

Dr. Nenah Sylver's

Updated and Expanded

Healing with Electromedicine and Sound Therapies

from:

The Rife Handbook
of Frequency Therapy and Holistic Health
an integrated approach for cancer and other diseases

5th Edition
second printing

- ♦ History of Electromedicine ♦ The Electromagnetic Body
Electrical Current ♦ Magnetism ♦ Magnetic Vortices
- ♦ Electromagnetic Fields ♦ Rife Frequency Therapy
 - ♦ Pulsed Electromagnetic Fields (PEMFs)
- ♦ Lasers ♦ LEDs ♦ Sound Therapy ♦ Photonic Transmission
 - ♦ Schumann Resonances ♦ EMF Protection

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Nenah Sylver, PhD

The Rife Handbook of Frequency Therapy and Holistic Health

*an integrated approach
for cancer and other diseases*

UPDATED
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Holistic Health | Electromedicine

Just two decades ago, Rife Therapy was virtually unknown. Gradually, hundreds of thousands of health seekers—from Germany to England, Indonesia to Australia, South Africa to the United States—began purchasing “rife” machines for themselves, their families, friends, and pets. This safe and effective technology, which delivers frequencies for healing via electrodes or an electromagnetic field, has been successfully used for cancer, neurological disorders, Lyme disease, gastrointestinal and respiratory ailments, childhood illnesses, and dozens of infectious diseases and degenerative conditions.

Despite the best efforts of organized medicine and the pharmaceutical industry to suppress this healing modality, Rife Therapy is finally emerging into public awareness. Tired of conventional medicine’s consistent failures to produce cures, people are making Rife Therapy part of their lives in ways they could never have imagined.

Previous versions of this book sold in over thirty countries. This updated and expanded 5th edition has been completely rewritten, reorganized and expanded, with almost 350 more pages in an easier-to-read format. It contains new information on self-administered natural therapies (including clay, activated charcoal, castor oil, and homeopathy), expanded sections on the dangers of electropollution and vaccines, and suggestions for safe substitutes for many of the drugs and poisonous chemicals we have in our homes. There is also updated advice on how to use frequency machines and other electromedical instruments for healing, along with listings of new diseases and frequencies that disable microbes and restore cellular vitality.

Complex data explained in understandable terms will reassure the layperson, while thousands of scholarly references will satisfy the serious researcher. *The Rife Handbook* is the most complete and versatile reference anywhere on electromedicine and holistic health.

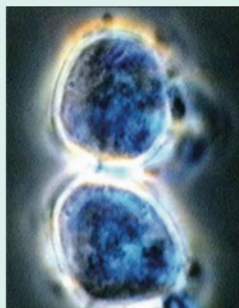


This is an invaluable resource, not only for scientists and health professionals, but also for individuals who want to know more about technologies and adjunctive health therapies. . . . A better name might be “the bible of electromagnetic devices and complementary medicine made accessible to everyone.” . . . Nenah Sylver is an outstanding writer . . . I urge you to use this book as a guide and a reference.

—Steve Haltiwanger, MD, CCN
lecturer, researcher, and consultant in
psychiatry, Rife Therapy,
electromedicine, and nutrition

An invaluable reference manual for complementary therapies and holistic living in general. The writing is superb. The information is well researched, logically presented, and accurate. . . . I am beyond impressed.

—Martha M. Grout, MD, MD(H)
Arizona Center for Advanced Medicine
Scottsdale, Arizona



In this 5th edition . . . Nenah Sylver has set an even higher bar of excellence. She has conveyed so much new and important information in an even more organized and cohesive manner, that this edition is a “must have” even if you enjoyed the previous volume. . . . An incredibly valuable resource that everyone needs.

—Jimmie Holman, co-founder
Pulsed Technologies Research (USA)
and Bioenergetics & Pulsed Technologies (EU)

The Rife Handbook is an encyclopedia of holistic health. It’s so comprehensive, it’s mind boggling. . . . Nenah Sylver does an amazing job . . . This stellar body of work belongs in every household as well as every practitioner’s office.

—Bernard Straile, DC
developer of the IMAET quantum energy wellness equipment

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Praise for *The Rife Handbook*

Natural therapies and healing have been ridiculed as quackery by the medical-pharmaceutical complex for a century. Yet consumers spend thirty billion out-of-pocket dollars a year on alternative therapies. Why? Not because people are gullible, but because many of these modalities work. Holistic health is complex. It addresses the entire body, all one hundred trillion cells. Supported by abundant research, Nenah Sylver does an amazing job explaining the plethora of options, techniques and technologies that will help readers make informed decisions about how to naturally support their health and innate healing power. Simply put, *The Rife Handbook* is an encyclopedia of holistic health. It's so comprehensive, it's mind boggling. This stellar body of work belongs in every household as well as every practitioner's office.

—Bernard Straile, DC
author of *One Thousand Shades of Pink*
and developer of the IMAET quantum energy wellness equipment

This book is incredibly well written and comprehensive, relevant to students and practitioners alike. Covering an array of topics in medicine and holistic health, it comes at a most crucial time in the burgeoning field of alternative and complementary health care. Having read scores of books on electromedicine, I count this book as my number one reference on the topic. I only wish I had the knowledge presented in these pages many years ago. As a scientist with over forty years of clinical and academic experience, I am mesmerized by Nenah Sylver's quality of writing and knowledge. She explains the most difficult topics clearly so anyone can understand and benefit from what she has to offer. Dr. Sylver is sure to inspire and educate those fortunate enough to hold a copy of her book in their hands. Without question, she will be included as one of the great minds of the 21st century. It is with great pride and honor that I recommend *The Rife Handbook* without hesitation to all physicians and students in the health field.

—John A. Amaro, PhD, DC, LAc, Dipl Med Ac
past president, International Academy of Medical Acupuncture
and developer, Electro Meridian Imaging (EMI)[™] acupuncture diagnostic instrument

In this 5th edition of *The Rife Handbook of Frequency Therapy and Holistic Health*—the definitive work on Rife, resonant frequency, pulsed energies, and related technologies for therapeutic use—Nenah Sylver has set an even higher bar of excellence. She has conveyed so much new and important information in an even more organized and cohesive manner, that this edition is a “must have” even if you enjoyed the previous volume.

Dr. Sylver's unique ability to translate complex information into accessible content, suitable for health professionals and laypersons alike, leave most hard-core technical persons (like myself) in total awe. Her attention to accurate historical detail as opposed to myth, and inclusion of new, cutting-edge complementary healing modalities, allows readers to strategize a practical and effective approach for their often serious health issues. This latest edition empowers the reader by providing a wealth of knowledge compiled, sorted, and refined over the last decade. It offers information that few have time to research for themselves when their health requires it the most. This book is an incredibly valuable resource that everyone needs. If you have but a single reference in your library on the science and practice of these technologies and therapies, *The Rife Handbook* should definitely be the one!

—Jimmie Holman
co-founder, Pulsed Technologies Research (USA)
and Bioenergetics & Pulsed Technologies (EU)

Traditional medicine, with its faulty paradigm and obsolete Neanderthal protocols, is already in a state of decline. In its wake, Integrative Medicine has begun to fill the void with bio-mechanical therapies, electromedicine, and more natural remedies to heal. Keeping up with the many advances is a monumental task.

The previous edition was a first-rate, comprehensive, extremely well organized and documented manual to help laypersons and physicians better understand the concepts of vibrational medicine and the power of complementary health protocols. As an author, researcher and international lecturer with over forty years of clinical experience, I was literally blown away by that masterpiece and gave it a definitive five-star rating. This revised 5th edition of *The Rife Handbook of Frequency Therapy and Holistic Health* is a perfect example of intelligent evolution. Dr. Nenah Sylver has compiled an even more comprehensive holistic bible. In an improved format, it provides frequencies to treat new diseases, plus expanded sections on the politics of medicine and vaccines, more breakthrough complementary therapies, historical electromedicine references, and other topics to help one survive the pitfalls of modern medicine. It's a must for everyone's reference library.

—Gerald H. Smith, DDS, DNM
past president, Holistic Dental Association

Dr. Nenah Sylver has brought together the sciences of bioelectronics and naturopathic health care in a truly integrated approach. *The Rife Handbook* is the bible of holistic medicine for the 21st century.

—Brian McInturff
*creator of the Consolidated Annotated Frequency List (CAFL),
www.electroherbalism.com*

Dr. Nenah Sylver has gifted humanity with a magnificent, comprehensive, thoroughly researched guide to holistic health as well as the science and application of the work of a great medical pioneer, Royal Raymond Rife. This book will help physicians expand their base of practical and theoretical knowledge. I highly recommend it for any clinical practice utilizing complementary and energy medicine therapies.

—Robert S. Ivker, DO
*co-founder and past president, American Board of Integrative Holistic Medicine (ABIHM)
and author of Sinus Survival*

At a time when health conscious individuals are concerned about drug-resistant infectious diseases, the government's push for mass inoculations, the over-medication of children, bioterrorism, and negative effects of vaccines and drugs, along comes a well researched, easy-to-read treatise that revives non-invasive and effective frequency therapy. *The Rife Handbook* is sophisticated enough for the seasoned health professional, yet thorough and understandable enough for the novice. This book does more than discuss the genius of Royal Raymond Rife; it superbly explains holistic approaches to treating disease. Even if the reader does not (yet) own a frequency device, this book is one of the best primers I have ever seen on holistic health. Anyone interested in alternative healing protocols must have this book.

—Rose Marie Williams, MA
Townsend Letter columnist, and natural health and environmental advocate

This 5th edition of *The Rife Handbook* is huge. Our definition of “handbook” must expand to include the book’s thousand-odd pages—making it a little unwieldy in the field, but absolutely worth keeping at the desk. It’s enormous in scope, but Nenah Sylver eases us into the text by explaining, in the Introduction, the premise under which she operates: “It became clear to me that I couldn’t just create a list of numbers [frequency settings] to go with the equipment . . . it wasn’t enough to receive frequency sessions; [people] had to actively eliminate the conditions that had allowed their illness to occur in the first place.” The end result is truly a comprehensive volume of healing.

Healing invariably makes us think of germs. But as Dr. Sylver writes, “As long as we perceive ourselves as helpless victims of germs, we’ll continue to rely on pharmaceuticals to help us get well.” A famous senior executive at GlaxoSmithKline (whom she quotes) once publicly admitted that over 90% of pharmaceuticals are only about 30%–50% effective (depending on the genetics of the person to whom they are administered). Dr. Sylver discusses the effectiveness and toxic effects of pharmaceuticals in depth. The political aspect of both pharmaceutical drugs and their marketing is also discussed and referenced extensively. The section on vaccination is to be particularly noted—the history, politics, science, and their incorporation into our own genetic material (a sort of biologic gene editing phenomenon). And that is only Chapter 1.

Other highlights made a particular impression as well. Dr. Sylver discusses the inventions of Royal Rife and the discoveries of other healers in this field of holistic medicine. The entire history, as recounted in this book, is sordid, and reflects very poorly on the medical establishment, including the American Medical Association. We are given a multitude of choices for healthy living—with the caveat that “one size fits all” does not work for either bathrobes or diets. I was especially drawn to the section on gratitude, toward both the animals and plants that provide us with our food. The Brix measurement of plant vitality was a brand new one to me. High Brix means more nourishment, and is measured by placing a drop of plant juice on a device called a refractometer and seeing how much the light is bent as it passes through the prism. There is also a very interesting discussion of wheat, and how it has become modified from the original 14-chromosome gluten-poor grain to the current 42-chromosome gluten-rich grain associated with multiple forms of illness known as “gluten intolerance.”

One of the appendices gives an excellent discussion of various electromagnetic frequency devices and magnetic therapy in general. Another appendix satisfies the research junkies among us, a list of published papers and books on electromedicine dating back to 1877. Plus, there are still all the chapter references, almost five hundred for Chapter 1 alone. Appendix E gives a tantalizing glimpse of current research on frequency treatment of cancer cells *in vitro*. And Appendix F lists commonly used chemicals, almost all of which are toxic to human life. There is so much more to this book that you need to read it for yourself and decide what your favorite portions are.

If you want to learn about Rife therapy or the context in which it is best used, this book is an excellent place to start. It is also an invaluable reference manual for complementary therapies and holistic living in general. The writing is superb. The information is well researched, logically presented, and accurate. “We cannot die in peace without living in love,” writes Nenah Sylver. The overall impression this book leaves is one of light and healing.

I am beyond impressed.

—Martha M. Grout, MD, MD(H)
Arizona Center for Advanced Medicine
Scottsdale, Arizona

Royal Rife developed equipment to apply frequencies. Since that time, various types of effective frequency devices have been produced. Hundreds of cancer patients have recovered without the benefit of surgery, chemotherapy, or radiation. Lyme disease, Multiple Sclerosis, rheumatoid arthritis, and many other conditions have yielded to frequency therapies. Non-professionals have produced many of these results. I have had the privilege of watching many people self-treat and enjoy improvements in their health.

An attorney with an autistic son reported that her child seldom slept more than three hours at a time; he would wake up in pain. The two of them were getting six hours or less of sleep a night. After the mother gave the boy one frequency session, he started sleeping consistently for ten hours, and his behavior improved. A prostate cancer patient had difficulty urinating and tried frequency therapy. Five days later, the urine flow was normal. A leukemia patient had a white blood cell count of 250,000. He decided to use frequencies that other leukemia patients had found useful. After six weeks, his white blood cell count was down to 16,000. A patient with pulmonary fibrosis made crinkling sounds in his lungs as he breathed. He was told that his prognosis was hopeless, that his oxygen saturation would continue to decrease until not even inhaling oxygen would keep him alive. After frequency therapy he coughed up a lot of material, after which his lung sounds and oxygen saturation returned to normal. Several people with degenerative hip conditions have used frequency therapies. So far, all have recovered. It appears that when the infections in the joints are removed, the body is able to repair the damage. And yet, most physicians have never heard of Rife's work.

The Rife Handbook of Frequency Therapy is a book that doctors and their patients can use to learn about this safe, effective and non-toxic therapy for cancer and so many other conditions. Dr. Sylver presents a fascinating account of the life of Dr. Rife and his accomplishments. She describes how his discoveries were, and continue to be, ignored or opposed. She explains why you may not get the best available care when you seek medical help. She covers in detail helpful steps to take in moving toward wellness, including how to get quality water and how to detoxify the body. She covers what you need to know to conduct a frequency therapy session. She lists a large number of conditions with appropriate frequencies. And she offers a wide range of complementary therapies that are natural, effective, and easy to use for a wide variety of ailments. Dr. Sylver has spent years studying how people get sick and how they can get well. She presents a wealth of valuable material that will be beneficial to all kinds of practitioners including doctors, and to those on the road to recovering their own health.

—Richard Loyd, PhD
practitioner, *Health Balances*
Graham, Washington, United States
and coordinator of the Rife International Health Conference, www.RifeConference.com

Nenah Sylver's direct style is a prophetic voice for the medicine of the future. She provides a well-organized history of Rife's work and a seminal guidebook for the modern application of his discoveries. This significant volume will encourage lively and informed discussion regarding the implications of bio-electromagnetic energies for human wellness.

—Joel P. Carmichael, DC, DACBSP
president, *North American Academy of Energy Medicine*
author of *What Should I Eat? A Food-Endowed Prescription For Well Being, 2nd Edition*
and *Nutrition For Endurance: Finding Another Gear*

Dr. Nenah Sylver's 2001 edition offered an impressive collection of long-suppressed information to help people break away from the self-serving deceptions employed by conventional allopathic medical care and the pharmaceutical industry. With this new volume, Dr. Sylver demonstrates her mastery of this complicated field with massive amounts of hands-on information that you must learn if you are to finally be well. She courageously demonstrates how each of us has the power to take charge of our own lives and create our own wellness protocols, without abdicating responsibility to anyone else. *The Rife Handbook* is destined to become the definitive reference on attaining self-directed, holistic health.

—S. Nathan Berger, DDS, PC
Rife researcher and biological dentist

It doesn't happen very often, but occasionally I read a massive book on natural health and healing that just plain blows me away. Dr. Nenah Sylver's huge and impressive *Rife Handbook* is more than merely the best and most complete compendium on frequency healing that I've ever seen. In addition to a massive cross-referenced frequency directory for most human ailments, this wonderful book also features detailed, helpful, and groundbreaking information on complementary therapies—and much, much more.

—Chet Day
Health & Beyond Online, www.chetday.com

As an AAMA Board Certified Alternative Medicine Practitioner, I have many fine modalities from which to choose. I recently experienced a health issue that failed to be helped by either conventional allopathic medicine or even alternative medicine treatments. However, after a Rife frequency square wave treatment protocol was applied, this health issue was completely resolved.

Rife technology, until now, has been largely questioned by both alternative medicine and allopathic practitioners for efficacy and disease resolution. But *The Rife Handbook* will dispel your doubts. It is the recommended work for practitioners who need to understand how and why this therapy works, and who want to utilize frequency therapies in conjunction with current preferred interventions to help their patients heal. Nenah Sylver's definitive interpretation of frequency therapy identifies applications, indications, contraindications, safety, and specific treatments along with directions specifying "how, when, and what frequency" for therapy sessions. The detail with which the author examines treatment modalities is remarkable; she presents a variety of protocols to resolve most health issues. It is rare that I read another's views of various alternative medicine therapies that exude such succinct clarity and comprehension as hers. Dr. Sylver has a remarkable grasp of what works, how it works, and on whom it may be effective.

This well-referenced treatise provides treatment options when progress falls short, or when there appears to be an impassable plateau in the way of optimal recovery.

—Bill Misner, MS, PhD
AAMA Board Certified Alternative Medicine Practitioner

When Nenah Sylver published the first edition of *The Rife Handbook* in 2002, it received excellent reviews as the best book in the field. This new version is substantially updated and improved, reflecting many of the advances in frequency therapies that have occurred in over a decade. Frequency therapy, properly applied, may well replace every other modality. Frequencies can alter DNA, kill or enhance cells, affect all chemical interactions, break up toxic substances and cause them to be eliminated from the body, kill pathogens that disrupt bodily function, and enhance and stimulate all cells and organ systems to higher levels of performance.

There are superbugs and bioengineered diseases out there that might make it to your neighborhood. Will your local medical clinic help you when thousands of people are dying from a strange disease? Don't count on it! If you want to live long and prosper, learn about frequency therapy. Dr. Sylver spends a lot of time in her book to help you use frequencies safely. Even if you just want to make life a little better for your family and friends, you will want to read *The Rife Handbook*.

—Jeff Sutherland, PhD
co-principle investigator of research grants, National Cancer Institute
assistant professor, Department of Radiology, University of Colorado School of Medicine
co-founder, Center for Vitamins and Cancer Research
Frequency Foundation, Boston, Massachusetts, United States

We work in the area of complementary and holistic cancer healing education and recommend Rife therapy to all our clients. *The Rife Handbook* is a bible in our office, an invaluable tool toward the healing of dozens of cancer victors. Nenah Sylver's research is thorough and detailed. The book sits on a prominent place on my shelf next to every frequently used manual in my practice.

—Ellyn Hilliard, CNC, PhD
former co-owner of Twelve Ways Healing Center in Colorado, US
and author of *Cancer Healing Victories*

Royal Raymond Rife discovered one of the most groundbreaking medical tools of the last hundred years. Due to political and financial interests, his discoveries were driven underground. But today, people suffering from cancer and other diseases can base their treatment on authentic science instead of politics. A scientist in the true definition of the word, Dr. Sylver methodically guides readers through Rife's life and achievements, with a history of the technology and the scientific foundation for its use. She also provides practical tips that can be easily integrated into a comprehensive protocol for a wide variety of health conditions. Nenah Sylver is the "researcher's researcher"; I habitually turn to her work as a trusted reference. I recommend *The Rife Handbook* without reservation to every health seeker, patient, physician, and scientist who values objectivity and innovation in medicine and wants guidance on complementary healing modalities.

—Bryan Rosner
author of *Lyme Disease and Rife Machines*,
The Top 10 Lyme Disease Treatments,
and *Freedom From Lyme Disease*

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Nenah Sylver, PhD

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You must use the contact form at www.NenahSylver.com, as the author is unlikely to respond initially to phone calls. To request an interview, private consultation, group class, educational seminar, the author's participation at a conference or on a panel, or to submit products or equipment for testing, please use the contact form.

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The Rife Handbook of Frequency Therapy and Holistic Health: an integrated approach for cancer and other diseases.
Updated and Expanded 5th Edition

The first softcover edition of this book (with a different title) was published in 2001 by The Center for Frequency. Two larger, revised hardcover editions, almost identical, containing substantially new material, improved organization and an index, were published in 2009 and 2011 by Desert Gate Productions LLC.

An updated and expanded 5th edition (with 1104 pages, almost 400 more pages than the 2011 volume) was published in 2018 by Desert Gate Productions LLC.

In this second printing of *The Rife Handbook 5th Edition*, copyright 2021, a few errors have been corrected and some updates and newer material have been added to the text. The page count remains the same.

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New interior book design by Nenah Sylver.
Cover design by Duane Burchett and Nenah Sylver.
Index by Nenah Sylver.

Cover Images, Back.

Top: Bipolar nerve cell, as seen through the Ergonom microscope.

Middle: Cross section of a bone 3.5 mm thick, as seen through the Ergonom microscope.

Bottom: Cell division, as seen through the Ergonom microscope.

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Healing with Electromedicine and Sound Therapies

The universe is wider than our views of it.

—HENRY DAVID THOREAU, AMERICAN NATURALIST AND AUTHOR (1817–1862)

INTRODUCTION

In the 1960s, counterculture hippies were urging us to give peace a chance (great advice). To expedite that process, it was helpful to have “good vibrations”—considered so important that the Beach Boys wrote a catchy song with this title. It was easy to tell who had good vibes and who didn’t. An optimistic, considerate person was considered “high frequency,” while a pessimistic, disagreeable individual was “low frequency.” Not surprisingly, everyone wanted to be around the folks who had good vibes.

Colloquialism aside, saying that someone is “high frequency” is based on legitimate science. Every molecule, cell, living body, and object is comprised of energy that manifests as physical matter. Some of that energy is detectible as frequencies that belong to one or more radiation bands in the electromagnetic spectrum. And these frequencies correspond to biochemical and biological processes in the body.

In the healing arts, there are different ways to affect matter. With conventional medical care, the chemical, functional, and/or structural change in organs, glands, and other tissues are created either through biochemical manipulation (drugs) or physical manipulation (such as surgery). With electromedical therapies, healing is achieved by working with the electromagnetic radiation

(emissions) and related energy fields that form, and are emitted by, physical matter. Basically, electromedical devices produce and focus specific frequencies that can be in the form of electromagnetic fields, electrical current, magnetism, visible light, heat, or other energy.

Although electromedicine is widely used in Europe, it is less known in the United States. Few people in developed countries would question the use of the ubiquitous transcutaneous electrical nerve stimulation (TENS) unit, which emits small amounts of electrical current to manage pain. And magnets embedded in the insoles of shoes, also for pain management, are now a regular item in consumer catalogues. But electricity and magnetism are still primarily used diagnostically—such as with the standard electrocardiogram (EKG or ECG) to assess the health of the heart, and with magnetic resonance imaging (MRI) to show the inside of the body. Most medical professionals, as well as the lay public, are not inclined to take advantage of less familiar electromedical devices because they don’t understand how they work. And those who do use the equipment might talk about “frequencies” or “energy” without fully understanding what these terms mean or knowing the science behind the technology.

Fortunately, receptivity to electromedicine is increasing. Health professionals are expanding their practice (and their success rate) with safe, holistic technologies. And the public is beginning to recognize

and request electromedicine as an effective and valid treatment modality. In this review, I'll explain what "frequency" and other terms mean as applied to the electromagnetic spectrum. I will explain electromagnetic energy in living systems, explore several types of electromedical modalities, and discuss the related modality of sound therapy.

ELECTROMEDICINE THROUGHOUT HISTORY

Healing with electromedicine is an ancient practice. Before we learned how to manufacture magnets of ceramic and metal, our ancestors discovered that magnetite, a mineral (which they called *lodestone*), emitted a magnetic charge. Placing it on the body reduced pain. We also harnessed naturally-occurring electricity for healing. Egyptian texts dated 2750 BC described deliberate exposure to electric eels and torpedo rays, ocean animals that could administer electric shocks. The shocks could be therapeutic, providing they didn't cause serious damage first. In addition to static electricity (friction) and magnetism (lodestone), we used the sun (for its far infrared and ultraviolet radiation), visible light (for its different colored wavelengths), and sound, along with other energies as well.

These early electromedical therapies may have been based on natural phenomenon, but as we learned to harness and replicate the naturally-occurring energies, they became manageable and measurable. By the 1900s, when electrical power was common in the home as well as the workplace, electrical devices invented for medical treatments were considered mainstream. In *Electrotherapy and Light Therapy with Essentials of Hydrotherapy and Mechanotherapy*, published in 1949, Richard Kovács describes an impressive array of electricity-run equipment, most of which had already been in use for half a century. Among other technologies, this equipment utilized alternating current, direct current, low frequencies, high frequencies, static electricity, diathermy, infrared rays, ultraviolet rays, and ultrasonics. Modern electromedicine practitioners will recognize some of these devices as forerunners of those used today—if not *the* machines still being used, as some devices haven't changed much in a hundred years. Some of this equipment included Georges Lakhovsky's multi-wave oscillator, the Violet Ray (which utilized Nikola Tesla's coil), and Edgar Cayce's Wet Cell. Dr. John Harvey Kellogg's Electric Light Bath (or Electric Light Cabinet)—which used light bulbs invented by his friend Thomas Edison—was a very popular forerunner of our modern far infrared sauna.

The conditions that these devices were used to manage or eradicate were virtually unlimited: muscular aches and pains, skin conditions, gynecological problems, some heart conditions, respiratory ailments, gastrointestinal disorders, acute and chronic infections, and degenerative diseases.

Given the variety of such equipment almost a century ago, what seems remarkable today is not the abundance and range of devices, but the resistance to electromedicine by both the public and the medical profession. Of course, the vilification of these therapies by the medical mainstream—and laws passed to suppress the use of such devices—drove these modalities out of the public's immediate consciousness. Electromedicine as a valid treatment modality has met with derision and skepticism from practitioners and laypeople alike. However, the body clearly responds to electromagnetic energies. If all sorts of electrical, thermal, magnetic, and sound-based devices are used for testing, why can't they be used for healing?

As might be expected, the pharmaceutical industry has taken advantage of people's ignorance and resistance to any modality that seems new and strange, for if the benefits and track record of electromedical devices were widely publicized, drug companies would lose billions of dollars each year. Likewise, mainstream media doesn't make an effort to educate consumers because it depends on considerable advertising revenues from drug companies.

Unlike a drug, which can be used just once by one person, and is intended for a single condition, the electromedical modalities that have emerged in the last century:

- ◆ Are non-invasive.
- ◆ Support the body's innate ability to heal, instead of substituting for its natural functions.
- ◆ Are fairly easy to use, by laypeople as well as health professionals.
- ◆ Can be utilized over the course of a lifetime (because they address many conditions).
- ◆ Can be used for more than one person.
- ◆ Are relatively inexpensive, considering their range and scope.

How and why do electromedical devices work? Whether you're a health care provider or a seeker of health services, understanding the science behind electromedicine can make the difference between discerning good vibrations from bad. The best place to start is with an overview of discussion of the EM spectrum and its related component, sound.

THE ELECTROMAGNETIC SPECTRUM

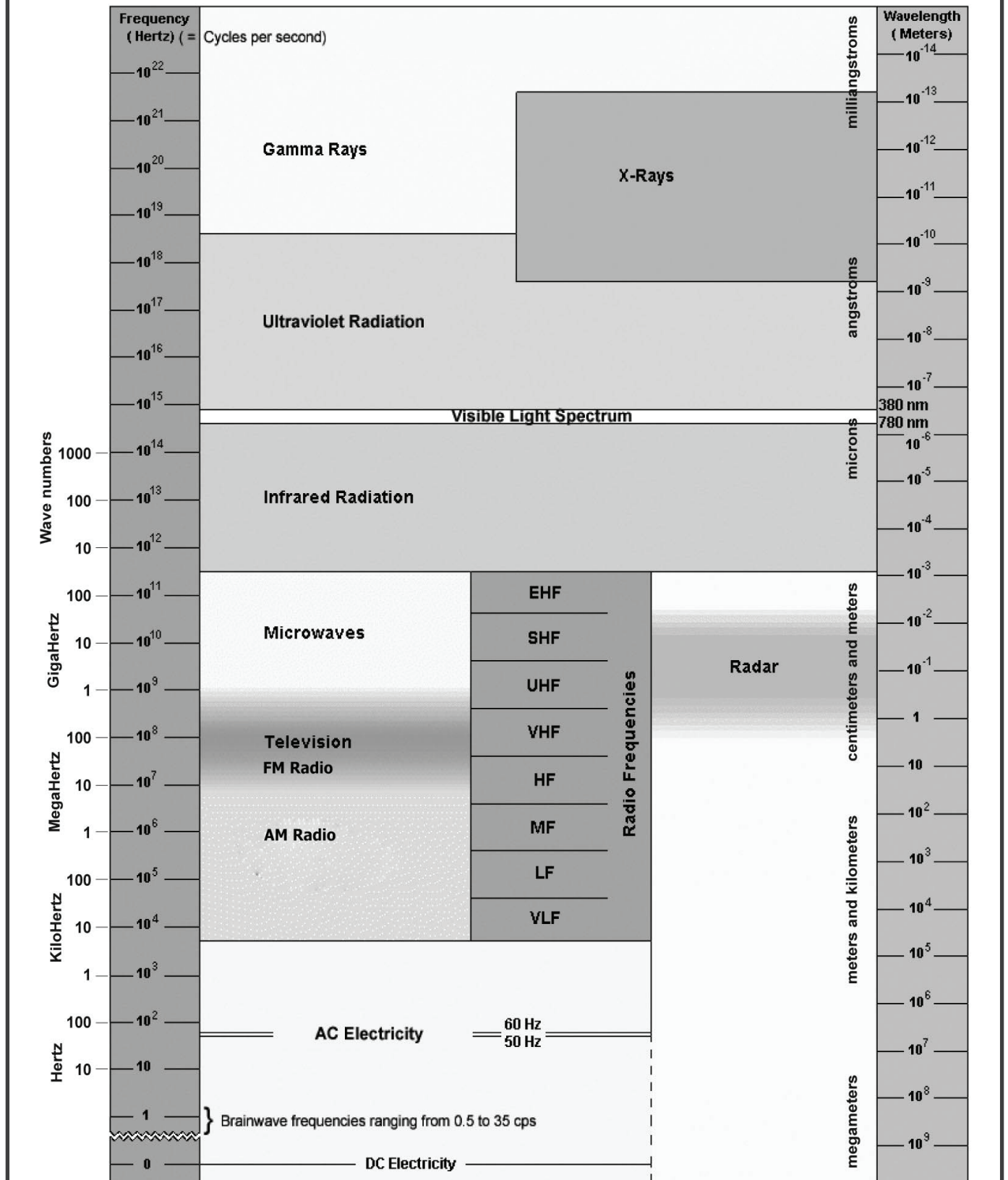


Figure 1: The Electromagnetic Spectrum


THE ELECTROMAGNETIC SPECTRUM

Defined by Its Effects

The electromagnetic spectrum (or EM spectrum, sometimes also called EM waves) is the term used for many of the different energy oscillations that comprise our known universe. As shown on the chart of the EM spectrum (see Figure 1, previous page), we can create these different oscillations with various electrical devices and some non-electrical (passive) materials, and produce tangible physical phenomena. For example, we access frequencies on the radio spectrum with an antenna, which transmits and receives radio broadcasts. We do something similar for TV broadcasts. An X-ray machine utilizes certain radiation on the X-ray band, which allows us to see inside the body. We use specific portions of the infrared band for heating saunas, and so on.

Frequency, Wavelength, and Amplitude

All the energies in the EM spectrum have different frequencies. The term *frequency* pertains to the number of cycles per second (CPS) at which a wave vibrates or moves. (The term “CPS” is considered archaic and has now been replaced with hertz, abbreviated Hz, named after 19th century German physicist Heinrich Hertz who worked with electromagnetic waves.) Waves also have different sizes or lengths, with various terms such as *micron*, *angstrom*, *nanometer*, and *meter* used to measure the length. See Figure 2, below. (The waves shown here are sine waves; different shaped waves will be discussed later.)



Wave is a *movement of energy* along a directional axis.

Frequency is a *rate of oscillation* measured by the number of wave cycles per unit time (usually in hertz).

Wavelength is the *length* or *distance* between two identical points on the wave (which comprises one complete wave cycle). The size of the wave determines what term of measurement is used.

Amplitude is the highest point on the wave. This corresponds to the *maximum intensity* of the signal, comparable to turning up the volume on a radio.

Figure 2: Key EM Wave Definition

Now see Figure 3. The peak of the wave is the highest point on top. The trough of the wave is the lowest point on bottom. The length of a wave is often measured peak to peak (see arrows). Technically, however, any portion of the wave can be used as a reference point, as long as the measurement assesses one complete cycle (peak to peak, trough to trough, etc.).

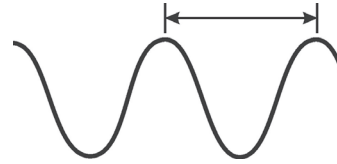


Figure 3: Length of One Wave Cycle

As the number of waves within a given space—in other words, their *frequency*—increases in number per second, their size becomes *smaller*. And as the number of waves *decreases* in number per second, their size becomes *larger*. Put another way, the *higher the frequency* or oscillation rate of a wave, the *smaller the wavelength*. The *lower the frequency* or oscillation rate of a wave, the *larger the wavelength*. “A homely comparison to visualize this,” Kovács analogizes, “may be a motley army of giants and dwarfs, all under orders to reach the same goal simultaneously; in order to do so the giants step out leisurely, while the dwarfs run and take hundreds of steps for each one of the giants.”¹

In Figure 4, the frequency of the top wave is higher than the frequency of the bottom wave, because the distance is shorter between the peaks of the waves. The waveforms in this example are simple *sine* waves.

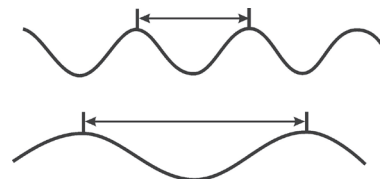


Figure 4: Comparing Two Frequencies

In order from slower-moving to faster-moving, frequencies in the EM spectrum include radio waves, microwaves, infrared light, visible light, ultraviolet light, X-rays, and gamma rays.

EM Radiation vs. EM Fields

So far, I have been discussing electromagnetic radiation from the EM spectrum. Electromagnetic *radiation* (radiant energy) and electromagnetic *fields* (non-radiant spaces in which energy exists) operate somewhat differently. Both come from electromagnetic sources. However, energy that *radiates* exists separately from its source. It travels away from its source, and it continues to exist even if the source is turned off. EM *fields* are not projected out into space. They no longer exist when the energy source is turned off.

Now let's take a look at the EM spectrum's offspring, electric fields and magnetic fields.

Electric Fields and Magnetic Fields

The existence of an EM field includes both electric and magnetic fields. Electrical and magnetic fields can be separated from EM fields as their own distinct energies. You might consider electricity and magnetism to be subsets of electromagnetic energy. An EM field has certain properties, electrical fields have other properties, and magnetic fields possess yet others.

Electricity and magnetism share a complex and intimate relationship with each other. An oscillating electric field generates an oscillating magnetic field, and an oscillating magnetic field generates an oscillating electric field. Each exists at right angles to the other. When *movement* is introduced to *either* a stationary electrical field *or* a stationary magnetic field, the emissions induce *electromagnetic* fields in biological organisms (humans or animals) that are exposed to such fields. I'll elaborate on this shortly, as it's an important point when discussing various electromedical devices.

Electricity

For the purposes of this discussion, we can define electricity as a flow of electrons around a circuit. The charged particles involved in electricity are called *electrons*. They move through a network of *conductors*, or channels that conduct or move them. Electricity has several forms. It can build up in one place as static electricity, for example when you run your feet over a carpet. More commonly, electricity flows from one place to another as current, like water flowing in a river.

Electrical charge can flow in a continuous smooth line, or back and forth. With direct current (DC), the electrons always flow in the same direction, from a point of origin to the final destination. With household alternating current (AC), the electrons reverse direction about 50–60 times each second. All electrons move back and forth very short

distances, pushing against adjacent electrons and causing them to move. This “back and forth” AC movement of electrons generates electricity much more efficiently than the “straight line” DC movement of electrons, but it's very jarring to the nervous system. Most of the world's electricity runs on AC, rather than DC. Batteries provide direct current. Some electromedical devices convert the AC to DC. Most electromedical equipment runs on AC, but their therapeutic properties far overshadow the effects of the AC that powers them.

Magnetism

All magnets possess two sides or distinct fields, to which we give the names *north pole* and *south pole*. As with electrical charges, unlike poles (north and south) attract each other, and like poles (north-north or south-south) repel each other. If even a sliver is sliced off a magnet, there will still be a south and a north pole at either end. Earlier I discussed how magnetism and electricity are related. The authors of *Magnet Therapy* address the movement of electrons in magnets:

Magnetism is not a characteristic confined to iron, or even to metals. It refers to electrons that are orbiting around their atoms. Electrons have a property called spin, which makes them act like miniature magnets with a north and south pole. If you force a lot of neighboring electrons in anything to spin so that their poles are aligned in the same direction, you can make it magnetic. Iron is very easy to magnetize because it has lots of surplus electrons hanging around that will readily line up any way you want them to.²

Briefly, what's commonly called the north pole of a magnet sedates; and what's commonly called the south pole of a magnet stimulates. I'll address this later when focusing on therapies.

Sound

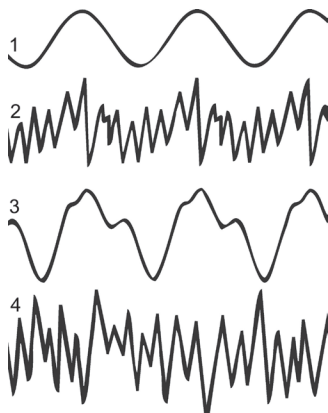
The EM spectrum is often compared to sound, since the two phenomena share many of the same features. Sound is comprised of *mechanical pressure waves* in a compressible medium such as air or water. Put another way, sound is created when an object moves with enough force to displace (compress) the surrounding air (or other medium capable of carrying these waves). We hear many of these waves (air currents) as audible frequencies (sound), because after the air reaches the ear, it minutely moves the eardrum—a delicate drum-like membrane—and sends the oscillations to the brain, where they are

then decoded into traffic noise, music, spoken words, the barking of a dog, and so on. The waves of sound could be created by a pen dropping on a desk, someone's vocal cords moving during speech, or a violin string being plucked.

The frequency of a wave (expressed as cycles per second) that applies to the EM spectrum also applies to music, a subset of sound. The pitch of a note depends on its frequency. A *lower frequency*, or an oscillation rate of *fewer* Hz, is *slower-moving* and produces a *lower tone*. A *higher frequency*, or an oscillation rate of *more* Hz, is *faster-moving* and produces a *higher tone*.

The waveforms of *music* on an oscilloscope show organization, with obvious patterns.

The waveforms of *noise* on an oscilloscope show disorganization, with no discernable pattern.



Music = Symmetry

1. **Tuning Fork.** Very pure sound; prongs vibrate regularly.
2. **Violin.** Bright sound, angular waveform. Same pitch as tuning fork: peaks of the waves are the same distance apart and pass at the same rate as those produced by the tuning fork.
3. **Flute.** Playing same note as first two. Purer sound than that of the violin, so its waveform is more rounded.

Noise = Asymmetry

4. **Cymbal.** Irregular patterns and jagged, random waveforms, no discernible pitch. No regular pattern of peaks and troughs.

Photo courtesy of, and text adapted from,
Dorling Kindersley Encyclopedia

Figure 5: Comparing Music and Noise Waveforms on an Oscilloscope

Frequency can be more easily understood and perceived with music than with random sound (noise). Noise—as well as some harsh electronic music—is comprised of *disorganized waveforms*. This disorganization manifests acoustically as indistinct, muddy pitches. Music, on the other hand, is comprised of *organized waveforms*. This organization manifests acoustically as distinct, discernible pitches. The difference between music and noise can be seen on an oscilloscope—a testing device that shows visually what we hear acoustically—with real-time pictures of waveforms; see Figure 5. In the examples of music, all instruments are playing the same note.

Noise or random sound on the oscilloscope appears as irregular waveforms, while music or pure tones appear as regular waveforms. For most people, the acoustic and the visual correlate: music is more pleasing than noise to the ear, and regular waveforms are more pleasing than irregular waveforms to the eye.

Different Shapes of Waves

As illustrated in the diagram of notes played by various instruments, waveforms have different *shapes*. Figure 6 shows some common ones in their simplest form.

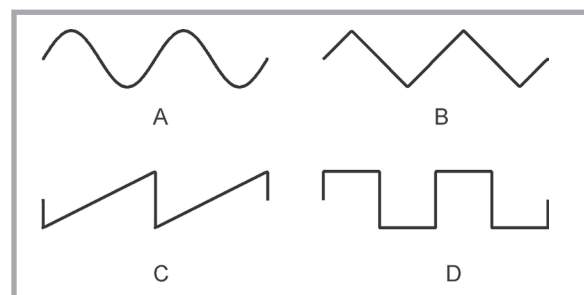


Figure 6: Waveforms.

(A) Sine; (B) Triangle; (C) Sawtooth; (D) Square

More complex organisms contain more frequencies and possess more complex waveforms. A useful analogy between simple and complex forms is the difference between plucking a single string (which represents a simple organism like an amoeba) and playing an entire orchestra (which represents a complex organism like a human being).

The various shaped waves also have different functions. Using the analogy of music, the sine wave is a simple, single tone, whereas the square wave contains many harmonics. A *harmonic* is an additional wave pattern produced by the fundamental or main frequency. As secondary wave patterns, harmonics are not as strong as the fundamental frequency that produces them. Harmonics are created similar to the way ripples are produced when you drop a pebble into a pond. The fundamental frequency is the

indentation in the water where you dropped the pebble. The water rippling out in circles is the harmonics. The lines produced by the original pebble toss get fainter and fainter, as do the harmonics.

There's a finite amount of energy with any given signal. Harmonics utilize energy. The power available in harmonics decreases as the multiplication factor increases, just as the ripples closest to the pebble are strongest, and fainter on the periphery. Each harmonic drops off in amplitude (power) as the wave travels away from the main signal. So, since there's a fixed amount of energy for both the fundamental frequency and its harmonics, the signal is dissipated.

Harmonics can be useful in certain therapeutic applications. Depending on the electromedical device being used and the particular effect desired, one might decide to use a square wave, which is rich in harmonics, or a sine wave, which is a stronger, single tone.

Symmetry and Asymmetry: The Language of Math and Music

The symmetry of music and the asymmetry of noise can also be described *mathematically*. Mathematically, sound is comprised of random frequencies that have *little or no relationship* to each other. Mathematically, tones or music are comprised of frequencies that *do* have relationships to each other. (A single, true tone will naturally be in symmetry with itself.) The absence of certain mathematical relationships in sound and the presence of those relationships in music explain why sound can irritate the nerves and music can calm them.

Although EM fields and sound transmit frequencies in different ways, the mathematical measurements representing the relationship between electromagnetic frequencies are the same as for music. Put another way, the harmonic relationships of each system are governed by identical mathematics. The frequencies of musical tones and the EM spectrum exist in octaves, higher harmonics, and lower harmonics of each other. Both musical tones and EM spectrum frequencies have mathematical relationships to some of the other frequencies that are higher or lower. For example, a frequency that is multiplied or divided by two produces a higher or lower *octave* of itself.

Like sound, EM fields possess symmetry and asymmetry. Various electromedical devices can detect the equivalent of either noise or music in the oscillations of cells and tissues in the body. When the oscillations are *not mathematically harmonious* (which corresponds to noise), there is *disease and degeneration*. When the oscillations are *mathematically harmonious* (which corresponds to music), *the cells function optimally and correctly*.

Pulsed Magnetic Field / PMF

Some equipment induces *movement* in a stationary magnetic field for therapeutic purposes. The magnetic field is created by the movement of electrons through a wire. When this current flow is regularly interrupted, it's referred to as *pulsed*. This is where the phrase *pulsed magnetic field* comes from, commonly abbreviated *PMF*.

Pulsing a wave means that the signal is on for a given period, then off, then on, then off, etc. In Figure 7, the bottom line shows a "lag time," or interval when the wave is at rest, before it resumes its upward-moving cycle.

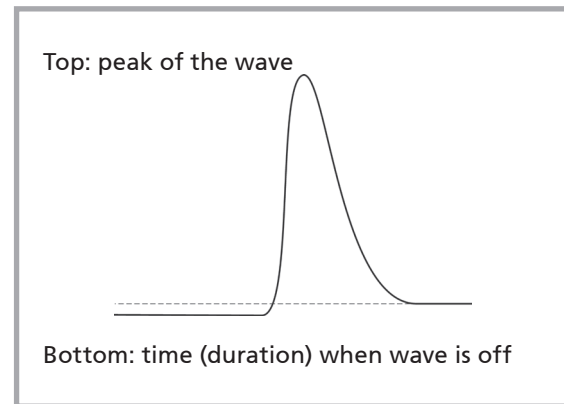


Figure 7: Wave Lag Time

Figure 8 shows two waves in succession. Here, the "lag time" or rest (or pause) interval between the waves is easily seen. (The trough of the wave has been truncated.)

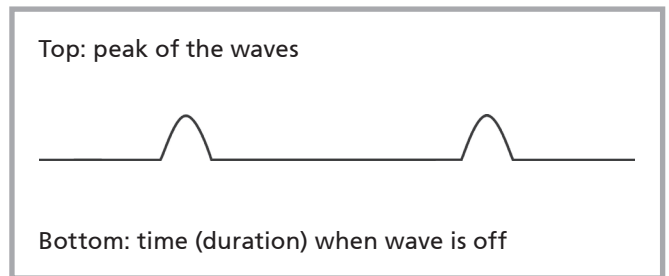


Figure 8: Two Waves

How close the waves are to each other—along with the lag time between each wave—represents the frequencies that you're creating. For example, say you want the frequency 35 Hz. This means that in your PMF machine, the electrical current pulses the magnetic field on and off 35 times a second. For 2127 Hz, the magnetic field is pulsed on and off 2127 times a second. In this second example, the flat lines between the waves would be much shorter than with 35 Hz. Theoretically, any frequency can be created by pulsing a magnetic field.

These pulsed magnetic fields, or PMFs, can produce highly therapeutic results. Some electromedical devices using PMFs will be discussed shortly.

THE ELECTROMAGNETIC BODY

Energy in Living Systems

Historically, most cultures have erroneously regarded the body solely as a mechanical and biochemical organism. However, every cell in the body is a transmitter and receiver of electromagnetic information. The following are examples of how animals, plants, and human beings receive, hold, transmit, and respond to EM fields:

- ◆ During migration, monarch butterflies, locusts, and even blindfolded birds navigate flawlessly. Salamanders and turtles also use magnetic fields to navigate. We now know that magnetite, a highly magnetic mineral, is found in the tissue and brains of insects, birds, reptiles, and amphibians.
- ◆ Bacteria use their magnetic sense to burrow deeper into the mud. We now know that magnetite is also present in bacteria and protozoa.
- ◆ Many kinds of fish are able to follow each other in organized formations (“schools”) due to the magnetic fields generated by the magnetite in their bodies.
- ◆ The whiskers of dogs, cats, and other animals are now recognized to function as antennas, due to their sensitivity to electromagnetic fields.
- ◆ In plants, the sharp points of leaves, as well as pine needles and the blades of some species of grass, act as antennas for electrical signals.
- ◆ Stingrays find food with their ability to detect normal, minute amounts of electrical discharge or magnetic fields emanating from their prey.
- ◆ Fish, dolphins, and whales use the Earth’s magnetic fields and sonar (sound) for navigation.
- ◆ The behavior of some animals has been used to forecast earthquakes for a long time. Cattle stampede, birds sing at the wrong time of day, mother cats move their kittens, snakes seek shelter. B. Blake Levitt writes: “It is now thought that [the animals] are reacting to changes in the Earth’s magnetic field, as well as to electrostatic charges in the air—long before the quake actually occurs or registers on even the most sensitive instruments.”³
- ◆ In humans, the sinuses, some other facial bones, the brain, and some bodily tissues contain magnetite.
- ◆ Melatonin, a hormone that (among many functions) helps induce sleep, is produced by the pineal gland only in darkness. We now know that the pineal, deep inside the brain in the skull, is exquisitely sensitive to light.

Both electric and magnetic fields applied to the body create biological changes. In his article “The Electrical Properties of Cancer Cells,”⁴ medical doctor Steve Haltiwanger describes how the body partly functions as a living electrical circuit. Various cells and tissues are conductors (allow for electron flow), insulators (inhibit electron flow), semiconductors (allow for electron flow in only one direction), capacitors (accumulate and store charge, later to release that charge), and so on. Cells transmit and receive energy, and each has its very own frequency with which it oscillates.

Not only is every cell in the body a transmitter and receiver of electromagnetic information, it is these various *electromagnetic frequencies that correspond to—and in fact, precede—biochemical functions*. For example, healthy cells oscillate at higher frequencies than do unhealthy cells such as cancer cells. The lower frequency of cancer both causes, and is reflected by, the aberrant biochemical reactions within the cell. Put another way, the biochemical differences between normal healthy cells and cancer cells correspond to the differences in the electrical properties of each. The same holds true for magnetic fields. Magnetic fields correspond to biological activity. A change in the magnetic field means a change in the cells, either beneficial or harmful.

Harmful Effects of EM Radiation and EM Fields

In the last century, medical doctor and stress pioneer Hans Selye observed that when bodily tissues are subjected to repeated, intense, negative input—whether chemical (environmental pollutants, adrenal “fight-or-flight” hormones) or mechanical pressure (bruising)—the body perceives it as stress. It responds by tightening the envelope of membranous fascia that surrounds the muscles. This, in turn, causes significant biochemical malfunctions, not the least of which is the disruption of the cell membrane. Other stressors that can disrupt cell integrity include the actual puncturing of the cell membrane, and microbial infection. Cell permeability for the proper materials is key. If glucose, other nutrients, and beneficial hormones cannot efficiently enter the cell, and if wastes cannot completely exit, pathogens proliferate and degenerative disease occurs.

To Selye’s list of stressors, I would add destructive EM radiation and EM fields. It has been known for decades that electrical fields can damage cells. B. Blake Levitt writes:

Direct current (DC) is the steady flow of electrons in one direction. Alternating current (AC) is an electron flow that changes strength and alters direction within a certain cycle;

the AC field collapses and reappears with its poles reversed every time the current changes direction. . . . Direct current creates a steady magnetic field. But with alternating current, each time the direction of the electrons is reversed, or flipped, a powerful magnetic field is created that fluctuates at the same frequency.⁵

Another reason these fields are dangerous is that the waves are *coherent*. Although the sun constantly transmits naturally-occurring radio frequencies, microwaves and other EM fields, this radiation is generally *diffuse*, whereas alternating current is *concentrated*. *Concentrated radiation is not natural*. For example, you need to purposely harness, focus, augment, and direct a bombardment of electrons to turn on a light bulb. These highly coherent, synthetic EM fields interfere with the body's signaling processes because they literally alter the DNA in harmful ways. Levitt points out:

The human race has never before in its evolutionary history been exposed to such fields on a continuous basis, and there are serious and mounting concerns about the effects not just on individuals but on our entire ecosystem. Since the turn of the [20th] century . . . we have surrounded ourselves with a veritable sea of artificially produced electromagnetic fields, all with a presumption of safety that . . . should never have been made.⁶

The harmful effects of some EM fields are many and varied. Jacqueline Krohn and colleagues point out numerous studies showing that electrical industry workers

have a higher risk of brain tumors. The incidence of childhood leukemia is higher in children who live near power lines that carry high voltage. Power-line exposure has also been associated with an increased incidence of suicide.

These studies support the hypothesis that ELF [extremely low frequencies] act as a cancer promoter. ELF fields interact with the cell membrane and can affect hormones, calcium exchange, and tissue growth. It is postulated that the ELFs suppress the production of melatonin, a cancer inhibitor, by the pineal gland.⁷

The effects of ELF fields is more than mere "postulation," as other researchers have corroborated. In *Electromagnetic Man: Health and Hazard in the Electrical Environment*, the authors cite formal published studies

linking the following maladies to extremely low frequency, electromagnetic fields:

- ◆ Allergies
- ◆ Autoimmune disorders such as lupus erythematosus and multiple sclerosis
- ◆ Birth defects, lowered fertility, miscarriages and pregnancy problems, including stillborn children
- ◆ Blood sugar disorders
- ◆ Cancers, including brain tumors and leukemia
- ◆ Digestive problems, including poor absorption of food, leaky gut, nausea and vomiting
- ◆ Emotional disturbances: anxiety, mood changes, panic attacks and a higher percentage of suicides
- ◆ Ear problems, including tinnitus
- ◆ Eyestrain and headaches
- ◆ Fatigue and sleep disturbances
- ◆ Heart attacks and other cardiovascular issues
- ◆ Hormonal abnormalities, including adrenal stress
- ◆ Immune malfunction and an increase in infections
- ◆ Nervous system disorders, including confusion, convulsions, dizziness, hyperactivity, and memory loss
- ◆ Respiratory ailments
- ◆ Skin problems, such as burning, rashes, tingling, pain
- ◆ Stress increase and intolerance⁸

The damage from harmful EM radiation also depends on its nearness to a person, animal, or plant. A *milligauss* is a unit of measurement of the strength of an electromagnetic field. According to tables from the Environmental Protection Agency reprinted in Levitt's book, a blender from six inches away emits between 30 and 100 milligauss; an electric can opener six inches away emits between 500 and 1500 milligauss; a hair dryer six inches away emits between 1 and 700 milligauss; and a ceiling fan twelve inches away emits between 3 and 50 milligauss.⁹ Some sources maintain that even 2 milligauss is enough to disrupt a person's biological functions, and that the absolute maximum emission a person can safely absorb is only 1 milligauss. This is why there's a high rate of illness among people living near major power lines, cell phone towers, electrical generators, and similar disruptors.

Healing Effects of EM Radiation and EM Fields

Considering how much artificially created, non-beneficial EM radiation surrounds us, alongside the triggers of poor diet, pathogens and chemical pollutants, it's not surprising that so many people are ill. The good news is, if frequencies can harm, they can also be used to heal. Cells have the ability to positively and healthfully respond to minute electromagnetic stimulus as long as certain criteria are met. The stimulus must be from the correct region of the EM spectrum. It must be further refined (if necessary) to an exact frequency, or combination of frequencies, on that EM band. It must be the correct intensity. It must have the correct shape wave or wave packet. It must be administered in the correct amounts. And it must be accurately and precisely aimed at the target.

In electronics, the term *inductive coupling* refers to the transfer of energy from one component to another through a shared magnetic field. An analogy of inductive coupling might be made with two tuning forks that are inherently tuned to the same pitch. One tuning fork is vibrating and the other is not. When the still tuning fork is placed next to the one that is vibrating, it too begins to vibrate.

In electromedicine, the response of living cells to some form of beneficial EM radiation is also known as inductive coupling. Once the EM fields inside a cell are exposed to the correct form and delivery system of EM radiation, the fields within the cell start to move and the corresponding biochemical responses are activated. This includes the movement of electrolytes through a cell membrane, the excretion of wastes, and the release of appropriate biochemicals.

Many beneficial electromedical devices use *pulsed magnetic fields* (or *PMF*). Pulsing a magnetic field elicits movement of the electromagnetic radiation (and its corresponding biochemical reactions) inside living tissues. It does more than induce movement, though. Because pulsing, by definition, means that there's an "off" period to the signal, it ensures that the human or animal receiving the signal does not become resistant to its effects. A good analogy is someone tapping your arm. At first you pay attention, but after awhile, as long as there's no danger, the body becomes impervious to the sensation so it can focus on other stimuli. This is one reason for the high rate of effectiveness of electromedical devices that utilize PMF for therapeutic purposes. Note that PMF is often called "PEMF." This can be confusing, as I'll discuss shortly (Sidebar, page 938).

Correctly employed, frequency therapies can increase cell energy, normalize membrane conductivity, lessen oxidative stress, reduce the amounts of inflammatory chemicals in the blood, improve protein synthesis, boost

feel-good endorphin levels, restore depleted adrenal function, and enhance immune function. The restoration of these metabolic processes lead to the regeneration of tissue as well as resistance to disease.

"Bigger is better" and "More is better" are prominent in the Western mindset, illustrated by the use of megadoses of toxic drugs and the routine practice of invasive "prophylactic" surgery. A more humane and biocompatible—but to some people, counterintuitive—edict, "Less is more," reflects what the body usually needs. The exquisite sensitivity of cells to electric, magnetic and electromagnetic fields explains why electromedical devices work—and why the more gentle ones work the best. Low power energies might not be easily perceived subjectively, but they're the most compatible with living systems precisely because of their lower power.

Electromedicine therapies may use many portions of the EM spectrum: electrical current, magnetism, visible light (either full spectrum or monochromatic wavelengths), far infrared (FIR), ultraviolet (UV), or heat (in the form of specific FIR wavelengths). In the following sections, I'll discuss some therapies that use various EM wavelengths and explore two uses of sound for therapeutic purposes.

ELECTROMEDICINE: ELECTRICAL CURRENT

TENS, the Establishment Standard

Most people are familiar with TENS—short for *Transcutaneous Electrical Nerve Stimulation*—which uses electrical current to control pain. The subject applies to the body, via electrodes, frequencies that can range from 1 Hz to 150 Hz (depending on the unit).

Conventional medicine admits to not understanding completely how TENS works. We do know that it hijacks the usual ways in which the many complex parts of the nervous system record, transmit, and manage pain. In fact, the nervous system is kept so abnormally unbalanced that *the transmission and perception of pain is blocked*. However, the actual cause of the pain is never addressed. Numbness, of course, only masks pain; it doesn't eliminate it.

To be fair, there are times that TENS does eliminate pain on a long-term or permanent basis. This may be due to the deliberate or accidental application of electrode patches on key acupuncture points, which can increase levels of the anti-aging, steroid hormone DHEA (dehydroepiandrosterone), which is produced by the body.

Nevertheless, TENS is not the best modality to use because suppressing body awareness doesn't give the body

a chance to correct itself. This explains why the effects of TENS sessions are usually temporary, limited to the period that the unit is active and attached to the body. Because TENS numbs nerve cells, many people who use it eventually become completely impervious to its signal—yet another reason for the limited success with TENS. A colleague observed that some people become addicted to using TENS units because its hyperstimulation of the muscles causes an overproduction of lactic acid, which causes more pain and induces people to use the unit more.

TENS units produce wave forms that are asymmetrical and irregular. In comparison, holistic electromedical devices produce symmetrical wave forms. The *amperage*—a measure of the *amount of electron flow* (or current)—is radically different with the two modalities as well. TENS operates on *milliamps*, at levels high enough to cause electrode burns on the skin. In contrast, medical devices that transmit electrical current and are genuinely healing to the body, emit *microamps*. One thousand microamps equal one milliamp.

The human body operates on microamps, not milliamps, and thus needs a gentler signal than what TENS is designed to provide (“less is more”). Truly therapeutic electromedical devices restore the body’s awareness—unlike TENS units, which prevent the proper signals from being transmitted. The body can heal only when the correct signals are transmitted in the correct way.

Avazzia™ Devices

Portable electromedical devices that emit small amounts of current in the microamp range have become popular in the past decade. One example is the hand-held biofeedback unit Avazzia™ (made by the company also known as Avazzia, which manufactures the Tennant Biomodulator® as well).

The predecessor of this style of instrument is the Scenar, an acronym for *Self-Controlled Energo Neuro Adaptive Regulator*. The Scenar was developed by Russian scientists in the 1970s to address an unexpected problem with their space program: the forced feeding of antibiotics to all cosmonauts, whether they were ill or well. If one crew member got sick and took antibiotics, all the crew members would end up with the drug in their system because in space, urine is recycled into the shared drinking water. Creating an electromedical device to treat cosmonauts in space would eliminate the “need” to administer antibiotics. This device, about the size of a remote control, was aptly nicknamed the “Star Trek Device” by the press.

According to Russian clinical studies, the Scenar proved effective in 80% of all cases. Of those cases, two-thirds enjoyed full recovery while the remainder

still experienced significant healing. Over fifty thousand successful outcomes were reported for circulatory, endocrine, respiratory, gastrointestinal, neurological, muscular, skeletal, genital, and urinary problems.

In 2004, Texas-based engineer Tim Smith developed an easier-to-use version of the Russian invention. Later, Dr. Jerry Tennant (also in Texas) used the Avazzia™ as the foundation of his private label units. The Avazzia™ and the Tennant Biomodulator® devices work similarly and are intended for comparable healing applications, although Dr. Tennant has stated that his units contain proprietary frequencies and some contain additional features.

All the Avazzia-made models, which are powered by two AA batteries, work on a biofeedback principle. Whether the instrument is moved across the body or resting still on a particular area, the biofeedback feature operates by sending out a series of precisely modulated electrical currents to the skin, measuring the body’s response, and then emitting different signals in response to the changes recorded by the skin. This continually customized, ever-changing approach ensures that the body doesn’t habituate or acclimate to the signal. The therapy is drug-free, non-invasive, safe, pain-free, and inexpensive (considering the number of conditions for which it can be used). In general, subjects not only feel positive effects after the first session, but the effects are long-lasting.

Many stressors can trigger the fight-or-flight response (sympathetic nervous system) and keep it on: pain, trauma, real or imagined danger, constant fear, an unbalanced pH, and even food allergies. With the sympathetic nervous system working overtime, the parasympathetic nervous system—which regulates digestion, sleep, hormone secretion and immunity—no longer functions properly. Being sympathetic-on for long periods creates chronic fatigue and eventually chronic disease. Once the body starts to malfunction, it becomes accustomed to existing in a pathological state and can remain stuck. Avazzia™ units stimulate the healing process by normalizing the sympathetic and the parasympathetic nervous systems. People report relief from pain, swelling and inflammation; faster a healing of wounds; improvement in circulation; and easier recovery from infections. The units are often used for muscle pain and injuries, but they’re also being clinically studied for the improvement or complete elimination of symptoms of arthritis, tendonitis, hypertension, hearing loss, and asthma.

The Avazzia™ stimulates a special type of nerve tissue called *C-fibers*. C-fibers, present in 85% of all nerves in the body, produce and release healing *neuropeptides*, small protein-like molecules that communicate with each other and are involved in many types of brain functions. One job

of these chemical messengers is to reestablish the body's normal physiology and catalyze healing. Neuropeptides can last for several hours, which means that the healing process continues after the treatment is over.

All of Avazzia's units balance the autonomic (automatic) nervous system. This allows the glands and immune cells to rest and recover. The gut is supported, too, so it absorbs nutrients more efficiently. And these units help restore voltage to the cells. A malfunctioning cell cannot metabolize properly. Once the voltage to organs and other bodily tissues is normalized, cellular toxins can be eliminated and water imbalances can be corrected.

To treat, the practitioner first asks the subject the location of the pain, discomfort or dysfunction. If there is clear symptomatology, the practitioner goes to the problem area. However, the spine and abdomen are also key areas to address, even though they might not seem to directly relate to the stated symptoms. Problem areas are perceived by the practitioner as a difference in the sound emitted by the device and by a feeling of "stickiness," a magnetic-like pull that prevents the unit from easily moving across the area. The session is over when the "drag" is eliminated and the client relaxes. Often, the skin around the treated area reddens due to increased circulation.

Avazzia™ units come with optional attachments that can treat on smaller skin areas, on acupuncture points, through hair, and wrapped around limbs. The devices are also FDA-cleared Class II, for symptomatic relief and management of chronic, intractable pain, and adjunctive treatment in the management of post-surgical and post-traumatic pain. Licensed health care practitioners may use it in their practice. However, it's not necessary to see a professional if you need treatment. Laypersons who want a unit can obtain a prescription from their physician.

Frequency Specific Microcurrent

Frequency Specific Microcurrent (FSM) was first used in the early 1900s by physicians and osteopaths in the form of equipment that delivered DC current. In 1987, the device used for FSM was developed by an engineer named Glen Smith. Eight years later, chiropractors Carolyn McMakin and George Douglas discovered some frequencies used in a 1920s electromedical device and began applying them in their practice.

FSM treats nerve, muscle and fascia pain by using frequencies ranging from 3 Hz to 970 Hz. Compared to a TENS unit, which overwhelms the system with easily felt current in the milliamp range, FSM is usually not perceived (although its effects are), as its output is in the

microamp range—imitating what's naturally produced by the body. FSM is painless, safe, non-invasive, and effective.

As with the other equipment discussed here that utilizes electrical current, FSM follows holistic principles. Its ability to alleviate or eliminate pain entirely is due to its restoration of cell function and not simply the masking of symptoms. For example, TENS decreases cell energy (ATP production) by about 50%, protein synthesis by 50%, and cell membrane transport by up to 40%. In contrast, with FSM (using fewer than 500 microamps and not milliamps), ATP production increases (rat studies show by 500%), as does amino acid transport into the cell. This aids in waste product removal and protein synthesis. Studies also suggest that FSM helps insulin bind with its receptor sites on cell membranes, and activates the secretion of collagen and other beneficial substances in and around living cells.

Unit sizes range from about 18" x 9.5" x 6.5" to the "home care" portable unit that's about the size of a large thick cell phone and is operated by one 9-volt battery. All come with various electrode attachments. The use of frequencies isn't regulated by the FDA (so is neither approved nor disallowed), but the devices that provide the current—the Precision Microcurrent machine and the FSM Auto Care and Sports Care unit—are permitted to be used in a medical setting, by prescription. The FDA has approved all microcurrent devices for sale in the category of TENS devices, despite the differences in amperage and biocompatibility of the two modalities.

Conditions suitable for this therapy include arthritis, chronic low back pain, fibromyalgia (especially associated with neck injury), diabetes-related and other neuropathic pains, and myofascial pain (from trigger points in the head, neck, face, and lower back). People with asthma, liver dysfunction, kidney stones, shingles, endometriosis, and irritable bowel syndrome also benefit, although Dr. McMakin reports, "Most cases of post herpetic neuralgia improve with five to six treatments but require the frequencies for scar tissue and inflammation in the nerves damaged by the virus."¹⁰ Practitioners know how difficult it can be to manage (let alone cure) fibromyalgia. After FSM treatments, people diagnosed with fibromyalgia no longer meet the diagnostic criteria for fibromyalgia as set by the American College of Rheumatology.

Injuries from accidents or surgeries, especially if treated within four hours, are found to yield reduced pain and greatly accelerated healing. Symptom relief includes reduced inflammation, increased range of motion, improved visceral organ function, and more manageable emotional states. There are frequencies for over 200 conditions, including inflammation, scar tissue, and even excess mineral deposits and toxicity.

“Body tissues,” says McMakin, “respond to frequencies through the principles of biological resonance, responding to the signals like a radio responds to frequencies from a radio station.”¹¹ Because there’s no biofeedback component to this technology—just a needle on the instrument indicating whether or not the current is flowing—the operator must be trained to recognize, diagnose and treat the most common complaints that involve pain.

Laypersons are not permitted to receiving training in FSM or purchase units, so the therapy is available only from licensed health practitioners. However, some highly sensitive people who don’t respond well to other electrical current units tolerate FSM—probably because the power on FSM equipment is much lower than on other units, and therefore the signal isn’t strong enough to stimulate sensory nerves. Thus FSM may be the optimal treatment for some people, despite dependence on a practitioner.

ELECTROMEDICINE: MAGNETIC FIELDS

Stationary Magnetic Fields

Although many professionals in mainstream science and allopathic medicine do their best to malign magnet therapy, their open-minded colleagues are finding that one or more magnets, properly placed, provide considerable benefits. The magnets come in many forms: as tiny round dots of about 3mm, intended for leaving on painful areas and on acupuncture points (attached to the body with adhesive strips); built into cloth straps for the back, elbow, knee or wrist; as shoe inserts; in pillows and mattresses; and in bracelets, necklaces and other jewelry. Loose magnets (often square) of all sizes are placed on the body when the person is resting, and even configured to treat water. The magnets are made of metal, ceramic, or rare earth. It’s best to tape (or place) magnets on the bare skin; otherwise, they’ll have no effect. Even with a very strong magnet, the field is lost when it’s even a foot (about one-third of a meter) away from the body.

We commonly refer to the two poles of a magnet as the “north” and “south” poles. This has understandably caused confusion for some people, write the authors of *Magnet Therapy*:

All magnets have both a north and south pole by definition. These can be readily identified by allowing the magnet to swing freely in a horizontal plane, and determining which ends point north, or by seeing which end of the compass is attracted to it. “Positive” and “negative” are also misleading and inaccurate terms that

originated with the British Admiralty’s efforts to improve the compass. They had created a freely floating magnetic needle mounted over a card containing markings to indicate gradations in direction based on the orientation of the needle when it pointed to the geographical North Pole. The end of the needle that pointed north was called the north or positive pole of the magnet. Actually, it should have been called the “north-seeking” pole, which would have meant that it was actually negative rather than positive. By the time this error was recognized, the terminology had become so ingrained that it was too late to correct it. [emphasis added]¹²

In the last decade or so, double-blind studies have been conducted on people afflicted by degenerative joints and discs, arthritis, polio, sports injuries, muscle and tendon tears, and other conditions. Compared to control groups who received fake magnets, those who were given real ones enjoyed a significant reduction or total elimination of inflammation and pain, along with an increase in cellular oxygen. These results aren’t due to magic: a strategically placed magnet can increase levels of beta-endorphins, the body’s natural painkillers. Also, as described by one team of researchers, “acute static magnetic field (SMF) exposure can have a modulatory influence on the microvasculature, acting to normalize vascular function.”¹³ In other words, the microvasculature—otherwise known as the *microcirculation* (as discussed in the BEMER® section on page 934)—relaxes. Whenever the microcirculation relaxes, there’s a reduction of inflammation and pain.

A 2008 experiment, “Acute exposure to a moderate strength static magnetic field reduces edema formation in rats,” illustrated this principle very well. We can’t attribute the results of magnet therapy to a placebo effect because the subjects of the study were rats. The animals were injected with inflammatory agents that caused swelling, water retention, redness, heat, and pain. (One of the inflammatory agents was histamine, which contracts most smooth muscle tissue and is often produced by the body in response to irritants. The other agent was carrageenan, a manufactured artificial extract from seaweed that causes extreme allergic responses but which the food industry nevertheless insists on including in thousands of products.) The application of magnets produced a 20%–50% reduction of symptoms. This same response occurs in humans as well, although the researchers did point out that the benefits are much more likely to occur if magnets are applied within 30 minutes of the inflammatory response. However, magnets did lower inflammation more efficiently than ice.¹⁴ Other

PROPERTIES OF MAGNETS	
North Pole	South Pole
<i>Calms, Soothes and Sedates</i>	<i>Energizes, Excites and Activates</i>
Slows growth, cellular activity and maturation	Stimulates growth, cellular activity and maturation
Controls infection by slowing microbial reproduction	Promotes infection by stimulating microbial reproduction
Increases alkalinity; reduces acidity	Increases acidity; reduces alkalinity
Can relieve or entirely eliminate pain (which is believed to be a condition of too much systemic acidic waste)	May increase pain (which is believed to be a condition of too much systemic acidic waste)
Reduces inflammation	May increase inflammation
Slows metabolism	Speeds metabolism
Stops tumor growth	Stimulates tumor growth
Causes muscle contraction	Allows muscle relaxation
Stops bleeding	Increases bleeding
Slows cardiac activity and pulse	Speeds cardiac activity and pulse
Increases blood pressure	Decreases blood pressure
Encourages sleepiness	Encourages wakefulness

Figure 10: Properties of magnets

favorable studies include “Randomised controlled trial of magnetic bracelets for relieving pain in osteoarthritis of the hip and knee,”¹⁵ “Effects of static magnets on chronic knee pain and physical function: a double-blind study,”¹⁶ and “Response of pain to static magnetic fields in postpolio patients: A double-blind pilot study.”¹⁷

Because magnetic therapy is a small field, there’s no standard for magnet intensity, which is measured in *gauss* (or the newer term, *tesla*; a single tesla equals 10,000 gauss). A minimum strength of 500 gauss is recommended for chronic illnesses. Magnets are generally classified:

- ◆ Weak, less than 10 gauss
- ◆ Medium, 10–500 gauss
- ◆ Strong, 500–2000 gauss
- ◆ Very Strong, over 2000 gauss

Generally, the two poles of a magnet have opposite properties (see Figure 10). People who need pain relief and tissue restoration use the north pole side. The south pole, which has been documented to cause tumor growth, can also be used—albeit very carefully, and only for conditions of very low energy such as numbness, weak muscles or paralysis, where infection is not a prominent factor. The south pole is also useful for farmers. Exposing the dampened seeds overnight to south pole energy will cause them to rapidly sprout, and the next morning there will be plants to put into the earth. Always remember, though, that south pole energy will stimulate cancer cells to grow. This is why the north pole is generally much safer to use. If both fields are equally strong on a magnet (which they might be, depending on the magnet’s configuration),

the magnet can be safely used for about a week, and resumed after a brief interval. Consult a professional. The three major placements for magnets are at the area of pain, the area of *referred* pain (which is away from the apparent source of the pain), and acupuncture points.

We know *what* the characteristics of the two poles are. But *how* do they work? The *Magnet Therapy* authors write that in a static magnetic field,

there is a constant invisible motion of ions as they pass in and out of cells, and a good reason to believe that this is where “the action” is—in both static and electromagnetic fields . . .

An ion is an atom or group of atoms with a positive or negative charge. Sodium, calcium, potassium, and magnesium are positive; chloride and phosphate are negative. Like magnets, opposite ions are attracted to each other, which is why we have, for example, sodium chloride, or salt. Positive ions like potassium and calcium compete with sodium to get hooked up to something negative. Electrical activity results because of the motion of these charged particles, which in turn are affected by magnetic fields.

. . . The ability of magnetic fields to provide so many diverse clinical benefits suggests their *modus operandi* is at a very basic level of cellular function. This appears to be confirmed by research studies demonstrating that they alter the dynamics of calcium, potassium, sodium, and other ion transport across cell membranes. In turn, these can have profound effects on essential enzyme systems that influence ATP [adenosine

triphosphate] formation [the source of energy for all cellular activities]. . . . both electromagnetic and permanent magnet fields can influence ATP activities . . .¹⁸

Our knowledge of electricity and electromagnetism suggests that more functions may be involved, but this is a good start.

According to some sources, the low or moderate intensity magnets, compared to the highest strength magnets, work better. Often the high strength magnets don't even work at all. This follows the "less is more" principle of biocompatible energies.

Now that we understand the basics of static magnets, let's examine more dynamic equipment that uses magnets for therapeutic purposes.

Oscillating Magnetic Fields: Dr. Henry Lai's Malaria Treatment

Up to 2.7 million people die of malaria every year—one million of whom are children—according to the World Health Organization. In addition to fever, head and joint aches and shivering, malaria often causes seizures and death, if infected blood cells block the blood vessels leading to the brain. *Plasmodium falciparum*, the parasite that causes malaria, has become increasingly resistant to pharmaceuticals. However, bioengineering professor Henry Lai and three University of Washington colleagues have discovered a way to eliminate malaria using very weak, rotating magnetic fields.

Dr. Lai's treatment is simple and elegant. *Plasmodium* becomes weak and dies when exposed to oscillating magnetic fields. While the death throes of the parasite may sound similar to what happens to other microorganisms when exposed to frequencies emitted by rife-style frequency devices, in this case, the magnetic field does not emit variable frequencies.

The principle behind Lai's magnetic device is based on the parasite's unique metabolism. After the person is bitten by the mosquito that carries *Plasmodium*, the parasite first penetrates the liver and then re-enters the bloodstream to feed off the hemoglobin in red blood cells. *Plasmodium* eats the globin portion of the hemoglobin molecule, but it lacks the enzyme needed to break down the iron-containing heme in the hemoglobin. Because free heme molecules can cause membrane damage, *Plasmodium* protects itself by arranging the heme molecules into long stacks—like "tiny bar magnets."¹⁹ Lai believes that the oscillating magnetic field affects the parasite in two possible ways. Either the heme molecules cannot form stacks and are free to move in the parasite and cause harm. Or, the stacks spin as a

result of the magnetic field and mechanically injure the parasite. Both scenarios cause damage and death to the parasite. Although there is only a minute amount of iron in a heme stack, it is enough to be affected by magnetic fields.

Some experiments show 33% to 70% fewer parasites in exposed than unexposed samples, indicating a significant slowing of the parasite's metabolic functions and thus sufficient to manage the disease. It's unlikely, says Lai, that *Plasmodium* would develop a resistance to magnetic fields. He also believes this treatment will not harm the human host: "It's a very weak magnetic field, just a little stronger than the Earth's. The difference is that it is oscillating."²⁰ "I think," he adds, "it should be safe for short-term (hours) exposure."²¹ Other researchers have continued this line of research, such as in the 2018 article, "Growth of *Plasmodium falciparum* in response to a rotating magnetic field."²² Results are promising.

Magnetic Vortex: the Magnetex®

Much of the available research in magnetic therapy consists of studies using a single pole of stationary magnets. However, as we have just seen with Dr. Henry Lai's technology, magnetism combined with movement can be extraordinarily powerful. In a 2012 article, "Rotating Magnets Produce a Prompt Analgesia Effect in Rats," the authors stated that while pain relief can be obtained from a static magnetic field, a rotating magnetic field (RMF) produces more immediate and long-lasting results. The "spin-magnetic field generator" that the experimenters designed was basically a disc holding magnetic bars, which was attached to a motor and spun rapidly. The authors suggested further exploration of this and similar equipment to develop "a non-pharmacological approach of anesthesia."²³

It's unknown if research on RMFs was continued, as it can take several years for an article to be published. However, given the promise of magnet therapy in general, it's not surprising that in 2012, the Magnetex® was developed. The 4-pound hand-held unit derives its power from a magnetic vortex created by four rapidly spinning neodymium magnets. The Magnetex® is reported to do one thing only: pull dangerous, toxic debris from the cells and tissues of the body. This includes biofilms (the dense sticky mass that houses and protects bacteria, fungi and parasites); wastes produced by the body (such as hormones and acids); heavy metals; microbial wastes; and even nanoparticles. Once cell-clogging material is pulled into the bloodstream for removal by the body, the cells can metabolize properly, eliminate waste, and function again.

People report using the Magnetex® quite successfully for:

- ◆ Allergies and chemical sensitivities
- ◆ Anxiety, brain fog, poor concentration / memory
- ◆ Digestive issues
- ◆ Fatigue
- ◆ Headaches and migraines
- ◆ Lung and sinus congestion
- ◆ Pain in back, joints, and muscles
- ◆ Skin problems

The flat, 4.25" diameter head of the Magnetex® is lightly placed on or just over the area that needs attention (the field extends about one foot, or one-third meter, after it's turned on). Some people rest the equipment on the liver or abdominal region for detoxification purposes, although a more common use is for pain on areas such as an arthritic hand, a knee joint, the foot, or the neck. To address the back, it's helpful to have someone else run the unit down the spine, stopping at the neck/shoulder area, middle back, or lower back for perhaps 30 seconds to allow the vibrations from the unit to do their job. The Magnetex® imparts strong continual pulsations—reminiscent of the vibrations from a massager—that are relieving and pleasant from a mechanical standpoint. However, its deeper work and greater value are from the magnetic vortex that draws out debris from the tissues.

Before and after live blood analysis has shown that after a 15-minute session, the bloodstream is littered with waste. Rather than becoming alarmed, we should remember that the unit is merely doing its job, and that the body will eliminate the debris. The company suggests drinking plenty of water to help flush the wastes from the system, either immediately before or after the session.

Magnetex® users typically report feeling mentally clearer, more flexible, more relaxed, and freer from pain. One astonished practitioner reported that after administering two 10-minute sessions each to two elderly clients (on the neck near the ears), the clients threw away their hearing aids because they no longer needed them.

With this machine, simple in appearance and easy to use with its one setting—an “on-off” switch—it's tempting to overdo the amount of time spent in a single session. The company is careful to warn customers to avoid the Western mindset “more is better.” In this case, more is definitely *not* better. In fact, a typical session should be fewer than 15 minutes; and four shorter sessions (for instance, 10 minutes each) are preferable to three longer sessions (for instance, 15 minutes each). You don't want to overload the system. Generally, the Magnetex® provides such rapid results that more time isn't necessary.

As with all instruments that emit a strong magnetic field, don't place the Magnetex® directly over the heart. This unit is experimental, customers use it at their own risk, and no medical claims are being made, states the company website. So far, though, results have been impressive. “As far as we know, our use of spinning both positive and negative poles, along with the added feature of [mechanical] vibration, is unique in the energy medicine arena. We have seen both rapid and profound results that we believe can be attributed to the torroidal energy field that the Magnetex® creates.”²⁴ Knowing that waste adversely affects cell function—and thus can cause or contribute to any illness—it's easy to understand why customers may achieve dramatic results.

In December of 2020, inoculations (misleadingly labeled “Covid vaccines”) began to be distributed worldwide. Some medical researchers, viewing these experimental concoctions under a microscope, observed technology they called “nanobots.” The researchers also saw paramagnetic particles that look and act like graphene. (Consisting of thin layers of carbon in a lattice, graphene is used in biocircuitry that's powered by artificial intelligence.) Because these non-vaccine technologies possess organizing, transmitting and receiving capabilities, they can be used for data recording, tracking, and even body and brain manipulation. In addition, alarmed people began reporting that their bodies became magnetic after being jabbed (magnets actually gripped the skin!). Preliminary research shows that the Magnetex® may scramble or deactivate the programming, and break up the structure, of these highly invasive neuromodulation technologies.

Pulsed Magnetic Fields: the BEMER®

Compared to some electromedical equipment, BEMER®—an acronym for *Bio-Electro-Magnetic-Energy-Regulation*—is simple to use and operate. It consists of a mat (containing coils) on which subjects lie; a small control box connected to the mat that plugs into the wall, with various settings that regulate the intensity of the device's signal; and some optional accessories such as a small applicator for concentrated treatment over a small area. Approved for medical purposes in the European Union, this patented Swiss-made device uses a pulsed magnetic field to improve circulation in the tiny blood vessels.

Those accustomed to thinking of the heart and larger blood vessels as “the circulatory system” might not regard the BEMER's function as impressive or unique. However, three-quarters of the body's circulatory apparatus is comprised of blood vessels that are much smaller than arteries and veins—a vast network whose flow is called the *microcirculation*. Arteries carry blood directly away from the heart and veins carry blood directly back to

it, but it's the smaller vessels that do the major work. *Capillaries*, whose walls are just one cell thick, are next to every cell in the body. When placed end to end, the capillaries in just one body would circle the Earth twice. *Arterioles*, smaller than arteries, carry oxygenated blood from the organ tissues to the capillaries. *Venules*, which are small and quite narrow, receive blood from capillary beds and eventually form the larger veins. Combined, these tiny blood vessels deliver oxygen and nutrients to the cells and remove carbon dioxide and other wastes. Each day, the red blood cells supply and clean an area of more than 75,000 miles (120,000 kilometers).

The microcirculation also controls the distribution of blood to and within the body's organs and tissues. This heavily impacts blood pressure as well as swelling, which is the body's response to inflammation. Properly functioning microcirculation ensures that blood flows to areas that need it the most, such as muscles during physical exertion or the brain during intensive mental processing. Note that the tiny microcirculation channels can accommodate only one red blood cell at a time. The flow of red blood cells is regulated not by pumping, but by the pressure of fluids moving through semipermeable membranes. Even with the *macro*circulation working well, if the *micro*circulation is not—if the tiny vessel walls are not relaxed enough to release the red blood cells under pressure—then the red blood cells won't reach where they're needed and circulation will halt, stagnating the tissues and encouraging the development of degenerative conditions and infectious diseases.

Degeneration and disease equal pain—and this is when we most strongly feel the effects of malfunctioning microcirculation. The authors of *Magnet Therapy* explain the connection between pain, capillary malfunction, and electromedical therapy that restores capillary function.

Capillaries are key to understanding how magnets relieve pain via increased blood flow. The capillaries, far narrower than arteries or veins, are the regulators of blood flow. *They are turned off until there is a need for carrying oxygen in and carbon dioxide and other waste products out. Then they are activated.* Blood flow in tissue is governed by how many capillaries are flowing, just as water use in your home depends on how many faucets are opened. When their walls are relaxed, they allow the blood to flow more freely. . . .

Capillary action helps pain in another way: by speeding up fluid exchange in injured tissue, thereby flushing away the pain and inflammation chemistry at the site. These include unwanted byproducts such as lactic acid, which are major

causes of pain and inflammation. . . . In most cases, this stepping up of the metabolism not only stops pain but also stimulates the body to heal faster since *the movement of oxygen and other nutrients to the cells will increase as the capillary blood flow continues.* [emphasis added]²⁵

What “turns off” the microcirculation? Contributors include stress, poor diet, infection, inadequate sleep, and toxins—all of which unbalance blood glucose and electrolyte levels, and on a subtler level, the cellular electromagnetic charge—thus preventing red blood cells from easily diffusing out of the tiny blood vessel walls to reach their intended locations. By increasing the cellular charge, BEMER® improves circulation, oxygenation and hence, function of muscles, organs, glands, and even bone. Among many conditions, BEMER® addresses:

- ◆ Arthritis
- ◆ Burns
- ◆ Cardiovascular dysfunction (including blood clots)
- ◆ Fatigue (chronic or acute)
- ◆ Headaches and migraines
- ◆ Immunity (greater protection from infections)
- ◆ Insomnia
- ◆ Metabolic disorders
- ◆ Muscle injuries and sprains
- ◆ Nerve damage
- ◆ Respiratory disorders, including asthma
- ◆ Skeletal system: bone fractures and even osteoporosis
- ◆ Swelling
- ◆ Wounds, cuts, scrapes, skin rashes

The BEMER's settings range from low to moderate to high intensities. If you're frail or recovering from a severe or chronic illness, start slowly on the lowest setting and gradually increase the signal intensity as your energy improves. Only athletes and the very healthy should use the advanced BEMER® settings, which emit the most powerful signals. The unit times the treatments (ten minutes average) and shuts itself off when the sessions are finished. One setting will run overnight and help with sleep. Most people feel very relaxed from a session. They may feel a slight tingling as blood flow improves. Dogs and other small pets generally enjoy lying on the mats. There's also a BEMER® blanket for horses.

Clearly, the health of our microcirculation is critical. “Microcirculatory effects of pulsed electromagnetic fields” appeared in a 2004 issue of *Journal of Orthopaedic Research*.²⁶ About fifty favorable scientific studies specifically about BEMER® therapy have been published. One article, appearing in a 2016 issue of *PLoS One*—“BEMER Electromagnetic Field Therapy Reduces Cancer Cell Radioresistance by Enhanced ROS Formation and Induced DNA Damage”²⁷ reported that BEMER’s normalization of microcirculation disrupts the metabolic pathways of cancerous tissue. The goal of the authors was to make cancer cells more receptive to toxic chemicals, but people choosing holistic protocols for cancer also benefit from BEMER®. This title alone, in a 2013 issue of *Journal of Complementary and Integrative Medicine*, provides an informative summary: “The effects of the ‘physical BEMER® vascular therapy,’ a method for the physical stimulation of the vasomotion of precapillary microvessels in case of impaired microcirculation, on sleep, pain and quality of life of patients with different clinical pictures on the basis of three scientifically validated scales.”²⁸

People may be discouraged by the high price of the BEMER®, which is distributed via a multilevel marketing system. However, a number of less costly mats are now appearing on the market that report circulation benefits similar to those of the BEMER®. We shall see, in time, how true those reports are.

Pulsed Magnetic Fields: the ONDAMED®

The ONDAMED®, developed by German electronics engineer Rolf Binder, uses a pulsed magnetic field that conveys frequencies. The machine consists of the base (18.5" x 14" x 4"), which weighs about 25 pounds in its heavy-duty case, and various applicators that are placed on the body or held. The software introduces various frequency patterns, times and intensities. Frequencies range from 0.1 Hz to 32,000 Hz. The pulsed magnetic field emitted by the unit covers a small but focused area. This unit is sold only to health professionals and requires some training to use; but the principles of how it works are useful to know as they apply to other equipment.

To find which protocols to use, the practitioner places an applicator around the client’s neck while holding the subject’s wrist and scrolling the machine through a range of programs. When a frequency is emitted that the body may need, a sudden change in the radial (circulatory) pulse occurs. The change in the subject’s pulse can feel like excitation (jumping or throbbing) or weakening (slower, less obvious). (This physiological response, known as the Vascular Autonomic Signal or VAS, was discovered by medical doctor Paul Nogier in 1966.) The “biofeedback”

aspect of the ONDAMED® is the person’s bodily response to the unit’s emissions. The practitioner chooses the top two patterns that caused the strongest reaction, and which will thus have the most therapeutic value. VAS is also used to find the optimal placement for treatment.

Not everyone’s pulse completely normalizes for the duration of treatment. For future tests, other areas and frequency patterns may be more useful. No more than two frequencies are administered at one time during therapy so that the body isn’t confused by too many signals.

The company isn’t allowed to make medical claims for the equipment, but does state that the biofeedback has worked well for pain management, stress relief, detoxification (waste elimination and nutrient absorption), reduction of addictive patterns (such as smoking), and weight management. People suffering from allergies, arthritis, inflammation, lymph and hormonal problems, infections, and pain report that their symptoms subside or are completely eliminated. The ONDAMED® is popular with smokers to stop nicotine addiction: a 95% effectiveness rate is reported, in an average of one to three sessions. People with other health conditions generally notice improvement in five sessions, although some people require more. The range is generally one to 20 sessions.

How does the equipment work? Medical doctor Wolf-Dieter Kessler relays a dialogue about ONDAMED® with physics professor J.B. Sharma:

Each organ has specific natural frequencies corresponding to its healthy state, to which it resonates if driven by an appropriate external frequency. . . . look at the body and its constituent parts as oscillators. In a healthy body, the ensemble of the oscillators “vibrate” in harmony with each other. . . . Under this model, disease may then be understood as a departure from a healthy synchronous vibration. The [diseased] parts of the body . . . display a lower energy or a chaotic, asynchronous vibration. The difference between an optimally functioning state and a diseased state in the human body is detectable by Nogier’s pulse feedback method . . . [during which] a very small shock is created to the cardiovascular system when a specific frequency hits a diseased site, which then evokes a tempering or “tuning” of the oscillating components through resonance. . . . The asynchronously vibrating components of the diseased body will resonate harmoniously for a brief moment when hit by the proper frequency. . . . Further treatment with the appropriate frequencies would then bring all components

back into synchronous vibration with the tendency to maintain that state of higher order.²⁹

We know that deviations from the frequencies of healthy tissue indicate energy blockages that can then lead to health problems. On the biochemical level, blockage of an area is synonymous with a static field, characterized by accumulated acids (excess hydrogen ions, or H⁺), which block the transfer of impulses the body needs for the smooth flow of information. We know that superimposing one magnetic field on another induces the flow of electrons. When the ONDAMED[®] introduces specific electromagnetic impulses into the body, the movement of electrons is induced to the organs, glands, muscles, vessels, bones, nerves, or other tissues that require a more efficient flow of information.

The ONDAMED[®] is approved by the Institutional Review Board as a non-invasive secondary therapeutic device for the alleviation of pain, discomfort, and general malaise in the treatment of various disorders. The inventor, although pleased by the reports of success, nonetheless emphasizes, “It’s very important to get the body working by itself. You don’t want to get the body dependent on a drug—or the machine, for that matter.”³⁰

ELECTROMEDICINE: PLASMA RIFE THERAPY

In 1933, the resolution power of microscopes wasn’t very high and electron microscopes were still being developed. This led American scientist Royal Raymond Rife—who wanted to examine microorganisms as small as viruses in their living state—to invent the Universal Microscope. Rife’s microscope had remarkable depth of field, and its clarity rivaled that of even later electron microscopes. The Universal Microscope held great promise in finding cures for diseases, because if you can see how living organisms respond to stimuli, you have a better chance of finding a way to destroy them.

As it turned out, the “stimuli” from Rife consisted of his next invention—the Rife Ray, an electromedical device that cured cancer and other serious diseases. Successfully used by some of the most prominent physicians of his time, the non-invasive and effective Rife Ray was driven underground, banned by the American Medical Association and FDA because it was far more effective than toxic drugs. Only in the last couple of decades has Rife’s equipment emerged again for therapeutic purposes, albeit in an altered form.

The principle of the Rife Ray’s operation was elegant. If a virus or bacterium began to oscillate in response to

a particular frequency that Rife aimed at it—and then it grew weak or destabilized—Rife knew that he had found the *resonant frequency* of the pathogen, or its *mortal oscillatory rate* (MOR). “Any object has a certain natural or resonant frequency,” explains James L. Oschman.

Strike it, bump it, pluck it, or heat it, and it will tend to vibrate at a specific frequency. This applies to a bone, a piece of wood, a molecule, an electron, or a musical instrument. . . . In the living body, each electron, atom, chemical bond, molecule, cell, tissue, organ (and the body as a whole) has its own vibratory character. . . . In terms of vibrations, the human body can be compared to a symphony orchestra. Each molecule corresponds to a particular instrument. Each bend, rotation, or stretch of a chemical bond has a certain resonant frequency, and will give off certain “notes” if it is energized. Since molecules, water, and dissolved ions are constantly bumping into each other at body temperature, all parts are constantly jiggling and absorbing and emitting energy. . . . When two objects have similar natural frequencies, they can interact without touching; their vibrations can become coupled or entrained. For electromagnetic interactions between molecules, the word “resonance” is used more often than entrainment. In the older literature you will find the term “sympathetic vibrations.”³¹

The destruction of a pathogen has often been compared to the cliché of a soprano singing a pure, focused tone that shatters a glass whose resonant frequency matches that particular tone. While this glass-shattering phenomenon is genuine, using sound to describe how Rife’s equipment worked is an imprecise analogy. A sound wave is a mechanical motion. But Rife’s units could affect microorganisms through many inches of concrete, which can absorb mechanical motion (and thus prevent it from being transferred elsewhere). Therefore, something else was responsible for the destruction of pathogens: *electroporation*, the abnormal permeability of either a microbial cell wall or a human or animal cell membrane. The permeability is most pronounced during an energy transfer, or *when there’s a match in wavelength* (frequency). The Rife Ray—through *resonance*, or the matching of wavelengths—transferred energy to the microbial cell walls. This increase in energy disturbed the electrical charge of the pathogens, causing a *change in shape and pattern*, which compromised their structural integrity. Due to this electroporation, the pathogens began to destabilize.

Which Is It? PMF? PEMF? Or Something Else?

Good electromedical devices, no matter what the delivery system, affect the body in similar ways. To varying degrees (depending on the delivery system), they increase electrical charge and balance the electromagnetic fields in the tissues. Physiologically, this can translate into ion transport, increased blood and lymph flow, and more.

Few electromedical devices cause as much confusion as those that employ a pulsed magnetic field (PMF) for healing, because PMF may be called by other names: “low field magnetic stimulation” (LFMS), “pulsed electric field” (PEF), “electricity-generated magnetic field” (EGMF), and most commonly, “pulsed electromagnetic field” (PEMF). Many researchers use these terms interchangeably. So do manufacturers of PMF equipment. These alternate terms can be misleading, because the way in which the machine delivers its signals appears to be conflated with what’s happening in the body that receives these signals.

Machines that emit a *pulsed magnetic field (PMF)* do this in one of two ways: either with a Helmholtz (or similar) coil that contains two specially aligned electromagnets, or with a wire that conveys electrons when electricity flows through it. Both of these methods provide a generalized magnetic field. To *pulse* the field, a frequency generator is used, which creates a frequency-specific signal. The speed of the pulse determines the frequency. For example, to create 35 Hz, the electrical current switches on and off 35 times a second. To create 2127 Hz, the current switches on and off 2127 times a second, and so on. Any frequency can be created by pulsing a magnetic field. Once the body receives these frequencies, movement and healing in the tissues is induced.

A journal article on healing bone fractures states: “Electromagnetic fields (EMFs) have shown a promising potential for [healing bone fractures]. . . the most important of them are direct current, capacitive coupling, inductive coupling (pulsed EMF), static and combined magnetic fields.”³² Another article states: “PEMF can be applied to biological tissues [via] . . . inductive coupling. . . the magnetic field produces an electric field that, in turn, produces a current in the conductive tissues of the body . . .”³³ The PEMF in the title apparently refers to *all* possible fields in the electromagnetic spectrum that can be created with many types of electromedical equipment.

Ask the manufacturer of your electromedical device exactly how it works: what the machine emits, and how it affects your body. Some people do better with one delivery system than another.

How were the resonances conveyed? Royal Rife’s ray equipment very likely incorporated the inventions of several other scientists—Albert Abrams’s Oscilloclast, Nikola Tesla’s plasma lamp and Georges Lakhovsky’s Multi-Wave Oscillator. However, the Rife Ray operated on different principles. It delivered frequencies in the radio frequency (RF) range by sending an electrical current through a tube filled with noble gases (mostly argon and neon). The gases would light up the tube, and the frequencies were emitted as EM radiation. It was the *EM wave*, rather than the luminescence from the light, that disabled or killed the pathogens.

Some laypersons and even equipment manufacturers erroneously refer to Rife’s technology as PEMF (short for “pulsed electromagnetic field”). But although a PEMF is being used to *create* the plasma in the noble gas-filled tube, it’s the *photonic field emitted by the plasma*, which entrains the cell membranes, that creates the desirable effects. Note, too, that plasma has some attributes that are different from those of an EM field—such as the ability of photonic emissions to pass through solid objects—so *longitudinal* or *scalar* waves were likely also present.

Rife discovered the resonant frequencies for cancer, typhus, *E. coli*, and other microorganisms. People given “terminal” diagnoses by their doctors would often become well when exposed to the Rife Ray. A pathogen’s MOR frequency administered at a low power level is harmful to the pathogen, but it doesn’t harm a larger animal or human host because the host is larger, and has a much more complex structure, than a microorganism.

Some modern frequency devices contain plasma tubes filled with noble gases, while others are equipped with hand-held, cylindrical metal electrodes or electrode patches that deliver the signal into the body via electrical current (which has entirely different properties than radiant plasma). While most plasma tubes are freestanding, one unit is equipped with long hand-held glass rods. Since Rife’s time, FCC regulations have forbidden devices from transmitting RF over long distances because they interfere with radio broadcast signals. Due to that, as well as changes in technology, today’s ray tube units transmit weaker signals at lower frequencies than the machines that Rife built. Modern machines range from mostly 1 Hz to 400,000 Hz; although some equipment, depending on how it’s constructed, can run higher frequencies. Because electrode units touch the body, they have fewer legal constraints than plasma units, and have a much wider range, typically outputting to the millions of hertz or megahertz (MHz).

Rife technology devices can range from simple to elaborate, with varying programming capabilities.

Smaller units can be the size of large loaves of bread, while large ones equal the size of tower computers. The user inputs the desired frequencies into the computerized machine, and a signal is sent to the noble gases in the tube. The resulting EM field disables or kills the microorganisms in the body, while also inputting energy into the body's cells.

In countries outside the United States, such as Germany and Romania, Rife Therapy is approved for medical purposes and is thus used in clinics, doctors' offices and even hospitals. In North America, which has more restrictive laws, the primary market for this equipment is consumers. If practitioners do use it for clients, they aren't allowed to make medical claims. Manufacturers of frequency equipment exist worldwide.

Two excellent freestanding plasma light frequency devices are especially popular in North America: the PERL M+ from Resonant Light Technology Inc. in Canada, and all of the P3 units from Pulsed Technologies, which has offices in the United States and Romania.

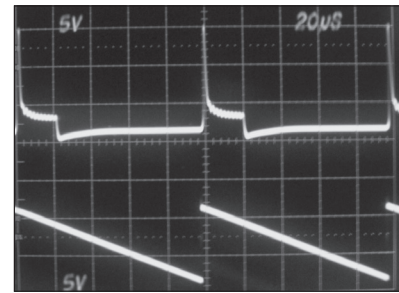
The PERL M+ is equipped with a glass tube filled with 100% argon gas and is run by the ProGen 3 generator, which can apply electrodes at the same time. When the noble gas is lit by the transmitted RF energy, the unit emits frequencies from 1,000 Hz to 3,100,000 Hz over a 27.125 megahertz carrier. The waveform (square, sine, or triangle) has a range of up to 30 feet (9 meters). The customer can either program frequencies into the unit or use a pre-programmed protocol. The equipment's management system (manufacturing quality and customer support) has received an international standard of certification; so should the company decide to apply for Class II Medical Device status, they will have met all the requirements. In Canada, Resonant Light Technology Inc. cannot legally state that the PERL M+ is a therapeutic device for use on humans, but the company does suggest other applications: therapeutic use with animals, extending the life of food in clinically controlled food storage lockers, slowing the growth of mold and fungi in greenhouses, and reducing the parasitic count within fruit orchards. Energizing the body is an obvious application as well.

Pulsed Technologies makes several different machines. The frequency outputs of this company's units range from .01 Hz to an impressive 1,000,000 Hz. All of the plasma systems are driven by the Precision Function Generator (PFG 2Z). The tubes are filled with a proprietary mixture of noble gases: neon, argon, krypton and xenon.

Unlike almost all other "rife" frequency devices, Pulsed Technologies equipment operates on principles that do not require an RF (radio frequency) carrier wave.

Nevertheless, the signal is powerful enough to penetrate deep into the body because the electronics manipulate the shape of the wave.

In Figure 9, the bottom of the photo, taken of an oscilloscope, depicts a signal sent *into* a tube by a Pulsed Technologies frequency generator. At the top, an entirely different waveform is emerging *from* the tube. It's the fast rise time, and sharp spike on the wave, that allows the signal to penetrate.



*Figure 9: Bottom, wave from generator to tube
Top, wave from tube; Pulsed Technologies*

All PFG generators may be used separately from the plasma unit as contact (electrode) devices. The computer software, included with the machines, has many options for creating sessions or adding to sessions, and selecting individual times and wave shapes for frequencies. Many practitioners and researchers as well as lay customers use this equipment. The company's emphasis on research—it sponsors the Eastern Europe-based professional Research and Resource Exchange Network—makes it popular in Europe, where doctors have seen substantial improvements in the subjects enrolled there in clinical trials. Applications of a Pulsed Technologies unit are similar to those of the PERL M+. The uses for a freestanding plasma light unit are limited only by the imagination of the user.

In Rife's era, it was proven that his frequency devices disabled pathogens that made humans and animals sick. We now know that some frequencies can regenerate tissue as well. One excellent frequency, used by modern users, that restores the voltage of cells is 40,000 Hz. While Rife's technology appeals to holistically oriented health practitioners, it can also be utilized by laypersons. In fact, this therapy is one of the most user-friendly of all "do it yourself" therapies. The largest market in the United States and other countries consists of people who want to improve their own health, as well as the health of their family, friends, pets, and farm animals.

One more thing. Rife Therapy can elicit strong detoxification responses. This will be addressed later in **Detoxification Responses**.

ELECTROMEDICINE: TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS)

In contrast to Rife Therapy, which is generally geared toward the entire system and the disabling of pathogens, Transcranial Direct Current Stimulation works solely with the brain. A type of neurostimulation, Transcranial Direct Current Stimulation (abbreviated *tDCS*, with a small “t”), has been extensively studied by the United States military for its potential to accelerate learning abilities, enhance visual perception, improve imagery recognition, and achieve an overall superior performance.

tDCS technology relies on extremely small amounts of safe, controlled, low-voltage, direct-current (DC) microcurrent to selected brain locations that are accessed via the scalp with simple sponge electrodes. Depending on where the electrodes are placed, tDCS either amplifies or inhibits neural pathways in the brain to address different functions. For example, it’s desirable to subdue activity in those brain centers that deal with addictions, hyperactivity and insomnia, while it’s desirable to augment activity in those brain centers that deal with learning and creativity.

Neurons (nerve cells) in our bodies act like wires as they conduct electrical messages. tDCS brings up the voltage, or forcefulness of electron flow, in the neurons. While the voltage from tDCS isn’t high enough to cause a neuron to fire, the current creates a clearer, more definite path for the electrical messages when the nerve actually does fire. (The neuron will retain more voltage for about an hour after the equipment is removed; and this effect will accumulate.) Used regularly, tDCS permanently causes the thickening of the fatty myelin sheaths that surround each neuron and act like rubber insulation around an electrical wire. This increased insulation helps the nerve cells to more easily pass electrical signals. Simply put, tDCS gives us a more efficient brain, and the user decides what functions he or she wants to improve.

The effects from tDCS are non-invasive yet profound. Several hundred published studies and technical papers show a reduction in depression and anxiety, a lessening in the number and intensity of risk-taking behaviors, improvement in speech and social interactions, heightened creativity, improved meditation, and more mindfulness.

Because so many different brain functions can be engaged, doctors have begun using the technology for various forms of rehabilitation and repair. People with Alzheimer’s, Parkinson’s disease, motor control issues, fibromyalgia, migraine, allergies, and chronic pain are beginning to see good to excellent results.

Pulsed Technologies, known for its “rife” frequency and EMF protection equipment, has made tDCS available

to the public at a very affordable cost. Some people might not even call it “equipment” because the unit consists of pieces that look like the most ordinary of accessories (even though the results can be astounding):

- ◆ An oversized flash drive containing tDCS electronics, which drives the unit and plugs into the thumb drive port of a computer, tablet, or smart phone.
- ◆ Two 2" round electrodes with microfiber-covered sponge on one side.
- ◆ A headband to affix the electrodes onto the head.

A lengthy, illustrated manual is provided with the equipment to help the user decide where to place the electrodes, depending on the goal. This technology is compatible with, and augments, all other modalities. It can be used during pregnancy and any crisis, imparting help without pharmaceuticals or even other therapies.

ELECTROMEDICINE: MONOCHROMATIC VISIBLE LIGHT (LASERS AND LEDS)

You’re at a lecture in an auditorium. The teacher, using what she calls a “laser pointer,” is shining a red-beamed penlight onto an image in her slide presentation that she wants you to focus on. The dot moves, and you focus on another image. After your class, you go home and play with your pet cat. You grab a pointer similar to the one your teacher had been using, and create a moving dot on the floor that keeps the cat occupied for as long as you’re willing to play. Try as she might, the cat can never catch the dot as it wiggles and waves on the floor, the walls, then the floor again. It’s difficult to see the beam through the air, but the dot magically appears on the floor. Later, you’re aware of how much your shoulder is hurting (probably from those heavy books you’ve been carrying around all day to your classes). So you open a drawer, take out an instrument with many diodes, turn it on, and apply it to your shoulder. After about fifteen minutes, you feel better. What do all these situations have in common? You’ve been using *monochromatic light*, which is the principle behind both lasers and LEDs.

Laser is an acronym for *Light Amplification by Stimulated Emission of Radiation*. To the uneducated general public, the word “laser” evokes a dangerous beam, usually red, that is used in restricted industrial and medical situations. But safe laser therapy has been used by health practitioners all over the world for almost 30 years. Most of the initial research and published data, which spanned the late

1970s to early 1980s, was from Russia. Later, as more papers were published, various medical organizations and government agencies all over the world (including the National Aeronautics and Space Administration in the United States) began using this modality as well.

Both lasers and LEDs can be made to produce any color wavelength. The color—whether it's red, green, blue, or another hue—is not due to glass, paint, or pigment. It's solely the wavelength of the light itself that gives the beam its characteristic color. The wavelength is always a single-color frequency, known as *monochromatic*. Although some types of lasers include mechanisms that emit heat in the form of invisible infrared radiation, for this discussion we are interested in lasers and LEDs that utilize monochromatic visible light only, and in the *red* spectrum. Monochromatic light treatment is commonly known as phototherapy. Used properly, red wavelengths may be the most versatile of all the colors.

Lasers and LEDs differ in some important ways, but they also share similarities. Both technologies are based on the energetic behavior of electrons. Normally, electrons occupy a fixed place in one or more orbital rings that sequentially surround the atom's nucleus. When they become excited, electrons move faster and jump to higher orbits. When they relax and return to their original position, electrons release energy in the form of photons (light units). The wavelength of a photon—its color—is determined by the amount of energy released when the electron drops to a lower orbit. *It is this emitted light that is harnessed in visible light laser and LED technology.*

Lasers and LEDs occupy a certain range of frequencies (frequency band) in the EM spectrum, but the frequency being used is almost always identified by the length of the wave rather than the frequency (designated in hertz). In the band of visible light, wavelengths are measured in nanometers, abbreviated nm. One nanometer, the length of one complete wave, is one billionth of a meter and roughly about the size of a human cell.

Lasers and LEDs that emit a red color range from about 620 nm to 670 nm or 700 nm, depending on what source you consult. Some clinicians prefer a 660-nm wavelength, asserting that this length wave is easiest for the tissues to absorb. Others prefer a ruby red 630-nm or 635-nm wave, based on research published in the *Journal of Clinical Laser Medicine & Surgery* stating that a 630-nm wavelength appears “to be most commonly associated with bacterial inhibition. The findings of this study might be useful as a basis for selecting LLLT [low level laser therapy] for infected wounds.”³⁴ In this case, “bacterial inhibition” consists of the retardation of the growth and functioning of pathogens. “What is good for the body is usually bad

Brief Guide to LED Colors and Their Effects

- ◆ **Red (620–700 nm).** Energizes. Renews all cells including skin. Reduces pain and inflammation. Grows hair. Improves circulation. Kills pathogens (at 630–635 nm).
- ◆ **Orange (595–620 nm).** Energizes. Heals and normalizes skin. Normalizes emotions and focus.
- ◆ **Yellow (575–595 nm).** Energizes. Restores nerves, especially motor nerves near skin. Reduces swelling. Repairs digestion. Improves concentration and mood.
- ◆ **Green (490–575 nm).** Energizes. Reduces inflammation. Improves collagen. Decreases wrinkles and acne. Renews cells. Decreases stress and difficult emotions.
- ◆ **Blue (455–490 nm).** Kills bacteria and fungi. Tightens and normalizes skin. Decreases pain and inflammation. Lessens headaches. Soothes.
- ◆ **Violet (390–455 nm).** Heals skin conditions of all kinds, including wrinkles. Energizes mental faculties.
- ◆ **White (390–700 nm: contains all the other colors).** In other words, sunlight! Energizes. Increases collagen. Improves focus, alertness, motivation, and cognition. Decreases pain and inflammation.

Nanometers are approximate; colors blend together.

for pathogens,” remarks Gerry Graham, a US chiropractor who administers laser therapy. “For example, the right pH for the body is the wrong pH for pathogens. Similarly, 635 nm is the worst wavelength for most pathogens but is beneficial for human tissue.”³⁵

Regardless of the specific favored wavelength, researchers and practitioners who use red light find that it works on the principle of *biomodulation*—turning a cell's function on or off through physiological means. Monochromatic red light stimulates blood circulation, increases lymphatic drainage, and promotes cell metabolism by stimulating photoreceptors in the mitochondria living within the cell. (Mitochondria are tiny living organelles with their own DNA and reproduction cycles, which live in symbiotic harmony with the cell, and control many important cellular processes including energy production.) Except on the eyes in the case of a laser (explained in a moment), the light can be applied to every part of the body: skin, soft tissue, muscle, bone, brain, organs, lymphatic fluid, glands, and blood. Used over an artery, the light can improve the condition of immune cells—leukocytes, T-cells, and B-cells within the bloodstream—so they can more efficiently disable pathogens.

Dr. Tiina Karu, professor of Laser Biology and Medicine in Russia, is reported to have discovered the following:

There are photoreceptors at the molecular-cellular level which, when triggered, activate a number of biological reactions: DNA/RNA synthesis, increased cAMP levels [cyclic adenosine monophosphate, a molecule involved in many biological processes], protein and collagen synthesis, and cellular proliferation. The result is rapid regeneration, normalization, and healing of damaged cellular tissue. In essence, light is a trigger for the rearrangement of cellular metabolism.³⁶

Single-wavelength light maintains its integrity while radiating. Its ability to travel along the meridians of the body without being dispersed into the surrounding tissues makes it useful for Chinese medicine treatments. A phototherapy device can be built to house a single light or many, but only one wavelength at a time should be shone on the body. Only monochromatic light affects the photoreceptors. If different wavelengths are simultaneously applied to the tissue, the cell receives conflicting signals and cannot respond properly.

LEDs and lasers can also be pulsed so that for a duration of time at regular intervals, the beam is on, off, on, off, on, off, etc. Pulsing the light stimulates healing. A continuous, steady emission (no pulse) sedates pain.

To produce light, a laser diode can contain argon, helium, neon, or krypton. The monochromatic light emitted by the lasers under discussion is *coherent*. This means, from a physics standpoint, that all the peaks and valleys of the waves line up. The waves are high at the same time, and low at the same time (Figure 11). In practical terms, this means that the light is directional and focused—or *collimated*—instead of scattered. This optical arrangement provides the intensity and precision of the beam and is probably the most expensive component of a laser diode assembly.

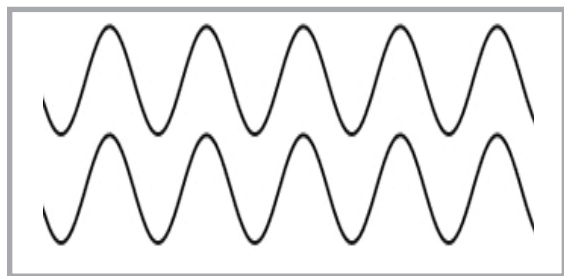


Figure 11: Coherent Waves (In Phase with Each Other), an Alignment Found in Lasers

Not all lasers utilizing red light have the same effects. Most people are familiar with the high-intensity, high-power “hard” lasers that are used by industry (to cut through steel and other metals) or by doctors (used during surgery to make clean cuts into the body, cauterize wounds, and remove unwanted tissue). These high-intensity lasers are legally restricted devices because of the damage they can cause. They’re also not therapeutic.

Genuine low-intensity, low-power lasers—also called “soft” or “cold” lasers—emit far less power than their restricted high-intensity counterparts. Their use for healing is also known as *Low-Intensity Laser Therapy* (LILT) or *Low Level Laser Therapy* (LLLT). The legal standard for what constitutes a low level laser can be confusing, however, because in some countries, a device legally classified as a LLL has enough power to heat tissue. Some laser therapists maintain that devices affecting cells through bio-modulation should not be categorized with devices that heat tissue. Australian laser experts Kerry Tume and Sean Tume suggest the following standard: “the energy output is low enough so that the treated tissue does not rise above . . . normal body temperature.”³⁷ Some practitioners allow only up to a 0.1 degree Fahrenheit increase in temperature. Otherwise, the device becomes too hot and has different (and undesirable) effects. Here is an instance, Graham points out, where “less can be more. Most people still fall for the idea that if 10 mW [milliwatts] will do a job in ten minutes, then 100 mW will do the same job in one minute, and 1000 mW will do the same job in one-tenth of a minute. But this isn’t true. The majority of lasers used for meridian therapy use [excessively high-powered, tissue-heating] infrared lasers. With these instruments, you can damage the meridians and over-stimulate tissues.”³⁸

Pulse is a popular term referring to the number of times the beam of light is turned on and off in one second (though the more precise term, used by engineers, is *gate*). The pulse rates can be as low as one, or as high as 1,000,000, in which the light is being turned on one million times and then turned off one million times each second. “Even though the eye cannot detect movement above 45 Hz or so,” Graham explains, “the body’s tissue can clearly detect and recognize these pulse rates in the tens of billions per second.”³⁹ Numbers commonly used as rife technology frequencies are often applied as laser pulse rates, and the effects are similar.

Laser therapy works on many types of conditions: injuries to ligaments, tendons, nerves, and other tissue; skin conditions; bone problems (such as osteoarthritis); first, second and third degree burns; dental problems; infections including herpes; and of course chronic pain.

The laser beam can be applied without risk to almost any part of the body (including trigger points and fascia). However, due to the precision of the beam, care must be taken to avoid shining the device directly into the eyes or even on the closed eyelid, because this can cause tissue damage and even blindness.

Now let's talk exclusively about LEDs. LED is an acronym for *Light Emitting Diode*. It's sometimes erroneously called a soft laser or laser, which it is not: the monochromatic light emitted by LEDs is *incoherent*. This means, from a physics standpoint, that the waves are emitted at random intervals because the peaks and valleys of the waves do not line up (Figure 12). In practical terms, this means that the light is multi-directional and diffuse, *not* directional and focused (collimated).

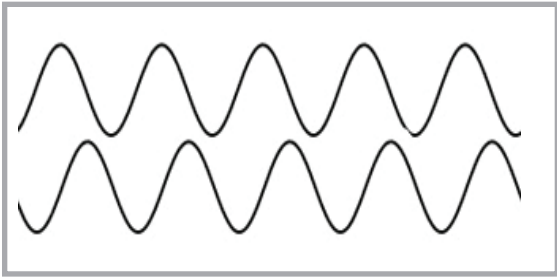


Figure 12: *Incoherent Wave (Out of Phase with Each Other), an Alignment Found in LEDs*

The lack of beam coherence and precision makes LED therapy safe enough to be used even by children—and difficult to abuse. The advantage of LEDs over lasers is their ability to be used directly on the eyelid to regenerate injured eye tissue. Also, an LED array is much less expensive than a soft laser. It too has widespread applications. “In Israel,” report Cocilovo and Rosen, “medical doctors utilize incoherent light transmitted by light emitting diodes (LEDs) in the practice of neurology, dentistry, dermatology, physiotherapy, and in cosmetic applications to promote collagen and elastin formation.”⁴⁰

Until the 1980s, low-level lasers were used almost exclusively for phototherapy because researchers thought that the light needed to be coherent, and prior promising research with incoherent light was nearly forgotten. Subsequently, some clinicians determined that coherency did not make a huge difference. “Dr. Karu,” write Cocilovo and Rosen, “contends that coherent light is not necessary, that incoherent light is equally effective at producing clinical results. Furthermore, she found that coherent light is converted to incoherent light in the body. The exact effect depends on the wavelength, dose, and intensity.”⁴¹ There’s a question as to whether these conclusions were based on

in vitro or *in vivo* research; the effects of light can be different in a culture than a living body. Nevertheless, enough users report benefits with LEDs to warrant its further investigation as a serious therapy. There is one anecdotal report, however, that cannot be contested. This author successfully treated a scratch on the cornea with a single-diode LED after a piece of plastic fell into her eye. After one hour of holding the light onto the closed, tearing eyelid, the pain and tearing were gone, vision was unaffected, and no more problems occurred.

A few decades ago, LEDs were not too common. Now, the average consumer can purchase them for a few dollars in any electronics supply store or online. However, the more expensive LEDs tend to be better quality, with a more precise output.

ELECTROMEDICINE: FAR INFRARED HEAT

Far Infrared (FIR) is a minuscule subsection of the Infrared (IR) portion of the electromagnetic spectrum. The IR and especially FIR bands are known for providing heat, and this is where our focus will be for this section.

Heat therapy is thousands of years old. Whether the heat source was a dry sauna, steam bath, or hot water bath, the ancients understood that when people perspire, they feel better. We know today that sweating is one of the body’s chief methods of eliminating waste, whether exogenous (from outside the body) or endogenous (from inside the body). Poisonous chemicals, heavy metals, and metabolic wastes are routinely trapped by the body’s tissues, especially the fat cells—which encapsulate the toxins to protect the bloodstream. These toxins not only exacerbate illness; in many instances, they cause illness.

The chemical load we carry was dramatically illustrated during a Spring 2001 Public Broadcasting System (PBS) special about the chemical industry’s suppression of evidence that their own products cause cancer. When newsman Bill Moyers had his blood drawn and analyzed, his blood sample contained over eighty common industrial chemicals, including alcohols, solvents, pesticides, petroleum-based synthetics, PCBs, and Persistent Organic Pollutants (POPs). Given this eclectic and horrifying sample, it’s easy to see why so many people today are ill.

During sweating, the fatty tissue vibrates faster, dumping its toxic load into the interstitial fluid (outside and between the cells). These interstitial wastes—which normally would have to be processed by the lymph system, urinary tract, and/or liver—are released through the

pores of the skin. This lightens the elimination burden of these other systems, giving them a chance to rest.

Sweating does more than eliminate toxins. It raises the pH of some portions of the body to a more alkaline state because chemical wastes and the products of cell metabolism are generally acidic. Although sweat therapy is not identical to having a fever, there are similarities between the two. When infected, the body produces a fever to “cook” pathogens, most of which cannot survive in temperatures of over 103°F or 104°F (39.4°C or 40°C). Sauna therapy can also make it too hot for pathogens to survive if the core temperature is raised enough. During fever, more endorphins (natural pain killers) are produced by the body. This, too, occurs during sauna therapy, which accounts for its pain-relieving benefits. During fever, the body produces more enzymes, which the white blood cells need to destroy pathogens. This occurs during sauna therapy as well. In a sauna, the heating of the body alone helps to relax the nerves and tissue fibers.

Modern scientists have discovered that the *source* of heat used to make us sweat can make a difference between highly effective and less satisfactory detoxification. Dr. John Harvey Kellogg, famous for creating breakfast cereal, is less known for having invented the electric light bath that preceded today’s FIR sauna cabinet. (The electric lights he used for the cabinet were supplied to him by his friend, inventor Thomas Alva Edison.) Even less publicized are the sophisticated tests he conducted in the early part of the twentieth century. Using devices he invented, Kellogg measured the toxins in the urine and sweat of healthy volunteers who took Russian baths, Turkish baths, and sessions in the doctor’s own electric light cabinets. The light bath encouraged the release of more toxins than did the steam cabinets. And the test subjects also became hotter, faster, because *the heat waves from the light bulbs in Dr. Kellogg’s sauna were in a particular far infrared range*. Far infrared contains among the most beneficial EM frequencies that the body requires for growth, repair, and health.

The amount of FIR emitted by a body or object is part of its electromagnetic signature. The movements of atoms and their constituent particles—as well as the movements of the chemical bonds between molecules—change direction, rotation, and orbit, depending on their frequency. These changes also correspond to alterations in the electrical and magnetic fields that they emit.

Far infrared wavelengths range from about 5.6 to 1000 microns. For healing purposes, we are interested in only a tiny portion of the FIR spectrum, which ranges from about 5.6 microns to 9 microns in length and radiates heat from about 470°F to 120°F (243.3°C to 48.9°C). (The

shorter wavelengths are hotter.) A heat source that emits a particular, narrow band of FIR is the most effective for sauna therapy. Not surprisingly, a wavelength of about 9.35 microns corresponds to a temperature of 98.6°F (37°C).

Water molecules are very efficient absorbers and emitters of far infrared radiation that’s about 9 microns in length. This wavelength also causes water clusters to become smaller, more motile, and more easily absorbed into the tissues. Put another way, water *intrinsically resonates* within these particular wavelengths. Whereas other EM spectrum wavelengths (such as the much longer radio waves) pass through water, a 9.4 micron far infrared wavelength will be absorbed by the water itself and cause its temperature to rise. People’s ability to absorb and emit FIR is related to the ability of water to absorb and emit FIR. The human body is comprised of nearly 70% water, which helps to explain why people respond in such a positive way to FIR.

For the vast majority of people, FIR is the most effective means of inducing a sweat. There are many good FIR saunas on the market today. For more information, see *The Holistic Handbook of Sauna Therapy* by Nenah Sylver.

ELECTROMEDICINE: SOUND THERAPIES

Sound as Mechanical Motion

Sound and music therapies have existed for centuries. In the last several decades, tuning forks, crystal and metal bowls, classical music from certain European composers, and sounds from nature such as bird songs, a steady rain or the ocean, have become popular for soothing the soul and emotions, even if obvious physical healing doesn’t occur.

Sound cannot be heard in a vacuum. It is commonly defined as existing only if there is a medium, such as air or water, to carry the vibrations. However, *all frequencies on the electromagnetic spectrum—regardless of their form—have a corresponding sound or tone, even if it does not transmit through air or water and even if we are not capable of hearing it*. This may be the origin of the phrase, “music of the spheres.”

During the educational seminars I give on Rife Therapy and electromedicine, people often ask if tones can be substituted therapeutically for various EM waves. The answer is “Perhaps.” Inaudible EM waves can be translated into audible tones by mathematically calculating lower or higher octaves of the original frequencies to bring them into the range of human hearing. Although any frequency can be converted or translated into sound, the sound might not have the equivalent therapeutic value (if any).

However, sometimes the healing effects are impressive (if unexpected), and sound will turn out to be the best delivery system for what's needed.

Ultrasound and infrasound are already used to a limited extent. *Ultrasound* is labeled as frequencies from above 20,000 Hz to a few Gigahertz—a range that's higher than what most human ears can typically perceive, although young people and adults with excellent hearing can actually hear a 20,000-Hz signal. Bats produce very high pitches for *echolocation*, where sound waves bounce off objects in their environment, allowing them to gauge distance and “see” in the dark, even reading their prey's internal structures. Most people are familiar with using ultrasound for diagnostic purposes, such as taking a picture of a fetus in the womb (which, contrary to popular belief, isn't safe, as discussed in Chapter 1). Doctors use ultrasound therapeutically to break apart calcified stones in the body; but unless it's used with care and at very low power, ultrasound can damage the tissues.

The much lower-frequency *infrasound* is labeled as frequencies lower than 20 Hz, which is typically inaudible to the human ear (especially at frequencies lower than 16Hz). Whales and elephants use infrasound to communicate with one another. The military, imitating what comes naturally to some animals, uses machines to transmit classified data on those low-frequency channels. We also use infrasound equipment to detect volcanic eruptions, thunderstorms, earthquakes and human-made explosions—again, imitating with specialized equipment what animals can do naturally. At a certain strength and frequency, infrasound can cause the human eye to vibrate, leading to distorted vision and optical illusions. Similar low-range frequencies have also been cited as instilling fear and dread in people. Many people feel infrasound in their body, even if they can't consciously hear those low frequencies. A few companies have created low-power infrasound equipment for the layperson, to relieve pain, reduce inflammation and increase circulation. The equipment is reported to mimic the healing, low-frequency sound waves (8 to 14 Hz) that are naturally emitted by practitioners of the Chinese art of Qi Gong. However, as such equipment is outside the understanding of allopathic medicine, it's not being widely used.

Despite the abovementioned applications, sound has not been used very much as an electromedical modality. Following are two unique methods of delivering sound to the body in safe, healing ways. The first uses inaudible sound, made audible, to analyze; and then audible sound to correct. The second uses acoustic pressure waves (which happen to be audible) to treat a number of conditions, many of them serious.

VoiceBio™

We know that every organ, gland, and tissue in the body emits EM radiation, and that this radiation corresponds to tones which we might hear if they were in an audible range. New technologies are based on this knowledge. One is from biologist David Deamer. He decoded and translated some of the vibrational frequencies from portions of DNA into audible tones; and musician Susan Alexjander later added voice and instruments for a CD. Scientists have begun using acoustically translated DNA in a number of novel experiments. In one, the tones emitted by live and dying yeast cells have been recorded and placed on some Internet websites.

From this background comes VoiceBio™, a unique use of sound, which was first developed in 1995 by naturopath Kae Liu Thompson. VoiceBio™ is a non-invasive way of analyzing the function of organs, glands, and various body systems, based on the tones (EM radiation) they emit. If we could hear the symphony expressed by a living body, we would hear the liver vibrating to the note of G, the heart vibrating to the note of A#, and so on. Thompson discovered that the body's frequencies are reflected in the voice, no matter which octave the person uses when speaking or singing.

In an ideal world, each of the 12 notes of a scale would be represented on a graph of the voice (called a voiceprint). But due to poor diet, trauma, injury, infection, chemical poisoning, or a combination of these, most voiceprints show unequally represented notes that have huge variations beyond the normal, expected, uneven “bell curve.” The notes can all be present (thus falling within the range of good health) or be overemphasized, weak, or missing entirely from the voice (thus falling within the range of compromised health). Assessing the heavy, normal, and weak areas of a voiceprint can help pinpoint which body parts or systems are off-balance.

For the VoiceBio™ assessment, the client records a voice sample into a sensitive microphone connected to very small piece of proprietary equipment attached to a computer. The software sorts, translates, and graphs the tones (ignoring word content) onto a voiceprint that quantifies the frequencies, and the graph is displayed on the computer screen. It was developed because Thompson found that the sound cards in computers are unreliable, sometimes varying as much as two tones in accuracy. The act of sampling the voice takes under ten minutes.

There are several ways to supply the body with the balancing frequencies. The client can listen, through stereo headphones, to a palm-size tone box (called a “sonic balancer”) encoded with personalized sound formulas.

Derived by Thompson using complex mathematical computations, the sound formulas are different for every person—even those who need the same notes—since they are based on how the client’s brain is fundamentally organized. Although the VoiceBio™ sound formulas are subjectively experienced by the conscious ear more as white noise than patterned pitches, the effects are like healing music rather than disorganized noise, in part because the notes are in the very low range of human hearing. Most important, the tone boxes can be programmed so that the brain learns to produce the weak or missing notes on its own. This brings VoiceBio™ therapy into the realm of holistic self-regulation, rather than allopathic substitution. The client can also listen to the missing notes as either straight musical tones or music in that key. In the case of overemphasized notes, the VoiceBio™ practitioner suggests detoxification and cleansing of the corresponding organs and systems.

The most powerful effect of all, however, occurs when the clients themselves generate the needed tones by singing or humming. (It also makes the therapy cost-effective for the client.) One might think that a highly depleted or stressed individual cannot muster enough energy to hum, and that the very ill need a “jump-start” from an external source, such as the sonic balancer. However, the reality is “quite the opposite,” Dr. Thompson states. “The very ill see the fastest results by even humming the note for just a brief period a day. I have *never* found a client who could not hum something. Trials conducted in the past year in four states show that having the clients do it themselves is more effective than the sonic balancers by over 200 percent.”⁴²

Usually, after a month, the client is retested to see if the same formula is needed, if a different formula is needed, or if the client needs to continue at all. Although results to sound therapy can be felt within days or even hours, the listening or humming continues over a period of weeks and even months, depending on the severity of the condition and the person’s ability to respond.

Thompson’s discovery that all notes correspond to specific nutrients and drugs (as well as body parts and systems) brings another level of specificity to VoiceBio™. A voiceprint helps the practitioner pinpoint which nutrients are most needed by the client. (The nutrients may have an obvious relationship to the organs or glands whose notes they share, but sometimes they do not. Nevertheless, the system works.) Thus, nutritional support in the form of vitamin, mineral and herbal supplementation is integrated with the VoiceBio™ therapy.

The voiceprint can also show which pharmaceuticals might be useful. If the client is taking a drug whose frequency matches a note that is already too high, continuing to take the drug can further stress the note.

However, the voiceprint can help determine the drug that may be better suited to the client, if there is another drug that produces the same (desired) effect but resonates in a note that’s too low (or at least not as high).

It’s important to emphasize that there are many nutrients that resonate in any given note (C, C#, D, etc.), because each note has a *range* of cycles per second. (Historically, what precisely constituted a given note depended on the country and era.) However, the frequency of each nutrient is extremely precise, which is why any transmission device must be accurate to the second decimal point. Thompson devoted many years of research (and expensive laboratory tests) to find the frequencies of nutrients (vitamins, minerals, amino acids, fatty acids, etc.) as well as toxins and drugs. Some sound treatment systems have posted nutrient frequencies on the Internet that are incorrect, because they compute frequency based on the molecular weight of the elements that comprise the nutrients, rather than on the wavelengths themselves. (Weight measures how heavy something is, and has nothing to do with oscillation or frequency.) Like most electromedical therapies, sound protocols attain the best results with the exact frequencies.

Healing in this way with sound will become imperative if global government restrictions to supplements become even more severe than they are now. People could assimilate the frequencies of their chosen supplements via headphones, or even sound recordings. This user-friendly modality does not make medical claims, so it can be implemented by laypeople as well as health practitioners.

Wave Therapy

Even to those accustomed to using electromedical devices, a non-portable machine that heals using low-frequency acoustic pressure waves may seem unlikely. The story of how acoustic wave therapy was developed would seem like an arresting piece of fiction if it weren’t true.

Wave Therapy wasn’t initially designed as a healing modality. Two decades ago, electronics engineer Alphonse Cassone sought a new and efficient way to extract minerals (especially gold) from soil. The medium he selected, sound, required a powerful speaker. So he selected one used for SONAR (an acronym for *SOund Navigation And Ranging*), typically used by the Navy for submarine navigation. When submerged in water, a SONAR speaker (also known as a *transducer*) amplifies sound more rapidly and strongly because sound travels faster in water than in air. Cassone’s specially designed transducer was not only omnidirectional, but it caused compression waves in the air once the waves left the water.

Cassone maintained the speaker in a clean, water-filled oil drum in his garage and experimented daily. Because the machine emitted a distinct, steady, high-pitched tone, it didn't take long for his elderly next door neighbor to knock on his door. However, this wasn't a noise complaint. The neighbor, who had severe arthritis in his knees, had been experiencing less pain as the days passed and wanted to know what Cassone was doing. Cassone initially didn't believe him, but because the man insisted and wouldn't take "no" for an answer, he was allowed to sit alongside the equipment each day. The neighbor was soon able to walk more easily, with long strides. Baffled, Cassone began intercepting strangers on the street and inviting them to his garage for an acoustic wave session, after which he quizzed them about how they felt. To transmit the optimal amount of energy, the engineer experimented with different frequencies and durations. He also had to factor in the intensity of the signal, the viscosity of the liquid, and size of the tank. He eventually settled on a 600-Hz signal (although not before exploding about two hundred transducers in his attempts to produce exactly the signal he wanted).

Before long, word spread of an amazing machine and townspeople arrived unannounced at the garage. As more folks visited—some of them from across the country, thanks to an enthusiastic telephone network—Cassone decided to conduct informal tests. He wouldn't make any medical claims or promise his visitors that they could be helped, but he collected enough data to convince him that this modality might be useful for health conditions.

How do sound waves heal? We not only hear sound, we also *feel* sound. Similar to how an earthworm moves, sound moves by compressing and decompressing. If the *compression waves* are powerful enough, they can stimulate the *mechanoreceptors* on the skin—special sensory receptors or nerve endings that respond to mechanical pressure. The transducer Cassone built provides acoustic stimulation like a deep massage to every cell in the body.

Cassone applied for, and received, three patents for treating circulatory, blood-related medical, and musculoskeletal connective tissue disorders. Doctors from a local hospital, located across the parking lot from his new Las Vegas, Nevada office (he was no longer working from his garage) would wheel people just released from surgery to the office to be treated.

In 2002, "The effects of a low frequency acoustic waveform on peripheral vascular disease [PVD]: a pilot study" was published by University of Nevada researchers. The authors wrote:

Despite surgical and interventional advances, as many as 7% of all patients with PVD will go on to require amputation for critical limb ischemia [restricted blood supply to the tissues] within 5 years of symptom onset. . . . [Despite some problems with the design of the study, indicating that more experimentation needs to be done,] exposure to the acoustic waves at the designed frequency increased the blood flow velocity pre to post in all of the 10 vessels examined.⁴³

The researchers concluded that Cassone's acoustic wave modality performed much better than infrasonic treatments. A much later study, conducted in 2016, concluded that use of this modality "appears to improve ROM [range of motion] in various joints while decreasing pain in individuals diagnosed with OA [osteoarthritis] utilizing an audible low frequency acoustic waveform."⁴⁴

By 2016, Cassone's streamlined and patented Medsonix Transducer received clearance from the FDA as a Class 1 Medical Device. It falls into the category of "therapeutic massager" intended for medical purposes, such as the relief of muscle aches and pains. Wave Therapy, a Nevada company that holds exclusive worldwide distributorship rights, sells the device primarily to physicians, chiropractors, and other health care providers as well as sports teams. In addition, dedicated Wave Therapy clinics are operating. The clinics state that they serve clients suffering from:

- ◆ Cardiovascular conditions of all kinds, in which either the microcirculation or macrocirculation (or both) are impeded
- ◆ Cognitive dysfunction
- ◆ Injuries
- ◆ Fatigue and lack of energy, chronic and acute
- ◆ Pain and stiffness in any area of the body
- ◆ Headaches and migraines
- ◆ Immune dysfunction
- ◆ Mitochondrial disorders
- ◆ Nervous system problems, including lack of motor coordination, dizziness, and perceptual difficulties
- ◆ Restricted mobility
- ◆ Skeletal and disc issues, including back pain
- ◆ Wounds, including deep and slow-healing ones

Wave Therapy is simple to administer and receive. Clients sit around the completely enclosed, table-high vat of water that contains the specially designed speaker (transducer). People can nap, read, write, meditate, or simply rest. However, be aware that the machine emits a very loud, shrill tone; and even the noise-cancelling earphones that are provided (which clients can use to listen to music on portable players) may not be enough to deaden the noise. It's best to be within an 8-foot radius of the machine, but the patent states a 20-foot reach. This technology is safe for people wearing pacemakers, defibrillators, and any other type of implant (electronic or not) because it uses sound, not electrical current or magnetism, to broadcast the waves. Sessions typically last just under one hour, repeated bi-weekly or weekly.

Clients report different experiences. Most people feel the effects of the waves, while a few feel the pressure waves themselves. It's common to perceive a warm tingling sensation around the affected areas or sometimes throughout the entire body. Circulation may continue to increase and inflammation may continue to decrease after the session. However, while some people feel more energized during or immediately after the session, others experience fatigue for days afterward. According to the corporate sales office, although over three-quarters of Wave Therapy recipients report improvement after only one session, about one-quarter of fibromyalgia sufferers have increased pain for a period of time before it reportedly subsides. We don't know (yet) why this occurs.

The variety of client responses may be due to a number of factors. Mechanical energy, from the oscillations of the transducer, causes the tissues to move faster. This can increase metabolism as well as help the mitochondria (the fuel-burning units of the cells) utilize fuel more efficiently. The blood vessel dilation is probably influenced by increased nitric oxide production. We must also consider increased permeability of the cell membranes, which, according to tests conducted at two Wave Therapy clinics, is at least partially corrected in one session. (However, long-term follow-up studies have not been done so we don't know how long the correction lasts.)

In sick people, cell membranes don't function well. Electrical charges inside and outside the cells are weak, corresponding to altered and suboptimal levels of electrolytes (mineral ions). If the sodium and potassium ions are not in proper amounts and ratios inside and outside the cells, the person will not be properly hydrated. Excess water will migrate outside the cell and not enough water will be inside the cell. The waves help correct this issue, allowing nutrients to enter and wastes to exit. When the cells begin to metabolize properly, waste removal can be

overwhelming. This waste removal—which often causes a *Herxheimer reaction* (discussed later in **Detoxification Responses**)—can cause clients to feel more ill than they felt prior to a session. Many people develop flu-like symptoms, sweating and diarrhea, particularly if there's a longstanding history of infections. Therefore, people who experience extreme detox should wait until they feel better before attempting another session. When interviewed in 2013, Cassone suggested that the acoustic waves blast through deranged tissue, which would produce plenty of waste. It's also reasonable to assume that the waves could break apart biofilms.

The penetration power of the waves has enormous repercussions for people struggling with a heavy pathogen load such as Lyme and its co-infections. Some clients with Lyme disease say they feel better when nothing else has helped them. However, effects are unpredictable and uneven. Some Lyme sufferers don't experience results unless they receive double sessions lasting almost two hours, while others can tolerate only 20 minutes or less. The die-off of microbial waste and systemic toxins can be severe; so it's important that those with Lyme and other severe infections limit the number of sessions and the time allotted for each session. Lyme appears to be excessively difficult to treat with this therapy, while people with injuries such as sprains and broken bones show the most visible and impressive improvement. My own investigation suggests that Wave Therapy may be safer and far more useful for people with musculoskeletal and neurological conditions than those with severe infections, especially if the infections are systemic rather than local.

Currently, Wave Therapy is administered in the US, Canada, Mexico, and the UK. Official Wave Therapy clinics have no requirements to be staffed by medical personnel. However, a small number of health care providers have this equipment in their offices. Because the cost of a unit is close to ninety thousand dollars, the average layperson (or even health practitioner) cannot afford to purchase it. Therefore, Wave Therapy is unlikely to become a common self-help modality anytime soon (if at all). Nevertheless, it's helpful to know about it because some people obtain results when other modalities—both allopathic and complementary—fail. This equipment is still experimental, so we don't know how many sessions are required (on average) for which conditions, what type of subject responds best, and for how long the results last. More and rigorous scientific, third-party research needs to be conducted. A seriously ill person who wants to experience this modality should seek a licensed health practitioner to administer and monitor the sessions so unforeseen problems can be managed as they occur.

THERAPEUTIC PASSIVE ENERGY ITEMS

In the past few decades, a new category of health products, ranging from jewelry to personal care items, has emerged that utilizes frequencies. These products are imprinted: infused with information that is vibrational in nature. Electricity may have been involved in their imprinting, but unlike electromedical devices, these items don't rely on electricity or any other outside source of power to transmit the energy—they utilize the electricity already produced by the human body. These products are considered *passive energy* items. The energetic message with which they're imbued is passively transmitted, simply because the object is touching the body or near the body, which puts it in the range of the human aura or biofield. The *biofield* is commonly understood as the field of energy (not necessarily solely comprised of electromagnetic radiation) that suffuses and surrounds a living organism.

Imprinting is not an exotic or new concept. Since homeopathy was developed in the 1790s by German medical doctor Samuel Hahnemann, we have understood that virtually any liquid or solid—such as water, metal, and gemstones such as quartz—can be imprinted, or imbued with information in the form of an electromagnetic or longitudinal wave signature. Masaru Emoto, author of *The Message from Water*, showed how emotionally positive words such as “thanks” and “love,” typed on pieces of paper and placed under plain vials of water, structured the water differently than did emotionally negative words such as “angry” and “hate.” After all water samples were frozen, both the treated and untreated crystals were examined under a microscope. Positive words structured the water into lovely, six-sided crystalline shapes, while negative words yielded ugly, visually chaotic forms.

We currently use this technology every day without even thinking about it, with our computers, tablets, cell phones, automobiles, or any other gadget that depends on silica chips for processing. Therefore, it's reasonable that imprinting should be used in other, unique ways.

Tuning Element

Tuning Element is a United States technology company that manufactures three types of unique products: pain relief patches, jewelry (bracelets, necklaces, anklets), and water containers. These products are utilized somewhat differently, although their functions can overlap. The imprinted Tuning Element products provide three main functions.

- ◆ *Healthy cell and tissue support.* The supportive frequencies provide the correct information of how healthy tissues in the body are supposed to resonate, and are based on the resonances known to be emitted by healthy tissue. The company analogizes the healing to a set of tuning forks that are of the same frequency, only one is vibrating and one is still. When the vibrating tuning fork is placed next to the one that is still, the movement of the first *entrains* the second, or causes the formerly still tuning fork to resonate or hum in harmony with the original. Because the body naturally strives to resonate at the proper frequency, the Tuning Element products imbued with the restorative frequencies act an external reference point for the body. Thus, this passive technology helps optimize body and brain function, restores missing or reduced cell communication, and accelerates the body's natural ability to heal itself more efficiently.
- ◆ *Schumann Resonances.* These emissions are named after University of Munich professor Schumann who, in the 1950s, calculated the beneficial magnetic frequencies emitted by the Earth. Both humans and animals evolved in synchronous rhythm with the Earth's beneficial frequencies (a kind of natural “heartbeat”), but modern electrosmog has nullified these frequencies. The restorative Schumann Resonances (along with the frequencies for normal body tissue) remind the body to rebalance. All seven peaks of the Schumann Resonances are used. (Also see information on the VitaSet Generator under **EMF Protection**, following.)
- ◆ *Anti-pathogen frequencies.* These operate similarly to those emitted by an electronic frequency generator (see the **Plasma: Rife Therapy** section), except that these portable, passive energy products don't require electricity or batteries.

Despite the above functions, company founder Sean Martinez states that these categories are limiting—that although they “use organ support frequencies and few anti-pathogen frequencies, this is not our main focus on this technology. . . . We use ‘Pro-Life’ proprietary energetic blends that support and advance life. Another key is how the blends work together with in the body, mind, and biofield.”⁴⁵

Three of the company's best-selling product lines are described below. Understandably, no medical claims can be made for their products.

Patches

A different approach to pain than pharmaceuticals or even herbal analgesics, Tuning Element has created silicon-based, titanium salt-infused, 1.25" square patches. Applied to painful areas of the body with a little water, a thin layer of material adheres to the body like a temporary tattoo. However, there's no glue to cause discomfort and they can't be felt by the wearer. The patches last a few days to even a week, depending where on the body they're applied and how often they encounter friction. They don't fall off and can be worn in bath or swimming water. The patches don't contain lotions, creams, or any nano particles; they work strictly by sending vibrational information to the body. These patches contain frequencies for pain. Some of the frequencies (noted in Chapter 5) are 880 Hz (for pathogens), 220 Hz for body function support, and the fundamental Schumann Resonance, 7.83. (See **EMF Protection**, next section, for more information on the Schumann Resonances.)

In a 2017 study published by *IEEE Transactions on NanoBioscience*, the authors wrote:

Pain is a very complex biochemical and electrical process involving sensory part, nerve transmission, and brain perception of pain. We concentrated our research on nerve transmission, which is electrical signal along the nerve (axon). This electrical signal is created by a complex activity of opening and closing of pain related ion channels and redistribution of electrically charged ions on the nerve cell membrane. . . . The TERP patches . . . can resonantly absorb and damp[en] electromagnetic radiation from ion channel activation. This implies that such resonance can interfere with activity of pain related sodium ion channels, influence their opening and closing function and consequently influence pain transmission along the nerve (axon). . . .

A number of anecdotal reports have shown that [the patches] diffuse pain, including chronic, inflammatory and neuropathic . . . [and that they] offer a safe and cost-effective pain management.⁴⁶

The company emphasizes that anyone wearing their pain relief patches should drink the recommended amount of water daily to achieve the best possible results, as proper hydration is key to cell function. Water helps to flush out the wastes that naturally result from normal cell metabolism. Satisfied customers report a greater sense of comfort and relief from pain and illness, reduced swelling,

more energy, better sleep, more focus and better moods, greater range of motion, and more muscular strength. These benefits have enormous implications for people suffering from arthritis, nerve-related disorders (even ADHD), digestive problems, hormone imbalances and skin problems. One surgeon, Dr. Srbislov Brasovan of Chicago, Illinois, reports that clients who use the patches after surgery heal so much faster that they are on their feet in two weeks instead of two months.

Jewelry

Tuning Element's aesthetically pleasing jewelry line consists of bracelets, necklaces, anklets, and animal tags made of stainless steel, sterling silver, and gold. The jewelry is categorized according to five levels. Level One, Two and Three products are made of surgical stainless steel. Level One contains frequencies, devoted to tissue normalization and the Schumann Resonances, which stabilize the body's electrical system. Level Two contains the frequencies of Level One, with additional frequencies designed to support natural function and recovery processes. Level Three contains frequencies of Levels One and Two, with additional frequencies to fight pathogens and support cognitive function. People concerned about their health or who are facing health challenges often opt for the Level Three products. Level Four products, made of highly conductive sterling silver, contain the frequencies of the prior three levels, plus supportive frequencies for some (unspecified) energetic systems of the body. The one Level Five product, an 18-karat gold necklace, contains all of the frequencies of the prior four levels, plus supportive frequencies additional energetic systems. People seeking to support their whole body or who have serious health concerns may opt for Level Five.

The company also provides frequency-imbued tags for small and large animals. The technology is designed to last for the lifetime of the products. No maintenance is required; the person (or animal) simply wears the item.

As with the pain relief patches, people who wear the jewelry need to drink more water. Tuning Element has created a high-tech water bottle for this purpose (next).

Aqua Tune Water Bottle

The company makes bottles—glass with a silicone sleeve, and stainless steel—that contain frequencies for maintaining cell function of various systems (one bottle contains more frequencies than the other). Both styles structure water after one minute. Found *inside* all living cells, *structured* water is bioavailable, which somehow

makes it “wetter.” Water that’s not structured cannot enter the cell and remains in the space *between* the cells, causing unnatural edema in the body. Unstructured water must be energetically processed before it’s bioavailable. While structuring water does not create different elements, it does alter how the water behaves. Structuring water involves changing (sometimes very slightly) the angle of the hydrogen and oxygen atoms that comprise the water molecule. Aqua Tune water is also more oxygenated, even more so when the container is shaken.

The Aqua-Tune water further accelerates cleansing so that waste materials can more easily leave the cell and nutrients can enter. This naturally positively affects brain function and concentration. It also helps restore cell communication, assists with digestive, kidney and liver health, and accelerates the body’s overall natural ability to heal itself more efficiently. Increased consumption of any water helps eliminate the possible headaches, nausea and flu-like symptoms that are a normal result of detoxification. As with any detoxification protocol, more fluid in the blood reduces the poison-to-liquid ratio.

EMF PROTECTION

The earlier section, **Harmful Effects of EM Radiation and EM Fields** (also discussed in Chapter 1), addressed the hazards of living near major power lines, cell phone towers and electrical generators, as well as the effects of using everyday electrical appliances such as hair dryers and blenders. Part of the reason there are so many seemingly disparate and severe health problems is the lack of mineral absorption when people are exposed to harmful EM radiation. Four minerals that are critical for proper cell function, and which the body cannot absorb well when it’s saturated with electrosmog, are copper, magnesium, phosphorus, and zinc.

In our WiFi-saturated world, it’s almost impossible to avoid harmful EM fields (also called *electrosmog*). However, there are some effective technologies we can use to help protect ourselves from these harmful emissions. Some of these products are passive and don’t require an electrical outlet or batteries in order to be activated; they’re simply worn on the body or placed on the electrical appliance that we want to shield. Other products are electronic in nature. I’ll discuss the passive energy items first.

Tuning Element (Non-Electronic)

See “Jewelry” from Tuning Element under **Therapeutic Passive Energy Items** in previous section.

Eradicator Technologies (Non-Electronic)

The Canada-based company Eradicator Technologies (www.eradicatortechnologies.com) specializes in products that offer protection from dangerous electromagnetic fields. One of the products is a small chip that’s applied to various appliances, such as cell phones, computers, WiFi routers and various wireless devices, smart meters, stereo equipment, GPS systems, iPods and iPads, alarm clocks, hair dryers, television sets, etc. The company points out that these protective chips don’t affect the quality of any transmissions, but harmonize the electric and magnetic fields to eliminate low frequencies of radiation through the use of a zinc and copper formula.

What if you’re outside your protected house? Eradicator Technologies offers a variety of necklaces in its “Shield” line. According to the company founder, Alain Basic, each Shield is bombarded with high-energy photons that cancel out harmful frequencies. The Shield is also said to remove radiation that’s already stored in the body. All of the jewelry is imprinted with a symmetrical design, but Basic emphasizes that the design itself possesses no intrinsic power—that it’s simply the company’s logo, and it’s the high-energy photons that give the metal its protective properties.

The Eradicator Technologies website displays two video clips of live blood samples viewed through a dark field microscope. In the first sample, the subject is holding a cell phone. We can see the effects of the phone radiation on her red blood cells, which are clumped together, devoid of oxygen and vital electrical charge. (Normally, the red blood cells remain separate because their electrical charge is sufficient). In the second sample, after the subject has held the Shield for just five minutes, the red blood cells are normal, separate and charged.

Besides live blood cell analysis, Alain Basic advises, other methods can be used to assess the efficacy of his EMF protection products. These include Vega testing, electrodermal screening, biofeedback, and kinesiology (muscle testing).

People report subjectively feeling better when they use these products. Their lab tests, doctor visits, and quality of life confirm these reports.

VitaSet Generator (VSG) from Pulsed Technologies (Electronic)

Jimmie Holman, a former government scientist with a top-secret clearance, wasn't planning to become involved in EMF protection. He originally started his company, Pulsed Technologies, to build frequency equipment ("rife" machines). However, when mandatory smart meters were installed in his neighborhood and he started feeling unwell, he created the VitaSet Generator (VSG) to help his body resist the negative impact of electrosmog.

The slim, 7.5" × 9.5" × 1.5" microprocessor-controlled VSG emits *Schumann Resonances* to help those affected by high electrosmog environments. The beneficial resonances of Earth's magnetic field are named after Professor Winfried Otto Schumann of the Technical University of Munich, who calculated them in the 1950s. Approximately fifty lightning flashes bombard the Earth every second, creating an electromagnetic wave of charged particles between the Earth's surface and about 60 miles up.

For hundreds of thousands of years, humans and animals evolved to this "repeating heartbeat" of energy flashes. Our brainwave frequencies are integrally tied to the rhythms of Earth. In fact, the Schumann Resonances are essential for proper DNA signaling and numerous biological functions. The lowest, most intense of these resonant frequencies occurs at approximately 7.83 Hz; but there are higher beneficial peaks too, spaced at approximately 6.5 Hz intervals: 14.3 Hz, 20.8 Hz, 27.3 Hz, and 33.8 Hz. These frequency peaks, although affected somewhat by various atmospheric and solar phenomena, remain relatively stable.

Before 1900, the primary electromagnetic (EM) field in the environment was a magnetic field, from the Earth itself. Today, however, competing, concentrated, abnormal electrical stimulation—from high voltage power lines to WiFi—interfere with the body's ability to tap into, and be nourished by, these natural Earth frequencies. In fact, our ability to detect and utilize these resonances is heavily impaired, due to the invasion of millions of harmful EM fields all around us.

The VSG is designed to remain on constantly (unless it's switched off) in the house, office or automobile in which it's placed. The machine has two modes, day and night. When in the day mode, the VSG delivers the five primary natural Schumann Resonances. When in the night mode, the machine cycles through select subharmonics of Schumann Resonances corresponding to appropriate regenerative brainwave states to help induce sleep (via brainwave entrainment). The VSG can be set to automatically switch between modes each day. Or, it can be manually overridden when desired. It operates on universal AC or batteries for travel.

MISCELLANEOUS: PHOTONIC TRANSMISSION

In today's world of rigid regulations governing the approval of a device for medical use—not to mention the prohibitive cost of securing the approval—creative thinking is required to build therapeutic equipment. The Hydration App and the L.I.F.E. App were born when an ordinary piece of technology was adapted to deliver extraordinary benefits for which that technology was not originally designed. Neither of these technologies falls into any of the categories so far discussed in this essay.

These two apps are the Hydration App and L.I.F.E. App from Cell Wellbeing—and they transmit frequencies through an ordinary cell phone, using the phone's flashlight feature! Simply download the app onto your phone and shine the flashlight for a couple of minutes into a container of water or other liquid (depending on which app you're using). The results are profound, and belie the simplicity and convenience of how the frequencies are delivered. The apps, says the company's website, transmit frequencies that improve the health of the user "due to structural rearrangement of the quantum energy field."⁴⁷

The Hydration App creates structured water, also known as *exclusion zone* or *EZ* water (see **Water** in Chapter 3). The water molecules become symmetrical in structure, which means that not only is the water "wetter" (thus entering and leaving the cells more easily), but it has much better oxygenation properties. While the body is becoming more hydrated, water, coffee, tea, juice, and other liquids have a sweeter taste. Even lemon juice feels smoother and is easier to drink. Customers put the water into a spray bottle and periodically mist themselves to gain more energy. The mist can also be used for plants and cut flowers. Even face creams and tinctures work better when prepared with Hydration App water. There is no limit to this water's uses.

The L.I.F.E. App frequencies, similarly infused into water, are used specifically for sensitivity to electrosmog (EMF). Such water is misted onto the body using a spray bottle. The user should immediately feel more refreshed and alert, as one might feel next to a beneficial negative-ion waterfall. Because ultraviolet light ultimately degrades the frequencies in the water, a dark blue spray bottle is suggested, which will keep the water viable for about two days. As a bonus, after using this app twice a day for one week, your cell phone itself will become impregnated with the frequencies that harmonize the EMF.

The app developers worked hard to make sophisticated healing technology—with profound benefits—available to everyone for less than the cost of one fancy cup of coffee per month. Now, everyone can feel better.

DETOXIFICATION RESPONSES

A *Herxheimer reaction*, named after the doctor who catalogued it, is a detoxification response that occurs as a result of waste materials being released into the system. Any therapy that encourages normal cell metabolism will release toxins: as nutrients enter the cell, wastes leave. Wastes that have exited the tissues can cause symptoms until the body excretes them. Some people who use electromedical and other holistic therapies mistakenly believe that if they feel bad, it's because the therapy is flawed. However, the therapy is merely doing its job.

For people undergoing a detox response, one can assume that pathogen wastes and other toxins are being released into the bloodstream. The first thing to do is drink more water. Along with the water, it's helpful to take at least 1 heaping teaspoon of activated charcoal to help bind the toxins in the gut and prevent them from being redistributed by the bile. (The equivalent amount of activated charcoal can be taken in capsules—at least 6 is a good start—although the charcoal will do its work in the gut much more quickly if there's no wait for the stomach acids to first dissolve the capsules.) At least 1 gram of Vitamin C is ideal for antioxidant and cell membrane protection; make sure it's buffered to avoid an upset stomach. Protease (an enzyme) is also useful to scavenge protein wastes; 2–3 capsules should suffice.

Sauna therapy, especially in conjunction with niacin (see pages 484, 696, and 911), will help the body excrete heavy metals and other contaminants that may have been dislodged. This may be one of the most important methods of cleansing that you can utilize. People may also choose to take herbal antimicrobials (berberine, grapefruit seed extract, haritaki, moringa, oregano and wormwood, among other substances); extra zinc for immune support; organ support glandulars; and calcium bentonite clay water to help alleviate symptoms and mop up the extra waste that has been released into the system.

One more thing. It's possible that a person might be responding negatively to the emissions from a piece of equipment, rather than experiencing Herx reactions. This may be especially true if the equipment is emitting too high a level of electrical current; if its magnetic field is too intense; or if radio frequencies (RF) are involved in conveying a signal. A Herx reaction, while it can feel strong, should not go on indefinitely. You should see some positive changes after a reasonable period. If you suspect that you might be responding negatively to a modality itself rather than to any debris that's being elicited, consult an experienced health practitioner at once.

MANY APPROACHES, SYNERGISTIC EFFECTS, ALL BIOCOMPATIBLE, ONE GOAL

The body is comprised of EM radiation. It emits EM waves and responds to EM waves. Biological functions correspond to both electromagnetic phenomena and other energies that aren't in the EM spectrum.

Electromedicine covers a vast territory of different energies. The therapies reviewed here—EM radiation, electrical current, oscillating and pulsed magnetic fields, visible monochromatic red light, and FIR (perceived as heat)—are only a few examples. Another example is sound. Although conventional physics does not regard sound as part of the EM spectrum per se, audible sound and compression waves can also be utilized for healing, especially as each tone has a frequency, and every frequency in the EM spectrum would have a corresponding sound if we could hear it.

As we have seen from the small sampling of electromedical approaches and specific equipment, although there's an overlap in their effects, many of them operate differently from each other because they utilize different wavelengths and frequencies on the EM spectrum. Also, some are gentle, while others impact the body more strongly. Some work locally (depending on where they're applied), while others offer a full-body treatment. Some devices can produce Herxheimer reactions more easily than others if they're overused.

One major difference between some of the equipment appears to be their focus: normalization of cell function vs. active devitalization of pathogens. For example, Frequency Specific Microcurrent (FSM) and the basic Avazzia™ instruments deal with cell function. Rife Therapy is targeted to devitalize particular pathogens, although some frequencies are specific to the revitalization of cells only, without directly affecting the pathogens. The Magnetex® clearly causes the release of debris, although it's still unknown whether this debris consists of pathogens, their biofilms, heavy metals, other wastes, or all three. The proper nanometer wavelength of an LED or laser will destroy pathogens as well as normalize tissue. The BEMER® does help with infections, to such an extent that diabetics with gangrenous tissue have avoided surgical amputation due to complete healing of the tissues. However, this tissue restoration is caused by increased microcirculation and not pathogen destruction per se.

One way in which Wave Therapy appears to work is by improving circulation and thus restoring tissue. It may help with the devitalization of pathogens by blasting through biofilms (even though its patent does not state this and these functions are part of its FDA clearance). Because of

these dual functions, great care should be exercised when using this modality. It's reasonable to assume that people suffering from injuries but whose health is otherwise fairly robust, can tolerate more time with the equipment than can those with serious infectious diseases. The likelihood of a Herxheimer reaction means that great care should be taken to ensure that detoxification channels (colon, kidneys, lymph and liver) are functioning well before one begins treatment. Such Wave Therapy subjects should also consider taking the appropriate supplements (discussed in the previous section, **Detoxification Responses**) to help the body mobilize and excrete the toxins that will inevitably be released as a result of the sessions. In fact, these substances are useful to take with any and all therapies that dislodge and discharge toxins from the tissues.

The complementary functions of these modalities gives us good reason to use more than one at the same time. For example, people with Lyme may benefit the most with Wave Therapy and/or the Magnetex® (to move toxic materials out of the cells), followed by Rife plasma sessions (to kill any pathogens that have now become accessible in the bloodstream). The Avazzia™ instruments can target specific injuries (such as a broken rib), and work nicely with LEDs. For pain, the patches from Tuning Element are the simplest to use. For infections, Plasma or PEMF Rife Therapy seems most appropriate, followed by a FIR sauna (which works well for most health issues), and so forth. Of course, EMF protection assists all other modalities, as it does not prevent beneficial frequencies from entering the body. For those who have trouble knowing what to address first, receiving an analysis from a VoiceBio™© practitioner seems prudent (and if desired, the appropriate tones can be used for healing after the analysis has been conducted). The combinations are vast. An experienced and skilled health care provider, or a layperson in touch with his or her body and needs, can use just two modalities to help with a huge variety of issues.

All therapeutic equipment is complemented with EMF protection, such as the jewelry from Eradicator Technologies and Tuning Element, or the VitaSet Generator from Pulsed Technologies. In fact, even those who don't need any remedial machines would be wise to use some form of EMF protection at all times.

It's important to emphasize here that even if results with different modalities are similar or apparently identical, not everyone responds equally to different delivery systems. Also, some people require one delivery system one day and a different one the next. This is why it's valid and proper to have so many different types of electromedical equipment to utilize.

Subtle energies can be extremely potent and have the potential to be utilized for healing. With the EM spectrum, when you target a living cell with the precise frequency it needs, it will respond favorably. The health restoration effects of correctly applied energetics are profound. As countless beneficiaries of electromedical therapies have proven, the correct energies, properly used, play an integral role in any wellness protocol. Electromedicine is truly the healing of the future. Whether you are a health care professional or a seeker of health, these therapies are indispensable for anyone who wants to enjoy a more vibrant and fulfilling life.



ENDNOTES

Appendix C

HEALING WITH ELECTROMEDICINE
AND SOUND THERAPIES

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