and are responsible for the entire electromagnetic spectrum.

There are 92 naturally occurring atoms on earth and our bodies are predominantly made of Hydrogen, Carbon, Nitrogen and Oxygen (96% by weight). Most of the rest of the 4% of our weight is from Calcium, Phosphorus, Potassium, Sulfur, Sodium, Chloride, and Magnesium. Modern medicine and biology is currently dominated by the study of MATTER particles, atoms, and the chemistry of these elements, especially the chemistry of carbon-based molecules, which is a field of science called *organic chemistry*. We get these elements from the food we eat, the water we drink, and the air we breathe. These are essential elements for our health and are the building blocks for our physical body.

We know the body has a detectable energetic field of up to 15 feet, we know the body emits and communicates via a complex and vast biological photon network, called biophotons. New understandings in biophysics are rewriting biology and medical textbooks. Just like the physical body is made of matter particles, this energetic body is made of force carrying particles (mainly the photon) and requires these just as the body needs food, water, and oxygen. The primary frequencies the body needs are given by the sun and the earth. The sun predominantly gives us the

high frequency photons of infrared (warmth), visible light, and UV while the earth gives the *healthy* low frequency Schumann and geomagnetic frequencies. So that's 5 main elements needed for the human body, the 3 material elements of earth, water, air AND the energetic, force-carrying photons provided by the sun/fire and the earth PEMFs. There are 100 billion photons for every matter particle in the universe, so it makes sense that our physical body is only the tip of the energetic iceberg.

NOTE: one could easily add a sixth element given by the gravitons, namely the gravitational field of the earth. We need gravity to maintain our bones, muscles, overall structure and posture. Good posture, exercise and movement within the earth's gravitational field keep our bodies' strong, flexible and mobile.

The focus is not on curing a label or disease, but giving the body the essential elements it needs so it can heal itself. The body's informational field has within it the blueprint of perfect health, we just need to get out of our own way and the support the body with the essential elements it needs. PEMF therapy pumps coherent energy into our bio-energetic and holographic body helping it to become healthier and more energized (We'll see in chapter 7 why it is essential to supplement with an earth-based PEMF device).

In the next chapter, we'll explore the earth's pulsed magnetic field and the deep connection it has to our holographic and energetic body-mind.

Chapter 4 Notes

(Complete Bibliography in Back of Book)

1. J. Benveniste, *Digital biology: specificity of the digitized molecular signal* (FASEB Journal, 1998)
2. James Oschman, *Energy Medicine: The Scientific Basis* (Elsevier Limited 2000).
3. Lynne McTaggart, *The Field* (Harper Collins Publishers, 2008).
4. Y. Aharonov & D. Bohm, *Significance of electromagnetic potentials in the quantum theory*. Physical Review (1959).



5 Schumann Resonance, Earth Frequencies & The Body-Mind-Earth Connection

It may be that one role we play is as the senses and nervous system for Gaia (Earth). Through our eyes she has for the first time seen her very fair face and in our minds become aware of herself. We do indeed belong here. The earth is more than just a home, it's a living system and we are part of it".

— James Lovelock

SAMPLE

Just as we're starting to see a paradigm shift in physics and biology, our model and view of the earth is still outdated. Most geologists and scientists still view the earth as a six-sextillion ton (6×10^{21} – that's a 6 followed by 21 zeros) ball of inert rock and water with a magnetic field analogous to a gigantic solid bar magnet. Ask yourself a question, when you think of the word "geology" does the notion of a life science come to mind? Probably not, but it should. New understandings are showing the earth itself is a living organism. Not only that, but the fields of the earth are much more complex and dynamic than the simple bar magnet analogy incorrectly portrays.

During our exploration of PEMF, the 5th element, it will greatly benefit us having a fresh perspective of earth so we may see how connected we really are to our planet and its Schumann and geomagnetic fields. In fact these pulsating electromagnetic fields of energy and information are the 5th element of health. We'll begin by taking a brief look at a theory that resurrects earth back into living status.

Gaia Hypothesis - The Living Earth

Vladimir Vernadsky was the first to see the connection between living systems and the earth's geology. He mentions how much life is imbedded in planetary and cosmic connections and how central the influence of the sun and earth is on all life. The biosphere and all living organisms are an interconnected whole.

According to the Gaia theory (named after the Greek goddess of the land) proposed by James Lovelock, the earth is in its totality, one super-organism, which can self-regulate. Overall, the Gaia theory is a compelling new way of understanding life on our planet. It claims we're more than just "the third rock from the sun," situated precariously between freezing and burning up.

The Gaia theory asserts that living organisms and their geological surroundings have co-evolved together as a single interconnected living system. More and more evidence is supporting that the "Gaian system" self-regulates global temperature, atmospheric content, ocean salinity, and other factors in an intelligent manner. In this theory, the earth can be likened to an individual organism that intelligently self-regulates just like we have shown our human body self-regulates temperature, pH, oxygen levels, blood salinity, etc.

If you viewed the earth from space, you would know instantly that the earth was alive. The atmosphere alone would give it away. The atmospheric compositions of our sister planets, Venus and mars, are roughly 95% carbon dioxide, 4% nitrogen, with traces of oxygen, argon, and methane. The earth's atmosphere is presently 79% nitrogen, 21% oxygen with traces of carbon dioxide, methane and argon. The difference is that our earth transforms the outer layer of the planet into an environment hospitable for life. Photosynthetic algae began extracting the carbon dioxide from the atmosphere and releasing life-supporting oxygen over 2.5 billion years ago. The higher levels of oxygen set the stage for larger, more complex, and energetic creatures powered by oxygen, including us.

The Earth's Magnetic Field

Besides the atmosphere, there's a more prominent feature of earth that makes it a living planet, the earth's magnetic fields. Look at figure

12, which is an artist's impression showing how the solar wind shapes the magnetic fields of Venus (top), Earth (middle) and Mars (bottom).

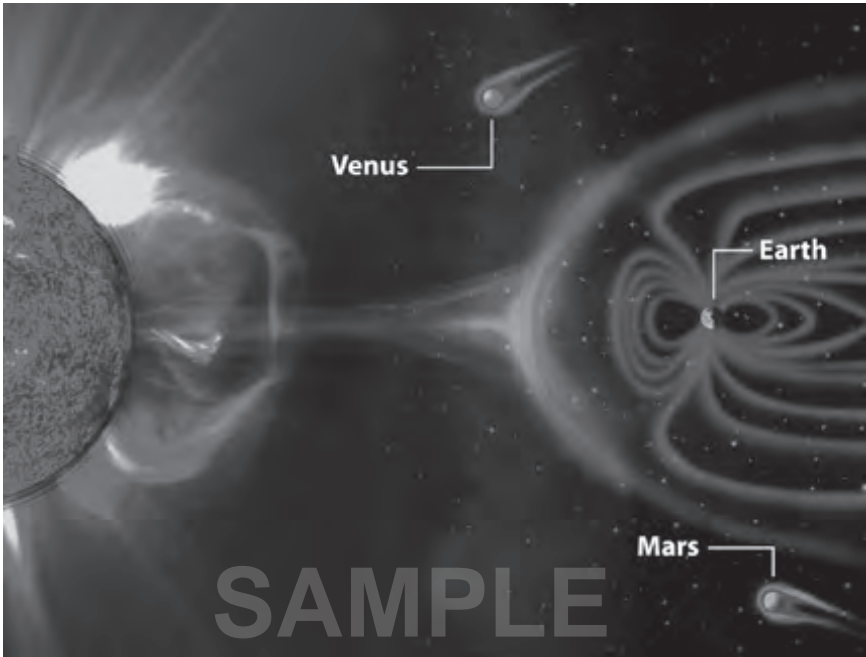


Figure 12 The Earth's *Living* Magnetic Field compared to Venus and Mars

Notice how much stronger, complex and stratified the earth's magnetic field is compared to our sister planets that bare little or no life at all. Venus and Mars lay exposed and bare to harsh solar winds, flares, and radiation of the sun, while our earth has a very protective and nurturing shield. Isn't that image amazing! The earth's magnetic field clearly brings our planet to life, and without this energetic field the earth would be a dead ball of rock like Venus, Mars and other planets. Remember our bodies have an energetic field analogous to the earths, which gives us life!

Further proof of the Gaia theory shows that although the sun's solar activity has increased in intensity since life was first born here on earth, the earth as a living system has regulated and responded by increasing its protection and maintaining a relatively constant temperature. The mechanism for this is highly complex, but life responds and cooperates

with nature to create temperature stability and homeostasis. Consider the Venetian and Martian magnetic fields are negligible and nearly zero. Having a magnetic field is essential for life in its protecting and nourishing capabilities.

We have evolved and flourished on this planet, and perhaps take for granted that we're surrounded by Life itself. The Gaia theory scientifically and poetically shows, our dear planet earth protects and nourishes us with all the elements needed for life. The Gaia Theory was once the Gaia Hypothesis but over the past couple decades it has gathered so much validation, that it is rightfully given more credibility.

We'll now take a closer look at the magnetic and pulsed magnetic fields of the earth. We'll see the earth is more than an inert ball of stone, and does not resemble a big spherical bar magnet. The field is the primary element in quantum theory and matter/particles are just excitations in the field. We need to look upon the earth through the fresh eyes of quantum field theory, viewing it primarily as a field of energy and information.

The Dynamo Theory of the Earth's Magnetic Field

The earth's magnetic field, which extends thousands of miles into space, is significantly more complex and dynamic than a big bar magnet as it is a combination of the earth's magnetic field and the highly charged particles from the solar winds of the sun. The magnetic field of a bar magnet, or any other type of permanent magnet is created by the synchronized spinning of electrons and nuclei within the atoms. This only happens in solid ferromagnetic elements like iron, nickel, and cobalt. The earth's core is hotter than 1000 K, and not solid. The orientations of spins within the iron then become chaotic. This causes the iron deposits to lose their magnetic field. The earth is not a big static bar magnet, for there is no solid iron deposits at the core.

The fact that they're still teaching the bar-magnet model of the earth's magnetic field in schools only further conveys an inorganic and life-less geology of our planet. This again is based on the outdated Newtonian model of the universe. Along with chemistry, medicine, and biology, the science of geology needs to be upgraded to the new paradigm of quantum field theory! Planet earth is alive, highly energetic, complex, and intelligent!

Let's take a look at a more correct model of how the earth's magnetic field is generated; it's called the dynamo theory.

According to the dynamo theory, electric currents in the liquid outer core generate the magnetic field of the earth. This happens because the liquid outer core has an abundance of free electrons that form a current due to the pulsating magnetic fields of the sun (via Faradays Law). This is also how energy is created at power plants, where a changing magnetic field (generator) produces an electric current. These swirling electrical currents in the earth's core via Ampere's law (moving charges create magnetic fields) generate the magnetic field of the earth. Electrical currents create the earth's magnetic field, not iron deposits as most people think.

Another feature that distinguishes the earth magnetically from a bar magnet is its magnetosphere. At large distances from the planet (beyond the ionosphere) this magnetosphere dominates the surface magnetic field. Electric currents induced in the ionosphere also generate magnetic fields. There are several energetic layers to the magnetosphere making it very complex and stratified. The sun, solar flares, cosmic rays, and other terrestrial phenomenon affect the earth's magnetosphere.

Finally the earth has telluric currents (from Latin tellūs, "earth") or ground currents that result from the energetic dynamics of the earth's core and ionosphere. The earth's crust is a conductor of electrons and part of the global electrical circuit involving clouds and the rest of our atmosphere. Walking barefoot on earth directly supplies our bodies with electrons and energy.

The intensity of the earth's magnetic field is simply the strength of this field measured in gauss or tesla (the two main units of magnetic field strength). It turns out the intensity of the earth's magnetic field is relatively weak being .33 gauss at the equator and about .66 gauss at the poles. This translates to 33 microtesla at the equators and 66 microtesla at the poles. (1 Tesla = 10,000 gauss or 1 gauss = .0001 Tesla). As we'll see in chapter 7, the earth's magnetic field has declined by 50% in the last 300 hundred years, and its only getting worse. Supplementing ourselves with a magnetic field or PEMF device is becoming more and more important!

Ampere's Law and Faraday's Law

To better understand the Dynamo theory, and how magnetic fields are created on earth, we will briefly mention Ampere's law and Faraday's law. These two laws are intimately related because of their connection with electricity and magnetism. Magnetism is defined by a moving charge (usually an electron) and you can create a near perfect replica of the magnetic field lines around a bar magnet with a current loop (see image below).

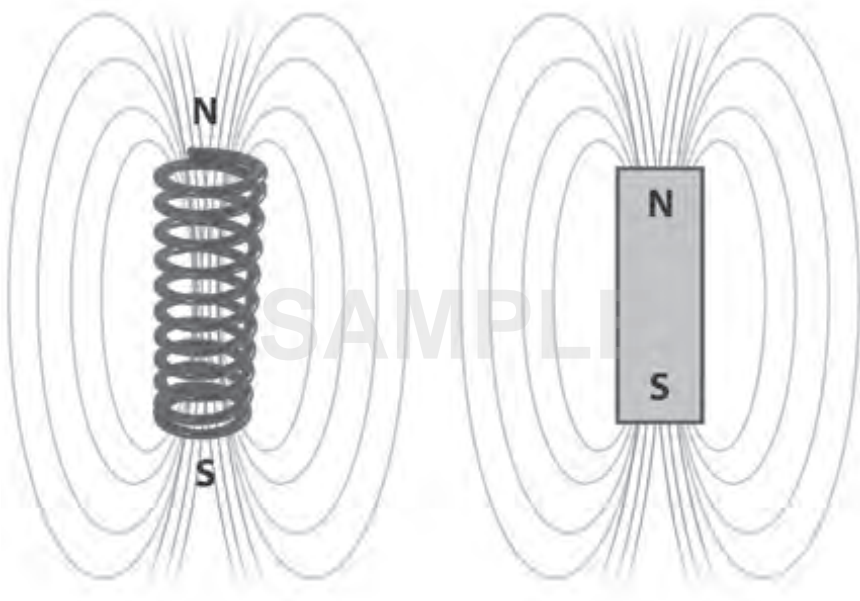


Figure 13 Creating a pure Magnetic Field through a Current Loop

Ampere's law states that an electrical current can produce a magnetic field that is perpendicular to the flow of electricity. If a current loop is used, the magnetic field lines will yield a very pure field in the center of the loop, as if a bar magnet were being used. Because the earth's core is molten, its magnetic field is generated by circular currents in the outer core. Faraday's law is the reverse and states that a changing magnetic field produces an electrical current. This is how electricity is generated at power plants.

PEMF therapy mats, which use pure copper current loops, are more closely aligned to the earth's magnetic field than static magnetic mattress pads. PEMF therapy mats are closer to the earth's natural field in both the way the magnetic field is produced AND the ability of PEMF mats to create micropulsations or pulsed magnetic frequencies. As many research studies have shown, this is a very important reason why PEMF mats are more effective than static magnetic mattress pads. All the pulsed magnetic therapy mats on the market use electrical currents NOT static magnets, just like the earth. Also, the changing magnetic fields in PEMF therapy mats induce microcurrents in the cells, which promote better ion transport, and energy creation in the cells.

Now that we've seen the nature and intensity of the earth's magnetic field, let's now take a closer look at the frequencies of earth's geomagnetic and Schumann pulsations, which we introduced in chapter 1. Although intensity is important, frequency is the key to health and synchronization of our bodies with the earth. Then we'll see the exciting research showing the connection between the frequencies of the earth, the human body, mind, and cells.

SAMPLE

Frequency Matters! (The Key to Understanding PEMF)

If you want to find the secrets of the universe, think in terms of energy, frequency and vibration.

— Nikola Tesla

Remember the universe and the human body is primarily a holographic field of energy, information, and secondly physical. Frequency is a carrier of both energy ($E = h\nu$) and information (interference patterns, phase relations, holograms, etc.). The science of energy medicine is becoming more and more about frequency, and less about intensity as the science of homeopathy, radionics, and PEMF is showing.

Intensity is a little easier to understand as it's just the strength, amplitude or dosage of something (or the amount). Frequency is a little more complex, but it's crucial to understanding energy medicine and PEMF therapy so we'll carefully define it.

So What is Frequency?

Think of frequency in terms of waves. Frequency describes the number of waves (or cycles) that pass a fixed place in any given amount of time. If 10 waves pass through a fixed point in one second, the frequency would be 10 cycles/second or 10 Hz.

Usually frequency is measured in the hertz unit, named in honor of the 19th-century German physicist Heinrich Rudolf Hertz. The hertz measurement, abbreviated Hz, is the number of waves that pass by per second, or the cycles per second, or number of oscillations per second. For example, an “A” note on a violin string vibrates at 440 Hz (440 vibrations per second).

Frequency is an abstract mathematical concept that applies to many physical phenomenon. Waves of water are a visual way to see frequency. If there are a large number of waves in a compact area that would be considered a high frequency, relative to a small number of waves.

Sound waves are another type of frequency. A low frequency sound wave is your bass or low tones, whereas a high frequency sound is the treble or high pitch. On an interesting side-note, the human ear can pick up frequencies from around 20 Hz - 20,000 Hz (20 cycles per second to 20,000). Dogs can hear a higher pitch than the human ear can detect.

The Electromagnetic Spectrum

The most important application of frequency is the electromagnetic spectrum. The mysterious and vitally important photon is the force-carrying particle behind ALL electromagnetic interactions. The photon carries or transmits all of the “force” responsible for electrical interactions between charged particles. These are mainly the electron and proton in our everyday world. All forces of energy and power associated with electricity and magnetism comes from the photon.

The photon does even more though. It makes up all visible light, radio waves, infrared waves, x-rays, gamma rays, and everything in between. This totality comprises the entire electromagnetic spectrum (see figure 14). The lowest frequencies in this spectrum are radio waves. They can have wavelengths up to several thousand miles or more. Then, in order of

increasing frequency we have microwaves, infrared, visible light, ultraviolet light, x-rays, gamma rays, and cosmic rays. Notice how only a small portion of the electromagnetic spectrum is visible to the human eye.

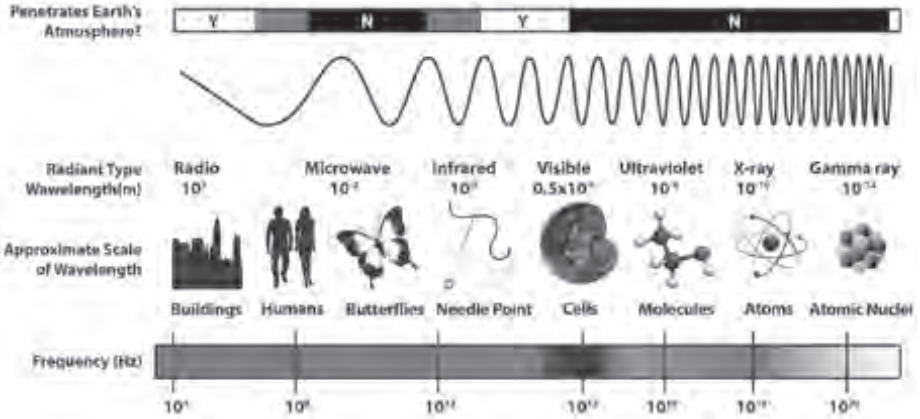


Figure 14 Frequencies of the *Entire* Electromagnetic Spectrum

The Sun is our primary source for most of the electromagnetic rays we experience on a daily basis. These are mostly from the infrared, visible light and ultraviolet part of the spectrum. Some animals can see into the infrared and ultraviolet, but the human eye can only detect around 400 - 700 nm wavelength, which is in the range of 4×10^{14} to 8×10^{14} cycles per second (that's around 400-800 trillion cycles/second - a very high frequency) corresponding to colors red through violet. Infrared is aptly named, as it's just "below" red, and ultraviolet is just "above" violet. The peak emissions from the sun are in the visible light range. It seems the human eye has evolved with the peak spectrum the sun radiates! Infrared and ultraviolet are also present, as evidenced in the warmth we feel from the sun (infrared) and the sunburn we can experience from ultraviolet.

The earth itself emits a predominantly low infrared wave due to its hot core, while also gathering re-radiation absorbed from the sun's energy.

Equally important for life, are the geomagnetic and Schumann resonance frequencies. These are the life-giving frequencies that are essential for life. They are distinctly different than the other common electromagnetic frequencies (light, infrared, ultraviolet, etc.) in that they

are approximately scalar waves (standing waves), which means they are more primary and fundamental than simple electromagnetic waves.

Let's take a closer look at frequencies the earth emits. As you'll remember, there are two components to this frequency spectrum. The first is the resonant frequency of the spherical cavity between the earth's crust and ionosphere called the Schumann resonance, and the second is the frequency of the earth's magnetic field generated from its outer core called the geomagnetic frequency.

Schumann Resonance Frequencies - The "Heartbeat" of the Earth

It's fascinating that we can easily rearrange the word "earth" and get "heart". The earth is a living organism, and if the earth were to have a heartbeat, it would be the Schumann resonance frequencies. We gave an introduction to the Schumann resonance in chapter 1, but let's review and take a closer look at how these frequencies are produced.

Just as a tuning fork has resonant frequencies for sound, so does the earth and the ionosphere surrounding it have resonance frequencies for electromagnetic radiation called the Schumann resonance. Basically the ionosphere with the earth's surface creates a spherical wave-guide that surrounds the earth. Low frequency electromagnetic waves bounce around this waveguide. This is how short-wave radio signals are transmitted around the globe. The fundamental frequency in this spherical cavity of the earth is 7.83 hertz; which, like a tuning fork is the earth's fundamental note.

These frequencies are excited mainly by lightning strikes in the cavity formed by the earth's surface and the ionosphere, but they can also be induced by solar flares. More than 7 million lightning bolts strike the earth each day. These thunderous flashes of energy ring the proverbial bell of the ionosphere to a note of 7.83 Hz and higher harmonics or octaves (as we'll see). This natural frequency pulsation is not a fixed number, but an average of global readings. The primary fundamental frequency is usually close to 7.83 Hz. The Schumann resonance actually fluctuates due to geographical location, lightning, solar flares, atmospheric ionization, and daily cycles. Contrary to New Age discussions, the fundamental Schumann resonance is not rising. This is according to continuous monitoring from geological observatories all around the world.

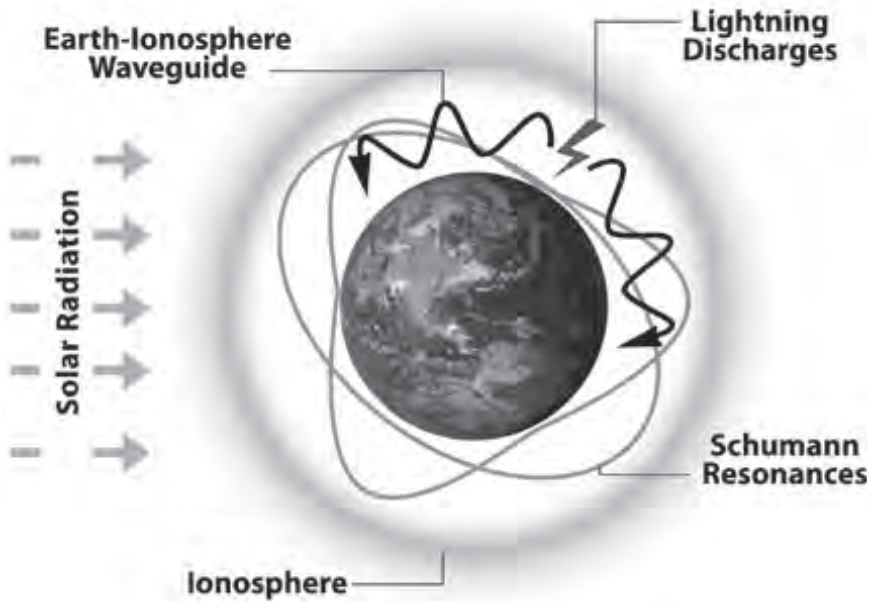


Figure 15 The Schumann Resonances

Just as a piano has varying octaves of “C”, so do Schumann frequencies. These octaves primarily fall in the 0-30 Hz range. We’ll see in the next section that this 0-30 Hz range of frequencies are the most important for our body, mind, and cells. The first harmonic of 7.83 is by far the strongest with each subsequent harmonic diminishing in intensity. For all practical purposes, harmonics above the fifth are virtually undetectable.

The Primary Harmonics of the Schumann Resonance

- 1st Harmonic 7.83 Hz
- 2nd Harmonic 14.07 Hz
- 3rd Harmonic 20.25 Hz
- 4th Harmonic 26.41 Hz
- 5th Harmonic 32.45 Hz

It’s important to note that Schumann Waves are quasi-standing waves or scalar waves. As we saw in chapter four, scalar and vector potentials are causal to and more fundamental than electromagnetic waves as carriers

of phase relations or information fields. A simple way to understand this is the 7.83 Schumann scalar wave is the prime broadcasting frequency for all life on earth. It appears in all living organisms. Every living thing is tuned to this frequency and its harmonics. It's the most important facet of earth PEMFs that we need for life. We all march to the cadence of this cosmic drummer — our planetary heartbeat, which sets the tempo for our health and well-being.

The Geomagnetic Frequencies of the Earth

In chapter 1, with the initial work of Dr. Wolfgang Ludwig, we saw that the magnetic field of the earth fluctuates as well. This magnetic field of the earth you're familiar with is detectable by any compass. If you look at a compass under high magnification, you will see that it vibrates and fluctuates. The earth's magnetic field isn't a constant magnetic field like a bar magnet, but varies with time. It has a measurable frequency like the Schumann resonance from the ionosphere.

Ludwig found that by taking measurements at the earth's surface, you always measure two things: those coming from above (Schumann frequencies), and those coming out of the earth (the geomagnetic frequencies). You can't separate the two. When you measure underground you use difference measurements to separate what is measured above and below; but remember both must be in balance (Remember figure 4 from chapter 1).

Also, according to Ludwig, the "geomagnetic-frequency spectrum" of the earth results from the modulation of 64 trace elements within the earth's core and crust.

The Lattice Structure of the Earth's Magnetic Fields

Other compelling evidence of the earth's geomagnetic frequencies are found in Klaus Piontzik's book, *The Lattice Structure of the Earth's Magnetic Fields*, whereby Piontzik lays out a derivation of the fundamental frequency of the earth's magnetic grid.

Using Fourier analysis and geomagnetic data from 200 measuring stations around the world, Klaus discovered that earth's magnetic field

has an oscillating structure with source points coming from four poles (not just two). The earth is a quasi-quadruple. His model shows several of the popular energy grids (the basis for lay-lines in dowsing) such as the Hartman grid, Curry grid, and others are actually harmonics within the earth's actual geomagnetic field and its frequencies. The earth's magnetic field is MORE than just a static or DC (direct current) field; it has a frequency harmonic as well.

This frequency was found by Piontzik to be 11.79 Hz at the poles and 11.75 Hz at the equator. The difference coming from the fact that the earth "bulges" at the equator due to centrifugal forces of its rotation.

So the earth's magnetic field has a fundamental frequency, and that frequency is 11.79 Hz (polar) and 11.75 (equatorial). Like the Schumann frequency, it has higher harmonics listed below¹.

The Primary Harmonics of the Earth's Geomagnetic Field (Pole Radius)

- 1st Harmonic 11.79 Hz
- 2nd Harmonic 16.67 Hz
- 3rd Harmonic 23.58 Hz
- 4th Harmonic 30.8 Hz

Nikola Tesla also measured the frequency of the earth to be around 12 Hz, and based some of his free energy devices on this frequency.

It's important to note that primary frequencies and harmonics for both the Schumann and geomagnetic frequencies lie within 0-30 Hz. This 0-30 Hz is the primary window of frequencies that the earth emits. This window also includes the human body, mind, and its cells.

Lower Frequencies of the Earth - Completing the 0-30 Hz Range

We saw the primary harmonic frequencies of the Schumann resonances and geomagnetic frequencies were between 7-30 Hz. So what about the lower frequencies from 0-7 Hz, which are a vital spectrum of frequencies as well, such as the delta and theta brain wave frequencies.

Here are some natural frequencies of different radii on the earth, moon, and sun that seem to correspond to the delta and theta waves of the human brain that perhaps may explain why we operate at these lower frequency also².

- Plasma Sheet (opposite Sun), inner radius, 60,000 km **0.8 Hz**
- Magnetopause (toward Sun), radius = 60,000 km **0.8 Hz**
- Geosynchronous orbit, radius = 35,000 km **1.4 Hz**
- Outer Van Allen electron belt, outer radius = 25,000 km **2 Hz**
- Inner Van Allen proton belt, outer radius = 12,000 km **4 Hz**
- Inner Van Allen proton belt, inner radius = 8,400 km **5.7 Hz**
- Magnetopause (opposite Sun), radius = 380,000 km **0.125 Hz**
- Plasma Sheet (opposite Sun), outer radius = 380,000 km **0.125 Hz**
- Moon orbit, radius = 384,000 km **0.125 Hz**

This is important, because next we're going to discuss perhaps the MOST important bit of insight within this book. I'm talking about the BODY - MIND - EARTH Connection, and why 0-30 Hz is the most important healing frequency range the body needs.

The Body - Mind - Earth Connection (0-30 Hz)

Everything in life is vibration.

—Albert Einstein

Earlier in the book we learned that pulsating magnetic fields of the earth are as essential for life, as food, water, and oxygen. In this section we'll explore further proof of our intimate inter-dependence between the earth, our bodies, minds and cells and even DNA!

I call this the *body-mind-earth connection*. We hear a lot about the body-mind connection in alternative medicine, when in actuality it is not the whole picture as it lacks the key element - earth. Remember our holographic energy body is an open system connecting upwards from the earth and cosmos and downwards to the organs, tissues, cells and atoms. Perhaps the most important idea taken from this book is that the 0-30 Hz frequency range the earth provides is the *great connector*, which energizes, synchronizes and "plugs" us into the earth's nurturing energy field. This

field is also holographic and energetic like our body's own energy field. It more than sustains, protects and nourishes all your organ systems, tissues, and cells. We are part of the very fabric of the earth's holographic field. Very simply, health is a state of being connected to the earth, its fields and all the elements needed for life, while ill health is a mirrored state of being disconnected.

The chart below summarizes the body-mind-earth connection. This is one of the most important points in this book, so I want to give you the big picture first, expand, and summarize so this idea is firmly understood on many levels.

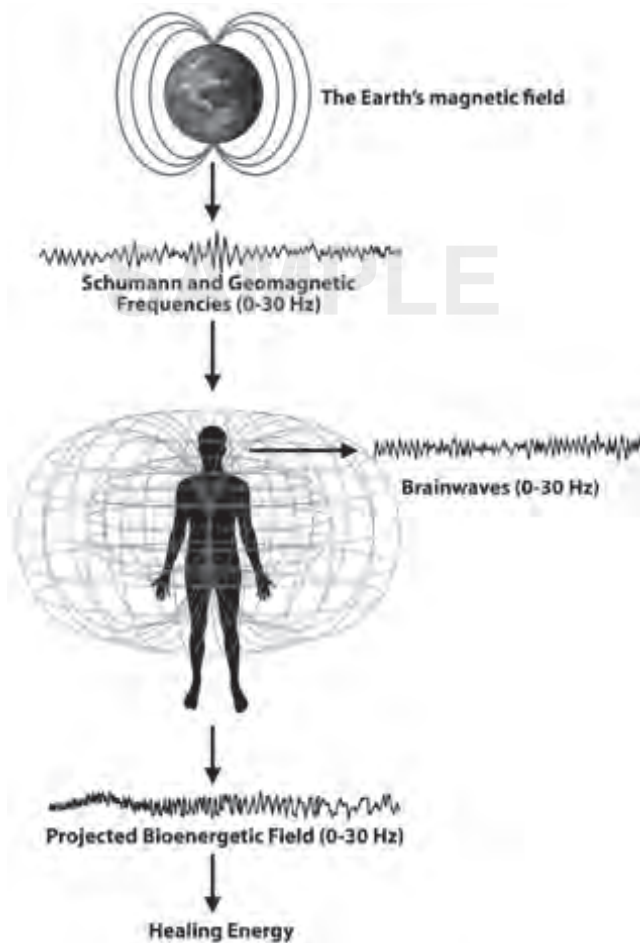


Figure 16 The Body Mind Earth Connection (0-30Hz)

The following are the four aspects of energy related to the body - mind - earth connection:

- The frequencies the earth emits,
- The frequencies our tissues and cells absorb,
- The frequencies our mind operates at,
- And the frequencies our body radiates and projects.

First, the frequencies that the earth emits through both the Schumann and geomagnetic frequencies (along with the higher harmonics or “octaves”) are primarily in the 0-30 Hz range.

Secondly; Siskin and Walker proved that the tissues in our body resonate primarily to the frequency range of 0-30 Hz. Adey and Bawin’s research showed that the actual biological window of frequencies our cells resonates to is only found within the 0-30Hz range, NOT outside of it.

Thirdly, the brain and central nervous system are tuned to the 0-30 Hz frequency range as evidenced by the medically established EEG brain state frequencies from low delta to high Beta.

Lastly, Dr. Zimmerman, co-pioneer of SQUID, a technology developed for measuring very weak magnetic fields, found by studying energy healers, our hands and bodies EMIT these 0-30Hz frequencies. Later Japanese researcher Seto confirmed this result independently with master Chi Kung practitioners.

The earth emits this range of 0-30Hz frequencies, we absorb them, our brains are tuned to them and we even EMIT them. There is a fundamental connection, or more accurately “entrainment” between the body, mind and earth. When I first understood this, I got goose bumps. Of course! It was obvious; the earth emits precisely the right intensity and frequency at the exact time we need it! Let’s look more closely at these four aspects of the body-mind-earth connection and the research that supports them.

Frequencies the Cells Resonate to and Absorb (0-30Hz)

Beginning in the mid-70s, W.R. Adey and S.M. Bawin did several experiments with brain tissues of chickens and cats. They irradiated the animal tissue with a wide range of pulsed electromagnetic field (PEMF) intensities and frequencies.

Adey and Bawin's research found that when cells were treated with a certain range of frequencies and intensities they responded with readable results. Outside of these ranges or "windows"; however, there was no response or minimal at best. The experimentally determined frequency range is known as the Adey-window or more descriptively the "biological window" of frequencies living cells respond to in a favorable way³. The Adey-window corresponds exactly to the primary frequencies of the earth's Schumann and geomagnetic fields (also 0 - 30 Hz).

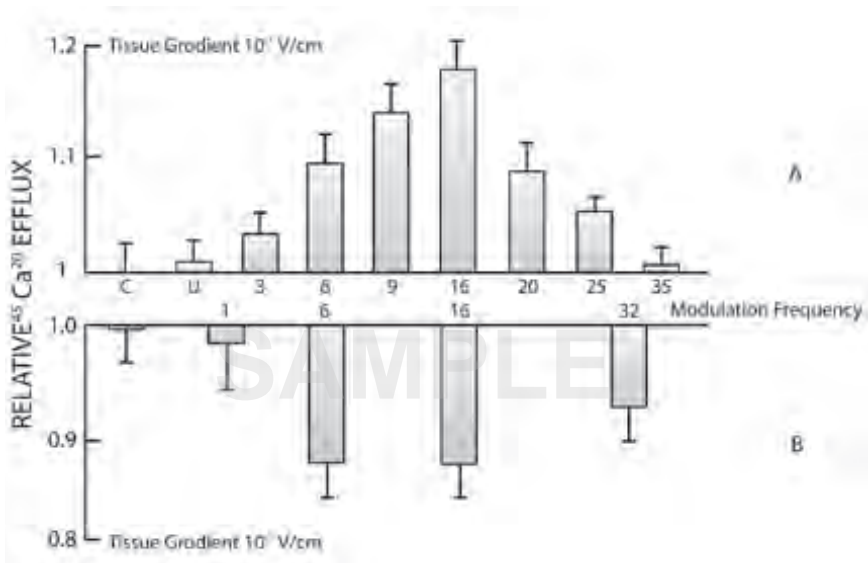


Figure 17 The Adey or Biological Window of Frequencies the Body optimally Absorbs³

C.F. Blackman and his colleagues confirmed Adey and Bawin's studies of brain tissue possessing maximum frequency sensitivity between 6 and 20 Hz at low power .76 mW/cm². This range is right at the same peak of the 0-30 Hz range found in the Adey and Bawin study⁴.

Note the lower half of the graph's power or intensity/time window. W.R. Adey himself was reported to say with regards to PEMF signals on treating the body, "small is powerful, less is more". Research has shown that biological systems defy the seemingly obvious logic that a larger stimulus should produce a larger effect. As it turns out, in living systems

weak and even extremely weak fields can have very potent and powerful effects, while strong fields may have little or no effect (or even be harmful). So not only is there a frequency window, but there is an intensity window as well - which again are the intensities the earth gives us.

Evidence that our cells and Tissues need 0-30Hz PEMF

At the level of tissues, the same 0-30 Hz frequency range has been shown to have the most positive benefits on the human body. Figure 18 lists frequencies in the 0-30 Hz that biomedical researchers are finding effective for the healing of soft and hard tissues.

In 1995, Siskin & Walker noted that a PEMF frequency of 2Hz stimulated nerve regeneration, and a frequency of 7Hz can be used to stimulate bone growth. Frequencies of 10Hz promotes ligament healing, and 15, 20, and 72Hz may be used to decrease skin necrosis and stimulate capillary formation⁵. Since tissues and organs are made of cells, this research further confirms the hypothesis the human body needs, resonates and responds to the 0-30 Hz range of frequencies.

Frequency	Effects
2 Hz	Nerve Regeneration
7 Hz	Bone Growth
10 Hz	Ligament Healing
15, 20 Hz	Stimulation Capillary Formation

Figure 18 The Body's Tissues also Need 0-30 Hz

Frequencies That the Human Body Emits (0-30Hz)

Perhaps most exciting is the research of Dr. John Zimmerman. In the early 1980's, Dr. Zimmerman began a series of important studies on therapeutic touch, using a SQUID magnetometer at the University of

Colorado School of Medicine in Denver. Zimmerman discovered that a pulsating biomagnetic field emanated from the hands of therapeutic touch practitioners.

Zimmerman found the frequency of the pulsations are not steady, but “sweep” up and down, from 0 to 30 Hz (cycles per second), with the most activity around the Schumann resonance in the 7-8 Hz range (see figure 19). The primary frequency emitted by the earth is the primary frequency we emit as well!

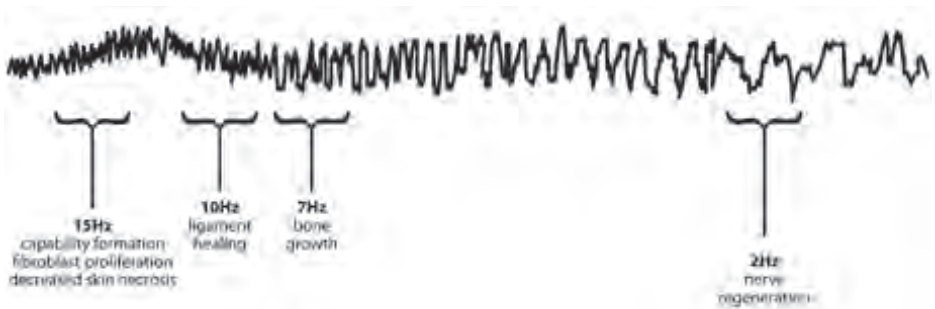


Figure 19 Projected Biomagnetic Field of Therapeutic Touch and Chi Kung Practitioners⁶

Biomagnetic pulsations from the hands are in identical range of frequencies the earth emits, as well as what our cells and tissues respond to. These frequencies necessary for healing indicate they naturally sweep back and forth through the full range of therapeutic frequencies from the aforementioned Siskin/Walker study, thus being able to stimulate healing in any part of the body⁶.

Confirmation of Zimmerman’s findings came in 1992, when A. Seto and colleagues, in Japan, studied practitioners of various martial arts and other healing methods. The “Chi emission” (Chi can be thought of as energy or life-force) from the hands is so strong they can be detected with a simple magnetometer consisting of two coils, of 80,000 turns of wire. Like Zimmerman, he found 0-30 Hz was the primary frequency range the Chi Kung practitioner’s emitted⁷.

This shows a clear correlation between the frequencies we emit and the frequencies our tissues and cells resonate to. This is the same range that

the earth gives us and as we'll see next, it's the same frequency range our brain operates within.

As a side note but central to our discussion; low frequency, low intensity PEMF therapy devices give the SAME energy (pulsed magnetic fields) as emitted by energy healers and chi chung/ martial arts practitioners, with the ideal range being 0-30 Hz at a low intensity around the earth's natural field strength.

Frequencies That Our Brain Operates At (you guessed it, 0-30 Hz!)

A large body of research has shown brain waves regulate the overall operation of the nervous system, including states of consciousness. The brain has four primary states of consciousness operating in the 0-30 Hz range as recorded by EEG (electroencephalogram) machines that is proven by even mainstream medicine:

- **Delta** (1-4 Hz) – Dreamless, rejuvenating sleep.
- **Theta** (4-8 Hz) – Not awake, not asleep – dreaming sleep (REM), deep meditation, hypnosis, trance and access to unconscious mind.
- **Alpha** (8-12 Hz) – Relaxation, super-learning, relaxed focus, pre-sleep and awake drowsiness.
- **Beta** (12-30 Hz) – Thinking, concentration, arousal, alertness along with anxiety, stress, and the fight or flight response.

It's no coincidence that the earth, brain, body and cells ALL operate within the same frequency range of 0-30 Hz!

Body - Mind - EARTH!

Notice the similarity between the brain's alpha state and the fundamental or primary harmonic of the Schumann frequency as shown in figure 20. This was mentioned in chapter 1, with the initial work of Hans Berger, and his colleague that stumbled upon Dr. Schumann's work. Hopefully, you can appreciate this beautiful insight even more deeply now.

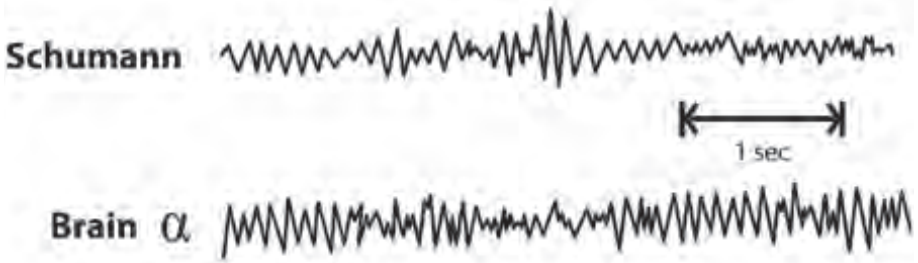


Figure 20 Striking Similarity Between Schumann Resonance and Alpha Brainwaves

If we stay tuned into the earth’s natural pulsations, we would “naturally” be in a deeply relaxed, creative state on the low end of the alpha brain wave frequency. What an amazing connection we have to the earth and life itself on this planet through the earth’s heartbeat, the Schumann and geomagnetic waves.

Biological Entrainment - Understanding the 0-30 Hz Connection

To better understand this body-mind-earth connection, it is helpful to introduce the principle in physics called entrainment. Physicists use the word entrainment to describe a situation in which two rhythms that have *nearly* the same frequency become coupled to each other so that both end up with the same frequency.

Christian Huygens, an important physicist, coined the term entrainment when he noticed two pendulum clocks close together had begun swinging to the same rhythm. Future experiments confirmed and validated this process. The principles of entrainment are universal and occur in all branches of science.

In living systems there are many examples of entrainment; for instance crickets chirp in unison and fireflies flash at the same time. There have also been studies where over time females who live with one another eventually synch up their menstrual cycles. Our bodies are entrained to various light/dark, temperature, lunar, and solar cycles.

When a musician has an audience captivated, they have them entrained into the rhythm of the music. If you have ever mediated in a group, you feel an increased strength of the meditative experience, which is a subtler form of entrainment. People dancing in unison become entrained to each other and the music.

Most important to our discussion is the body, mind and cellular entrainment with the frequencies of the earth as depicted in figure 16. We have introduced how the earth, body, brain and cells function primarily in 0-30 Hz range. Let's propose a possible mechanism.

Magnetite - The Great Connector

Human brains contain bio-magnetite (found in highest concentration in the pineal gland) that provides an electromagnetic or energetic link between our body, mind, the Schumann resonance and geomagnetic frequencies of the earth. Research has shown that in addition to the brain and pineal gland, magnetite is actually found in most tissues of the human body⁸.

Magnetite is the only known metallic compound *made* by living organisms and has the highest electrical conductivity of any biochemical compounds in the human body. Although the total amount of magnetite in an adult human is small (a few hundred micrograms), it interacts very strongly with external magnetic fields. In fact, these magnetic crystals are more than a million times more responsive to external magnetic fields than surrounding cellular non-magnetic structures.

Magnetite is also found in areas of the brain and tissues of insects, fish, birds and mammals. It is most concentrated in the brains of migratory animals, which rely on cues from the earth's magnetic field for guidance and direction. As an amazing example, some monarch butterflies are known to fly from Nova Scotia, Canada to the mountains of Mexico City, some 3000 miles (5000 kilometers) away. Not only do they fly to the same region as their forefathers, but also each one often returns to the very same tree!

Back to the human body, studies by Kirschvink and others have shown that bio-magnetite can act as a transducer, which means it can convert one form of energy to another. For example, the magnetite found in the cell membranes can convert the electromagnetic energy from the earth,

into mechanical energy such as ion transport across the cell membrane (sodium-potassium pump)⁹.

We'll see in the next chapter how ion transport is important in many cellular functions such as ATP production. This transducing ability of magnetite also has been theorized to allow our body and mind to sense, respond and adapt to our environment in many ways that creates balance and homeostasis in the body (for example, it synchronizes us with the various light, temperature and other circadian rhythms and cycles).

Magnetite in the brain and body not only synchronizes our body and brain to the rhythm of the earth; it helps as well to “capture” the earth’s natural pulsating magnetic energy to activate the sodium-potassium pump, which participates in energy production (via ATP) in the body.

Magnetite in the pineal gland, brain and body provides the link for the earth’s natural 0-30 Hz frequencies. It’s the biological antenna that connects the earth to our body, brain and cells in the great symphony of life.

Fact - Supplemental Magnetite is used in Traditional Chinese Medicine to calm the mind, improve vision and hearing, and strengthens the kidneys to improve the acceptance of chi energy. Magnetite also helps to relieve vertigo and dizziness by improving balance, dyspnea (shortness of breath), asthma and palpitations (irregular heartbeats).

The Choral - The Body Mind Earth Symphony

In conclusion, the earth’s magnetic field, Schumann resonance frequencies and their higher harmonics (0-30 Hz) compose the 5th essential element of life and health our bodies need. Through magnetite and molecular antennas in the body, primarily in the brain, we tune into and resonate to the 0-30 Hz range of frequencies the earth provides. Our brains operate within the 0-30 Hz range and our tissues (Sisken and Walker) and cells (Adey and Bawin Research) require frequencies in this range as well. The 0-30 Hz frequency range, especially 7-8 hertz, is then amplified in the body, lights up and vibrates our holographic energy field, and is radiated in a sweeping fashion, up and down the 0-30 Hz spectrum as demonstrated by the research of Zimmerman and Seto. This frequency

range is nurturing, healing and repairing as evidenced by thousands of studies in PEMF therapy as well as hands on healing techniques like Reiki, Chi Kung, etc. In chapter 9 we'll see evidence from research that earth-inspired PEMF frequencies “jump-start” the healing process in the body with many benefits including stronger bones, better sleep, pain relief, more energy, better circulation, enhanced oxygenation and much more!

These frequencies can be detected up to 15 feet away from our physical bodies. Wow! The human body is literally a miniature world, a holographic energy vortex mirroring the earth itself. We are highly tuned and dependent on the earth's elements, including the magnetic field and Schumann resonance frequencies. Again consider figure 16 and the amazing connection of the body, mind, cells and earth. Life is an interconnected flow of energy and information from the cosmos, to the sun, to the earth that ultimately flows and resonates into our body, tissues and cells. By connecting to the earth and its elements, our bodies and minds will collectively sing the rapturous choral of health, peace and happiness.

This body-mind-earth connection is a wondrous confluence of current breakthroughs in all the sciences including quantum field theory, physics, biophysics, as well as new understandings in chemistry, biochemistry, genetics, biology, astronomy and geology. We need to look at the universe, our world, our bodies and health with the fresh eyes of modern quantum field theory and the holographic model of the universe.

Chapter 5 Notes

(Complete Bibliography in Back of Book)

1. Klaus Piontzik, *Lattice Structures of the Earth Magnetic Field* (Books on Demand GmbH, Norderstedt).
2. <http://www.valdostamuseum.org/hamsmith/Schumann.html>
3. W.R. Adey & S.M. Bawin, *Brain interactions with weak electric and magnetic fields* (Neurosciences Research Program Bulletin 15 (1), 1–129: 1977).
4. C.F. Blackman, J.A. Elder C.M. Weil, S.G. Benane, D.C. Eichinger & D.E. Hose; *Induction of calcium-ion efflux from brain tissue by radio-frequency from brain tissue by radiofrequency radiation: effects of modulation frequency and field strength* (Radio Science 14 (6S), 93–98: 1979).

5. B.F. Sisken & J. Walker, *Therapeutic aspects of electromagnetic fields for soft-tissue healing* (Advances in Chemistry Series 250. American chemical society, Washington DC, pp 277-285: 1995).
6. J. Zimmerman, *Laying-on-of-hands healing and therapeutic touch: a testable theory* (Journal of the Bio-Electro-Magnetics Institute 24, 8-17: 1990).
7. A. Seto, C. Kusaka & S. Nakazato, *Detection of extraordinary large bio-magnetic field strength from human hand during external Qi emission* (Acupuncture & Electro-Therapeutics Res. Int. J. Vol. 17; 1992).
8. K.J. Lohmann & S. Johnsen, *The neurobiology of magnetoreception in vertebrate animals* (Trends in Neuroscience, 23(4),153: 2000).
9. J. Kirschvink, *Magnetite Biomineralization In the Human Brain* (Proc. Natl. Acad. Sci., Vol. 89, pp 7683-7687, Aug 1992).

SAMPLE



6 PEMF – The Whole Body Battery Recharger

Life is driven by nothing else but electrons.

— Albert Szent-Gyorgi (Nobel Prize Winner)

The human body as well as the universe, is primarily a holographic field of energy, information and consciousness and secondarily physical and material. The energy field of your body extends outwards up to 15 feet (measurable by science) and operates primarily at frequencies matching the earth (0-30 Hz).

Health is an energy dance, the more you have, the better you'll feel; providing the energy is harmonious and beneficial to the body. The health of your body is dependent upon the health of your cells, as all your organs and tissues are composed of them. Our 100 trillion cells intelligently communicate with each other at faster than light speeds creating some 400 billion reactions every second involving over 100,000 biomolecules. Newtonian-based physics and biology are left speechless attempting to explain this complexity. This amazing intelligence residing in the body knows how to heal itself; it only requires the essential elements food, water, sunlight, oxygen as well as sleep, exercise and the earth's PEMFs.

Through circulation, electric and magnetic currents and intelligent communication, these essential elements are delivered to each of our 100 trillion cells. At an energetic level, our cells act as battery-driven miniature pumps, which require food for fuel, oxygen for combustion; and an ignition, spark or catalyst to drive the process. This spark is enhanced by the earth's

geomagnetic and Schumann energy field; but it can also come from PEMF therapy devices that are in alignment with what the earth provides.

These miraculous cellular pumps allow the good stuff to enter the cells needed for energy production (oxygen, and about 90 substances, like enzymes, glucose, and nutrients), while removing waste products that arise from metabolism, infection, and toxicity (CO₂, heavy metals, and other waste products). The pumps require energy, namely ATP (adenosine triphosphate) and TMP or transmembrane potential. These are the two primary ways the body stores energy at the cellular level. The TMP is the voltage across the cell membrane and ATP is the main form of energy the cells use, like a rechargeable battery.

Have you ever heard someone say, “I need to take a vacation so I can *recharge my batteries*”? It’s a commonly used American idiom meaning, “to rest in order to get back your strength and energy.” Perhaps they really mean they need to recharge their *cells*. *You see, batteries are cells and cells are batteries – wet cell batteries, that is... Literally!*

NOTE: Technically speaking, a single battery is a cell, also called an electrolysis cell. A *battery* is a series of two or more cells and you may have heard the reference to “cell” in relation to batteries with the common terms “wet cell” and “dry cell” batteries.

Not only do earth-based energies dynamically ignite cellular metabolism, they also recharge the two main ways the body stores energy, which is voltage across the cell membrane (TMP) and ATP. As we’ll see in this chapter, healing is simply a matter of charging up cells to their optimal voltage.

Using earth-inspired PEMF therapy is like hooking up our 100 trillion cells to microscopic jumper cables, giving them a full charge. PEMF therapy literally “jump-starts” the healing process in the body at the cellular level.

Life is Driven By Electrons

Simply put, electrons are vortexes of energy possessing the ability to do work. They resemble complex miniature magnets. Within quantum theory, electrons exhibit a paradoxical particle-wave duality and can emerge spontaneously from the zero point energy field. Electrons are the essence of the energy driving biological processes at the cellular level.

The body requires excited state electrons to fuel the myriad of processes life demands. These excited electrons are the prize creation of the Krebs cycle that generates ATP. ATP or Adenosine Triphosphate has a high-energy phosphate bond that when broken releases electrons in a high energy state.

Electrons ARE the electricity and ignition driving life (oxygen = combustion, food = fuel, electrons/voltage = ignition) providing the body with energy for metabolism.

Healing IS Voltage

Electrons and voltage are intimately related, for excited state electrons create voltage or electrical potential energy.

In electrical terms, voltage is stored work potential. Amperage is the movement of electrons performing the work. When electrons move from one place to another it is called current.

When a voltmeter is placed across the leads of a battery, the reading you get is the difference in electrical pressure - the potential - between the two poles. This pressure represents the excess electrons present at one pole of the battery. Incidentally this is caused by a chemical reaction within the battery, as it is ready to flow to the opposite pole.

In energy medicine each cell is designed to run at a specific voltage, creating high-energy electrons available to do work. Voltage makes the world go around in the universe of your cells with SEVEN important and interrelated concepts, which we will discuss in this chapter. It's important to keep in mind that the earth's PEMFs enhance and catalyze all seven processes mentioned below, both directly and indirectly.

These seven aspects of energy creation in the body work together simultaneously and synergistically and it's only for educational purposes that we'll look at each component individually.

7 Cellular Benefits of the Earth's PEMFs:

1. Recharges the Trans-Membrane Potential or TMP
2. Increases ATP production in the mitochondria
3. Enhances the sodium-potassium pump
4. Increase cellular pH to make the cells and body more alkaline

5. Improves oxygen uptake and assimilation into the cells
6. Lowers blood viscosity and improves circulation and microcirculation
7. Creates a healthy level of electroporation (openings in the cells for improved nutrient transport and elimination)

1. PEMF Recharges Your Trans-Membrane Potential or TMP

Cell membranes are made of two layers of fats called phospholipids. A phospholipid has a polar group on one end, which is a conductor, and two fatty acid chain insulators. The lipid bilayer of the cell is arranged so the fatty acid chains are in the middle with the polar group on the outside and inside of the cell membrane. When you have two conductors separated by an insulator an electronic device called a capacitor is created. Capacitors store electrons and voltage, serving as battery packs for the cells. Since human cells are roughly 7-10 nanometers (a nanometer is one billionth of a meter 10^{-9}), and on average operate at around 70 millivolts, that would give a capacitance of 10 million volts per meter! This is an incredible amount of energy stored across such a short distance hinting at just how energetic our cells are relative to their small size (5000 cells can fit across an inch).

One of the most important benefits of the earth's PEMFs on the body is to charge the trans-membrane potential or TMP.

Nobel Prize winner Dr. Albert Szent-Gyorgi proposed that the proteins within the cell membrane can act as solid-state rectifiers, capable of capturing the energy of the earth's alternating electromagnetic field (a rectifier converts AC or the alternating current into DC or direct current)¹. As already mentioned, the biomagnetite found in the body and on cell membranes, can convert the electromagnetic energy from the earth into other forms of energy in the body, such as assisting the sodium-potassium pump. This helps to boost the cellular voltage or TMP.

Dr. Otto Warburg and Cellular Voltage

According to Nobel Prize Laureate, Dr. Otto Warburg, cells maintain a voltage across their membrane, which is analogous to the voltage of a

battery. He found that healthy cells have a measureable voltage from 70-100 millivolts, with the heart cells having the highest (upwards to 90-100 millivolts).

Dr. Warburg found that due to the constant stress of modern life along with a toxic environment and the aging process, cellular voltage drops. People with chronic illnesses and chronic fatigue unilaterally had a diminished cellular voltage (30-50 millivolts). Cancer patients displayed the lowest voltage at less than 15-20 millivolts². *Ever wonder why there is no heart cancer? The reason is because the heart cells have the highest voltage of any cells in the body. Think about that!*

So you see, health is literally an energy game at the “CELL”-ULAR level. There truly are no exceptions to this rule; if your cells have energy you are healthy, if not, you get sick. As the graph in figure 21 shows, if we can keep our cellular voltage charged in the healthy range, we can radically extend our lifespan. This is why PEMF therapy devices are one of the most powerful and effective anti-aging tools available today!

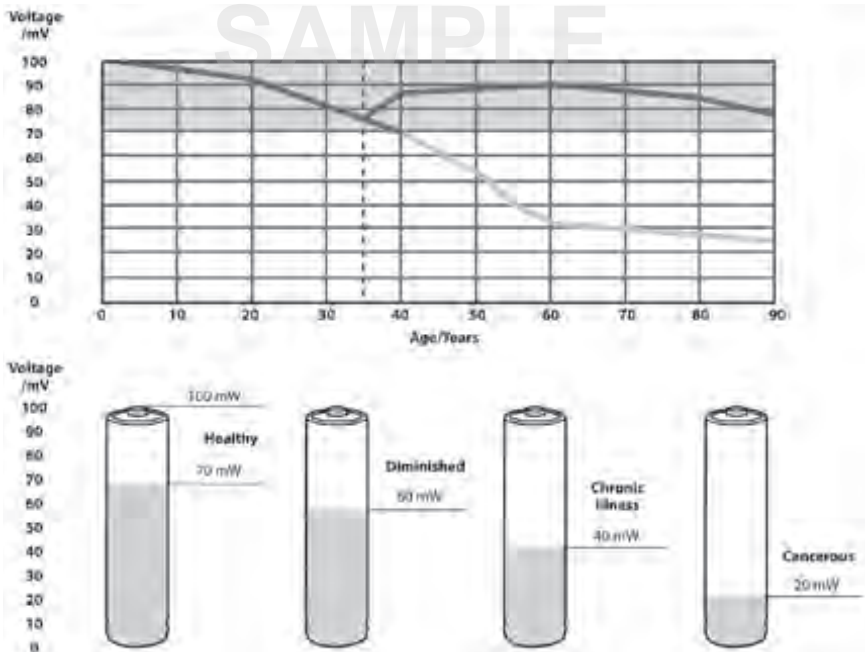


Figure 21 The Connection between Cellular Voltage & Health (or Disease)

Imagine you have a shiny new flashlight and you put in a fresh new battery. Turn the flashlight on, and the light burns bright. As the chemical reactions inside the battery are converted to electricity, the voltage begins to drop and the light starts to dim over time. When the battery is dead, the light goes out. The analogy holds true with our cells as well but we have rechargeable batteries that can be replenished and re-energized.

One rechargeable battery is the TMP or cellular voltage that we just discussed, and the other is ATP or Adenosine Triphosphate that stores energy in a phosphate bond. ATP is made in the mitochondria and we'll take a detailed look next at how it's produced because ATP creation is one of the most important keys to maintaining health and staying energized. PEMF therapy recharges *both* these cellular batteries (ATP and TMP).

2. PEMF Increases ATP Production in the Mitochondria

Inside each of your 100 trillion cells are 200-300 mitochondria (20-30 quadrillion total in the body). These amazing little organelles turn the food you eat into electrical energy! That is, they convert glucose and fatty acids into high-energy electrons that are stored in ATP (adenosine triphosphate).

The mitochondria are truly strange, yet vital for life. They exist as independent cells with their own circular DNA (not helical like your cells' DNA). Below are a few of the unique properties of the mitochondria, which seem almost alien-like considering how different they are from our normal cells.

- Mitochondria have circular DNA
- They are a cell within a cell
- They can live independent of the cell
- There are 200-300 mitochondria per cell (20-30 quadrillion in body)
- 90% of our energy comes from the mitochondria (via ATP)
- The mitochondria “eat” glucose and fatty acids and turn them into electrical energy
- They utilize Hydrogen–Oxygen metabolism to produce ATP via the Krebs cycle and Electron Transport Chain (ETC)
- The Mitochondria have a rich pool of electrons inside their membranes

Mitochondria have striking similarities to bacteria cells. They have their own DNA, separate from the DNA found in the nucleus of the cell. The mitochondria use their DNA to produce many proteins and enzymes required for their function. A double membrane surrounds the mitochondria, further evidence that a primitive host ingested them. The mitochondria reproduce like bacteria, replicating their own DNA and directing their own division.

Perhaps one of the most fortuitous events in the evolution of life on earth, the symbiotic relationship between the mitochondria and our cells makes our human life possible by producing one of most important molecules in biochemistry - ATP (adenosine triphosphate). The average person expends their body weight in ATP each day (50-75kg). Since there is only around 50 grams of ATP total in the body, it is recycled (or recharged 1000-1500 times a day by the mitochondria). ATP is the ULTIMATE rechargeable battery!

Electrons are manufactured in the body as ATP. When a high-energy phosphate bond is broken and transformed to ADP, the breakage of that bond releases an electron in a high-energy state. That electron is the ESSENCE of the energy that drives biological processes.

It is THAT energy from the high energy phosphate bonds in ATP that drives and fuels living processes like immunity, reproduction, respiration, locomotion, organ function, assimilation, circulation, etc. (along with the TMP).

It is important to note that when oxygen is available via aerobic (aerobic means “with oxygen”) respiration, 38 molecules of ATP can be produced from one unit of glucose or fatty acid. Only 2 ATP are produced when oxygen not available (anaerobic respiration or literally “without oxygen”). The inability to provide electrons for critical chemical pathways of the cell is part of chronic illness!

Research shows the weak PEMF signals in certain biological windows (0-30 Hz) increases ATP synthesis in the mitochondria. Also, PEMF therapy enhances all the channels, pathways and delivery of the essential elements needed to create energy in the mitochondria: oxygen absorption, hydration, assimilation, circulation, and energization of the cellular pump (TMP or transmembrane potential). This all comes together in the Krebs cycle in the mitochondria with the production of ATP.

3. PEMF Enhances the Sodium-Potassium Pump

The earth's natural PEMFs enhance the sodium-potassium pump, which is related to charging up the cells' TMP or trans-membrane potential. This leaves cells with a net positive charge on the outside and a negative charge on the inside. This pump is so essential that well over 50% of the ATP produced in the cells is used to fuel this pump!

Within the cell membrane the sodium-potassium pump forces a ratio of 3 sodium ions out of the cell for every 2 potassium ions in, for proper metabolism and cellular functioning. This is the pump that drives the absorption and assimilation of essential nutrients and also the removal of metabolic waste products and other unwanted compounds (heavy metals, chemicals, free radicals, etc.). This pump also assists in maintaining a healthy cellular voltage or TMP. Because 3 sodium ions are pumped out versus 2 potassium pumped in, there is a net positive charge on the outside of the cell creating a voltage across the cell membrane that can store energy.

An impaired sodium-potassium pump results in edema and a tendency towards fermentation (anaerobic respiration) as well as diminished ATP production. Studies have shown when sodium potassium exchange is restored, pain reduction, increased wound healing, and bones heal faster as a result³.

The earth's natural PEMF's energize cells (TMP), improve function of the sodium potassium pump and increase aerobic respiration for maximum ATP production and energy. By directly increasing ion transport, ATP can be conserved for increased energy, healing, repair and other cellular functions.

4. PEMF Increases Cellular pH Alkalizing the Body and Cells

The human body operates within a narrow pH range of 7.25 - 7.35, doing whatever it takes to stay in this range as our life depends on it. Just as we need a constant body temperature, glucose level, blood pressure, etc., we require a stable, healthy pH level. A pH or potential hydrogen is a measurement using a logarithmic scale, which indicates the level of

hydrogen in a substance. A pH of 7 is neutral. Below 7 is acidic and above 7 is alkaline.

For example, soft drinks like Coca-Cola® or Pepsi® can have a pH as low as 3. Now 3 compared to 7 may not seem like a big difference, but because the pH scale is *logarithmic*, or exponential, a pH of 3 is 10,000 times more acidic than a neutral pH of 7.

One of the main reasons people are so unhealthy is because their bodies are too acidic. Soft drinks, coffee, alcohol, fast foods, junk foods, sugar, as well as fried foods are acidic. Most fruits, vegetables, seeds, certain grains and healthful foods tend to be alkaline. The key is eating a naturally based diet and avoiding sodas, as well as acid foods as much as possible. Also drinking alkaline, ionized water is helpful.

Proper body pH is a critically important factor in good health. Your body takes calcium (an alkalizing mineral) from your bones to maintain a constant pH if your body is too acidic, which increases the risk of osteoporosis.

Dr. Otto Warburg, also noted that when cells operate at a low pH, they lean towards disease and cancer, along with a low cellular voltage. This is because voltage and pH are related. An alkaline environment has a surplus of electrons. An acidic environment has a lack of electrons.

All diseases occur from an acidic environment, so disease occurs when your voltage is low. You must have electrons available to do work or your cells will die. To measure the pH of a solution requires a sophisticated *voltmeter*, so pH is literally a measure of the voltage in the cells.

The earth's natural PEMF and earth-inspired PEMF devices increase cellular voltage and improve pH levels keeping your body in a balanced, and slightly alkaline state.

5. PEMF Improves Oxygen Uptake and Assimilation into Cells

Oxygen is the most essential element of life, considering we can live only a few minutes without it. The main role of oxygen is acting as the final electron acceptor in the creation of ATP in the mitochondria. Oxygen's main purpose then is to create energy in our bodies!

Here is the kicker, if you are lacking sufficient oxygen, your cells will revert to what is called the fermentation cycle, lactic acid cycle or anaerobic respiration cycle (all three are synonymous). This means ATP is created without oxygen with lactic acid as a by-product. This is why you get cramps in marathons and endurance events and why you can proverbially “hit the wall” at a certain point, because your body is not delivering oxygen fast enough to the mitochondria to make ATP.

When using the anaerobic pathway, only 2 molecules of ATP are produced with lactic acid as a byproduct. That’s a big double whammy. Less energy and a more acidic body! The two always go hand in hand. It’s not possible to have highly energized cells and an acidic body. Again, that’s because pH is indirectly a measurement of voltage. Cellular voltage and pH are married in either sickness or in health. And oxygen is a vital key to shifting gears to more energy and voltage because when oxygen is present in healthy amounts in the mitochondria, your cells produce ATP via aerobic respiration. As we have mentioned, aerobic respiration yields 38 molecules of ATP versus only 2 for anaerobic PLUS aerobic respiration has no acidifying lactic acid. The only by-products of aerobic respiration are water and carbon dioxide.

Also, maintaining a healthy TMP (trans-membrane potential) is key to allowing oxygen to be delivered into the cells. Another important point is that water itself dissolves and holds more oxygen when it’s at a higher voltage.

When oxygen drops the cells are forced to anaerobic respiration which yields only 2 ATP compared to 38 ATP. Your 100 trillion cells struggle with so little energy, manifesting infection, waste buildup, toxicity, sickness and disease.

Most bacteria and parasites are anaerobic, hating oxygen. So low oxygen allows bugs to wake up and begin feeding on us. Remember the terrain is key. Having an optimal level of oxygen is one of the most important components for a healthy terrain, a healthy body and a strong and healthy bio-energy field.

We’ll see in detail in chapter 9 how PEMF therapy devices improve oxygenation in many ways from the absorption and binding of oxygen to hemoglobin, to the circulation and transport to the cells, to the

assimilation INTO the cells and ultimately to the mitochondria to create ATP and energy.

Fact: The average adult human body requires about 88 pounds of oxygen daily.

6. Lowers Blood Viscosity Improving Circulation and Microcirculation

The photograph in the 1st slide of figure 22 uses live blood microscopy to depict a sample of “stressed” blood exhibiting the Rouleau effect, which is when red blood cells clump together, stacked like coins. This effect reduces the overall surface area of hemoglobin making it difficult for freshly breathed in oxygen to find a home. The Rouleau effects further inhibits proper oxygenation to the cells because the red blood cells do not circulate well enough to deliver oxygen where it is needed. This is because the capillaries in your body are so tiny that red blood cells can only pass through one at a time in a single file line. AND, it’s in the capillaries where nutrients and oxygen are transferred to your cells.

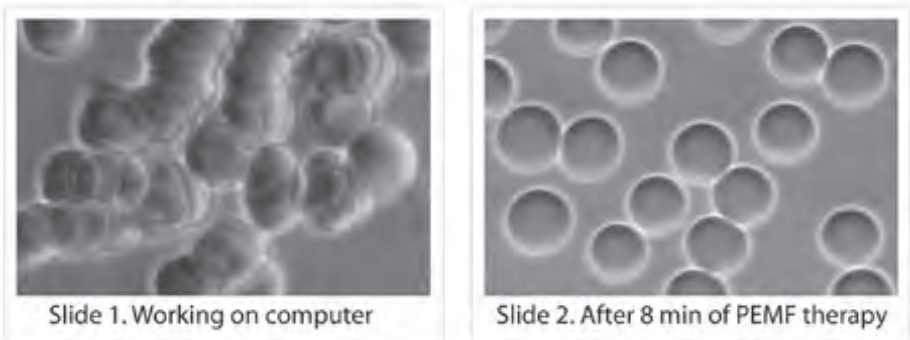


Figure 22 PEMF increases Cellular Voltage and *Reverses* the Rouleau Effect

There is a simple explanation why the Rouleau effect occurs, it’s related to voltage. When your cellular voltage is low, the positive charge on the outside of the cell is diminished to allow the cells to stick together and

stack like coins. Healthy cells have a strong positive charge on the outside of the cells, and by simple electrostatics, will repel each other. Remember like charges repel. There is no way you can have clumping cells if your cellular voltage is strong. Its straightforward physics!

The 2nd slide in figure 22 shows the same blood after a single 8-minute session with a popular PEMF device that uses the earth's natural frequencies. Notice that by simply charging up the cells with an earth-based PEMF device, we quickly improve the health of our red blood cells and assist in better oxygenating our cells.

Also of note, PEMF therapy assists in lowering blood and lymph viscosity, allowing liquids to flow more easily. Lower viscosity means wetter, thinner blood that flows easier. Red blood cells separate in response to earth-inspired PEMF frequencies allowing a smoother flow of blood and lymph and more surface area to transport oxygen. This helps to naturally lower blood pressure and reduce the risk of blockage in the arteries.

7. Creates a Healthy Level of Electroporation

Electroporation is simply a process of making cells more porous or open allowing a better intake of nutrients, water and oxygen into the cells, and removal of toxins and wastes out of the cells. Imagine a cell as a solid ball; electroporation would be analogous making the cell more like a wiffle-ball.

There can be unhealthy levels of electroporation that degrade the cell membrane, but as we have mentioned, healthy human cells can handle tremendous levels of energy to the tune of 10 million volts/meter.

Earth-based PEMF therapy gently and healthfully increases electroporation in the cells, allowing for better transport of oxygen, nutrients, and water into the cells, along with easier removal of waste products, carbon dioxide, and toxins out of the cells.

Think of electroporation like opening all the windows and doors to air out a house. If your house is filled with odors, chemicals and toxins, opening all your doors and windows will allow the toxic gases to leave and oxygen and fresh air to enter. This is exactly what PEMF therapy can do at the cellular level, opening up your cells to receive more nutrients and oxygen, and more effectively remove waste products.

Conclusion

In summary, energy is stored in the body at the cellular level in two ways, ATP and TMP. If you have a lot of back up energy, you will always remain healthy. To create ATP, you need oxygen, glucose and nutrients delivered effectively to the mitochondria.

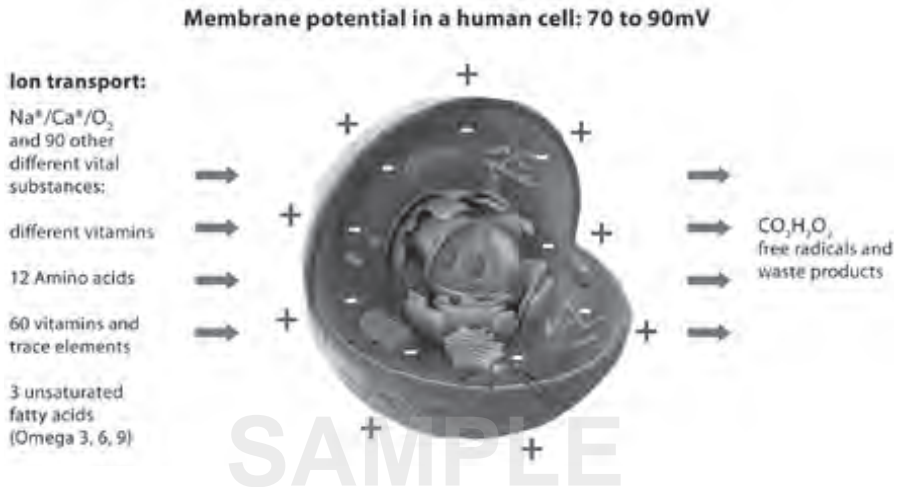


Figure 23 PEMF Therapy Increases Cellular Voltage and ATP Production

PEMF therapy enhances and improves the uptake, binding and absorption of oxygen, allows nutrients to be assimilated and delivered better. Earth-based PEMF also enhances your water-based blood and lymph so it has an ideal pH, voltage, lower surface tension (viscosity), which enhances microcirculation so that essential minerals, vitamins, amino acids, fatty acids, nutrients, water and oxygen are delivered to cells, and absorbed by the cells. This gives cells all they need to create energy, mainly in the form of ATP and TMP (the cells two batteries). PEMF then assists in the removal of waste products like CO_2 , H_2O_2 , free radicals, heavy metals, toxins and other metabolic by-products (see figure 23).

Electroporesis makes cells more porous, further improving nutrient absorption and waste removal. The Krebs cycle requires oxygen, glucose, and other essential nutrients to produce energy so if these ingredients aren't delivered and absorbed into the cell at an optimal rate, then energy

Bryant A. Meyers

declines and you end up in anaerobic respiration (the lactic acid cycle), which delivers only 2 molecules of ATP, compared to 38 given by aerobic respiration. When your cells operate optimally with oxygen via aerobic respiration, its like getting 38 miles per gallon (mpg) compared to only 2 mpg.

Also, PEMF therapy can charge the trans-membrane potential (TMP) without having to use up precious ATP.

NOW you can see why earth-based PEMF is literally a whole body battery recharger, capable of energizing and “charging-up” your 100 trillion cells with energy and life!

Chapter 6 Notes

(Complete Bibliography in Back of Book)

1. A. Szent-Gyorgyi, *Bioenergetics* (Academic Press, New York: 1957).
2. Otto Warburg, *The Prime Cause and Prevention of Cancer* (Konrad Tritsch, 1967).
3. C. Thuille, *Practice of Magnetic Field Therapy* (IGEM 1999).



The 2-Fold Problem – Magnetic Field Deficiency & Electrosmog

Four thousand years ago, estimates show, the strength of Earth's magnetic field was 2.5 gauss. Today it is only 0.5 gauss, which is effectively an 80 percent decrease.

—Japanese Med J75; No.2745

People ask me, why do I need PEMF therapy? Can't I just lie on the grass and absorb the earth's natural PEMF? That's a great question and in theory the answer is YES YOU CAN!

But there is a PROBLEM. A two-fold problem to be more precise and once you understand this problem; hopefully you'll see the need to supplement yourself daily with an earth-inspired PEMF therapy device.

Its similar to the problem of the lack of certain minerals like magnesium, chromium and selenium and other nutrient deficiencies. Even if you eat plenty of organic fruits, vegetables, whole grains, nuts and seeds, you can STILL be deficient because of our worldwide soil crisis. Simply put, our topsoil across the globe is stripped of minerals.

You may have heard of Senate Document 264 published in 1936 that stated that 99% of Americans have a mineral deficiency of one form or another and that it is imperative to supplement. This epidemic was and is still rooted in our mineral deficient soils and improper farming practices that do not let the land and soil regenerate¹.

There is an even more pressing problem when it comes to the earth's natural geomagnetic field and Schumann resonances. The problem is two-

fold: first we are simply not getting enough of the good earth PEMF and magnetism due to a decline in the earth's magnetic field and the growing trend of people spending time indoors in shielded structures (that partially block the earth's fields). The second problem is the increasing exposure to unhealthy electrosmog from cell phones, power lines, cellphone towers, cordless phones, TV, computers, microwaves, hair dryers, Wi-Fi, Bluetooth, etc. To put it simply, we are getting *not enough of the GOOD* (earth PEMFs) and we are getting *too much of the BAD* (electrosmog, negative EMFs). We are unplugged from nature and plugged into artificial energies from our modern world. To be healthy we need to reverse this trend and plug into nature and unplug as much as possible from unhealthy electrosmog.

Remember that natural earth geomagnetic and Schumann frequencies are essential, just like food, water and oxygen. The main message of this book is educating the world on this fact. And we just are not getting enough exposure to the life nurturing and life enhancing pulsed magnetic energy of the earth. But fortunately, like nutrient deficiencies, you CAN and SHOULD supplement your day with an 8-minute session on an earth-based PEMF device.

Let's take a closer look at this TWO-FOLD problem by starting with the growing increase in magnetic field deficiencies. We are simply not getting enough of the good PEMFs of the earth.

Not Enough of the Good Part 1 - Decline in the Earth's Geomagnetic field

The May 1988 issue of *Scientific American* magazine details today's ongoing degrading of earth's once powerful magnetic field, which is now measured at only about 50% of its intensity several centuries ago. Scientists calculated if this degradation continues there will not be a sufficient magnetic field to support life within 1500 years².

A more plausible theory is that earth's magnetic field is declining because of an impending pole reversal. A pole reversal is where the magnetic North and South poles flip and switch places. Magnetic field reversals take place only very rarely. From studying the magnetism of ancient rocks, scientists have learned that pole reversals have occurred at irregular intervals throughout the earth's history, on average about once

every 300,000 years. The last one happened about 780,000 years ago, so planet earth is long overdue.

NOTE: A pole reversal is sometimes confused with a pole shift in which the earth turns upside down on its axis. Pole reversals are the north and south magnetic fields switching places, while the earth remains in place spinning on its axis.

Pole reversals take place over thousands of years (not all at once), during which time magnetic poles can show up in strange places. Some have pointed to magnetic field disturbances in an area called the South Atlantic anomaly believing it's a sign of pole reversal. Another hint is there are scientists currently observing the pole migrating northward 40 miles per year, as opposed to 10 miles per year in the early 20th century.

If a pole reversal did happen it might cause some strange phenomena. Auroras would be visible at the equator instead of the poles, compasses would cease to be reliable, and radio transmissions would be adversely affected. Cosmic rays may pierce the earth's atmosphere more easily. Overall... life would go on, but based on the NASA and zero field studies, if this event begins to occur; you'll want to supplement yourself with a natural earth-inspired PEMF device very soon. Our earth's magnetic field has decreased by about 50% in the last 300 years. It would be a wise investment even if we don't experience a polar reversal in our lifetime.

21st Century Epidemic - Magnetic Deficiency Syndrome

On December 4, 1976, the Japan Medical Journal (No. 2745) published a far reaching paper titled *Magnetic Field Deficiency Syndrome and Magnetic Treatment*, authored by Kyoichi Nakagawa, M.D., one of the world's top authorities on magnetism and its therapeutic effects on the human body. He claims that the earth's degrading magnetic field combined with mankind's electronic environment is responsible for this "Magnetic Field Deficiency Syndrome".

Dr. Nakagawa found symptoms such as chronic pain and sleep disorders became magnified when the body tests too low for the earth's pulsating electromagnetic fields (PEMFs). Japanese industrial workers who spend long hours inside metal buildings that block our earth's natural magnetic field began to show the following symptoms: insomnia, decreased energy,

dull aches, and general body pains. The installation of artificial magnetic fields alleviated these symptoms³. Also fibromyalgia and chronic fatigue syndrome have been linked to a deficiency in the earth's magnetic field.

Do you suffer from a magnetic deficiency? The answer could be "yes" unless you're already taking precautions to avoid it. Symptoms include stiffness of the shoulders, back, neck, lower back pain, habitual headaches, dizziness, general fatigue, and chest pains for no specific reason.

Zero Field Studies in Magnetically Shield Rooms

Further proof and research has been performed proving that we need the PEMFs and magnetic fields of the earth. These studies are sometimes referred to as zero field studies, performed in magnetically shielded rooms. These rooms are made of what is called mu-metal (a nickel-iron alloy). Mu metal has the unique property of blocking nearly 100% of the earth's magnetic fields. These chambers will effectively block out both the Schumann and geomagnetic field of the earth, hence the term "zero-field".

In one study, a group of mice spent 4 months in a zero field environment... the results were dramatic. The mice that were blocked from the earth's PEMFs aged rapidly (compared to mice in the control group which had regular exposure to the earth's magnetic fields). The mice inside of magnetically shielded mu steel, showed pathological changes to the liver, the leukocytes, kidney and bladder as well as increased tumor formation. The fur of the mice became shaggy; the mice lay apathetically on their backs and their sex impulse reduced rapidly. Altogether, their number of deaths increased compared to the control group of mice⁴.

Another zero field study was performed by Valerie Hunt, a brilliant UCLA psychologist. She scientifically demonstrated the need for the earth's natural pulsed magnetic fields. In a normal electromagnetic environment, the human field is nourished; physiological processes are carried out efficiently, and emotional experiences occur with clarity of thought. The cells and life have a profound electromagnetic facet that cannot be explained by biochemical or mechanical processes alone.

Valerie Hunt's research is based on the observation that electrical and magnetic activity of the earth is ESSENTIAL for life. Hunt carried

out a series of experiments that proves how critical our earth's electric and magnetic fields are for life. Not just as a beneficial energy, but as an essential element like food, water, sunlight and air. Hunt had access to the Mu-metal room at UCLA whereby the electromagnetic energies can be controlled and manipulated without affecting oxygen levels and gravitation forces. She was able to get healthy college volunteers for the study⁵.

Here are a few of her findings:

- Subjects experienced sensory feedback impairment so badly that they were totally unaware of the location of their bodies in space.
- Subjects started uncontrollably crying and shedding tears (even though they reported they were not sad).
- Subjects experienced a gross lack of coordination, they could hardly stand up to balance their bodies or touch their nose while performing simple coordinated movements. They lost their kinesthetic awareness.
- Subjects experienced an increased sensation or feeling of pain.

Valerie Hunt's studies confirm earth based PEMF as the fifth essential element of health and shows us the dependency our bodies have on the earth's frequencies.

The Need for PEMF in Space - NASA Research

Outer space is an environment that provides very negligible amounts of the earth's PEMFs. As you go further out beyond the earth's ionosphere there is a significant reduction in magnetic fields and the Schumann resonance. Out of necessity, NASA and the Russian space program have equipped their spaceships, shuttles and/or suits with Schumann or magnetic field generators to simulate the conditions on earth.

Before the discovery of the importance of the earth's PEMFs, and prior to using magnetic field and Schumann generators in space, the cosmonauts returned to earth very sick, with their strength and energy depleted.

NASA has several studies on PEMF, and in this book we'll look closely

at two of them. The first is entitled, “*Pulsed Electromagnetic Fields—A Countermeasure for Bone Loss and Muscle Atrophy.*” This study led to the development of PEMF equipped space suits.

Convinced by the research on using PEMF for bone and muscle conditions, the Johnson space center developed a PEMF prototype for use in space to prevent bone loss and muscle atrophy. In the words of the report:

“Currently, there is a critical need to develop effective countermeasures for bone loss and muscle atrophy to enable future human space exploration to the Moon, Mars and beyond. Progressive muscle atrophy can lead to weakness, fatigue; the inability to perform efficiently assigned tasks, and compromised emergency egress operations. Bone loss causes increased risk of bone fracture and kidney stones, which can also negatively affect mission objectives and success.”^{6”}

Further research carried out by NASA has demonstrated that astronauts who are cut off from the earth’s magnetic field develop significant health problems which can be prevented by providing an artificial magnetic field within the space capsule^{7,8}. The bottom line is that NASA and worldwide space programs have a very deep interest in magnetic field and PEMF research because it’s critical for life. It’s a missing ingredient cosmonauts cannot live without.

Dr. Ludwig had colleagues whose complaints were reported by the first astronauts and cosmonauts, while in space, were no longer exposed to the Schumann resonance frequency. Modern spacecraft’s now contain a device that simulates the Schumann frequencies⁹.

According to Richard Gerber, author of the book *Vibrational Healing*, even scientists at NASA have incorporated PEMF generators into space shuttles that generate a pulsing 7.8 Hz Schumann resonance frequency to maintain optimal health¹⁰.

In chapter 8 we’ll introduce NASA’s landmark PEMF study conducted by Dr. Thomas Goodwin as a benchmark for finding the most effective PEMF intensities, frequencies and the ideal waveform. Based on this research, Dr. Goodwin and NASA scientists have a patent for a device that uses low frequency, low intensity (like the earth) squarewave magnetic

fields to enhance the rate of healing of mammalian body parts (US patent 7,601,114 B2, Oct 13, 2009).

Not Enough of the Good Part 2 - Too much Concrete, Steel, Rubber and Insulation

The decline in the earth's magnetic field is only part of our problem. Much of the industrialized world is disconnected and “unplugged” from nature's geomagnetic and Schumann energies of the earth.

As fore-mentioned, researcher, Kyoichi Nakagawa MD, observed disorders developing in Japanese industrial workers spending long hours in metal buildings shielding them from the earth's natural magnetic field. He called what they experienced magnetic deficiency syndrome, which included symptoms like insomnia, decreased energy, as well as generalized aches and pains. This occurs more often to ALL of us!

The industrial workers got sick because “metal” blocks the natural pulsating electromagnetic field of the earth. In physics a metal encasement with conducting wires closely spaced together in a fence-like array is called a Faraday cage. You may have seen huge tesla coils shooting out large coronas of electricity with a person safely inside a cage. This is because the free electrons rearrange and vibrate in a way that cancels the electrostatic or pulsed electromagnetic field. Living and working in an electromagnetically shielded environment blocks the earth's natural geomagnetic and Schumann frequencies. Keep in mind most buildings are constructed with steel reinforced concrete, and surrounded by copper wires and power lines. We are caged off from the heartbeat of the earth, which is so essential for our health. Cars, trains and planes are all surrounded by metal and partially shield the earth's natural pulsations, which are one of the reasons for jet lag and fatigue during long trips.

We have surrounded our lives with rubber, concrete and steel and LOST our connection to the earth. Do you spend AT LEAST one hour a day outside in nature? For instance in the garden, barefoot on the beach, or connected in some way to the earth? According to the government Census, the average American spends 90% of his or her time indoors and even when we go outside, often we are walking in rubber shoes on paved roads or sidewalks. Rubber is an insulator, which means it does not conduct

electrons. Remember ELECTRONS ARE LIFE! The bare earth is teeming with telluric currents (electrical currents in the earth's crust), electrons and energy. In addition to enclosing our feet within rubber-soled shoes, we also drive cars with rubber tires, we sleep on insulated and elevated beds, we have wall to wall carpets, existing much of the day unplugged from the 5th element of health. We are insulated, ungrounded, walking balloons with no connection to the earth and our health is collectively suffering, especially in cases related to fatigue, insomnia and chronic pain.

Human beings have no doubt adapted to this decreasing strength of the earth's magnetic field. In spite of the insulation, we still receive some of the earth's natural fields. At present, this amount is declining at a rate that may exceed our capacity to cope, which is why we need to spend more time outdoors, barefoot and connected to the earth. Plus we would benefit greatly by supplementing with an earth-inspired PEMF therapy device.

While earth PEMFs in the range of 0-30 Hz are essential for life, we'll explore next the second half of the problem: TOO MUCH OF THE BAD, harmful electromagnetic frequencies (electrosmog) and how you can protect yourself from them.

The Filling in of the Electromagnetic Spectrum

“EMF Pollution may be the most significant form of pollution that human activity has produced in this century, all the more dangerous because it is invisible and insensible.”

— Author Unknown

Another reason why we don't receive sufficient therapeutic frequencies from earth is what can be referred to as “the filling in of the electromagnetic spectrum”.

There are two broad types of PEMF signals present on earth: natural earth/solar PEMFs and man-made EMFs (Electro-Magnetic Fields) that began with the discovery and eventual spread of electricity and radio waves (for clarity, we'll refer to the healthy earth frequencies as PEMFs and the unhealthy man-made frequencies as EMFs or electrosmog).

Working at Cambridge University, Scottish physicist James Clerk Maxwell revealed mathematically in 1873 that visible light is only a

small portion of the vast electromagnetic spectrum. Edison set up the first commercial power system in New York in 1882 and radio was first broadcasted shortly after that.

For more than 3 billion years up to the invention of electricity and radio, the electromagnetic energies on earth as life evolved were relatively simple. There were the Schumann and geomagnetic frequencies of the earth. There was light from the sun along with heat (infrared), ultraviolet and small amounts of cosmic X-rays and gamma rays. There were also short-range bursts from lightning strikes centered around 10,000 Hz as well as weak radio waves from the sun and stars. Large parts of the electromagnetic spectrum were vacant and from an electromagnetic perspective the earth was a peaceful and quiet place (see figure 24)¹¹.

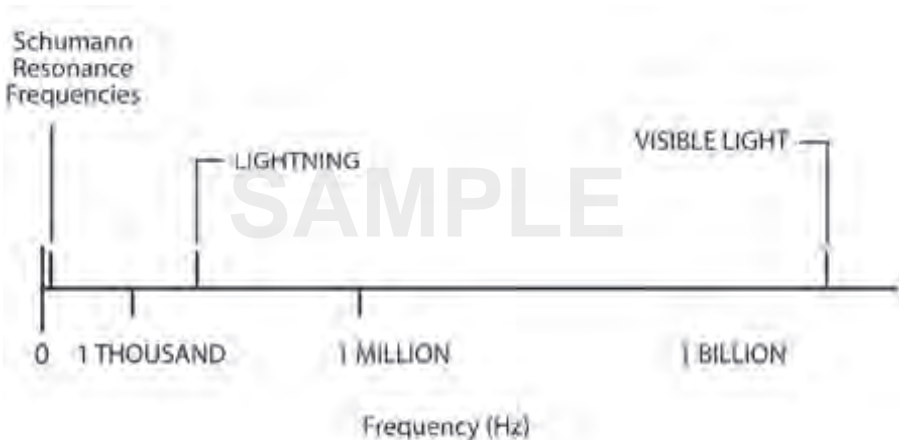


Figure 24 The Earth's Electromagnetic Spectrum Before Electricity and Radio

Neglecting ionizing frequencies higher than visible and UV light, most of the gaps in the lower frequencies have been filled in with man-made electromagnetic fields. This includes, but is not limited to frequencies from the 50/60 Hz electric power grid, military ELF/VHF, TV and radio frequencies, shortwave, radar, satellite, GPS, cell phones and cell towers, Wi-Fi, Bluetooth, Smart meters, government experiments like HAARP, etc., etc., etc. The spectrum is now almost completely filled in with all the man-made frequencies (figure 25). A spectrum that was once clean and

pristine, with only the harmonious frequencies that nature provides, is now filled with cacophonous waveforms that invisibly pollute the environment we live in.

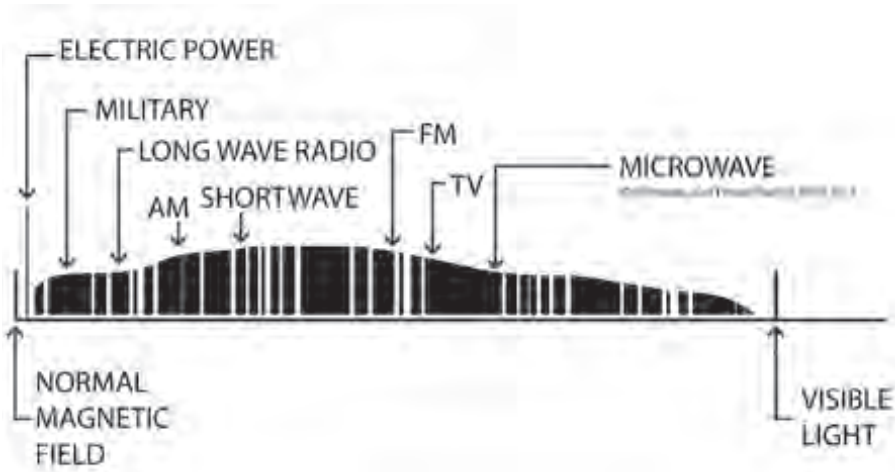


Figure 25 The Filling in of the Electromagnetic Spectrum with Electrosmog

We don't realize we are exposed to uncountable more electromagnetic fields than past generations. In fact as reported by EMFNews.org, scientists estimate daily exposure to EMF radiation is *100 million times higher* today than it was in your grandparents' time!

This is the second half of the TWO-FOLD problem- we receive too much of the bad, harmful frequencies, which overpower and “bleed-out” the natural earth frequencies. Imagine listening to a Beethoven or Mozart symphony; it provides a tranquil and peaceful feeling. That is analogous to earth's harmonious PEMFs. Now imagine simultaneously playing low quality, heavy metal music louder than the symphony. Not only do you no longer hear the symphony, you end up with a scrambled song that is worse than even the heavy metal alone.

This is the BIG problem with electrosmog; we know the earth's natural Schumann and geomagnetic energies are essential for life, but due to electromagnetic pollution, the frequencies and energies of the earth get scrambled. Plus these frequencies are inherently harmful. Most mainstream

doctors and orthodox scientists will only say ionizing frequencies (x-rays, gamma rays, radioactive decay, etc.) are deleterious, again holding on to outdated science. There is copious research revealing that both the 50/60 Hz power line distribution frequencies as well as the radio and microwave frequencies are not only harmful, but are actually carcinogenic and detrimental to our health. As we'll see, the same frequency used in a microwave oven (2.45 GHz) is also used in Wi-Fi, cell towers, cellphones, cordless phones and more.

Canaries in the “Modern” World

On May 13, 2011 a subcommittee of the WHO (World Health Organization) held a meeting in Geneva to discuss multiple chemical sensitivity and electro-hypersensitivity (EHS) and placed these two illnesses on the WHO's International Classification of Diseases (ICD). Electro-hypersensitivity, refers to an adverse physiological reaction experienced when exposed to electromagnetic fields and/or radiation.

Symptoms include:

- Chronic Pain
- Chronic fatigue
- Headaches
- Nausea
- Disruptive sleep patterns
- Depression
- Dizziness
- Skin complaints
- Cognitive dysfunction
- Behavioral patterns in children

Sensitive individuals can be devastated by harmful EMFs. At one time, miners would send a canary into a mineshaft to test for poisonous gases. If the canary stopped singing, they knew it had died and the shaft was contaminated. People who are particularly sensitive to electromog are the canaries in this modern world and this problem is becoming more

of an epidemic. EHS is not yet officially recognized in U.S. and Canada although physicians and some medical centers are diagnosing and treating patients with this illness.

These sensitive individuals are sounding an alarm most people are not listening to; and these silent and harmful energies continuously wear away at even the healthiest people in the world.

Too Much of the Bad - Electromagnetic Pollution or Electrosmog

Let's take a closer look at other forms of harmful electrosmog and how you can clean up your house to create a safer place. The goal of this discussion is to motivate you and assist you in removing these discordant, damaging frequencies from your home, so earth's healing music can better fill your body and cells.

Two major forms of electrosmog are the 50/60 Hz power line distribution systems along with large home appliances that use it; and secondly, harmful radio/microwave frequencies dominating our modern world of technology - cell phones, cell towers, cordless phones, Wi-Fi, Bluetooth, baby monitors and more.

The most common sources of electrosmog for both these categories include:

Part I. Harmful ELF Frequencies (ELF = Extremely Low Frequencies centered around 50/60 Hz)

- Power Lines – 50/60 Hz (especially living under or near high voltage power lines)
- Electric Blankets
- Hair Dryers
- Water Beds
- Refrigerators and other household electrical appliances
- Electric Clocks
- Televisions (especially plasma screen - LED is better)
- Computers
- Compact Fluorescent Lights
- Other Household Electrical Appliances

Part II. Microwaves & Radio Frequencies

- Microwave Ovens
- Mobile Cell Phones
- Cell Phone Towers
- Cordless phones
- Mobile/cellular phone masts/towers/transmitters
- Electric Smart Meters
- Wireless networks
- Bluetooth Devices
- Computers (Bluetooth and wireless components)
- Cordless baby alarms

**PART I: Harmful ELF Frequencies
(ELF = Extremely Low Frequencies)**

A Report in 1996 by the Environmental Protection Agency (EPA) found a link between harmful electromagnetic fields and cancer. The Air Force and White House apparently tried to suppress this report because they felt it might be unnecessarily alarming to the public, but some EPA staff members were so alarmed they leaked a draft copy of the findings to the press. The suppressed report concluded¹²:

“Studies showing leukemia, lymphoma and cancer of the nervous system in children exposed to magnetic fields from residential 60 Hz electrical power distribution systems, supported by similar findings in adults in several occupational studies also involving electrical power frequency exposures, show a consistent pattern of response that suggests, but does not prove a causal link.”

High Voltage Power Lines and the 50/60 Hz Frequencies

One of the first studies investigating the effects of power lines was conducted in 1979 by N. Wertheimer and E. Leeper. The study was entitled *“Electrical Wiring Configurations and Childhood Cancer”*.

Researchers examined whether there was any correlation between the incidence of leukemia in children and nearby residential power lines and towers. A residential area inside Denver, Colorado was the location for the study. Wertheimer and Leeper compared the effects of EMF on residential occupants who lived at various distances from nearby power lines. The results showed a higher incidence of childhood leukemia in children who lived closest to power sources. Some argue that the results were not conclusive, but in light of more recent evidence on the dangers of high voltage power lines, these studies should not be ignored¹³.

Besides the landmark Denver and EPA studies, a wide range of studies have documented the debilitating effects of this electro-pollution induced stress on the immune system. Manmade EMFs also paralyze the body's electrically based healing system.

A radiation researcher at Arizona State University believes that ordinary 60-cycle household AC electricity and higher frequencies such as those from radio broadcasts and radar can cause memory loss, headaches, changes in heart rate and blood chemistry, and general malaise.

European scientists report daily exposure is cumulative and contributes to sluggishness, headaches, as well as digestive and circulatory problems. At the University of Colorado in Boulder, Dr. Nancy Wertheimer has reported increased cancer among children in "high current" dwellings.

Robert Becker, in his Books *The Body Electric* and *Cross Currents* provides compelling evidence that the 0-35 Hz frequencies of the earth are essential to life, while 35 - 100 hz EMFs are harmful (especially 50-60 Hz power frequencies). So although it seems the 50 and 60 Hz are close to the frequencies of the earth and body, they are not found in nature and have harmful effects on human and animal physiology¹⁴.

This 60 Hz signal (50 Hz in other parts of the world), is the main impediment from fully experiencing the earth's natural and therapeutic frequencies. These 50/60 Hz frequencies are now a major part of the earth's geomagnetic field and show up on sensitive tests of the earth's magnetic field even stronger than the earth's natural frequencies. This is why we really need to supplement with an earth based PEMF generator and do our best to clean up our household EMF environment.

High EMF Household Appliances

Electricity, namely the 60 Hz AC power distributed from the power company to your home, is an inseparable part of our modern day society. This means that EMFs will continue to be all around us. The best we can do is minimize our exposure to this unhealthy frequency.

Electric blankets, heating pads and waterbed heaters create a magnetic field that penetrates about 6-7 inches into the body (even when turned off). An epidemiological study has linked electric blankets with miscarriages and childhood leukemia. Hair dryers and other high EMF emitting appliances like the refrigerator, dryer, as well as most TV's and computers also have harmful effects. The key is to keep a safe distance especially in areas of the house you spend the most time, like your bed, desk, or living area.

Electric clocks have a very high magnetic field, up to three feet away. Studies have linked high rates of brain tumors with chronic exposure to harmful magnetic fields generated by the 60 Hz current, so it is wise to place all clocks and other electrical devices (such as telephones and answering devices) at least 6 feet from your bed.

Rearrange your office and home area so that you are not exposed to EMFs from the sides/back of electric appliances and computers. In the home, it is best that all major electrical appliances, such as computers, TVs, refrigerators etc., be placed up against outside walls. That way you are not creating an EMF field in the adjoining room.

Always remember that EMFs pass through walls. The EMF you are being exposed to could be radiating from the next room, or from outside your home.

The Dangers of Compact Fluorescent (CFL) Light Bulbs

Compact fluorescent lights are a fairly recent energy saving invention, but they come with a heavy price tag. And the price tag is your health! Absolutely DO NOT put these toxic, cancer causing, “buzzing” EMF polluters in your house. Incandescent full spectrum lights are by FAR the best option. If you want to conserve energy, look to LED bulbs, which are safe and efficient. They can be expensive but last up to 20 years. Personally I have in my house ONLY incandescent, full spectrum light bulbs. But

in case you're not convinced CFLs are harmful, here's some compelling evidence.

Ultraviolet radiation emitted by CFL bulbs, along with toxic mercury, and electromagnetic radiation, are the three threats introduced by CFL bulbs. These threats make up the dark shadow cast by compact fluorescent light bulbs on your health and the environment.

Firstly, there is the ultraviolet radiation emitted. Reports show that while the ultraviolet radiation emitted by CFLs doesn't cause skin cancer directly, it increases your chances of getting it. I have personally seen someone get a severe "psoriasis-like" rash on her face by reading directly under a CFL bulb. Once she stopped, the rash went away.

The second major problem is the toxic mercury inside each bulb. If you accidentally drop a CFL bulb, you will always have levels of toxic mercury in your house that will be nearly impossible to completely remove. And it's easy to mistakenly drop a bulb or have one break in the garbage can. Mercury is one of the most lethal and toxic heavy metals, especially in a vaporous or gaseous form as it is in CFLs.

Thirdly, these new compact fluorescent light bulbs are notorious for generating a high EMF or electrosmog field, higher than even normal "tube" fluorescent lights. And, because you are more likely to be closer to a CFL lamp, the exposure is even higher. In my house I have around 60 light bulbs total, and if I were to replace those with ALL compact fluorescent light bulbs, my environment would be an electro-polluted mess. That's part of the problem; the average household has several dozen light bulbs and this sheer number compounds the problem.

According to a World Health Organization study, exposure symptoms to CFLs may include dermatological symptoms as well as problems such as fatigue, concentration difficulties, dizziness, heart palpitations and digestive disturbances.

It has also been shown that these new CFL bulbs can also cause psychological problems such as depression, anxiety, and panic disorders. This happens because CFLs contribute to a *decrease* in the brain hormones serotonin, norepinephrine and dopamine, which is linked to depression and anxiety.

PART II. Microwaves & Radio Frequencies (RF)

Microwaves are a type of electromagnetic wave sandwiched between radio waves and infrared radiation on the electromagnetic spectrum. A microwave oven contains a device generating roughly a 1,000-watt signal oscillating 2.4 billion times a second—a 2.4GHz electromagnetic wave within the microwave range.

This 2.4 GHz frequency is also the primary carrier frequency of many Wi-Fi stations, 4G cell towers, cell phones, Bluetooth, cordless phones, baby monitors and video cameras, etc.

Think about this... We literally are being microwaved by modern technology. It's not 1000 watts, but as we'll see, it can become detrimental to our health if exposure is consistent for long durations and/or a high intensity (like living under a cell phone tower).

Let's look at a brief history of microwave ovens (and why they are unhealthy), which existed long before cell phones and modern microwave frequency based technology.

Microwaves first popped on the scene during World War II when the Nazis used them to heat up meals during their invasion of the Soviet Union. As the war came to an end, the Russians recovered some of these microwaves and began an extensive 20-year investigation into the safety and biological effects of microwave oven use. In 1976 the Russians placed a ban on microwave ovens, though the ban was lifted by Gorbachev in 1990¹⁵.

The first scientist to study the effects of microwaved foods was Swiss scientist Dr. Hans Hertel. He found that microwaved food resulted in the following:

- Increase in cholesterol levels.
- Decrease in white blood cells, which can be an indicator of poisoning.
- Decrease in red blood cells.
- Decrease in hemoglobin levels, which could indicate anemia.
- Production of radiolytic compounds, which are “new” compounds that are nowhere to be found in humans or in nature. This is a scary thought because we have yet to discover

how these compounds affect our biology and what the long-term consequences are.

Dr. Hertel went on to explain; “There are no atoms, molecules, or cells of any organic system able to withstand such a violent, destructive power for any period of time. This will happen even given the microwave oven’s low power range of milliwatts¹⁶”. Another interesting fact that everyone should be aware of is how microwaving vegetables destroys 97% of their antioxidants and active nutrients.

Microwave Frequencies Classified as a Class 2B Carcinogen by WHO

Let’s look briefly at the important findings of the WHO (World Health Organization). The WHO currently lists Radio Frequency EMFs (which includes microwave frequencies used by cell phones, cordless phones, Wi-Fi, Bluetooth, etc.) as a Group 2B carcinogen. Group 2B means they are “possibly carcinogenic to humans”.

In May 2011, 30 scientists from 14 countries met at the International Agency for Research on Cancer (IARC) in Lyon, France, to assess the carcinogenicity of radiofrequency electromagnetic fields.

Human exposures to radio and microwave frequencies, especially in the range of 30 kHz–300 GHz, can occur from use of personal devices (e.g., mobile telephones, cordless phones, tablets, Bluetooth, and amateur radios), from occupational sources (e.g. high frequency dielectric and induction heaters, and high-powered pulsed radars), and from environmental sources such as mobile-phone base stations, broadcast antennas, and medical applications. For workers, most exposure comes from near-field sources, whereas the general population receives the highest exposure from transmitters close to the body, such as handheld devices like mobile telephones¹⁷.

Based on their findings, the WHO/International Agency for Research on Cancer (IARC) reclassified radiofrequency electromagnetic fields as possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer, associated with (but not limited to) wireless phone use.

International experts shared the complex task of tackling the exposure data, the studies of cancer in humans, the studies of cancer in experimental animals, and the mechanistic and other relevant data. 1,237,913 new cases of brain cancers (all types combined) occurred around the world in 2008 (gliomas represent 2/3 of these)¹⁷.

Interphone and Air Force Studies

The conclusions of the WHO were heavily based on two landmark studies showing the negative impact of cell phone microwave frequencies on human health. The first is the Interphone study published in 2011, that took 10 years and \$25 million dollars and including 50 researchers from 13 countries. This study looked at two types of brain tumors resulting from cell phone usage, Glioma (tumor of the brain tissue) and Meningioma (tumor of the lining of the brain). Without getting into the details of the study the findings were very conclusive. People that were using cell phones for 10 or more years had a 180% increase in Gliomas (tumor of the brain tissue).

The second significant study was a \$4.5 million dollar study done by the Air Force way back in 1984, published in 1992 and finally republished online in 2005. The study showed the effects of a 2.4 GHz microwave radiation over 24 months with rats. The results showed a 16% increase in benign tumors, a 100% increase in metastatic tumors and a 260% increase in primary tumors.

Cell Phones

Many other scientists and government agencies (especially in Europe) have already accepted that EMF from cell phones do pose health risks. Scientists do not argue anymore whether mobile phones are harmful, but how harmful they are.

Headaches and other neuropsychological symptoms occur in users of cellular telephones, and controversy exists concerning risks for brain cancer. We hypothesize these effects result from the head serving as an antenna and brain tissue as a radio receiver.

The effect of microwaves from a mobile phone has an impact on the

stability of cells in the body. The main effects are neurological, causing headaches, memory loss and also sleeping disorders.

Researchers found that volunteers had a disturbed sleep pattern for as much as 50 minutes after being exposed to the radiation. Even a short exposure to electromagnetic fields emitted by mobile phones has an effect on brain physiology.

There are studies that report that carrying cell phone near groin could impair sperm count as well as sperm health. Furthermore, it has been studied that microwaves from cell phones also increase production of cellulite.

But there is one saving grace of cell phones - as you move the cell phone away the radiation goes down very quickly. So use speakerphone as much as possible. Also invest in an EMF safe “air tube” based earpieces and keep the phone away from your head as much as possible.

Cell Phone Towers

The other problem is cell phone towers. You definitely want to look into where your nearest cellphone tower is, because if you live in a high-rise, there's a chance you have one above you! www.antennasearch.com is a resource where you can locate your nearest towers.

And because cell phone towers are MUCH more powerful than your phone, even if your 100 meters away, you could be getting the same amount of exposure as having a cellphone one inch away!

And that's all the time! Cell phone towers are no joke and they can definitely create serious health problems if there is one within 600 meters of your residence.

There was a study in Belo Horizonte, Brazil done in 2011 by the Brazilian government that showed that people closer to the base station of a cell phone tower had a higher mortality than the average population. The deleterious effects fall off rapidly after the first 100 meters, but only beyond 600 meters did the mortality rates match the average population. Other studies have been done in Germany and other parts of the world showing the dangers of living too close to a cell phone tower.

So if you live further than 600 meters you are “statistically” safe, but if you live within 600 meters (especially closer than 100 meters), you

should seriously consider moving or taking measures to shield your house or apartment.

Wi-Fi, Cordless Phones, Bluetooth and Baby Monitors

Cordless phones, Wi-Fi, Bluetooth and baby monitors also operate at microwave frequencies and are among the worst offenders of electrosmog inside your house.

Cordless phones in the U.S. operate at 2.4 GHz (like microwaves) AND also higher frequencies. The main problem of cordless phones is they are constantly emitting a “beacon” microwave signal from the base whether you use the phone or not at very powerful intensities (much more so than a cell phone). At least with cell phones you are only getting harmful exposure when the phone is around an inch or closer to your ear. With cordless phones, you get harmful exposure at even 2 feet away AND it is always ON!

If you insist on using cordless phones, look for ones that are “on demand” and radiate the microwave signal *only when in use* (unfortunately these are mainly available only in Europe, but do some research). Personally I use and recommend ONLY “corded” phones. *This is one of the easiest and most important things to clean your home of electro-pollution – use only corded phones.*

Wi-Fi routers are just as bad, as they also have a beacon microwave signal that is constantly emitting a 2.4 GHz (or 5GHz on many models now), and like cordless phones they emit harmful levels up to a couple feet away. With Wi-Fi, you can actually turn off the Wi-Fi signal and use the Ethernet to directly plug into your computer. I have heard of several cases of people with chronic illnesses get better, by simply getting corded phones and directly wiring their computers with Ethernet cables.

If you really need Wi-Fi, try to keep the router AWAY from your work area in as a remote place as possible. Also manually turn it off before bed or whenever you do not need it.

Bluetooth also operates at microwave frequencies, but it’s much weaker, hence why it’s a shorter range. So it’s usually not as much a concern as cordless phones, cell phones (next to your ears) and Wi-Fi routers, but it is still best to be minimized.

Finally, baby monitors are one of the most insidious technologies here in the U.S. Not for the service they provide, but rather in the U.S., the baby monitor station by the baby and remote by the mother has a microwave beacon signal that ALWAYS REMAINS ON! That means the mother and the baby are getting CONSTANT microwave radiation, again because the beacon signal is always transmitting! In Europe they have “sound activated systems” that only turn on when there is sound (crying, etc.). If you really need to use a baby monitor system, go out of your way to get a corded one OR a voice activated one.

Of final mention are Smart meters, which are not “smart” for your health. Smart meters have very high intensity microwave signals; so if you live in an area requiring smart meters, do some research on how to opt out of having one and how you can protect yourself.

So don't allow yourself to be exposed to health risks invisibly imposed by EMF radiation from electric & magnetic fields and pulsed microwave transmission signals, which are at frequencies that disrupt your brain and cellular functions. Cell phone and cordless phone use does carry well-established risks!

Since all these devices are operating at microwave frequencies, and we know that microwave radiation IS harmful as evidenced by hundreds of studies (and common sense), let's look at a rough comparison of how the different devices compare in intensity with regards to the most harmful ranges.

1 inch from your cellphone = 100 meters from cell tower = 18 inches cordless phone = 18 inches wi-fi router = just a 2-3 feet baby monitor.

These distances (or closer) represent harmful levels of microwave radiation if exposure is ongoing or for long durations.



Figure 26 We are Constantly Surrounded by Microwave Frequencies & its only Getting Worse

The Top 10 Actions Steps to Clear your Home of Harmful Electrosmog

1. Get rid of cordless phones - use wired or corded phones in your house.
2. Minimize cell phone usage, maintaining airport mode whenever possible.
3. Turn Wi-Fi off if possible and directly plug in the Ethernet to your computer.
4. Get rid of ALL compact fluorescent light (CFL) bulbs and replace with incandescent (full spectrum if possible).
5. Avoid High EMF appliances as much as possible and keep a safe distance from them (hairdryers, microwaves, plasma TV etc.).
6. Do not use cordless baby monitors, there are safer “on demand” or corded alternatives.

7. Avoid waterbeds, electric blankets, electric heating pads and alarm clocks.
8. Try NOT to live near cell phone towers or high voltage power lines.
9. Opt out of smart meter installation.
10. Invest in an earth-based PEMF device.

In Sweden, impairments are viewed from the point of view of the environment. No human being is in itself impaired, there are instead shortcomings in the environment that causes the impairment. Thus it is the environment that should be treated, not the person. Clean up environment, health improves.

—Dr. Olle Johansson

Why Investing in an Earth-Based PEMF Device Helps with “Dirty Electricity”

It’s actually fitting that harmful EMFs or electrosmog is sometimes referred to as “dirty electricity”. Dirty in the sense that your body’s harmonious energy field becomes discordant and scrambled.

If you spend a lot of time around computers, cell phones and electrical devices, notice how your body becomes tense, agitated, nervous and your head begins to feel uneasy. Basically your body is energetically getting “dirty” with all the unnaturally high microwave and radio frequencies. Your brainwaves become agitated and raised to high beta or even gamma brainwaves (above 30Hz).

Just like you take a bath to clean yourself of dirt and waste buildup on your skin (and do so everyday), you need to take an electromagnetic bath at least once or twice a day by either getting outdoors and walking barefoot, swimming in the lake or ocean, gardening, etc. Also, use an earth-based PEMF device daily. Let’s again show the before and after slides of live blood microscopy we introduced in chapter 6.

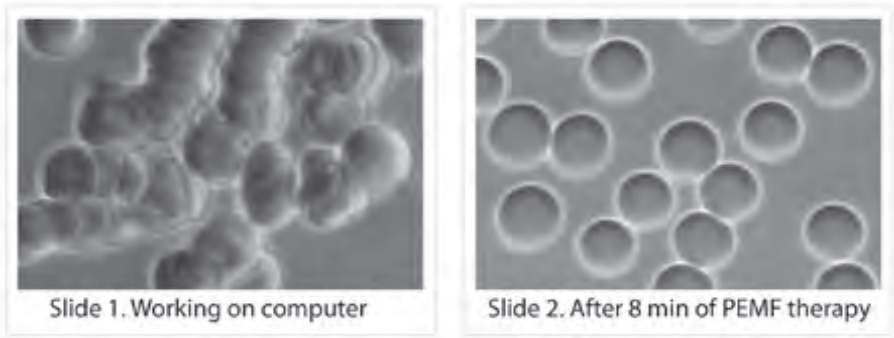


Figure 27 Using an Earth-based PEMF device is like Giving yourself an Electromagnetic Bath

Consider slide 1 in figure 27, which shows how your blood responds to dirty electricity or electrosmog (in this case a computer). It clumps together, loses its charge and cannot bind to oxygen as effectively. Furthermore, the clumping makes it difficult for the red blood cells to pass into the capillaries where nutrients and oxygen are released.

Using an earth-based PEMF device is like taking an electromagnetic bath. It resets the body and brain BACK to the natural earth frequencies and cleanses discordant and static electrical buildup. In slide 2, after just 8 minutes on a PEMF device that uses frequencies similar to the earth; the blood becomes cleansed of discordant energies, energized, oxygenated and returned to a healthy status.

Conclusion - Back to Nature

We have firmly established that earth-based PEMF is an essential element driving life on planet earth. It is the spark, catalyst and timing mechanism that energizes and harmonizes our bodies' near-infinite processes.

We are all suffering to some extent from magnetic deficiency syndrome along with overexposure to dirty electricity and unless we supplement our daily lives with an earth inspired PEMF therapy mat or some form of magnetic therapy, our health will only decline. The two-fold problem is simply that we do *not get enough of the good* earth PEMFs, and we get *too much of the bad* electrosmog and harmful EMFs.

Along with using a PEMF mat daily, other practices such as getting outside, walking barefoot and minimizing exposure to the many harmful electrosmog producing devices will make a difference in your life that will be hard to believe.

Earth-based PEMF is the solution to the two-fold problem, and in the next chapter we'll look more in depth at what to look for in a PEMF therapy device.

Chapter 7 Notes

(Detailed Bibliography in Back of Book)

1. Rex Beach, *Modern Miracle Man* (United States Government Printing, 1936).
2. K. Hoffman, *Ancient Magnetic Reversals: Clues To The Geodynamo* (Scientific American, May 1988).
3. K. Nakagawa, *Magnetic-field deficiency syndrome and magnetic treatment* (Japan Medical Journal 2745:1-11, 1976).
4. J. Carmichael, *Magnetic Resonance Stimulation* (NAAcEM, 2009).
5. Valerie Hunt, *Infinite Mind: Science of the Human Vibrations of Consciousness* (Malibu Publishing 1996).
6. Byerly D, Sognier M, Arndt D, Ngo P, Phan C, Byerly K, Weinstein R., *Pulsed electromagnetic fields – a countermeasure for bone loss and muscle atrophy*. Space Life Sciences. NASA.
7. Gursche, Siegfried and Rona, Zoltan. *Encyclopedia of Natural Healing* (Alive Publishing, Inc., Burnaby, Canada, 1997).
8. Lednyiczky Gabor and Nieberl, Jozsef, *Biological resonance and the state of the organism in Potentiating Health and the Crisis of the Immune System*, (edited by Mizrahi, et al. Plenum Press, NY, 1997).
9. W. Ludwig, *Informative Medizin* (VGM Verlag für Ganzheitsmedizin, Essen, 1999).
10. Gerber, Richard, *Vibrational Medicine 3rd Edition* (Bear and Company 2001).
11. Robert Becker, *Cross Currents* (Penguin Books, 1990).
12. EPA's *EMF Cancer Report*, Microwave News, May/June 1996, 16(3), 3.
13. N. Wertheimer & E. Leeper, *Electrical Wiring Configurations and Childhood Cancer* (1979).
14. Robert Becker, *The Body Electric* (William Morrow and Company, 1985).
15. W. Kopp, *The History of Microwave Ovens* (1979).

16. H. Hertel & B. Blanc, *Comparative study about the influence on man by food prepared conventionally and in the microwave-oven* (1992).
17. *Carcinogenicity of radiofrequency electromagnetic fields*, published online, www.TheLancelot.com June 22, 2011

SAMPLE



The Solution – Supplementing with an Earth-Based PEMF Device

A harmonious magnetic field is the king and the answer to the body's mystery and health.

— Paracelsus (1482)

In this chapter and the next, we'll explore the SOLUTION to the two-fold problem – The Earth's PEMFs! We'll see how using an earth-based PEMF therapy mat daily gives your body an extra dose of that diminishing essential element your body needs, and also gives you an electromagnetic bath that cleanses your holographic and energetic body of the effects of the harmful frequencies.

In exploring this solution, we need to introduce a brief buyers guide on what to look for because there are many PEMF and energy medicine devices on the market. The main point to keep in mind is the ideal energy the body needs is what the earth gives us, namely a magnetic field that changes with time (PEMF), in the 0-30 Hz frequency range, with intensities that match the earth, and using waveforms that most optimally deliver the energy to the cells.

Here are 11 questions we'll explore in this chapter in our quest to find the most ideal PEMF device for the human body:

1. *Why Pulsed Electromagnetic Field (PEMF) Therapy versus other forms of energy medicine?*

2. *Why PEMF Therapy Devices over static magnetic products?*
3. *What NASA has to say about PEMF Therapy?*
4. *Which frequencies are the best to use?*
5. *Why a biorhythm clock is important?*
6. *What are the ideal intensities?*
7. *Which waveform delivers maximum benefits?*
8. *Why you need a full body mat with pure copper coils & an alternating polarity?*
9. *Why investing in a PEMF device with a biofeedback component is important?*
10. *What are some additional features to look for?*
11. *Why you absolutely need a reputable, established company, a good warranty, and a device with legitimate FDA registration and Safety / Quality Certificates?*

1. Why Pulsed Magnetic Therapy Versus Other Forms of Energy Medicine?

As I mentioned in my introduction to this book, I have personally tried and tested over \$500,000 in energy medicine equipment. Pulsed electromagnetic field (PEMF) therapy has a distinct advantage over ALL other forms of energy medicine (lasers, TENS units, rife machines, etc.) because your body is transparent to magnetic fields. This means magnetic and pulsed magnetic fields can more deeply penetrate every nook and cranny of your body and energize cells at the core level.

Current research reveals SQUID magnetometers (instruments that detect very weak magnetic fields) provide a more coherent and deeper penetration of energy and information than MRIs, CAT scans, EKGs, EEGs, and other forms of energy based diagnosis. Magnetic fields are better and clearer carriers of energy and information because they do not get interfered with through organic tissue. And the reverse is also true: Treating the body with natural earth based PEMF frequencies penetrate deeper with a cleaner and undistorted signal for optimal healing and regeneration.

John Zimmerman, the co-inventor of the SQUID magnetometer noted the advantages of working with magnetic fields versus electric fields

and electrical currents. *He found that magnetic fields pass through bone and all other tissues virtually unaltered while electrical currents are blocked by bone and attenuated by tissues.* Furthermore, no contact is needed to obtain information from a person's magnetic field and also to treat a person with a magnetic field.

Laser therapy, LED therapy, electric current therapy (TENS units, zappers, Scenars, etc.), RIFE machines and electric field therapy devices have limitations in that the skin and body attenuates the energy and distorts the information in the signal and can even misdirect the signals destination. This is a clear disadvantage to the precision and clarity of pulsed magnetic signals. Also, because cells, on account of their double-membrane structure behave like small “Faraday” cages; this further inhibits these electrical energies from completely penetrating into the cells.

Says Dr. Wolfgang Ludwig ScD PhD of the Institute for Biophysics in Horb, Germany, “Magnetic field therapy is a method that penetrates the whole human body and can treat every organ without chemical side effects”.

Magnetic fields (both pulsing and static) are non-invasive, and can treat soft and hard tissue at the same time, such as nerve, skin, muscle, tendon and pain (associated with the injuries). Not only do magnetic fields penetrate through matter with little energy loss, but they also induce microcurrents deep into tissue via Faraday's law (changing magnetic fields produce an electrical current). These microcurrents assist in ion transport and the charging up of cellular voltage.

2. Why PEMF Therapy Devices Over Static Magnetic Products?

Research in magnetic therapy is divided into two distinct areas: pulsed magnetic therapy and static or fixed magnetic therapy. Pulsed magnetic therapy uses a magnetic field that changes with time using very precise frequencies, waveforms and intensities that vary. Static magnetic therapy involves static magnets that are fixed in intensity, and have no frequency or waveform associated with them. Static magnetic therapy products abound in the marketplace and include a plethora of products from magnetic mattress pads, to magnetic bracelets, knee braces, elbow braces, shoe

inserts, back braces, pillows, ankle braces, eye pillows and just about every type of brace or support you can imagine for all the joints.

So why are pulsed magnetic fields and PEMF therapy more effective than static magnets for pain, healing and regeneration? The answer is two-fold. First, static magnets have no variation and remain constant in intensity with no frequency so the body quickly habituates to the signal. The second drawback of static magnets is that there is no changing magnetic field to induce an electrical current. So let's look a little closer at the two problems with static magnets.

i. Constant Field the Body Acclimates to Over Time

The first problem with static magnets is that the body will easily acclimate to a constant signal with no variation, so results and benefits will decrease over time. It's similar to body building in that if you consistently work out the same way, the benefits and gains level off fairly quickly. By constantly varying your workout, your body will continuously benefit with no plateauing (this is the basis and success of P90X® exercise).

Not only does the body habituate to a constant signal of magnets over time with waning benefits, but static magnets also rely on a high intensity to deliver results; so cellular fatigue can set in and treatment begins to be even counterproductive and unhealthy.

Static magnets have only ONE field strength, so plotting this field on a graph of intensity versus time yields a straight line. Pulsed magnetic fields, especially those found in leading PEMF therapy mat devices have several layers of variation in the frequency and waveform, so the cells will not become fatigued and habituated. Also PEMF therapy mats typically reverse polarity every two minutes and sometimes even offer a biorhythm clock that further varies the frequencies depending on the time of day.

ii. Lack of Frequency to Create Microcurrents and Ion Transport

Because static magnets are static, they have no frequency and by Faraday's law cannot create an electrical current directly. Though because the body is dynamic with moving blood, lymph etc., they do passively create microcurrents but to a much lesser extent than PEMFs.

Life is MOTION, and pulsing fields will always induce electrical currents directly. Think about your local power plant that uses “moving” magnets to create electrical currents which power your household. Moving magnets create a pulsed magnetic field and by Faraday’s law an electrical current is generated. Just having large magnets at a power plant will never create power... They must be moving! Movement of the magnets can be driven by fossil fuels, water, wind, etc. Ultimately power to your house is delivered by large, powerful moving magnets (or copper coils moving relative to the magnets, either way from a relativistic reference frame, the magnets are moving relative to the copper creating an electrical current which delivers your power).

The pulsed magnetic fields generated by good PEMF devices penetrate through the body with little or no interference; and the electrical induction created assists with ion transport, energy flow, regeneration and more. When a magnetic field changes or pulses, it has the ability to induce a weak electrical charge into the cells of the body, which is beneficial to the cells, giving them the energy they need to repair and reproduce.

Remember our discussion of TMP in the last chapter. The TMP or transmembrane potential is one of the primary ways the body stores energy. Pulsed magnetic fields effectively charge the TMP by stimulating ion transport (sodium-potassium pump). Only pulsed magnetic fields can effectively drive these channels and help increase cellular energy and ion flow (nutrients in and waste products out).

iii. Other Problems with Static Magnets

There are three additional problems to consider... The first is that most static magnets have very shallow penetration into the body, resulting in a very limited ability to effect deeper tissues. And the second point is static magnets will rarely treat all the cells of the body at the same time, whereas a PEMF device with a full body mat will provide much deeper and broader whole-body benefits. And thirdly, static magnets do help with local pain relief, but once removed, benefits *quickly dissipate*. Just 8 minutes of PEMF therapy lasts up to 12 hours or longer. PEMF

penetrates deeper, works with the whole body and the results last longer than static magnets.

NOTE: static magnets do work well for localized “spot” relieve in which there is constant exposure (wearing the magnets constantly using straps, braces, bands, belts, etc.). But considering that most full body mat devices come with localized applicators that have deeper and longer lasting effects, there is really no need to invest in static magnets if you have a good earth-based PEMF therapy device with a full body mat.

Also remember, the body, mind and earth’s fields are dynamic, not static and pulse to the beat of frequencies in the 0-30 Hz range. This brings us to what we should look for in a PEMF device, having hopefully demonstrated that PEMF therapy is the most effective and natural form of energy medicine. Let’s start by looking at the landmark NASA study.

3. What Does NASA Have to Say About PEMF Therapy?

When it comes to research studies, it does not get any better than NASA. Of more than 10,000 research papers and 2000 plus double blind studies on PEMF therapy; none was more thorough and conclusive as the 4 year NASA study lead by Dr. Thomas Goodwin, PhD, on the ability of PEMF to improve the growth and repair of tissues in mammals¹.

Without getting into technical details of the study, I will summarize and share the main benefits of PEMF therapy that the study conclusively demonstrated as well as the exact type of energy, frequency, intensity and waveform used.

The study was not limited to PEMF therapy, but also to various forms of energy medicine such as lasers, LEDs and static magnets. After finding PEMFs were the most effective in healing and regeneration, Dr. Goodwin and his team looked at many different parameters such as frequency, waveform, intensity, etc. What NASA found was that the best results and greatest efficacy came from *Low Frequency, Low Intensity, and Rapidly varying PEMF signals*. Basically frequencies and intensities that closely match what the earth gives us with a signal that produces maximum healing effects on the body!

Specifically, NASA found the best results with the PEMF parameters below:

1. **Rapid time varying waveform:** Specifically the squarewave (sawtooth also fits this criteria)
2. **Low Frequency:** 10 Hz (close to the frequencies of earth)
3. **Low Intensity:** -10-200 milligauss (1 - 20 microtesla) which is even less than the strength of the earth's magnetic field (33 - 66 microtesla)

Additionally NASA found that slowly varying (millisecond pulse, sine wave), non-varying (static magnetic) and LASERS had little or no effect.

NASA discovered that the benefits of low frequency, low intensity, rapidly varying PEMF includes better healing and regeneration of damaged or disease tissue, greater cell longevity, accelerated cell growth, improved cellular voltage (mainly observed in nerve cells), upregulation of genes related to collagen production, cell restoration and growth.

NOTE: upregulation is a mechanism that increases the creation of certain gene products.

This study is a landmark in proving the efficacy of PEMF therapy on human cells for healing, growth and regeneration, specifically human nerve cells. These findings confirm that the human body needs frequencies and intensities close to what the earth provides, along with a rapidly varying waveform. Any doubters or naysayers on the efficacy of PEMF therapy are ignorant of over 10,000 studies including a multi-million dollar study by NASA.

Also of note is that Dr. Goodwin has a patent on a PEMF device that uses these parameters. Also NASA's prototype developed at the Johnson Space center uses the low frequency, low intensity rapidly varying waveform.

Aside: A Closer Look at PEMF Signals

To better understand what the ideal pulsed magnetic field is for the human body, we need to review briefly the wave equation in its simplest form and add a couple minor complexities.

You may remember from high school trigonometry what a sine wave is. Consider the basic one- dimensional wave equation.

$$y(t) = A\sin(2\pi ft + \varphi)$$

You need not understand the mathematics of this equation, but try to grasp the 4 main parameters: **frequency (f)** , **amplitude (A)**, **phase (φ)**, and overall **waveform $y(t)$** .

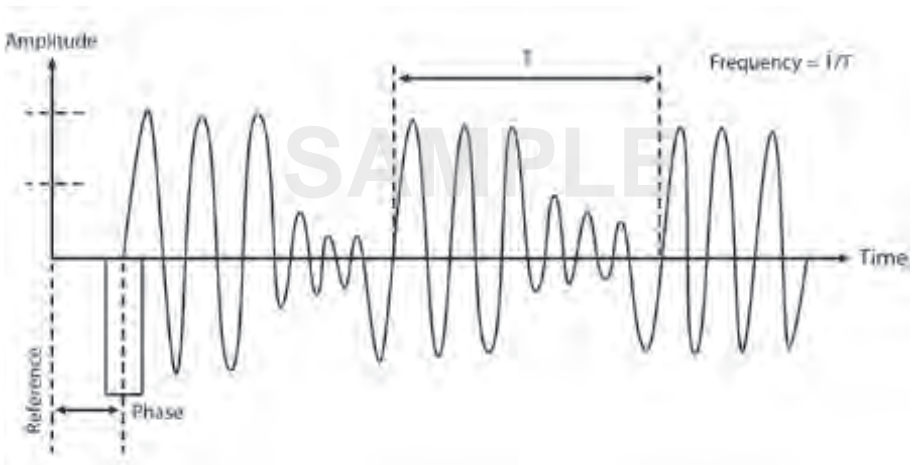


Figure 28 Components of the Wave Equation
(Amplitude, Frequency(s) and Phase)

Frequency (f), which we introduced in chapter 5, is cycles per second and is usually measured in hertz. Anything periodic has a frequency. The entire electromagnetic spectrum includes frequencies ranging from very low (long radio waves) to very high (gamma or cosmic rays). Using a car radio analogy, frequency is the station you tune into such as 101.5 FM. 101.5 *is actually* a 101.5 Mhz (megahertz) frequency the radio station is transmitting.

Amplitude (A), is the intensity or strength of the wave. In the same radio analogy, the amplitude is the strength of the signal, how well you can pick it up. As you are leaving town, your favorite radio station becomes weaker in intensity, until you hear static and are no longer able to pick it up.

The **phase (ϕ)** is the precise timing of the wave, usually in relation to another wave. In the radio analogy, there are thousands of waves that combine to create the music you hear and all of them have a phase relationship that keeps the rhythm in tack.

The **waveform $y(t)$** itself is the overall geometry of the signal such as a sine wave, squarewave, sawtooth, triangular or other. It can be a simple waveform or very complex like a radio or television wave. In the radio analogy, the waveform is the overall packet of energy and information that delivers the music at a certain carrier frequency, with a certain signal strength containing multitudes of sine waves at varying frequencies (FM = frequency modulation) that produce the music you hear. For clarity with the radio wave analogy, there are two layers of frequencies involved: the carrier signal (like 101.5 FM) and bunches of higher frequencies that combine in harmonious phase relations to create the music (in FM, or varying amplitudes in AM).

In addition to the wave equation, there is the actual type of energy, such as mechanical, electrical, magnetic, gravitational, thermal, acoustic and photonic. Our discussion will mainly focus on the electric, magnetic and pulsed electromagnetic waves the earth provides. As we have seen, these energetic waves produced by the earth's geomagnetic field and ionosphere are the primary energies driving life on earth.

Biological Windows and the Body-Mind-Earth Connection

In living systems, extremely weak fields may have potent effects, while there can be little or no response to strong fields. Cells and tissues are highly non-linear, non-equilibrium, cooperative and coherent systems capable of responding to very specific windows in terms of frequency and intensity.

So what are the IDEAL frequencies, intensities, phase and waveform the human body needs?

It turns out that years of research has shown the biological windows, or parameters the human body resonates to; *are in the same range as what the earth gives us*. We ideally need magnetic field intensities in the range of the earth, frequencies in that range and also the right timing (phase) and waveform.

By comprehending and looking deep into nature, we find the perfect elements the body needs. To better understand the type of PEMF the earth emits and our body responds to biologically, let's introduce the idea of a **biological window**.

The word "window" has its origins and meaning from "Wind Eye" or "Eye Door", and it signifies an opening or range. A window is transparent to a given range of parameters.

An **Intensity window** is used in pharmacology as the therapeutic range of drugs that is effective but yet safe. When it comes to PEMF, we also want a dosage strong enough to be effective yet not too strong so it's still safe.

A **frequency window** is the window or range of frequencies that are needed for a particular effect. For example, in sight and hearing our eyes and ears can only see or hear a certain window or range of frequencies. Our eyes see only a tiny sliver of the entire electromagnetic frequency spectrum from 4×10^{14} Hz (red) to 7.5×10^{14} Hz (violet). Also our ears hear from a very low base 20 Hz up to an extremely high treble pitch 20,000 Hz. The point is frequencies outside these windows will not register (no matter how bright or loud) to the human eye or ear. Analogously our tissues and cells have a window or range of frequencies they respond to, and as we'll see, it's the same range as the geomagnetic and Schumann frequencies of the earth!

A Time/Phase window corresponds to a **window of opportunity**, the proper time to do something. In space launches, the idea of a "launch window" is the best possible timing to launch with ideal weather and earth conditions. With PEMF therapy it's important to use the proper frequency and intensity at the right TIME to be "in synch" with the body's biorhythms.

Finally, the type of wave or the waveform is the **information window**, the ideal geometry and information for the body to resonate to. It's called the information window, because in the complex waveform of the signal,

lies all the information to create an effect. For example, a radio or television signal or waveform contains all the information that gives you beautiful music or an entertaining television program. The waveform of a PEMF signal for healing is the best informational and geometric patterns for creating a positive biological effect. The NASA study and hundreds of other studies over the past 40 years have gleaned light on this aspect of PEMF.

Before we look more closely at the intensity, frequency, timing and waveform of the ideal PEMF for the human body, it will be helpful to keep in mind figure 16 from chapter 5 and the idea of the body - mind - earth connection.

As we'll see next, the ideal waveform, intensity range, frequency range and timing of PEMF is exactly what the earth provides. Just as we saw the ideal elements of food, water, sunlight and oxygen are what nature provides, so too is the ideal pulsed magnetic energy. Albert Einstein said, "Look deep into Nature and understand everything else better." Let's begin by first looking at the ideal **Frequency (f)** range for energizing and healing the human body.

4. What is the Best Frequency (f) Window to Use?

The landmark NASA study showed conclusively that lower frequencies were ideal for stimulating cell growth, repair and healing. We saw in chapter 5 with the body-mind-earth connection that our brains, bodies and cells resonate and operate at the same frequency window as the earth, at 0-30 Hz.

We know from medical science and electroencephalograms (EEGs) the brain operates from 0-30 Hz, which corresponds to low delta to high Beta brainwave frequencies. We saw in the Adey/Bawin, and Sisken/Walker studies that our cells and tissues resonate to these same frequencies. Zimmerman and Seto's studies revealed the human body even EMITS or radiates these same frequencies which are detectable up to 15 feet away with a sensitive magnetic field detector called a SQUID magnetometer. These are the same frequencies the earth provides via the Schumann resonance and the geomagnetic frequencies (as well as the higher harmonics).

We went into great detail in chapter 5 on this connection, but it bears repeating in light of our discussion of the best PEMF device in which to invest. You want to make sure you use a device capable of operating in the range of 0-30 Hz (and not outside it). Using the analogy we gave on the eyes and ears, which only detect a certain range of frequencies; our cells can only “see” and “hear” between the 0-30 Hz range of PEMF frequencies the earth gives us. Not only does this make intuitive sense, there are hundreds of studies confirming this as the ideal window of frequencies to stimulate healing and repair in the body.

5. Why a Biorhythm Clock is Important?

Not only do you need a PEMF therapy device to give you the right frequency range (0-30 Hz), but you also need a built in biorhythm clock to give you the RIGHT frequency for the time of day. This is the timing or **phase (ϕ)** window of a PEMF signal. We need the right frequency at the right time of day.

For example, in the morning, you probably want to be awake and alert so a Beta frequency (15-30 Hz, an alert and thinking state of mind) would be appropriate whereas before bedtime you will probably want to relax and prepare the body and mind for sleep with a theta-delta frequency (.5-7 Hz, deeply relaxed and sleepy state of mind).

It's interesting to note that even the earth's frequencies slow down a bit on the dark side of the earth, whereas in daylight the frequencies are slightly higher.

So even though the body resonates to all frequencies in the 0-30 range, it's ideal to use settings that are in alignment with the time of day and the wave patterns of the circadian rhythms of the mind and body.

Within the waveform itself, the phase is the complex relationship between all the various waves comprising the overall temporal and spatial geometry of the signal. The best PEMF devices utilize research tested complex and varied signals that deliver optimal benefits and prevent acclimation and habituation over time. If the signal is too simple, like static magnets (the simplest), or even a simple sine wave, the body will easily become accustomed to it and results will diminish over time.

6. What is the Ideal Amplitude (A) Window or Intensity?

Small is powerful, Less is More.

—W.R. Adey

Next there is the **Amplitude (A)** or intensity window. We have talked a lot about the frequency window of 0-30 Hz, but there is also an amplitude window or intensity window that the body ideally responds to. Within cells, if the amplitude is too weak, there is no effect. If the amplitude is too strong it can be harmful.

Using our vision and hearing analogy, if we have light that is too dim we cannot see anything, too bright, it can damage and hurt our eyes. And with hearing it's similar, a sound intensity too low (whisper) we cannot hear it, too high (loud) it can hurt and damage our eardrums.

Again research by Adey and Bawin, and Sisken and Walker; along with the NASA study and others has shown that a low intensity (within the earth range - 33-66 uT) OR LOWER, works best AND it is the safest.

Also consider that Schumann resonance amplitude or intensity is significantly lower in strength than the geomagnetic field of the earth. In fact, it's several orders of magnitude weaker in the pico-tesla range! Yet our bodies need and respond to the Schumann resonance via extremely sensitive bio-antennas (biomagnetite and other biological arrays) that are precisely tuned to resonate with the frequencies of the earth.

So, you know the old saying, sometimes "less is more". In fact, when it comes to PEMF therapy LESS is essential, beneficial and safe; and MORE can be ineffective and even harmful. There is plenty of research to suggest the lesser field strengths (in the earth's natural range and weaker) actually work better in clinical studies. The results of the aforementioned NASA study came from intensities in the milligauss range, which is weaker than the earth!

Some PEMF devices on the market have intensities that are way too high. Don't be fooled by companies that tell you that you need a stronger intensity to get results. Just because a machine is so strong as to make your muscles twitch (like the Pap-imi type devices), doesn't mean it's safe and more effective than a lower intensity PEMF device. The key is frequency resonance, not intensity. Look for a device using intensities

close to what the earth provides. Also, if you are chemically sensitive, you will want to find a mat with lower intensity settings down to nano- and pico-tesla range.

Remember, “small is powerful”, and “less is more”... *The key is frequency and resonance, not a higher intensity!* Figure 29 illustrates that you need a PEMF signal in the correct frequency and intensity window in order to have a positive and safe biological effect.

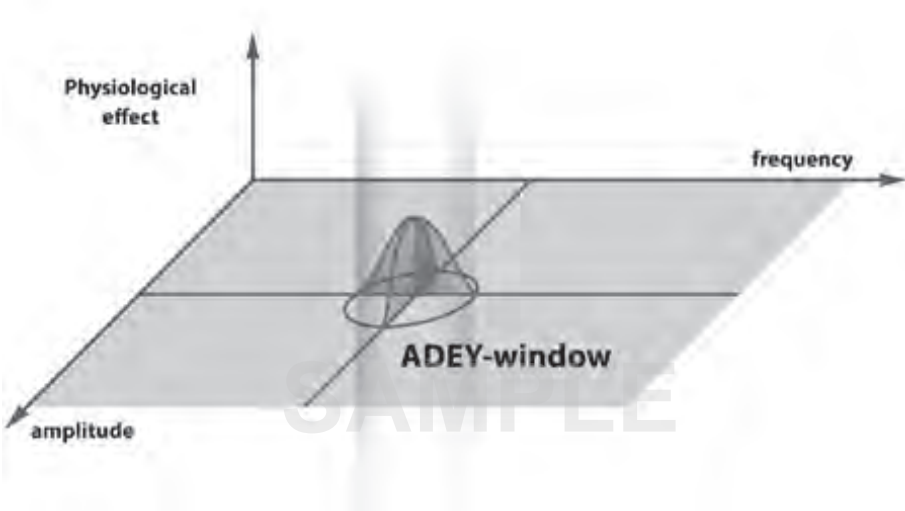


Figure 29 The Body’s Frequency and Amplitude Window

7. Which Waveform $y(t)$ Delivers Maximum Benefits?

Finally we have the “information window” or the **waveform $y(t)$** of the signal. The signal shape is equally as important as the frequency and intensity. The NASA study demonstrated that a rapid time varying waveform is most effective for promoting healing and regeneration.

There are two waveforms meeting this criteria; the sawtooth and the squarewave. Ideally you’ll want a PEMF device that has BOTH. Both the sawtooth and the squarewave have rise and fall times far more abrupt than a simple sine waveform or triangle waveform. Again the more abrupt the rise and fall time, the greater the biological effect.

SAWTOOTH

A sawtooth waveform has the unique ability to deliver bunches of frequencies simultaneously. As we have seen, you'll want to make sure the range delivered is 0-30Hz. By using a full spectrum of frequencies you'll insure that all the varying tissues and cells get just the frequency they need. Also remember from Chapter 5 in the body-mind-earth connection, that Reiki healers as measured by Zimmerman, and Chi Kung Masters as measured by Seto emit a full range of frequencies from 0-30 Hz to jump start healing.

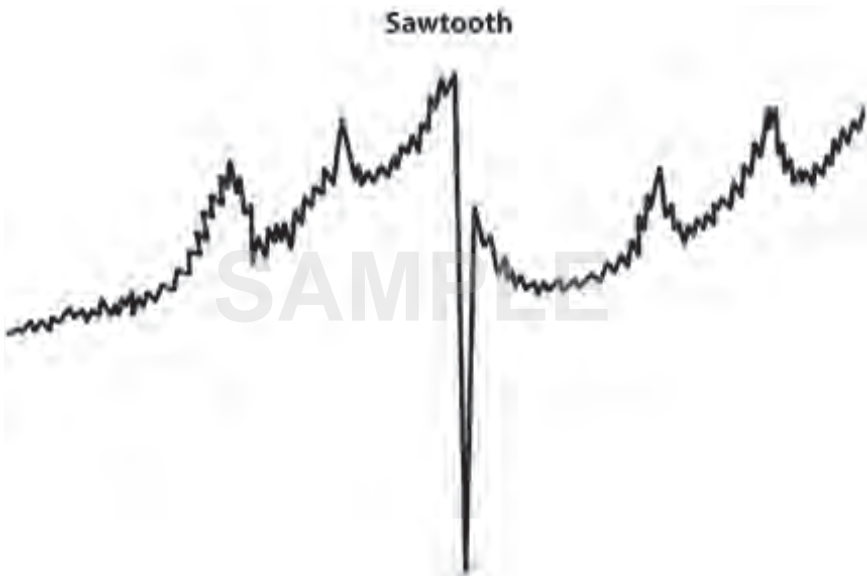


Figure 30 The Sawtooth Waveform is Ideal for Delivering Bunches of Frequencies Simultaneously

The sawtooth waveform is composed of various sine wave vibrations and has a BROAD FREQUENCY SPECTRUM. The fundamental vibration has the same frequency as the pulse train. The following harmonics are frequencies representing a multiple of the fundamental mode, but as a rule they also have a decreasing amplitude (height). If a structure such as a cell membrane oscillating with a sine wave vibration (= oscillating circuit) is stimulated with a sawtooth pulse, (individual sine waves of different

amplitudes) the cell membrane will respond preferentially to a harmonic close to its natural frequency².

The great advantage of the sawtooth pulse in comparison with the individual sine pulse for the resonant effect lies precisely in this increased supply of oscillations. Also, a sawtooth waveform provides the maximum impulse or action potential across the cell membrane, which will boost the voltage of the cell (to improve the sodium potassium pump and recharge the TMP).

According to Liboff, the therapeutic value of a given pulsed signal is highly dependent on how rapidly the rise and fall time happens³. The rapid rise and fall time represents a high peak voltage value responsible for ion displacement in the body and recharging cellular voltage. Greater ion displacement exerts a stronger biological effect. The quintessence of the 20 years of magnetic field research is found in this waveform shape for PEMF therapy.

The sawtooth waveform was first introduced in 1974 by C.A. Bassett. Dr. Bassett observed that a rapid rise and fall time using a sawtooth waveform induces the maximum current and healing effect in the treated tissue. In his research it was the piezoelectric current induced which accelerated bone healing⁴. As a result of Bassett's work, this waveform has been FDA approved in the USA for the treatment of non-union fractures and to aid in spinal fusion operations.

SQUAREWAVE

From the NASA study, we know that the squarewave is ideal for local application to break up cycles of pain and promote healing and regeneration. This was proven by NASA to be the most effective waveform for this purpose. This is why you'll want to look for the NASA proven squarewave on the pillow/pad and probe/pen and other localized applicators on a PEMF device.

The NASA study concluded, "The most effective electromagnetic field for repair of trauma was **squarewave** with a rapid rate of change, which saw cell growth increased up to 4.0 times." The NASA study further noted "slowly varying (millisecond pulse, sine wave) or non varying DC (lasers, magnets) had little to no effect."

Squarewave

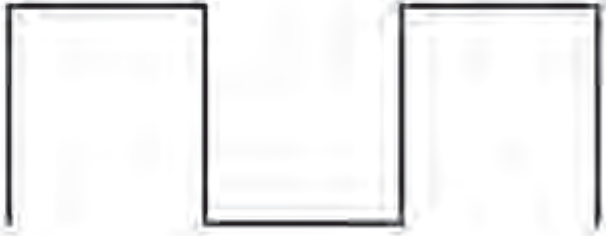


Figure 31 The Squarewave Waveform is Proven by NASA as Most Effective for Healing and Regeneration

The ideal PEMF device would have a sawtooth waveform on the full body mat operating at primarily 0-30 Hz. This sawtooth will deliver a broad spectrum of these earth frequencies simultaneously and recharge the 100 trillion cells in the body. The beauty of PEMF therapy using a sawtooth waveform tuned to the earth's frequencies is that you only need 8 minutes, twice a day to fully charge and energize your cells. Plus the benefits last up to 12 hours or more!

If you have any form of injury or localized pain or health issues, you'll want to additionally apply a local applicator with a NASA proven low-frequency, low-intensity squarewave to promote pain relief, healing and regeneration.

8. Why You Need a Full Body Mat with Pure Copper Coils & an Alternating Polarity?

When shopping for an earth-based PEMF device, it is ESSENTIAL that you get a unit with a FULL BODY MAT.

FULL BODY MAT

There are many cheap portable and handheld devices that meet almost none of the criteria listed in this chapter such as they use the wrong intensities, frequencies and waveforms. But most importantly, they lack a full body application. To tap into the benefits of daily PEMF therapy, you want to take a full body mat application or session twice a day for

8 minutes. This completely re-energizes the entire body and promotes a strong, coherent body-field strengthening overall health.

Cheap, portable devices capable of only targeting one spot miss the boat on the holistic benefits of treating the entire body. Once the body's cells are charged and circulation is enhanced, then and only then will you use local applicators to treat specific areas. ALL full body mat devices on the market include at least one (or more) local applicators in addition to the full body mat. Remember the body's "living matrix" is holographic, interconnected and dynamic, so you want to bathe your entire body in the earth's spectrum of PEMF energy. By working on the whole you treat each part as the holographic principle and modern quantum theory prove.

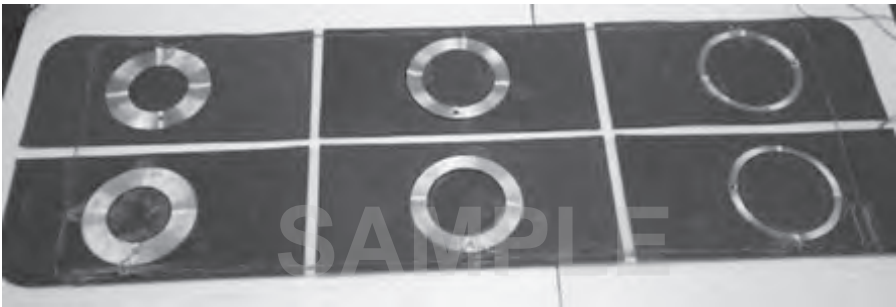


Figure 32 Inside of a Full Body Mat with Circular, Tightly Wound, Pure Copper Coils (This is Ideally What you Want).

GRADUATED INTENSITY

Make sure to get a full body mat with pairs of pure copper, tightly wound circular coils for upper, middle and lower body with a decreasing magnetic flux from the head towards the feet (See Figure 32). What this means is that you want ideally 3 pairs of coils (6 total), one pair for the head and neck, another for the torso and hips, and lastly one for and legs and feet.

The coils toward the upper body should have a lower intensity (lower intensity = lower magnetic flux = smaller number of turns in coil) and the coils toward the feet should have a greater intensity (magnetic flux). This is very important because the legs and feet can handle a much higher

intensity than the head and neck (which are the most sensitive area). When walking on the earth the feet naturally experience a slightly higher intensity especially when in contact with the ground. Even more important for people chemically sensitive or electrosensitive is that the head and neck/thyroid can be easily over-stimulated and irritated.

WARNING: Avoid the new wire mesh mats. These mesh mats CLAIM to offer a more uniform field (and they do) but at the expense of giving both the feet and head the same intensity. This means you are LIMITED by the intensity the head can handle. Also, as we'll see next, the wire mesh mats cannot give you a PURE magnetic field.

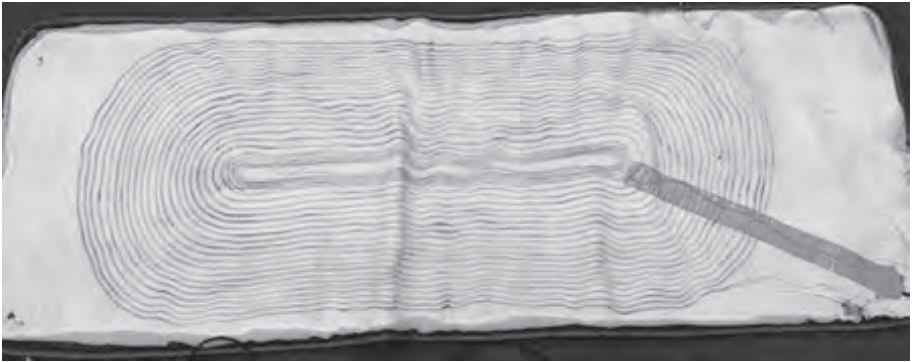


Figure 33 Inside of a Wire Mesh Mat Showing Plastic Tubing Surrounding Copper, Not Circular and Not Tightly Wound (This is What you DON'T Want).

PURE COPPER COILS

Another important point from Physics 101 is that a pure magnetic field using an electrical current can only be created from a circular current loop. Several devices on the market use a wire criss-cross mesh with oval current loops surrounded by plastic tubing (See Figure 33). Not only is this the wrong geometry to create a pure pulsating magnetic field, it also has spacing between consecutive turns which allows the magnetic field lines to be further distorted. Circular loops with multiple turns need to be tightly wound with no spacing to yield the cleanest and purest pulsating magnetic field possible.

These criss-cross wire mesh mats do not have circular, tightly wound current loops and will NOT create a pure magnetic field. Mesh mats ARE typically easy to roll up and put into a duffle bag, but don't be fooled, you are not getting a pure pulsating magnetic field (and they are not comfortable because of their thinner design). Also, it is pertinent to note that the NASA design for stem cell growth uses pure copper circular coils that are tightly wound, as does the NASA prototype for a PEMF installed spacesuit.

POLARITY REVERSAL

Make sure the device switches polarity every few minutes. This is important because the body will get used to either a constant North or South polarity. This is one of the main drawbacks (amongst others) why you DON'T want a static magnetic mattress pad or pulsed magnetic therapy devices that do not switch polarity. Every two minutes is an ideal switch.

9. Why Investing in a PEMF Device with a Biofeedback Component is Important?

Biofeedback is a process in which you can improve your health by using signals from your own body. Some common signals utilized in biofeedback include brainwaves, muscle tone, skin conductance, heart rate, breathing rate and pain perception.

Perhaps the easiest and most effective form of biofeedback involves Heart Rate Variability (HRV), which can be easily and accurately measured through the pulse via finger or ear sensors.

The beauty of using biofeedback to adjust intensities in a PEMF device is that it allows the user to relax and the system will automatically adjust the settings which the body needs for that given time and day. This is like having a PEMF device that runs on autopilot so you can simply relax and enjoy the many benefits PEMF therapy provides.

Also having a biofeedback feature further prevents the body from becoming acclimated to the PEMF signal because each session will be unique based on what the body needs at any given day and time.

Only two PEMF devices I have seen for home use have a *true* biofeedback feature. Some PEMF devices claim to have biofeedback, but if there is no actual sensor hooked up to measure cardiac or brain wave patterns, it is impossible to have biofeedback.

10. What are some Additional Features and Accessories To Look For?

Besides biofeedback there are some additional accessories that are important to have with your PEMF device. As we already mentioned, a full body mat is needed to really tap into the benefits of PEMF therapy. Besides a full body mat, you will want to make sure your unit has a localized pillow applicator and also a probe, pen or wand applicator. These two accessories treat specific regions and pinpointed spots on the body respectively. And as we have mentioned, make sure the local applicators use the NASA proven squarewave for maximum benefits.

With regards to the control unit, try to find a digital system that is intelligent, programmable and easy to upgrade. Several units on the market are still 1990's and early 2000's technology and have not really changed at all and advanced with breakthroughs in modern electronics and computer processing.

Also a few PEMF devices on the market have a built in database of protocols for various conditions, which is ideal for health practitioners. This saves time from having to “look up” in a reference book which protocol to use for which condition, because it's already programmed into the control unit at the touch of a button.

Another great accessory is an integrated light and sound system that is synchronized to the frequencies in the PEMF mat. There is a lot of research on the effectiveness of using binaural beats and LED lights to synchronize both hemispheres of the brain promoting relaxation, healing and creativity.

11. Why you absolutely need a Reputable, Established Company, a good warranty, and a Device with Legitimate FDA Registration and Safety/ Quality Certificates?

Perhaps the most important consideration in investing in a PEMF device is looking for an established company with a long track record, constant innovation and a good reputation. Make sure the unit you buy is with a company that is always improving to make their product better. Unfortunately there are a lot of units on the market that have not changed since their inception or changed very little. Many others quickly come on the PEMF scene and quickly proceed to go out of business. The best companies stick around are ALWAYS researching and working on ways to improve their technology.

Make sure the unit has a good warranty. I recommend finding a PEMF machine with at least a 3-year warranty. These devices are a little pricey and very sensitive, so you want to make sure you are covered. And this also requires the confidence of an established company that has been around for a decade or longer, because if you buy a unit and the company goes out of business, so too does the warranty and support.

Finally, there are only a couple PEMF therapy devices for home use that are registered with the FDA which means they are FDA listed, FDA compliant and have met a stringent set of criteria necessary to be a medical device. If a pulsed magnetic therapy device is FDA registered, you can be assured it is manufactured with the highest quality electronic standards and meets all safety requirements. Doing some research on the FDA website, I found a couple companies that claim to be FDA registered or compliant, while in truth they are actually NOT permitted to import their products to the USA as a medical device. They get around this by improperly labeling the device as something unrelated to health and wellness. There are only two PEMF *full body mat* devices available in the U.S. that have legitimate FDA registration (as of January 1st, 2013). So do your research.

See the FDA site and make sure the company you are looking at is compliant and not on the list on this link: http://www.accessdata.fda.gov/cms_ia/importalert_244.html

NOTE: there are several expensive PEMF devices (\$20,000 or more) with FDA approval or registration that are not advisable or practical

for home use; and a few cheaper PEMF localized devices (with no full body mat) that have FDA approval or registration, but I personally and whole-heartedly recommend a *full body mat* PEMF device (with localized applicators). These are the best value per dollar and most effective devices for home use. The best full body mat PEMF devices are in the range of pricing from \$3000-\$6000. Anything less than \$2000 in my experience is not worth looking at.

Besides FDA registration, it is also important for a PEMF device to have quality, safety and risk management certificates such as ISO 13485, ISO 14971, and CB Certificates. These certificates mean that the PEMF unit has electronics that have met the highest international quality standards along with meeting safety requirements that are internationally recognized.

Well, that concludes what to look for in a PEMF device. Be sure to reread this chapter when shopping for your own PEMF machine to make sure you get all the benefits that PEMF therapy has to offer. In the next chapter we'll look at the many benefits of using an earth-inspired PEMF therapy device.

SAMPLE

Chapter 8

(Detailed Bibliography in Back of Book)

1. T. Goodwin, *Physiologic and molecular genetic effects of time-varying electromagnetic fields on human neuronal cells*. (Lyndon B Johnson Space Center, Sept. 2003).
2. C. Thuille, *Practice of Magnetic Field Therapy* (IGEM 1999).
3. A. Liboff, *Signal Shapes in Electromagnetic Therapies: A Primer. Bioelectromagnetic Medicine*. (2004, Rosch & Markov, editors).
4. C.A. Bassett, RJ Pawluk & AA Pilla; *Augmentation of bone repair by inductively coupled electromagnetic fields* (Science, 1974).



The Top 8 Benefits of PEMF Therapy

Natural forces within us are the true healers of disease.

— Hippocrates

If you've journeyed with me this far, then you have seen why PEMF therapy is essential for good health, how it works, why it works, and what type of PEMF device to invest in.

This penultimate chapter focuses on a very positive note by showing you the MANY health *benefits* PEMF therapy can provide. The psychology of this chapter is on health NOT disease. By using the placebo effect to your advantage and incorporating PEMF, a healthy diet, plenty of water, sleep, sunlight, deep breathing and exercise you can *only* get healthier. By giving your body all the essential elements it needs (including earth based PEMF therapy), the body has the innate intelligence to heal itself. But there is ONE thing that can get in the way... YOU!

We will begin this chapter with having the right psychology and mindset, the power of the placebo effect, and then the many benefits of daily use of an earth-inspired PEMF therapy device.

Psychology and the Right Mindset

The science of psychoneuroimmunology and new breakthroughs in epigenetics are proving that the overall health of our bodies lies *primarily* within the power of our minds and emotions.

All of your thoughts create neuropeptides, and if a sufficient feeling or emotion adds to those thoughts; you will produce hormones and a

biochemical cascade of good or ill depending on the originating thought and emotion. Happy thoughts create happy neuropeptides; angry thoughts create angry ones.

Every cell in your body has neuropeptide receptors. The immune cells protect you from infections and disease. They are constantly listening to your internal dialogue. The immune system is a “circulating” nervous system. The immune cells produce the same peptides the brain makes when it processes thought.

This is the case everywhere else in the body. When scientists look at stomach cells and colon cells, they find the same things going on. When you say a “gut feeling”, you are not speaking metaphorically but literally. That’s because your gut makes the same chemicals your brain makes. Your gut feeling may be more accurate because your gut cells haven’t yet evolved to the stage of self-doubt. This is the essence of the body-mind connection. Separating the body from the mind is artificial as the two are intimately connected in one body-mind. Your overall attitude, mood, thoughts, and feelings powerfully influence your body. In this book, I further add the “earth” to this equation (the body-mind-earth connection) as the body and mind are intimately connected and dependent on the earth’s natural Schumann and geomagnetic frequencies (and the other elements).

Also remember, these earth frequencies are primarily in the low alpha brain frequency range (a relaxed, peaceful and creative state of mind). The earth’s PEMFs and Earth based PEMF therapy devices not only energize your physical body, but these earth frequencies also harmonize your mind and emotions so you will be more relaxed, peaceful and creative; which produces positive hormones and neuropeptides. This helps YOU to be more at peace, healthy, creative and productive and better able to handle all the stresses that life throws your way.

Fact: It takes 17 muscles to smile and 43 to frown.

The Placebo Effect

The power of the mind is unmistakable, and it’s the most important thing you can work on to get healthy and stay HEALTHY. Even our medical system accepts a VERY real placebo effect because of the unmistakable

power it has on the body. You probably already know about the placebo effect so I will keep this discussion short, but understand it is driven by your thoughts and beliefs.

If you believe something will work, it will work in a more positive manner than being indifferent or not believing! For example, according to one research study, the placebo effect is 56% as powerful as *morphine* at quelling pain. The placebo effect is why double blind studies are done to prove the efficacy of drugs, supplements, etc., because you need to rule out the positive benefit of the belief in a treatment.

A Powerful Example of the Placebo (True Story):

To illustrate just how powerful the placebo effect is, there is a well-documented true story of “Mr. Wright” that is worth sharing.

“Mr. Wright,” was found to have cancer in 1957, and was given days to live. Hospitalized in Long Beach, CA, with tumors the size of oranges, he heard that scientists had discovered a horse serum, Krebiozen, that appeared to be effective against cancer. He begged to receive it.

His physician, Dr. Philip West, finally agreed and gave Mr. Wright an injection on a Friday afternoon. The following Monday, the astonished doctor found his patient out of his ‘death bed’, and joking with the nurses. The tumors, the doctor wrote later, “had melted like snowballs on a hot stove.”

Two months later, Mr. Wright read medical reports that the horse serum was a quack remedy. He suffered an immediate relapse. “Don’t believe what you read in the papers,” the doctor told Mr. Wright. Then he injected him with what he said was “a new super-refined double strength” version of the drug. It was water, but again, the tumor masses melted.

Mr. Wright was “the picture of health” for another two months — until he read a definitive report stating that Krebiozen was worthless. He died two days later¹.

This sad, but true story very powerfully shows the power of the mind, and the main purpose of this book is to show real science behind earth based PEMF therapy; so you *will* have BELIEF that it will work for you!

Yes, more than 2,000 double-blind studies have demonstrated that PEMF therapy is a safe and effective treatment. Yes, there are more than 10,000 scientific papers published about the effect of PEMF, but when you

add the power of the placebo, the power of belief; then the results you get will be life changing. This is from my own personal experience using the technology for 6 years and sharing it with thousands of people.

Focusing on The BENEFITS of PEMF Therapy

The mind is a POWERFUL thing, and instead of focusing on how PEMF therapy helps specific diseases; let's instead focus on the benefits. It's better to stay positive and trust your body can heal itself, than to affirm you have a disease that needs treating. Start trusting your body's innate ability to heal itself and give yourself the right elements (food, water, oxygen, sunlight and earth PEMF). PEMF therapy enhances absorption, circulation, and assimilation of the necessary elements of life while promoting the body's ability to make energy.

We need to shift our mind from seeing health as an absence of disease, and start viewing health as an open-ended journey into greater levels of strength and energy. Health is about thriving, not just surviving.

Here are the **Top 8 Benefits** PEMF therapy will give YOU that we'll explore in detail in this chapter. These benefits will allow you to experience a super-radiant and healthy life!

1. Stronger Bones
2. Endorphins and Pain Relief
3. Better Sleep and HGH secretion
4. More Energy ATP
5. Better Oxygenation and Circulation
6. Improved Immunity
7. Relaxation & Stress Reduction
8. Nerve and Tissue Regeneration

1. Stronger Bones

There are 206 bones that comprise our entire skeletal system. They give our body form, structure, and with the help our muscles... movement.

Healthy bones are one of the most important keys to living a long, healthy, and active life.

One of the first discoveries with PEMF therapy was the effect it had on healing and strengthening bones. A low frequency sawtooth PEMF signal has been shown to stimulate the osteoblast cells in the bones to produce bone matter. The mechanism for this is what is called the piezoelectric effect.

The piezoelectric effect (greek oeizen = press) is a phenomenon produced in crystals and bone substances whereby a mechanical pressure produces an electrical current. This electrical current to the bones causes them to strengthen. The piezoelectric effect is also produced by exercise and movement, especially weight bearing exercise where the pressure from the exercise exerted on the bones “piezes” or stimulates an electric current. If you take a pair of pliers and squeeze a piezelectric crystal, an electrical current is generated by its inherent properties. The same is true with the bones.

PEMF therapy directly generates electrical currents via electromagnetic induction. A changing magnetic field creates an electric current. So PEMF directly induces microcurrents, which have been researched and proven to stimulate the osteoblasts into creating healthy bone material.

PEMF therapy is so effective for healing and strengthening the bones that it is FDA approved for that purpose. Medical research has revealed that magnetic fields can even heal long-standing fractures that have been present for up to 40 years²!

PEMF therapy, along with weight bearing exercise, diet, and rest can also assist in preventing osteopenia and osteoporosis. Whole body vibration is also a particularly good form of exercise that can be used along with PEMF therapy to increase bone density and has much research as well. Also, eating an alkalizing diet and using alkaline, and ionized water is important because the body will leach calcium from the bones *if your body is too acidic* (to maintain the vitally critical pH range needed to survive).

Fact: Human thighbones are stronger than concrete

2. Endorphins and Pain Relief

Since I have worked with PEMF therapy over the past 6 years, I can confidently say that “hands down” the number one reason people invest in this technology is for pain relief. It’s also been our primary source of positive feedback and testimonials.

1 in 3 Americans are affected by more than 100 types of arthritis that usually result in severe pain. Lower back pain affects 80% of all Americans. At any given time, 10% of Americans are experiencing pain. Fibromyalgia affects 12 million Americans, most of which are women.

There are countless other sources for pain, and at a fundamental level, pain is YOUR FRIEND. Pain is like an engine light in your car letting you know something is wrong, but if your “threshold” for pain is too low, instead of warning light you end up with an emergency siren in your ear.

The **threshold of pain** is the point at which pain begins to be felt. It is an entirely subjective phenomenon. The intensity at which a stimulus (e.g., heat, pressure) begins to evoke pain is the *threshold intensity*.

Ideally if your threshold of pain is set “just right” you will get an adequate warning signal (mild pain), that gently, but painfully let’s you know something is wrong. If your threshold is too low, you can feel severe pain (the siren in your ear), when a soft alarm is enough. With some conditions like fibromyalgia, the threshold of pain can be so low that you feel pain all the time.

Putting a positive spin on pain is partly a matter of making sure your body is producing optimal levels of endorphins (endogenous morphine or natural opiates). These natural opiates are your body’s “pain reliever”. The so-called “runner’s high” is attributed to an increase in endorphins after exercise.

All 100 trillion cells in body have endorphin receptors, and your brain can manufacture them if the conditions are right. This means your body is getting the 5 essential elements plus exercise and rest, along with having an overall *happy and fulfilling* life filled with positive emotions.

You don’t need prescription pain medication (except in severe circumstances) for common types of pain. Not only do these pain medications have toxic side effects (especially with the liver and kidneys), they also inhibit your body from making its own endorphins. This is especially

true with opiate derived pain medications such as Oxycontin, Roxicodone, Vicodin, Percocet, morphine, opium, etc. Avoid these drugs like the plague! I personally know people whose lives are ruined because of opiate addictions, and once you start, it will be *very hard* to get off! These drugs are unfortunately one the most addictive drugs you can take, with severe withdrawal symptoms. The good news is that your body can produce its own opiates or endorphins.

Some of the ways to increase *your natural opiates or endorphins* are exercise, massage, yoga, meditation, deep breathing, deep sleep, low stress, and YES PEMF therapy.

It's been proven that earth's PEMF is essential to creating endorphins and additional endorphin synthesis can be promoted by PEMF therapy. This is one of the reasons why PEMF helps immediately with symptomatic pain relief.

Also PEMF generates microcurrents to run through the neural pathways, which reduces the signal needed to create the feeling or sensation of pain. **Less signal = Less pain perception.** So PEMF not only helps to increase endorphins but it also directly decreases the triggering of the pain response.

We already mentioned the two-fold problem in chapter 7 as to why we do not get enough natural earth magnetism and PEMF. Understand that the body is **DEPENDENT** on earth PEMF to produce endorphins. It's now clear **WHY** conditions such as fibromyalgia and chronic pain can exist even if nothing is seriously wrong or injured.

Not only does earth based PEMF symptomatically remove pain; it also helps to heal and regenerate the problematic areas in the body as we'll see later in this chapter. PEMF therapy gives you the best of both worlds without toxic and addictive side effects of drugs!

3. Better Sleep and HGH Secretion

After pain relief, the most positive feedback I receive from people is better sleep and relaxation. It is estimated that 60% of Americans have trouble falling asleep according to the National Sleep Foundation (stress, apnea, stimulation, complications medication, etc.). Even healthy people can have intermittent nights of restlessness and lack of deep sleep.

If you use a PEMF therapy mat with a proper biorhythm clock, it will have a nighttime setting with theta-delta frequencies that help induce the brain with the commonly known frequencies for sleep and deep relaxation (delta and theta frequencies are around .5-7 Hz). These pulsating magnetic frequencies at the lower theta and delta frequencies directly and tangibly assist the mind and body to have a deep and rejuvenating nights rest.

When I first got an earth-based PEMF therapy mat back in 2007, I noticed I got to sleep easily and slept deeply. That was a point in my life where I was having problems sleeping. Since I have been using PEMF therapy daily, I have no more problems sleeping soundly every night.

I've heard directly from hundreds of users that better sleep is one of the first things they notice, AND it was one of the most important factors to their healing and recovery. I've heard many stories of people with serious health issues who had terrible insomnia. They felt tired, sick, depressed, day in and day out. After JUST ONE NIGHT of sleeping deeply, they would call me telling me how they felt like a new person!

Pulsing magnetic fields (especially the Schumann and geomagnetic frequency) stimulate the production of Melatonin in the pineal gland. Melatonin is one of the most important hormones for sleep and anti-aging. It is a powerful antioxidant that has been research proven to be *oncostatic*, which means it protects the body from cancer³. PEMF therapy also helps with the production of HGH (Human Growth Hormone) in the pituitary gland. HGH is another vitally important hormone for sleep, rejuvenation and longevity.

It's important to emphasize that the body HEALS, REPAIRS and REGENERATES itself during deep sleep. During deep sleep your body creates new cells. You need at least 6-7 hours of sleep per night, ideally around 8. HGH and Melatonin are produced during deep sleep and both of these hormones are known for their anti-aging properties. PEMF therapy promotes deep sleep, thus recharging your body and giving you more energy during the day. Which leads us to the next benefit of PEMF therapy, MORE ENERGY!

4. More Energy - ATP!

At the most fundamental level, your body, organs, tissues and cells need energy to heal, period! No matter what your problem, disease, condition, or current state of health, if you give your body and cells more energy, YOU WILL get better and feel more vitality.

We detailed in chapter 6 how the body and cells produce and store energy, but it bears repeating in this chapter on the benefits of PEMF. The main currency and storage unit of energy in the body is ATP. An average person expends their body weight in ATP every day.

Research shows that weak PEMF signals in certain biological windows (0-30 Hz) increases the activity of key enzymes needed in ATP synthesis and utilization.

Also, as we mentioned in chapter 6, earth-based PEMF enhances all the channels, pathways, and delivery of the essential elements needed to create energy: oxygen absorption, hydration, assimilation, circulation, and energization of the cellular pump (TMP or transmembrane potential). All this comes together in the Krebs cycle in the mitochondria to produce ATP.

Electrons are manufactured in the body as ATP. When a high-energy phosphate bond is broken and transformed to ADP, the breakage of that bond releases an electron in a high-energy state. That electron is the ESSENCE of energy that drives the biological process.

It is that energy from the high energy phosphate bonds in ATP (along with TMP) that drives and fuels all living processes like immunity, reproduction, respiration, locomotion, organ function, assimilation, circulation, etc. Remember, our bodies have a holographic and energetic blueprint for health, all we need to do is supply the essential elements especially energy in the form of ATP and TMP. PEMF therapy assists in the creation of *both!*

5. Better Oxygenation and Circulation

The primary function of the respiratory system is to supply oxygen to the blood. This occurs between alveoli (small cells in the lungs) and red blood cells in pulmonary capillaries. Air is warmed and humidified and

warmed again to body temperature. This is to facilitate the all important gas exchange.

The primary function of the circulatory system is to deliver oxygen and nutrients TO THE CELLS and remove waste products FROM THE CELLS, to the organs of elimination.

The cardiovascular and respiratory systems are intimately intertwined. Better respiration and circulation results in optimal ATP production (remember in Chapter 6 we saw that with oxygen 38 molecules of ATP are produced whereas without, only 2).

Research shows that pulsed magnetic therapy enhances the cardiovascular and respiratory system in 4 fundamentally important ways:

i. Angiogenesis:

Angiogenesis research (seen with doppler studies) shows how PEMF helps with the formation of new blood vessels and improved microcirculation at the capillary level. Angiogenesis is the physiological process involving the growth of new blood vessels from pre-existing vessels. This is one of the most exciting facets of PEMF research, because improved circulation lies at the heart of healing, regeneration, nutrient delivery, detoxification and our overall health⁴.

ii. Increased Nitric Oxide (NO) Production:

Nitric Oxide is an important biological regulator and a fundamental component in the fields of neuroscience, physiology, and immunology with discovery of its key roles leading to Nobel Prize winning research in these areas. It was proclaimed “Molecule of the Year” in 1992.

Nitric Oxide is a gaseous messenger molecule formed in the inner lining of the blood and lymph vessels. It signals surrounding smooth muscles to relax, thus resulting in vasodilatation and increased blood flow. Because of this it enhances the function of the heart (lowers blood pressure and improves circulation), increases libido, and oxygenates the cells. PEMF therapy has been proven to increase Nitric Oxide in the body, which is one its most exciting benefits⁵.

iii. Improved Oxygenation:

PEMF therapy helps on many levels to improve oxygenation of the cells. The key is enhanced vascularity and microcirculation, but PEMF

also helps with the primary uptake and binding of oxygen to hemoglobin. Oxygen in the air we breathe is paramagnetic, and hemoglobin has magnetic properties as well with its central atom being iron. PEMF therapy opens up the alveoli and increases the amount of blood into the lungs for greater oxygen uptake and utilization. It directly and energetically enhances the binding of oxygen to hemoglobin.

It's easy to see this improved oxygenation with a pulse oximeter especially with people who are oxygen deprived. There are also devices that measure oxygen utilization that clearly show that even just 8 minutes on a PEMF therapy mat will optimize your body's ability to take the air you breathe into your lungs and extract the life-nurturing oxygen from it, releasing toxic carbon dioxide as a waste product in the process.

iv. Lower Viscosity and Stickiness of Blood (Rouleau effect):

As we have already seen, by utilizing live blood microscopy (refer to figure 27 in Ch. 7), the benefits of PEMF therapy on circulation are very clear. On slide 1 on the left, you see an average sample of blood from someone who is stressed out (in this case overexposure to computer use), but this could be a result of any type of stress to the body. This clumping of cells decreases the surface area for oxygen binding AND it prohibits proper delivery of oxygen into the capillaries where oxygen is diffused into the cells. Red blood cells have to flow single file inside the capillaries due to their small size, so a clumping of red blood cells makes for an inefficient transport and delivery of vital nutrients to the cells.

Because PEMF therapy increases the net charge on the cell, the red blood cells will all repel each other. The blood itself becomes less viscous (has a lower surface tension) and the surface area increases for better oxygenation. An energetic halo can also be seen around the cells due to the increased electrical charge. This result with PEMF therapy has been repeated by hundreds of doctors, which further proves and validates the immediate effect of PEMF therapy on enhancing oxygenation and circulation (refer to slide 2 in figure 27).

Fact: There are 60,000 miles of blood vessels in the human body. That's enough to wrap around the world 2 1/2 times.

6. Improved Immunity

Your immune system is your central defense against foreign invaders, toxins, and even cancer cells your body creates.

All the previous benefits directly and indirectly enhance the immune system, namely oxygenation, circulation, and ATP production. Because PEMF therapy increases the voltage of the cells as well, it increases the pH and provides an unsuitable environment for virus, bacteria and parasites.

Even Louis Pasteur admitted that the germ theory of disease is WRONG. The KEY is the biological terrain.

Let's consider an analogy. Imagine two garbage cans, one filled with garbage and the other 100% cleaned out. Bugs will grow and flourish in the garbage, even if you're careful to keep the garbage can covered tightly with a lid. On the other hand, you will never find bugs in a cleaned out garbage can and even if you find some bugs and put them in the empty garbage can, they will simply crawl out because there is no food.

Now if your body is cleaned out, and has the proper environment, the bugs, germs, virus, bacteria, parasites, etc. will PACK THEIR BAGS! Another way of saying this is that if you have a healthy biological terrain, you won't get sick.

There are FIVE main components to a healthy terrain (that we introduced in chapter 4).

- i. Optimal voltage or pH
- ii. Oxygenation
- iii. Circulation (of both blood and lymph)
- iv. Glucose Level
- v. Temperature

It has been shown and proven that germs, viruses, bacteria, parasites and even cancer *cannot* thrive if the body has optimal levels of oxygen, a proper alkaline pH, high cellular charge and good circulation. It's also important to have the right temperature and glucose levels. It's just impossible to get sick if your biological terrain has a healthy level of these essential parameters needed for life. And PEMF therapy creates homeostasis or balance within ALL of these components.

Even if you do manage to get an infection, PEMF will directly energize your immune cells and improve lymphatic circulation, which will allow your body to easily get rid of unwanted bacteria and viruses. Remember, your immune system resides primarily in your lymph vessels and lymph nodes, so having good lymphatic circulation is of paramount importance.

And there is direct research that PEMF improves immunity. Lymphocytes are important immune cells that protect our body from unwanted invaders. They have been found to proliferate in vitro in response to *weak* pulsing magnetic fields, thus improving overall immunity⁶.

7. Relaxation and Stress Reduction

Related to sleep is relaxation and stress reduction. Life is a delicate balance of activity and rest, relaxation and stress. Contrary to what you may think, stress is healthy in the right amount. We need to stress, challenge, and exercise our bodies in order to thrive. The problem is that we are way too OVER-stressed. Our central nervous system (CNS) mediates the stress and relaxation in the body with what is called the sympathetic and parasympathetic response.

Simply put, your sympathetic nervous system is your fight, flight or fright system that prepares your body for action. The sympathetic response triggers adrenaline and cortisol release which raises your heart rate, increases your breathing rate, shifts the blood from the core to the muscles and basically gets you ready to run away from danger. Exercise can trigger this system in a healthy way, but too many of us are in a constant state of stress, which leads to burnout and exhaustion.

In contrast to the fight or flight sympathetic system is the parasympathetic system, which is your rest, digest, and heal system. The parasympathetic system is the opposite of the sympathetic in that it shifts your energy, blood, and nutrients into your core for healing, repair, rest and digestion.

One of the great benefits of PEMF therapy is that it assists the body in relaxation, repair, and healing. It will shift your body into a more parasympathetic mode if you are overstressed. It will energize, invigorate, and stimulate your body for optimal performance. A good PEMF therapy

mat will have a biorhythm clock with different brain-state frequency settings from low delta to high beta, so you can set the mat for energizing frequencies in the morning and relaxing frequencies at night.

Most people have no problem with stress and stimulation; in fact too much stress is perhaps the greatest indicator of serious disease or sudden death. Stress has many manifestations in the human body. These include high blood pressure, cardiac arrhythmia, heart attack, stroke, insomnia, and hastening of diabetes. Some of the most common stressors in life are time pressure, money issues, job stress, family-relationship problems, health challenges, etc.

PEMF has been shown to significantly lower cortisol levels and create a balance in autonomic functions. Cortisol is the primary hormone responsible for stress response⁷. So no matter what stress you are experiencing in life, lying down on an earth-based PEMF therapy mat will reset your body to the earth pulse of healing and relaxation.

8. Nerve and Tissue Regeneration

Perhaps the most exciting benefit of PEMF therapy is nerve and tissue regeneration. It's one thing to symptomatically shut off pain. While that is important (and PEMF does this very well with no side effects), just shutting off the pain is not fixing the problem.

The four year NASA study done by Dr. Goodwin and his colleagues along with dozens, perhaps hundreds of other peer reviewed studies have shown conclusively that PEMF therapy helps to heal, repair, and regenerate tissue. More precisely, the body knows how to heal itself; it just needs the essential building blocks and energy to do so. PEMF supplies the energy AND facilitates the transport of all the essential elements of life.

We already saw how PEMF is FDA approved for bone fractures and how it can actually repair and heal long-standing fractures (even up to 40 years). Earth-based pulsed magnetic therapy ALSO heals and repairs ALL tissues including the difficult nerve cells and brain cells.

One important peer reviewed study showed that pulsed magnetic fields promote the growth of damaged nerves after traumatic injury. PEMF therapy helps to promote the binding of nerve growth factor of the receptor proteins on the surface of nerve cells, which facilitates regeneration⁸.

Conclusion – Stay Positive!

In this chapter we have shown how powerful the mind is, and that using a positive, health-orientated approach to healing the body is the clear and obvious path to optimal wellness. *We looked at many of the positive benefits of PEMF therapy on the human body and the science and research supporting these benefits in hopes to increase your BELIEF in this amazing branch of energy medicine, called PEMF therapy.*

By focusing on the benefits and keeping your mind centered on health, you use the placebo effect to your advantage on the great journey to ever increasing levels of health and energy. Remember, health is NOT the absence of disease; it's a never-ending quest of thriving in this human body, not just surviving.

Again, here are the **Top 8 Benefits** PEMF therapy will give YOU, and keep these benefits in your mind every time you do a PEMF therapy session. All you need is 8 minutes, 2 times daily on an earth-based PEMF therapy device to tap into the amazing benefits below:

1. Stronger Bones
2. Endorphins and Pain Relief
3. Better Sleep and HGH secretion
4. More Energy ATP
5. Better Oxygenation and Circulation
6. Improved Immunity
7. Relaxation & Stress Reduction
8. Nerve and Tissue Regeneration

Chapter 9 Notes

(Detailed Bibliography in Back of Book)

1. Michael Talbot, *The Holographic Universe* (HarperCollins Publishers, 1992).
2. C.A. Bassett, *Bioelectromagnetics in the service of medicine* (Advances in Chemistry Series. Chemical Society 1995).
3. R. Reiter, *Electromagnetic fields and melatonin production* (Biomed Pharmacother 47(10), 1993).

4. J.C. McKay & P.F. Thomas, *The Effects of Magnetic Field Exposure on Blood Flow and Blood Vessels in Microvasculature* (Bioelectromagnetics 28:81-98, 2007).
5. E. Culotta & D. Koshland Jr., *NO news is good news.* (*Science* **258** (5090): 1862–1864, 1992).
6. A. Cossarizza & D. Monti, *Extremely low frequency pulsed electromagnetic fields increase cell proliferation in lymphocytes from young and aged subjects* (Biochemical and Biophysical Research Communications, 1989).
7. M. Woldanska-Okonska & J. Czernicki, *Influence of pulsating magnetic field used in magnet therapy and magnet stimulation on cortisol secretion in humans* (Med Pr 54(1): 29-32, 2003).
8. F.M. Longo & T. Yang, *Electromagnetic fields influence NGF activity and levels following sciatic nerve transection* (J. Neurosci Res 55(2): 230-7, 1999).

SAMPLE

10 Action Steps to Reconnect to Nature and Its Elements

If we are creating ourselves all the time, then it is never too late to begin creating the bodies we want instead of the ones we mistakenly assume we are stuck with.

— Deepok Chopra

When I used to do nutritional counseling, I would tell people that health is simple. You simply need to put the “Right Stuff” into your body & take the “Garbage Out”. The “Right Stuff” is the five elements: organic, non-GMO whole foods, clean and energized water, sunlight, fresh air, the earth’s natural PEMFs, along with positive thoughts and positive feelings, and connecting to your spiritual source within. We discussed this in detail in chapter 1.

Taking the garbage out means keeping your organs of elimination open. The 5 elements in natural healing and holistic medicine have corresponding organs of elimination. The four main organs of elimination are the colon, kidneys, skin and lungs, which corresponds to the elements earth, water, fire and air. The 5th element being energetic is removing blockages in the meridians, chakras, emotions and energy pathways in the body.

Keeping the colon clean begins by making sure you are regular (moving 2-3 times a day) and then adding seasonal (4 times a year recommended) colon cleansing. Keeping the kidneys clean and healthy means drinking lots of clean and energized water. To keep the skin open and healthy, try

skin brushing for 5-10 minutes a day and sweating (saunas or exercise) at least 3 times a week. For the lungs to remain open and cleansed, practice deep breathing and exercising in fresh air. Reconnecting to nature, PEMF therapy and energy healing (acupuncture, reiki, etc.) will keep your bioenergetic and holographic body clear and open, and also cleanse and protect you from dirty electricity or electrosmog. Figure 34 summarizes this unified theory of total health and wellness.

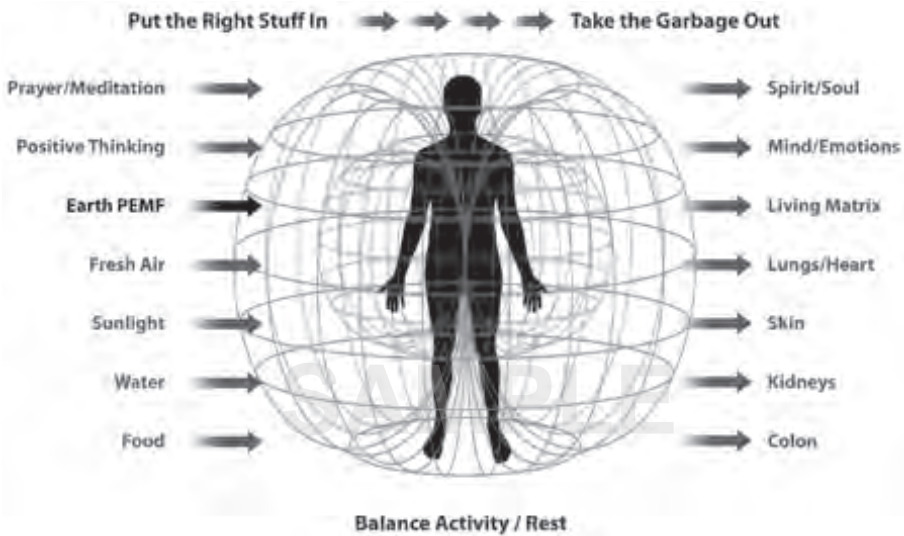


Figure 34 Putting the Right Stuff in and Taking the Garbage Out

We need to START:

1. Putting the “Right Stuff” in → Connect to nature & its elements (food, water, sunlight, oxygen and earth PEMF).
2. Taking the “Garbage Out” → Keep your elimination channels open (bowels, kidneys, skin, and lungs/breathing).
3. Supplementing the five elements (when needed) and investing in good organic food and supplements, a good water ionizer, full spectrum lighting, a good air purifier and ionizer, AND most importantly an earth-based PEMF system.
4. Getting plenty of sleep and exercise.
5. Staying positive and try to be around positive people.

6. Live your life with purpose, connect to your spiritual essence & follow your bliss by doing what you love to do.
7. Take 100% Responsibility for your Health & Life.

We need to STOP:

1. Putting “Garbage” or toxicity (junk food, tap water, drugs, electrosmog etc.) into our body, mind and spirit.
2. We need to stop looking for quick fixes, magic bullets, miracle cures & gifted surgeons/healers (and take responsibility for our own health).
3. We need to STOP depending on others to take care of our health, especially doctors, hospitals and nursing homes.
4. We need to STOP taking drugs, both recreational and pharmaceutical!
5. We need to STOP blaming life, outer reality, circumstances, people, genes AND germs for our health problems.
6. We need to STOP being negative and avoid “stinking thinking” (whining, complaining, gossiping, being around negative people, etc.).

Because of the toxic world we live in, it’s important to take measures to insure you get all the elements your body needs. Here is a simple list of things you can invest in and steps you can take to reconnect to nature and give your body what it needs to Thrive and not just survive. Below are some action steps and health investments related to the 5 elements you can start right away! After trying over \$500,000 worth of equipment, the devices below are what I personally recommend, share with others and use myself. These recommendations can save you \$490,000 worth of equipment that I owned, researched and experienced that you *do not need!* (See my website www.pemfbook.com for current brand name recommendations for devices in each of the five elements of health.)

Considering the average American spends around \$8200 a year on health insurance that covers only our toxic, dangerous and drug oriented medical system, *I personally guarantee you that these devices will be the best investment you will ever make for the health of you and your family!* Let’s

begin with the most important energy medicine device you can invest in, an earth-based PEMF machine.

I. The 5th Element - Earth PEMFs (The Schumann and Geomagnetic Frequencies)

- a. Supplement with a good earth-inspired PEMF device. This is my #1 recommendation based on all the devices I have ever used, owned, researched and experienced. **The amazing results I have seen in myself and in hundreds of others is the motivation for writing this book. If you have a limited budget, I would invest in a good earth-based PEMF system first.** Good Earth based PEMF systems range in price from \$2500 - \$6000.
- b. Walk barefoot outside 30 minutes a day when possible. Also take up gardening, go to the beach, go camping or hiking deep in Nature. Spend more time outdoors away from the city.

II. Element Earth – Food and Nutrition

- a. Eat only organic non-GMO whole foods. Eat more raw foods, especially fruits and vegetables and fresh green juices. Check out your local organic farmers and farmers markets. Try to buy local. Also, check and see if you have any local raw food restaurants. Most health food stores have a raw food section. You don't have to be 100% raw and vegan, but start incorporating more fresh, raw food especially for snacks and desserts. Organic food is more expensive, but well worth it. Try to get a broad spectrum of different fruits, vegetables, whole grains (gluten free especially), nuts, seeds, healthy oils, beans, legumes and small amounts of grass fed, antibiotic and hormone free meat (optional) and dairy (optional). Get a good variety of healthy organic foods in your diet and you'll not need to supplement as much. Also stock your cupboards with healthy foods and you'll eat healthy foods. Set yourself up for success! Also eat relaxed and *chew your food well*. Make every bite count!
- b. Whole food based supplements – Whole food based vitamins OR a good green superfood (most health food stores have a green superfood section). Because of our soil crisis, I think it's a good idea

to take at least one whole food based supplement that provides a broad spectrum of food-based vitamins and minerals. There is a lot to say about nutritional supplements and I could easily make a long list of recommendations, but I have found for myself and helping thousands of others, that just like diet, it's very individualized. Best approach is to keep it simple and get a good variety of healthy foods.

III. Element Water

- a. Invest in a good *water ionizer*. Buy only the top of the line ionizers as they have more plates of ionization, better electronics, and better cleaning cycles. Also absolutely make sure it has good filtration with the ability to remove fluoride, chloramines and other hard to remove toxins.
- b. Invest in a good shower filter. Most health food stores now carry decent shower filters, but do some research. This is a must!

IV. Element Fire – Sunlight and Full Spectrum Lighting

- a. Get at least a ½ hour of natural sunlight a day and get outside (even if its cloudy, the sun's energy still gets through).
- b. Use only FULL spectrum incandescent lighting in your house. Avoid fluorescent and compact fluorescent lights at all costs!
- c. Invest in a light box if you live in Northern Climates. This is a must if you spend long periods of time with little or no sunlight.
- d. Try to sweat at least 3 times a week using intense exercise OR a good far infrared sauna (FIR). Look for a super high quality sauna that combines both ceramic and carbon heaters for a great spectrum of far infrared frequencies. Also try to find a unit that minimizes electrosmog. Make sure to shower immediately after to avoid reabsorbing the toxins.
- e. I also recommend skin brushing for the skin.

V. Element Air – Oxygen and Clean air

- a. Practice deep-breathing exercises (or consciously breathe deep while walking outside in nature).
- b. Invest in a good indoor air purifier. I also recommend a good air ionizer and a good HEPA vacuum.

VI. Exercise

- a. Walk at least 30 minutes a day
- b. Do cardiovascular training if possible 3-5x/week
- c. Do strength training if possible 3-5x/week
- d. Research the exciting new science of whole body vibration.

Earth-based PEMF devices that duplicate nature help us to supplement our body with this ESSENTIAL and vital 5th Element of Health. By utilizing PEMF therapy for just 8 minutes, twice a day you will supercharge and energize your body and cells, sleep better, eliminate and prevent pain and arthritis; improve cardiovascular health, maintain strong bones, boost your immune system and more! This is my #1 and most important recommendation, even if you cannot invest in the other recommended devices.

My prediction in the very near future is that we'll find PEMF devices in most homes, just as most homes have computers and televisions. Especially with the decline of the earth's magnetic field, coupled with the exponential increase in unhealthy EMFs or electromog. Energy medicine is the medicine of the future and earth-based PEMF is the most essential, natural, research-proven and effective form of energy medicine that is available today.

I hope you have enjoyed this book and gained great value from its information, research and recommendations in your quest for great health, happiness and well-being.

Check out my site www.pemfbook.com for ongoing research and updates. I will also share my current Brand Name recommendations for PEMF, Water, Exercise, Saunas, etc. Because I am always researching and testing new equipment, these recommendations may change from time to time. But know I will only recommend the *best of the best* devices that I personally use myself and share with others!

BIBLIOGRAPHY

- Aczel, Amir. *Present at the Creation* (Random House Publishing, 2010).
- Batmanghelidj, Fereydoon. *Your Body's Many Cries For Water* (Global Health Solutions, 1995).
- Becker, Robert. *Cross Currents* (Penguin Books, 1990).
- Becker, Robert. *The Body Electric* (William Morrow and Company, 1985).
- Birla, Ghanshyam Singh. *Magnet Therapy* (Healing Arts Press, 1999).
- Bischof, Marco. *Biophotons: Introduction to Integrative Biophysics* (Integrity Research Institute, 2007).
- Bohm, *Wholeness and Implicate Order* (Routledge, 1980).
- Burke, Abbot George. *Magnetic Therapy* (DeVorss and Company, 1987).
- Burr, Harold Saxton. *Blueprint for Immortality* (C.W. Daniel, 1972).
- Capra, Fritjof. *The Tao of Physics* (Shambhala Publications, 1975).
- Carmichael, Joel. *Magnetic Resonance Stimulation* (NAAcEM, 2009).
- Chopra, Deepok. *Ageless Body, Timeless Mind* (Crown Publishing Group, 1993).
- Chopra, Deepok. *Quantum Healing: Exploring the Frontiers of Mind/Body Medicine* (Bantam Books, 1990).
- Cousins, Gabriel. *Spiritual Nutrition and the Rainbow Diet* (Cassandra Press, 1986).
- Cox, Brian and Jeffrey Forshaw. *Why does $E=mc^2$?* (Perseus Books Group, 2009).
- Eden, Donna, with David Feinstein. *Energy Medicine*. (Penguin Putnam Inc., 1998).
- Feynman, Richard. *QED: The Strange Theory of Light and Matter* (Princeton University Press, 2006).

- Ford, Kenneth. *The Quantum World* (Harvard University Press, 2004).
- Frohlich, Herbert. *Biological Coherence and Response to External Stimuli* (Springer, 1988).
- Gerber, Richard. *Vibrational Medicine 3rd Edition* (Bear and Company, 2001).
- Gleick, James. *Chaos: Making a New Science* (Penguin Books, 1987).
- Goswami, Amit. *The Self-Aware Universe* (Tarcher, 1995).
- Gould, Stephen Jay. *The Panda's Thumb* (W.W. Norton and Company, 1992).
- Greene, Brian. *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory* (W.W. Norton and Company, 2003).
- Gribbin, John. *In Search of Schrodinger's Cat* (Bantam Books, 1984).
- Grossman, Warren. *To Be Healed by the Earth* (Seven Stories Press, 1998).
- Hawking, Stephen and Leonard Mlodinow. *The Grand Design* (Random House Publishing, 2010).
- Hawking, Stephen. *A Brief History of Time* (Bantam Books, 1988).
- Hume, Ethel Douglas. *Pasteur Exposed* (Bookreal Australia, 1988).
- Hunt, Valerie. *Infinite Mind: Science of the Human Vibrations of Consciousness* (Malibu Publishing 1996).
- Jensen, Bernard. *Tissue Cleansing Through Bowel Management* (Bernard Jensen Publisher, 1981).
- Jensen, Bernard. *Empty Harvest* (Avery Publishing Group, 1990).
- Kaku, Michio. *Hyperspace: A Scientific Odyssey Through Parallel Universes, Time Warps, and the 10th Dimension* (Oxford University Press, 1994).
- Kuttner, Fred, and Bruce Rosenblum. *Quantum Enigma* (Oxford University Press, 2011).
- Lakhovsky, Georges. *The Secret of Life* (Kessinger Publishing, LLC, 2010).
- Lawrence, Ronald, Paul Rosch, and Judith Plowden. *Magnet Therapy: The Pain Cure Alternative* (Prima Lifestyles, 1998).
- Lewin, Walter. *For the Love of Physics* (Free Press, 2011).
- Liberman, Jacob. *Light: Medicine of the Future* (Bear and Company, 1991).
- Lipton, Bruce. *The Biology of Belief* (Mountain of Love Productions, 2008).
- Lovelock, James. *Gaia: A New Look at Life on Earth* (Oxford University Press, Oxford, England 1979).

- Ludwig, Wolfgang. *Informative Medizin* (VGM Verlag für Ganzheitsmedizin, Essen, 1999).
- Lynes, Barry. *The Cancer Cure that Worked* (Marcus Books, 1987).
- McCabe, Ed. *Flood Your Body With Oxygen* (Breath of God Ministry, 2004).
- McTaggart, Lynne. *The Field* (Harper Collins Publishers, 2008).
- McTaggart, Lynne. *The Intention Experiment* (Atria Books, 2008).
- Meyers, Bryant. *Love It or Lose It!* (2001).
- Mishlove, Jeffrey. *Roots of Consciousness* (Marlowe and Co., 1997).
- Null, Gary. *Healing with Magnets* (De Capo Press, 1998).
- Ober, Clinton, Stephen Sinatra, and Martin Zucker. *Earthing: The Most Important Health Discovery Ever?* (Basic Health Publications Inc, 2010).
- Oschman, James. *Energy Medicine: The Scientific Basis* (Elsevier Limited 2000).
- Ott, John. *Health and Light: The Extraordinary Study that Shows How Light Affects Your Health and Emotional Well Being* (Ariel Press, 2000).
- Owen, Lara. *Pain-Free with Magnet Therapy: Discover How Magnets Can Help Relieve Arthritis, Sports Injuries, Fibromyalgia, and Chronic Pain* (Prima Health, 2000).
- Payne, Buryl. *Magnetic Healing: Advanced Techniques for the Application of Magnetic Forces* (Lotus Press, 1997).
- Peirce, Penney. *Frequency: The Power of Personal Vibration* (Atria Books, 2011).
- Philpott, William, Dwight Kalita, and Linwood Lothrop. *Magnet Therapy* (Square One Publishers, 2011).
- Piontzik, Klaus. *Lattice Structures of the Earth Magnetic Field* (Books on Demand GmbH, Norderstedt).
- Popp, Fritz-Albert and , L.V. Belousov. *Integrative Biophysics* (Kluwer Academic Publishers, 2010).
- Pribram, Karl. *The Form Within: My Point of View* (Prospecta Press, 2013).
- Prigogine, Ilya. *Order Out of Chaos* (Bantam Books, 1984).
- Rosch, Paul and Marko Markov. *Bioelectromagnetic Medicine* (CRC Press, 2004).
- Sagan, Carl. *Cosmos* (Random House Publishing Group, 1980).
- Schultz, Richard. *There Are No Incurable Diseases: Dr. Schulze's 30-Day Cleansing and Detoxification Program* (Natural Healing Pubns, 1999).

- Shealy, C. Norman. *Energy Medicine* (4th Dimension Press, 2011).
- Sheldrake, Rupert. *A New Science of Life: The Hypothesis of Morphic Resonance* (Park Street Press, 1995).
- Smolin, Lee. *Three Roads to Quantum Gravity* (Perseus Books Group, 2001).
- Susskind, Leonard. *The Theoretical Minimum* (Perseus Books Group, 2013).
- Szent-Gyorgyi, Albert. *Bioenergetics* (Academic Press, New York: 1957).
- Talbot, Michael. *Beyond the Quantum* (Bantam New Age Books, 1988).
- Talbot, Michael. *The Holographic Universe* (HarperCollins Publishers, 1992).
- Tennant, Jerry. *Healing is Voltage: The Handbook* (2011).
- Tennant, Jerry. *Healing is Voltage: The Textbook* (2009).
- Thomas, John. *Young Again! How to Reverse the Aging Process* (Plexus Press, 1997).
- Thomas, Linnie. *The Encyclopedia of Energy Medicine* (Fairview Press, 2010).
- Tierra, Michael. *Biomagnetic and Herbal Therapy* (Lotus Press, 1997).
- Thuille, Christian. *Practice of Magnetic Field Therapy* (IGEM 1999).
- Valone, Thomas. *Bioelectromagnetic Healing* (Integrity Research Institute 2003).
- Wever, Rutger. *The Circadian System of Man: Results of Experiments under Temporal Isolation* (New York: Springer-Verlag, 1979).
- White, Michael Grant. *The Way You Breathe Can Make You Sick or Make You Well* (Breathing.com, 2004).
- Wolf, Fred A. *Taking the Quantum Leap: The New Physics for Nonscientists* (Harper Perennial, 1989).
- Young, Arthur. *The Reflexive Universe: Evolution of Consciousness* (Delcorte Press, 1976).
- Zukav, Gary. *The Dancing Wu Li Masters* (Bantam, 1984).

INDEX

Symbols

0-30 Hz 97, 99, 100, 102–107, 106, 108,
109, 113, 119, 134, 155, 160, 165–
167, 169, 171, 187
2.4 Ghz 143, 145, 147
5 elements xviii, 7, 25, 29, 195, 197
5th element 8, 18, 87, 134, 195, 198
7.83 Hz 96, 97
11.75 Hz 99
11.79 Hz 99
15 feet 73, 74, 84, 110, 113, 165
50/60 Hz 135, 137–140

A

AB effect 83
acupuncture 74, 79–81, 105, 111, 196
adenosine triphosphate 114, 115, 118,
119
Adey-window 103
Adey, W.R. 102, 103, 110, 167
ADP 119, 187
aerobic respiration 14, 120, 122, 126
Aether 7, 18, 25
alpha brainwave 107
alveoli 16, 77–79, 187, 189
Ampere's Law 91, 92
amplitude 93, 162, 163, 167–170
anaerobic respiration 14, 119, 120, 122,
126

angiogenesis 188
antimatter 47
anxiety 14, 21, 106, 142
apoxia 15
A. Seto 105, 111
Atkins Diet 9
ATP xii, 14, 15, 58, 109, 114, 115, 118–
123, 125, 126, 182, 187, 188, 190,
193

B

baby Monitors 138, 143, 147, 148, 149
Bassett, C.A. 170, 177, 183, 193
Bawin, S.M. 102, 103, 110
Antoine Bechamp 68
Becker, Robert 72, 135, 140, 152, 201
Bell's Theorem 42, 83
Beneviste, J. 64
Berger, Hans 20, 21, 106
Bernard, Claude 68
beta brainwave 165
better sleep xvi, 110, 182, 185, 186, 193
binary stars 4
biofeedback xv, 156, 174, 175
biological terrain 68–70, 190
biological window 102, 103, 119, 163,
164, 187
biomagnetic 105, 204
biomagnetite 116, 167

biophoton emissions 81
biophotons 67, 72, 82, 84, 201
biophysics xviii, 7, 60, 71, 72, 84, 110,
157, 201, 203
biorhythm clock 156, 158, 166, 186, 192
biorhythms 22, 164
Black Plague 69
blood viscosity 116, 123
Bluetooth devices 139
body-mind-earth connection 87, 100–
102, 107, 110, 163, 165, 169, 180
Bohm, David 48, 51, 83
bones xiii, 17, 18, 29, 75, 80, 85, 110,
120, 121, 182, 183, 193, 200
Bose-Einstein condensates 81
brainwaves 107, 150, 174

C

cancer 14, 15, 27, 29, 66, 67, 78, 117,
121, 126, 139, 140–142, 144,
145, 152, 181, 186, 190, 203
cardiovascular training 200
Casimir Effect 49
cellphones 137
cell towers 24, 135, 137, 138, 143
cellular voltage 70, 116–118, 120–125,
157, 161, 170
cellulite 146
CFL 17, 141, 142, 149
CFL bulbs 142
Chi xv, 74, 102, 105, 106, 109, 110, 169
childhood cancer 139, 140, 152
circadian rhythms 21, 22, 109, 166
coherence 82, 83, 202
compact fluorescent Light bulbs 142
consciousness xiv, xvii, 6, 29, 30, 32,
35, 39, 40, 43, 44, 50, 55, 56, 60,
62, 71, 72, 75, 83, 106, 113, 131,
152, 202–204
constructive interference 82

cordless phones 24, 128, 137–139, 143,
144, 147, 149
coresonance 62, 63
cortisol 191, 192, 194
current loop 92, 93, 173, 174

D

darkfield microscopes 68
Darwinian Evolution 57, 64
Darwinism 64, 66
deep breathing 14, 15, 18, 179, 185, 196
depression xiii, 12, 14, 16, 21, 27, 137,
142
destructive interference 82
determinism 32, 40, 57, 59, 64, 65, 71,
72
Paul Dirac 47
dirty electricity 150, 151, 196
DNA 65, 66, 78, 82, 100, 118, 119
Dr. Oz xi
dynamo theory 90, 91, 92

E

ear reflexology 79
earth-based PEMF device xix, 71, 85,
124, 128, 150, 151, 155, 171
earth-inspired PEMF device xvi, xix,
129, 198
Edison, Thomas 27
EEG 20, 22, 30, 74, 102, 106, 156, 165
EEGs 30, 156, 165
Einstein, Albert 1, 9, 36, 39, 100, 165
electric clocks 138, 141
electric current therapy xvii, 157
electric field therapy xvii, 157
electroencephalograms 165
electro-hypersensitivity 137
electromagnetic Fields x, 18, 45, 63, 87,
104, 111, 129, 132, 135–137, 139,
144, 146, 152, 160, 170, 177, 186,
191–194

electromagnetic force 3
electromagnetic pollution 136, 138
electrons 8, 15, 19, 33, 40–42, 45–47,
50, 57, 58, 65, 90, 91, 113–115,
116, 118, 119, 121, 133, 134, 187
electron transport chain 118
electroporation 116, 124
electrosensitive 173
electrosmog xix, 24, 27, 127, 128, 134,
136–138, 142, 147, 149–152,
196, 197, 199, 200
ELF 135, 138, 139
elimination channels 196
endorphins 182, 184, 185, 193
energy medicine ix–xi, xiii–xviii, 25,
28–31, 36, 40, 45, 53, 56, 57, 60,
71, 73, 76, 79–81, 85, 93, 115,
155, 156, 160, 193, 198, 200, 201,
203, 204
entanglement 42, 43, 62, 82
entrainment 102, 107, 108
entropy 50, 72, 82
Environmental Protection Agency 139
EPA 14, 139, 140, 152
epigenetics 65, 66, 179
exercise xvi, 10, 14, 15, 17, 18, 24, 27,
56, 85, 113, 158, 179, 183–185,
191, 196, 199, 200
extremely low frequencies 138, 139

F

Faraday's Law 92, 157, 159
FDA registration 156, 176, 177
fermentation cycle 122
Feynman, Richard 41, 44, 48, 201
five elements 8, 24, 195–197
foot reflexology 79
formaldehyde 60
Fourier Analysis 98
Fourier transforms 54
fractal branching 77, 78

fractal canopy 76
fractals 53, 76, 78
frequency xiv, 20–24, 54, 55, 63, 64,
81, 85, 93–96, 98–100, 102–105,
106, 107, 109, 110, 132, 137, 139,
141, 143, 144, 155, 157, 158, 160–
171, 180, 183, 186, 191, 192, 194,
203
frequency window 104, 164, 165, 167
full body mat xi, 156, 159, 160, 171,
172, 175–177
full spectrum light 16, 17, 141

G

Gaia Hypothesis 88, 90
Gaia Theory 6, 88–90
gamma brainwaves 150
gamma ray 94, 95, 135, 137
gas 8, 13, 15, 81, 124, 137, 188
general relativity 34, 36–38, 46, 51
genetic determinism 57, 59, 64
GEO600 51
geomagnetic frequencies xii, 19, 85, 98,
99, 102, 135, 165, 180, 198
germ theory of disease 59, 67, 69, 190
glioma 144, 145
Goldilocks Planet 3, 5
Goodwin, Thomas 132, 160
graduated intensity 172
Gravitational Fields 38, 46
gravitons 84, 85
gravity 2, 34, 38, 41, 46, 47, 85, 204
Group 2B carcinogen 144

H

hair dryers 128, 138, 141
hand reflexology 79
harmful EMFs 137, 150, 151
Hawking, Stephen 2, 3, 26, 202
headaches 12, 21, 130, 137, 140, 145,
146

Heisenberg's Uncertainty Principle 40
hemoglobin 15, 122, 123, 143, 189
Hertel, Hans 143
Hertz 21, 94, 96, 109, 162
HGH 18, 182, 185, 186, 193
HGH secretion 182, 185, 193
Higgs Boson 47
Higgs Field 47
Hogan, Craig 51, 56
holograms 51, 52, 53, 55, 76, 78, 81, 93
holographic body 57, 61, 72–75, 78, 80,
82, 85, 196
holographic interference patterns 54, 83
holographic universe 39, 43, 48, 50, 51,
54–56, 72, 76, 181, 193, 204
human growth hormone 186
Valerie Hunt 130, 131, 152

I

immunity 17, 60, 119, 182, 187, 190,
191, 193
improves circulation 116, 188
Information fields 50, 51, 56, 72, 73,
83, 98
information window 164, 168
infrared xv, 9, 16, 85, 94, 95, 135, 143,
199
intensity 16, 89, 91, 93, 97, 102–104,
106, 128, 132, 143, 148, 157, 158,
160, 161, 163–165, 167, 168, 184
intensity window 104, 164, 167, 168
interconnectedness 60, 72
interconnections 80, 83
interference patterns 51, 54, 55, 78, 81,
83, 84, 93
Ionosphere 20, 21, 91, 96, 98, 131, 163
iridology 78, 79

K

Kearns, John 66
Krebs cycle 115, 118, 119, 125, 187

L

lactic acid 122, 126
lasers xvi, xvii, 40, 81, 82, 156, 160,
161, 170
LED therapy xvi, xvii, 157
leptons 2, 84
libido 188
lipid bilayer 116
Lipton, Bruce 65, 66, 202
liquid 4, 5, 8, 9, 11, 81, 91, 124
live blood microscopy 123, 150, 189
living matrix 80, 81, 172
local applicators xii, 172, 175
Lovelock, James 87, 88, 202
lowers blood pressure 188
low frequency 85, 94, 96, 106, 132, 160,
161, 183, 191, 194
low intensity 106, 132, 160, 161, 167
Ludwig, Wolfgang 22, 98, 157, 203

M

magnetic field xi, xii, xvii, xviii, 5, 18,
19, 22, 23, 45, 46, 72, 74, 85, 87,
88–93, 96, 98–100, 102, 105,
106, 108–111, 120, 126–134,
139–141, 148, 155–159, 161, 162,
164, 165, 173, 174, 177, 183, 186,
188, 191, 192, 194, 200, 203, 204
magnetic flux 172
magnetite 22, 108, 109, 111
magnetosphere 91
magnetotactic bacteria 22
magnets xvi, 45, 46, 93, 114, 157–160,
166, 170, 203
Mars 4, 88, 89, 132
measurement problem 44
meditation 106, 185
melatonin 18, 186, 193
meningioma 145
microcirculation 116, 123, 125, 188

microcurrents 93, 157, 158, 183, 185
microwave 95, 128, 137–139, 143–150,
152, 153
microwave ovens 139, 143, 152
microzyma 68
millisecond pulse 161, 170
mitochondria 115, 118, 119, 121–123,
125, 187
molecular signaling 63
M-Theory 2, 47, 50
multiverse 2, 39
mu steel 130

N

Nakagawa, Kyoichi 129, 133
NASA 129, 131, 132, 152, 156, 160,
161, 165, 167, 168, 170, 171, 174,
175, 192
NASA prototype 174
NASA study 160, 165, 167, 168, 170,
192
neuropeptide 179, 180
Newtonian 27, 30–36, 39, 40, 43, 48,
53, 57, 59, 60, 62, 64, 72, 74, 90,
113
Newtonian Medicine 27
Newtonian Physics 30–32, 34–36, 40,
59, 64, 74
Newtonian Worldview 39
Newton, Isaac 32
nitric oxide 188
non-gmo 10, 24, 195, 198

O

objectivity 32, 34, 35, 43
observer effect 44
octaves 96, 97, 102
oncostatic 186
organic 9–11, 24, 69, 84, 127, 144, 156,
195, 196, 198
osteoporosis 121, 183

oxygen xii, xvi, 6, 9, 11, 14–16, 19, 69,
72, 78, 79, 84, 88, 100, 113–116,
118, 119, 121–126, 128, 131, 151,
165, 182, 187–190, 196, 199, 203
oxygenation xii, 79, 110, 122, 123, 182,
187–190, 193

P

pain xi, xiii, 6, 12, 25, 30, 69, 110, 120,
129–131, 133, 134, 137, 157–159,
170, 171, 174, 181, 182, 184, 185,
192, 193, 200, 202, 203
pain relief 110, 159, 171, 182, 184, 185,
193
papilloma virus 67
particle-wave duality 45, 114
Pasteur, Louis 67–69, 190
PEMF device xi–xiii, xvi, xvii, xix, 71,
85, 91, 121, 124, 128, 129, 150,
151, 155, 156, 159–161, 166–168,
170, 171, 174–177, 179, 198, 200
PEMF mats 93
PEMF therapy xi–xiv, xvi–xix, 13, 15,
17, 30, 31, 36, 45, 53, 64, 71, 79,
81, 85, 93, 106, 110, 114, 117–
119, 122, 124–127, 134, 151, 152,
155–161, 164, 166, 167, 170, 171,
174–177, 179–193, 196, 200
PEMF therapy mats 93, 158
pH 6, 69, 88, 115, 120–122, 125, 183,
190
phase 8, 62, 82, 83, 93, 98, 162–164,
166
phase relations 82, 83, 93, 98, 163
phospholipids 116
phrenology 79
piezoelectric effect 183
Piontzik, Klaus 98, 99, 110, 203
placebo effect 31, 60, 179–181, 193
plasma 8, 9, 100, 138, 149
pleomorphism 68, 70

polarity reversal 174
pole reversal 128, 129
pole shift 129
Popp, Fritz 82, 203
potential hydrogen 120
prana 74
Pribram, Karl 55, 203
psychoneuroimmunology 179
pulsed electromagnetic fields x, 18, 132, 152, 191, 194
pulsed magnetic fields xii, xvii, xviii, 90, 106, 130, 156, 158, 159, 192
pulsed magnetic therapy xii, xvii, 22, 56, 93, 156, 157, 174, 176, 188, 192
pulse oximeter 189
pure copper coils 156, 171–173

Q

QCD 47
QED 47, 48, 201
Qi 74, 105, 111
quantum biology 43, 71
quantum electrodynamics 47, 48, 56
quantum entanglement 42, 43, 82
quantum field theory xviii, 30, 31, 35, 40–42, 44, 45, 47, 48, 50, 51, 59, 66, 71–73, 83, 90, 110
quantum mechanics 32, 33, 36, 40, 41, 43–45, 47, 57, 65
quantum physics ix
quantum theory 39, 43, 44, 48, 56, 81–83, 85, 90, 114, 172
quarks 2, 3, 41, 42, 45, 50, 57, 58, 84

R

radio wave 54, 94, 134, 135, 143, 162, 163
rapidly varying PEMF 160, 161
rapid time varying waveform 161, 168

reductionism 34, 60, 71
reflexology 78–80
regeneration 104, 156, 158–161, 168, 170, 171, 182, 188, 192, 193
relativity 34, 36–38, 43, 45–47, 51
relaxation 106, 175, 182, 185, 186, 191–193
Rife machines xvi, xvii, 156, 157
Rouleau Effect 123, 189

S

sawtooth 161, 163, 168–171, 183
sawtooth pulse 169, 170
sawtooth waveform 169–171
Schrodinger, Erwin 40
Schumann xi, xvii, xviii, 18–25, 72, 85, 87, 93, 95–100, 102, 103, 105–110, 114, 127, 128, 130–133, 135, 136, 164, 165, 167, 180, 186, 198
Schumann Frequencies xviii, 18, 24, 25, 72, 97, 98, 128, 132, 133, 164
Schumann Frequency 24, 99, 106
Schumann Resonance xi, 19–23, 87, 95–99, 105, 107–110, 127, 131, 132, 165, 167
Schumann waves 22, 23, 97
Schumann, Winifred Otto 20
sclerology 79
seasonal affective disorder 16
self-similar 53, 58, 76, 78, 80
Senate Document 264 127
sine wave 161–163, 166, 169, 170
sleep xvi, 16–18, 24, 27, 60, 106, 110, 113, 129, 134, 137, 146, 166, 179, 182, 185, 186, 191, 193, 196, 200
smart meters 135, 139, 148
sodium-potassium pump 109, 115, 116, 120, 159
solid 8, 32, 33, 39, 41–43, 51, 52, 60, 72, 74, 75, 82, 87, 90, 116, 124

special relativity 36, 45, 47
squarewave 132, 161, 163, 168, 170, 171,
175
squarewave waveform 171
SQUID 74, 102, 104, 156, 165
SQUID magnetometer 104, 156, 165
static magnetic therapy 157
static magnets 93, 157–160, 166
strength training 18, 200
stress 6, 7, 10, 12, 21, 27, 28, 29, 106,
117, 140, 180, 182, 185, 189,
191–193
stress reduction 182, 191, 193
string theory 2, 47, 50
strong nuclear force 2, 3
sunlight 9, 16, 17, 19, 25, 27, 56, 69,
72, 113, 131, 165, 179, 182, 195,
196, 199
supergravity 47
supernova explosion 4, 59
Szent-Gyorgi, Albert 113, 116

T

telluric currents 91, 134
TENS units xvii, 156, 157
theta 99, 100, 106, 166, 186
thimerosal 60
threshold intensity 184
threshold of pain 184
TMP 114–116, 118–120, 122, 125, 126,
159, 170, 187
transmembrane potential 114, 119, 159,
187
two-fold problem xviii, 127, 128, 136,
152, 155, 185

U

ultrasound 30
ultraviolet 16, 17, 95, 135, 142
Uncertainty principle 40

upregulation 161
UVB 17

V

vaccines 31, 59, 60, 67
vector potentials 83, 97
Venus 4, 88, 89
visible light 16, 85, 94, 95, 134
Vitamin D 17
Vitamin D3 17
voltage 70, 114–118, 120–125, 138, 139,
150, 157, 161, 170, 190, 204

W

Wald, George 5, 26
Otto Warburg 14, 116, 117, 121, 126
water xii, xvi, 4, 5, 7–14, 17, 19, 25–27,
48, 62, 66, 69, 71, 72, 74, 79, 84,
85, 87, 94, 100, 113, 121, 122,
124, 125, 128, 131, 138, 159, 165,
179, 181–183, 195–197, 199–201
water bed 138
Water Ionizer xvi, 13, 196, 199
wave equation 40, 162, 163
waveform 54, 55, 132, 136, 155–158,
160–166, 168–171
weak force 2, 3
Wever, Rutger 21, 204
wi-fi 24, 128, 135, 137, 138, 143, 144,
147–149
window of opportunity 164
wire mesh mats 173, 174
World Health Organization 137, 142,
144

X

x-ray 16, 94, 95, 135, 137

Y

yoga xiv, 185

Z

zappers xvi, xvii, 157

zero field 19, 129, 130

zero point energy 39, 48, 56, 114

zero point energy field 48, 56, 114

Zimmerman, John 104, 156

SAMPLE

You probably know that food, water, sunlight, and oxygen are required for life, but there is a fifth element of health that is equally vital and often overlooked: The Earth's magnetic field and its corresponding PEMFs (pulsed electromagnetic fields). The two main components of Earth's PEMFs, the Schumann and Geomagnetic frequencies, are so essential that NASA and the Russian space program equip their spacecrafts with devices that replicate these frequencies. These frequencies are absolutely necessary for the human body's circadian rhythms, energy production, and even keeping the body free from pain. But there is a big problem on planet earth right now, rather, a twofold problem, as to why we are no longer getting these life-nurturing energies of the earth. In this book we'll explore the current problem and how the new science of PEMF therapy (a branch of energy medicine), based on modern quantum field theory, is the solution to this problem, with the many benefits listed below:

- eliminate pain and inflammation naturally
- get deep, rejuvenating sleep
- increase your energy and vitality
- feel younger, stronger, and more flexible
- keep your bones strong and healthy
- help your body with healing and regeneration
- improve circulation and heart health
- plus many more benefits

Bryant Meyers, BS MA Physics, is a former physics professor, TV show host, and leading expert in the field of energy medicine and PEMF therapy. For over eighteen years, he has researched, tested, tried, and investigated well over \$500,000 worth of energy medicine and frequency devices, studying with many of the world's experts. During the past six years he has dedicated his life and research to PEMF (Pulsed Electromagnetic Field) therapy, which he feels is the crown jewel of energy medicine. He has also helped and personally assisted thousands of people in this exciting new field. Bryant currently lives in Sarasota, Florida, near the beautiful Siesta Key Beach.



BALBOA
PRESS

A DIVISION OF HAY HOUSE