

Healing with Electromedicine and Sound Therapies

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HEALING WITH ELECTROMEDICINE AND SOUND THERAPIES

*To appreciate how
electromedical devices
work, it is important
to learn what the
electromagnetic
spectrum is and how
it manifests in the
energetics of living
systems.*

Part 1 of 3

by Nenah Sylver, PhD © 2009

The Center for Frequency
Post Office Box 74324
Phoenix, AZ 85087-4324, USA
Email: nenah@nenahsylver.com
Website:
<http://www.nenahsylver.com>

Frequency as a Healing Tool

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. 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 changes in organs, glands and other tissues are created either through biochemical manipulation (for example, with drugs) or physical manipulation (such as surgery). With electromedicine therapies, healing is achieved by working with the electromagnetic radiation (emissions) and related energy fields that form, and are emitted by, physical matter. Broadly speaking, 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. Magnets embedded in the insoles of shoes, also for pain management, are now regular items in consumer catalogues. But electricity and magnetism are primarily used diagnostically in hospitals—such as with the standard electrocardiogram (ECG or EKG) to assess the health of the heart, and with magnetic resonance imaging (MRI) to show the inside of the body. Most medical professionals (and the lay public) are not inclined to take advantage of less popular electromedical devices because they do not understand how they work. And those who do use the equipment might talk about "frequencies" or "energy" without having a full grasp of what these actually are or 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. The general public is beginning to recognise and request electromedicine as an effective and valid treatment modality. In this discourse, I will explain what "frequency" and other terms mean as they are

applied to the electromagnetic spectrum. Electromagnetic energy in living systems will be reviewed. I will explore several types of electromedical modalities.

Electromedicine's Successful Track Record

Healing with electromedicine is not new. From electricity (lightning) and static electricity (friction) to magnetism (lodestone), from the Sun (for its far-infrared and ultraviolet radiation) to visible light (for its different-coloured wavelengths), humans have used electromedicine for healing since ancient times. The therapies were first based on natural phenomena, but about the early 1800s electrical current began to be harnessed—first for providing light and then for meeting more sophisticated needs, such as telegraphing messages over long distances and running machines in factories. By the 1900s, electrical power was common in the home as well as the workplace.

Given the healing properties of many forms of energy, it did not take long before numerous electronic devices invented for medical treatments were considered mainstream. In *Electrotherapy and Light Therapy with Essentials of Hydrotherapy and Mechanotherapy* (1949), Richard Kovács describes an impressive array of electronic equipment, most of which had already been in use for half a century. This equipment utilised alternating current, direct current, low frequencies, high frequencies, static electricity, diathermy, infrared rays, ultraviolet rays and ultrasonics. Modern electromedicine practitioners will recognise some of these devices as forerunners of those used today—if not machines still being used, since some devices have not changed much in 100 years. This equipment included Georges Lakhovsky's Multiple Wave Oscillator, Violet Ray technology (which utilised Nikola Tesla's coil), Edgar Cayce's Wet Cell, and Dr John Harvey Kellogg's Electric Light Cabinet. The conditions treated were virtually unlimited: muscular aches and pains, skin conditions, gynaecological problems, some heart conditions, respiratory ailments, gastrointestinal disorders, acute and chronic infections, and degenerative diseases.

Given the wide applications of such equipment over half a century ago, what seems remarkable is not so much the abundance and range of devices but, rather, the resistance to electromedicine today. Of course, the invalidation of electromedical 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 scepticism from practitioners and laypeople alike. But electromagnetic fields are successfully used for diagnostic purposes, with the understanding that living organisms are energy-based. If all sorts of electrical, thermal and magnetic devices (as well as the acoustic-based ultrasound) are used for testing, why can't they just as easily 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 publicised, drug companies would lose billions of dollars each year. There is little effort by mainstream media to educate consumers, since they depend on considerable revenues from the advertising of drugs.

Unlike drugs, each of which can be used only one time by one person and for just one or two conditions, the

Modern electromedicine practitioners will recognise some of these devices as forerunners of those used today...

many electromedicine 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 professionals;
- can be utilised over the course of a lifetime (since they address many conditions);
- can be used with more than one person;
- are relatively inexpensive, considering their range and scope.

How and why do electromedical devices work? Whether one is 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 a discussion of the electromagnetic (EM) spectrum and its related component, sound.

The Electromagnetic Spectrum and Sound

• EM Spectrum Defined by Its Particles and Their Effects

The electromagnetic spectrum (or EM spectrum, sometimes also called EM waves) is the term used for many different energy oscillations that comprise our known universe. As shown on the chart of the EM spectrum (figure 1 [not reproduced here]), these different oscillations with different characteristics range from the slower-moving, lower-energy electrons of electrical current to the faster-moving, higher-energy photons of visible light and other waves.

It's common to think of the various EM energy bands as unrelated phenomena that are separate from each

other, since we perceive them differently with our senses (when we can perceive them at all). We see visible light as colour, we feel far-infrared radiation as heat, and so on. But all these energies are sequentially connected to each other as a *continuum of waves* in the EM spectrum. The nature of the particles depends on how fast they are moving and the qualities that they exhibit.

Humans perceive most of the EM frequencies *indirectly* through their *effects*, rather than directly perceiving the frequencies themselves. We label and differentiate EM waves from each other according to how they manifest physically. By harnessing the waves with various electrical devices and some passive (non-electrical) materials, we can produce tangible physical phenomena. For instance, we access frequencies on the radio spectrum with an antenna, which transmits and receives radio broadcasts. An X-ray machine utilises certain radiation on the X-ray band, which allows us to see inside the body, and so on.

The existence of an EM field includes both electric and magnetic fields. An EM field has certain properties, electrical fields have other properties, and magnetic fields possess yet others. Electrical and magnetic fields can be separated from EM fields as their own distinct energies. They can also exist in EM fields in varying proportions.


• 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 designation CPS has now been replaced with *hertz*, or Hz.)

Waves also have different *sizes* or *lengths*, with various terms such as micron, angstrom, nanometre and metre used to measure the length. (The waves shown in this section are *sine* waves. Different-shaped waves will be discussed later.)

The peak of the wave is the highest point on top. The

Key EM Wave Definitions



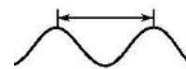
Wave is a movement of energy along a directional axis.

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*). This is described with different terms of measurement, depending on the size of the wave.

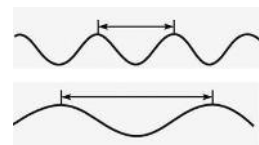
Amplitude is the point of *maximum intensity* of the signal (usually regarded as the highest point on the wave). It is comparable to turning up the volume on a radio.

trough of the wave is the lowest point on bottom. The length of a wave is often measured from peak to peak (see arrow in diagram below). Technically, however, any portion of the wave can be used as a reference point, as long as the measurement addresses one complete cycle (peak to peak, trough to trough, etc.).



As the number of waves within a given space—in other words, their *frequency*—increases in number per second, the size of the waves becomes *smaller*. And as the number of waves *decreases* in number per second, the size of the waves 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 analogises, "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 the example below, 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 wave forms in this example are simple *sine* waves.



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

• Electric Fields and Magnetic 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.

Static electricity and magnetism are both static fields that 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. Most importantly, when *movement* is introduced to either a static electrical field or a magnetic field, they become *electromagnetic* fields.

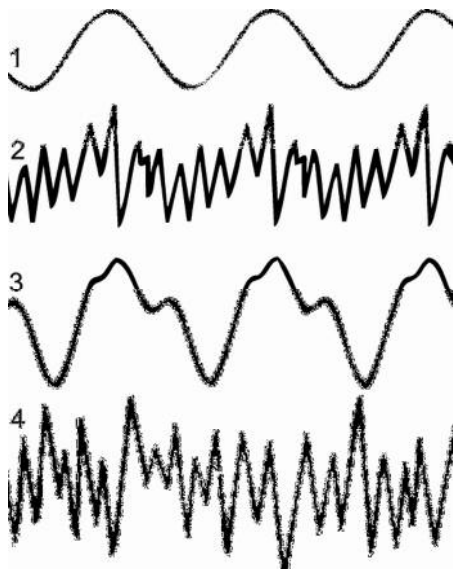
This will be important to remember when we later examine a number of different electromedical devices.

• **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, spoken words, music, the barking of a dog, and so on. The waves of sound could be created by a pen dropping on a

The waveforms of **music** on an oscilloscope show organisation, with obvious patterns. The waveforms of **noise** on an oscilloscope show disorganisation, with no discernible patterns.



Music – Symmetry

1. **Tuning Fork.** Very pure sound; prongs vibrate regularly.
2. **Violin.** Bright sound, angular waveform. Same pitch as tuning fork: peaks of waves are the same distance apart and pass at the same rate as those produced by the tuning fork.
3. **Flute.** Same note played as the 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 with no discernible pitch. No regular pattern of peaks and troughs.

Photo courtesy of, and text adapted from, *Dorling Kindersley Encyclopaedia UK*.

Figure 2: Comparing Music and Noise Waveforms on an Oscilloscope

desk, by someone’s vocal cords being moved in speech, or by 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 hertz, is *slower moving* and produces a *lower tone*. A *higher frequency*, or an oscillation rate of more hertz, is *faster moving* and produces a *higher tone*.

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 *disorganised* waveforms. This disorganisation manifests acoustically as indistinct, muddy pitches. Music, on the other hand, is comprised of *organised* waveforms. This organisation 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 (figure 2). Noise, or random sound, on the oscilloscope appears as *irregular* waveforms, while music, or pure tone, appears 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. In figure 2, in the examples of music, all the instruments are playing the same note.

• **Different Shapes of Waves**

As illustrated in the diagram of notes played by various instruments, waveforms have different *shapes*. Figure 3 shows some common ones in their simplest form.

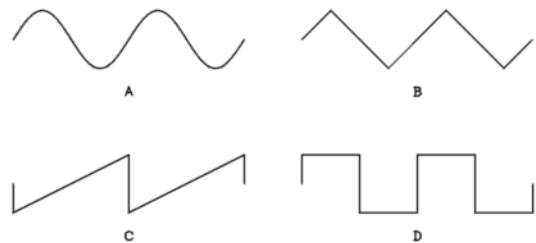


Figure 3: Waveforms (A) Sine; (B) Triangle; (C) Sawtooth; (D) Square

The more complex an object, the more frequencies it contains and also the more complex waveforms it will have. 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 the playing of an entire orchestra (which represents a complex organism like a human being).

• **Symmetry and Asymmetry: The Language of Mathematics 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 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. Thus, 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.

As with 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 Fields

There are many ways to induce an EM field. One way is with magnetism. Although magnetism *per se* exists in a static state, inducing movement in a magnetic field creates a corresponding movement in the electric field that naturally exists at right angles to it. The result is *electromagnetic radiation*. When this type of EM radiation is created from movement, it is commonly referred to as *pulsed*. Pulsing a wave means that the signal is "on" for a brief period, then off, then on, then off, etc. Pulsing is independent of the frequency, which is equivalent to a note in music. The pulsing is like the rhythm.

Carrying the analogy further, a wave taking up its full cycle of "space" is a whole note. A wave taking up only half of that cycle is a half note. A wave taking up only one quarter of that cycle is a quarter note, a wave taking up only one eighth of that cycle is an eighth note, and so on. Speaking musically, the "on, off, on, off" aspect of the wave could also be regarded as "note, rest, note, rest".

Many of the pulsed magnetic fields that are used in electromedical devices have a "rhythm" comparable to only an eighth note, because the wave is "on" for only a brief period.

But that brief period is long enough to induce movement in the body. The movement of the EM

radiation in the body translates into ion transport, increase in blood and lymph flow, and more. Any frequency can be pulsed.

In figure 4, the bottom line shows a "lag time" or interval when the wave is at rest before it resumes its upward-moving cycle.

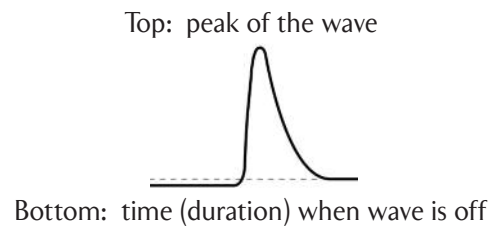


Figure 4: Wave Lag Time

Figure 5 shows two waves in succession. Here, the "lag time" or rest interval between the waves is easily seen. Note that there is no trough to the wave because it has been truncated.

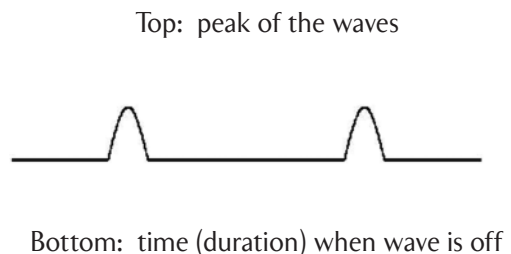


Figure 5: Two Waves

Pulsed electromagnetic radiation induces therapeutic results, which is why it is used. Some electromedical devices using pulsed EM fields will be discussed later.

The Electromagnetic Body

• Energy in Living Systems

Electromagnetic waves can be used for diagnostic purposes because living organisms are energy-based. Historically, most cultures have erroneously regarded the body solely as a mechanical and biochemical organism. But every cell in the body is a transmitter and receiver of electromagnetic information. The following are examples of how human beings, animals and plants contain 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 tissues 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 organised formations ("schools") due to the magnetic fields generated by the magnetite in their bodies.

• The whiskers of dogs, cats and other animals are now recognised 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 like antennas for electrical signals.

• Melatonin, a hormone that (among other functions) helps induce sleep, is produced by the pineal gland only in darkness. We now know that the pineal gland, deep inside the brain in the skull, is exquisitely sensitive to light.

• Stingrays find food because they can detect normal, minute amounts of electrical discharge or magnetic fields emanating from their prey.

• Fish, dolphins and whales use both the Earth's magnetic fields and sonar (sound) for navigation and communication.

• The behaviour of some animals has long been used to forecast earthquakes. 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 [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.²

In his article "The Electrical Properties of Cancer Cells"³, 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. Both electrical and magnetic fields applied to the body create biological changes. We now know that in humans, the sinuses, some other bones in the face and various tissues in the body contain magnetite.

Not only is every cell in the body a transmitter and receiver of electromagnetic information, it is these various *electromagnetic frequencies that precede and correspond to biochemical functions*. For example, healthy cells oscillate at higher frequencies than do unhealthy cells such as cancer cells. The lower frequency of cancer is reflected by (and causes) 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.

Continued next edition...

About the Author:

Nenah Sylver, PhD, is an internationally published author in the fields of holistic health, electromedicine and psychology. She gives educational seminars on electromedicine and frequency healing, and has been a featured speaker at Rife conferences.

Dr Sylver previously contributed to NEXUS with her article "Poisonous Products, Deceptive Labels" (7/02-03). She is the author of *The Holistic Handbook of Sauna Therapy* (The Center for Frequency, 2004, ISBN 978-0-9672491-7-1, 356pp, softcover book and e-book) and *The*

Rife Handbook of Frequency Therapy, with a Holistic Health Primer (Desert Gate Productions LLC, 2009, ISBN 978-0-9818075-0-8, 760pp, hardcover book and e-book; reviewed in NEXUS 17/03; previous edition reviewed in 9/05). Both books can be ordered from Bibliotique/Barner Books, 3 Church Street, New Paltz, New York 12561, USA, telephone +1 (845) 255 2635, web pages <http://www.bibliotique.us/si/sauna.html> and <http://www.bibliotique.us/si/rife2009.html>.

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A variation of this article originally appeared in *Townsend Letter*, February–March 2008 and April–May 2008 (www.townsendletter.com). This latest version is Appendix C of *The Rife Handbook of Frequency Therapy, with a Holistic Health Primer*. The appendix (which includes figure 1, "The Electromagnetic Spectrum") is available as a free download from www.nenahsylver.com.

Dr Nenah Sylver can be contacted at The Center for Frequency, PO Box 74324, Phoenix, Arizona 85087-4324, USA, telephone +1 (623) 249 4202, email nenah@nenahsylver.com, website <http://www.nenahsylver.com>.

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HEALING WITH ELECTROMEDICINE AND SOUND THERAPIES

*Correctly employed,
frequency therapies
can increase cell
energy, normalise
membrane
conductivity, lessen
oxidative stress, boost
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well as disease
resistance.*

Part 2 of 3

by Nenah Sylver, PhD © 2009

The Center for Frequency
Post Office Box 74324
Phoenix, AZ 85087-4324, USA

Email: nenah@nenahsylver.com
Website:
<http://www.nenahsylver.com>

• 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 input—whether it be 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 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, microbes can proliferate and degenerative disease can occur.

To Dr 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.⁴

Another reason why 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.

In *Electromagnetic Man: Health & Hazard in the Electrical Environment*, Cyril Smith and Simon Best write:

It is just over 100 years since electricity generation started; 60 years since radio transmissions and 40 years since radar and telecommunications entered our environment. [The book was published in 1990.] Like natural fields, man-made fields are limited by the physical properties of the environment. Unlike natural fields, they are highly coherent and can interfere with our bio-signals.⁵

The harmful effects of some EM fields are many and varied. Jacqueline Krohn, MD, and colleagues point out numerous studies showing that:

...electric workers and their children 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's [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 ELF's suppress the production of melatonin, a cancer inhibitor, by the pineal gland.⁶

The effects of ELF fields are more than mere "postulation", as other researchers have corroborated.

Smith and Best 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 and genetic abnormalities;
- cancers of various types, including brain tumours and leukaemia;
- emotion and mood changes, including higher percentages of suicides;
- eyestrain and headaches;
- fatigue and sleep disturbance;
- heart attacks;
- hormonal abnormalities;
- infectious diseases increase;
- lowered fertility, miscarriages and pregnancy problems, including stillbirths;
- nervous system disorders, including confusion, convulsions, dizziness, hyperactivity and memory loss;
- stress increase and intolerance.⁷

Cells have the ability to respond positively and healthfully to minute electromagnetic stimulus, as long as certain criteria are met.

The harm from EM fields and EM radiation also depends on the proximity of the person, animal or plant to the source of the energy. A milligauss is a unit of measurement of the strength of an electromagnetic field. According to tables from the US Environmental Protection Agency, reprinted in Levitt's book (pp. 254, 257), a blender from six inches [~15.2 centimetres] away emits between 30 and 100 milligauss; an electric can-opener six inches away emits between 500 and 1500 milligauss; a hairdryer six inches away emits between 1.0 and 700 milligauss; and a ceiling fan 12 inches [~30.5 cm] away emits between 3.0 and 50 milligauss.⁸

Some sources maintain that even 2.0 milligauss is enough to disrupt a person's biological function and that the maximum emission a person can safely absorb is only 1.0 milligauss. This is why there is a high rate of illness among people living near major power lines, cellphone towers, electrical generators and similar disruptors.

• Healing Effects of EM Radiation and EM Fields

Considering the extent to which artificially created, nonbeneficial EM radiation surrounds us, it's not surprising that (aside from the contributing factors of poor diet, pathogens and chemical pollutants) so many people are ill. Frequencies can harm, but the good news is that they can be used to heal.

Cells have the ability to respond positively and healthfully 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 of 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. In electromedicine, the response of living cells to beneficial EM radiation is also called *inductive coupling*. Once the EM fields inside a cell are exposed to EM radiation, the fields within the cell start to move. Along with this energetic process,



the corresponding biochemical responses are activated, such as the movement of electrolytes through the cell membrane, excretion of wastes, and so on. Inductive coupling is being utilised in a growing number of extremely effective electromedical devices.

Researchers are discovering that many of the beneficial effects from electromedical devices come from *pulsed magnetic fields* (which, by definition, become electromagnetic radiation).

Pulsing a magnetic field does more than induce movement in the body receiving the signal. Because pulsing, by definition, means that there is 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 a while the body becomes impervious to the sensation so that it can focus on other stimuli. This is one of the secrets of effective electromedical devices.

Correctly employed, frequency therapies can increase cell energy, normalise 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 leads to the regeneration of tissue as well as to disease resistance.

"Bigger is better" and "more is better" figure prominently in the western mindset. The unbridled use of massive doses of many different kinds of drugs and the routine practice of "prophylactic" invasive surgery illustrate this mentality. Another, more humane edict, "less is more", reflects what the body usually needs.

The exquisite sensitivity of cells to electromagnetic fields of all kinds 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 are the most compatible with living systems precisely because they are of lower power.

Electromedicine therapies may use many portions of the EM spectrum: electrical current, magnetism, visible light, far-infrared (FIR), ultraviolet (UV) and heat (in the form of specific FIR wavelengths). In the following sections, I'll discuss some therapies that use various EM wavelengths.

EM Radiation Rife Frequency Therapy

Rife frequency therapy is named after its inventor, Royal Raymond Rife. After this technology was enthusiastically embraced by some of the most prominent physicians and scientists of the 1930s and part of the 1940s, it was driven underground by the pharmaceutical interests and the American Medical Association (AMA). Only in the last couple of decades has Rife technology emerged again in popularity, albeit in an altered form.

Born in the United States in 1888 and educated in the fields of optics, electronics, biology and chemistry, Rife studied at Johns Hopkins University and had two years of training in performing eye surgery and six years of training with optical scientist and researcher Hans Luckel (who worked for the German optics company now known as Carl Zeiss). He designed and built many medical research instruments including spectrometers, optical tools, micromanipulators and stop-motion photomicrographs. However, one of Rife's most famous inventions was the Universal Microscope. Completed in 1933, it weighed 200 pounds [90 kilograms], had 5,682 parts and stood between two and three feet [~0.61 and ~0.91 metres] high.

During Rife's time, specimens had to be killed and stained in order to be seen under a microscope. Even modern electron microscopes, which produce high-resolution images, kill the specimens being viewed: in order to make the specimens visible, it bombards them with electrons in a vacuum. However, the Universal Microscope allowed micro-organisms (even tiny

viruses) to be viewed in their live state with crystal clarity. This held great promise in finding cures for diseases because if you can see how living organisms respond to stimuli, then you may find a way to destroy them.

As it turned out, these "stimuli" consisted of frequencies produced by an EM field. If Rife exposed a virus or bacterium to a particular frequency and the pathogen began to vibrate—and then either grew weak or completely broke apart—he knew that he had found the *resonant frequency* (or simply *frequency*) of the microbe.

"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

If Rife exposed a virus or bacterium to a particular frequency and the pathogen began to vibrate... he knew that he had found the resonant frequency (or simply frequency) of the microbe.

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".⁹

The microbe's frequency (the number of cycles per second at which it vibrates) was also known as its *mortal oscillatory rate* (MOR). An analogy explaining how Rife's ray tube worked is the cliché of the soprano who shatters a glass with her pure, focused tone. If enough power were applied, the resonant frequency would kill the microbe or debilitate it enough so that the body's own immune cells could then dispose of it.

Royal Rife's ray machine delivered frequencies in the radiofrequency (RF) range by sending an electric 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 luminescence from the light, that disabled or killed the pathogens. Rife discovered the resonant frequencies for cancer, typhus, *E. coli* and other micro-organisms. People given "terminal" diagnoses by their doctors would often become well when exposed to the Rife ray.

A microbial MOR frequency administered at a low power level is harmful to a microbe, but it does not harm a larger host such as a human being or an animal because the host has a much more complex structure than a microbe and hence will barely feel the power input that can kill a tiny microbe.

Many modern, second-generation Rife machines also contain plasma tubes filled with noble gases, although some Rife-type frequency devices utilise hand-held, tubular metal electrodes to deliver frequencies into the body via electric current. Most of the tubes are freestanding. Rife frequency devices can range from the simple to the elaborate, with varying programming

capabilities. A smaller unit can be the size of a large loaf of bread, while a large one is the size of a tower computer. The user inputs the desired frequencies into the computerised machine and a signal is sent to the noble gases in the tube. The resulting EM field disables or kills the micro-organisms in the body, while also imparting energy to the body's cells.

Outside the USA, Rife technology is seriously being researched and publicised in European countries such as Germany and Romania, and several companies are producing frequency devices. The legal status of Rife devices in medical treatment means that the technology is freely used in clinics and doctors' offices.

In North America, open-minded medical practitioners and health-seekers have a more difficult time finding manufacturers of Rife devices because, after the 1940s, the US Food and Drug Administration (FDA) quashed this technology. However, about a dozen manufacturers are making Rife-style devices in North America. Two

excellent plasma-light devices are popular: PERL and P3 units.

The PERL is a highly respected frequency device made by Resonant Light Technology Inc. in Canada (www.resonantlight.com). The machine is equipped with a leaded silica glass tube filled with 100-per-cent argon. When the noble gas is lit by the transmitted RF energy, the PERL emits frequencies (up to

three signals simultaneously) over a 27-megahertz carrier. The frequency selection is from 0.001 to 400,000 hertz. The customer can either program frequencies into the unit or use one of many banks of pre-programmed protocols.

Resonant Light Technology Inc. cannot legally state that the PERL is a therapeutic device for use on humans in Canada, 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 mould and fungi in greenhouses and reducing the parasitic count within fruit orchards. Energising the body is an obvious application as well.

Pulsed Technologies, which has offices in the United States and Romania, makes several different devices (www.pulsedtech.com). The frequency outputs of this company's units range from 0.01 hertz to an impressive 1,000,000 hertz (1.0 megahertz). The Precision Pulsed Plasma (P3) system is a non-contact radiant device that operates on principles that do not require RF. The P3 is controlled by a Precision Function Generator (PFG) which may also be used separately from the plasma unit as a contact (electrode) device.

In Rife's era, it was proven that his frequency devices disabled microbes that made humans and animals sick. But we now know that selected frequencies can regenerate tissue.

Applications of the P3 unit are similar to those of the PERL. The uses for a freestanding plasma light unit are limited only by the imagination of the user. The company's emphasis on research has been particularly welcomed in Europe, where doctors have seen great improvements in subjects enrolled in clinical trials.

Although Rife's technology appeals to holistically oriented health practitioners, it is simple enough to be utilised by the layperson as well. The largest market in the United States consists of people who want to improve their own health and the health of their family, friends, pets and farm animals.

In Rife's era, it was proven that his frequency devices disabled microbes that made humans and animals sick. But we now know that selected frequencies can *regenerate* tissue.

Electric Current The Tennant Biomodulator®

Electric current is frequently utilised by electromedical devices to treat pain and other conditions. One device that emits small amounts of current is a hand-held biofeedback unit, the Tennant Biomodulator® (www.senerymedicalgroup.com).

The Biomodulator has its origin in the Russian SCENAR, acronym for Self-Controlled Energo Neuro Adaptive Regulator. The Biomodulator's predecessor 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, since urine was 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 (see www.scenarhealth.us/pages.php?PID=8), the SCENAR proved effective in 80 per cent of all cases. Of those, two-thirds enjoyed full recovery and the remainder had significant healing. Over 50,000 successful outcomes were reported for circulatory, endocrine, respiratory, gastrointestinal, neurological, muscular, skeletal and genito-urinary problems.

In 2004, Texas-based medical doctor Jerry Tennant developed an easier-to-use, more effective version of

the Russian invention, powered by two AA batteries, called the Tennant Biomodulator. Whether it is moved across the body or is resting still on a particular area, its biofeedback feature operates by sending out a series of precisely modulated electric current to the skin, measuring the body's response and then emitting different signals in response to the changes recorded by the skin. This 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.

The Biomodulator, equipped with newly discovered frequencies, also has an assessment mode that allows the user to determine the approximate voltage of the cells. The amount of voltage, and whether that voltage is plus or minus, helps the practitioner or user determine whether the tissue is mildly or severely inflamed or mildly or severely degenerated. Based on the readings, the practitioner then knows which therapy mode to employ. The device also has a setting for "automatic", which is a combined biofeedback and signal input mode.

Dr Tennant points out that trauma, pain, real or imagined danger, constant fear, an unbalanced pH and food allergies turn on the sympathetic (fight-or-flight) nervous system and keep it turned on, so that the parasympathetic nervous system, which regulates digestion, sleep, hormone secretion, immune function and so on, no longer works properly. Being "sympathetic-on 24 hours a day, seven days a week" creates conditions of "typical chronic disease and chronic fatigue", he

states.¹² Once the body starts to malfunction, it gets used to being in a pathological state—a trend that can be difficult to reverse.

However, the Biomodulator stimulates the healing process by normalising the sympathetic and parasympathetic nervous systems. People have reported relief from swelling and inflammation, as well as faster and more complete healing of wounds, improvement in circulation and other functions, rapid pain relief and easier recovery from infections. The device is most commonly used for the treatment of muscle pain and injuries, but it is also being clinically studied for the improvement or complete elimination of symptoms of arthritis, tendonitis, hypertension, hearing loss and asthma.

...its biofeedback feature operates by sending out a series of precisely modulated electrical current to the skin, measuring the body's response and then emitting different signals in response to the changes recorded by the skin.

The Biomodulator works primarily by stimulating the C-fibres. C-fibres, which comprise 85 per cent of all nerves in the body, produce healing neuropeptides and other regulatory peptides that, in turn, re-establish the body's normal physiology and propel it to heal itself. Since the peptides last for several hours, the healing process continues after the treatment is over.

"Once we balance the autonomic system," writes Dr Tennant, "the gut will start absorbing nutrients, the endocrine glands will rest and recover, [and] the immune system will recover."¹³

A key to the success of these units is the restoration of voltage to the cells. A malfunctioning cell cannot metabolise properly. Once the voltage to organs and other bodily tissues is normalised, cellular toxins can be eliminated and water imbalances can be corrected.

In the treatment process, the practitioner first asks the subject to describe 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 relate directly 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. There is often a reddening of the skin around the treated area—a sign of increased circulation. The Biomodulator comes with optional attachments that can treat through the hair and on smaller skin areas. The Biomodulator is an FDA-cleared Class II device for symptomatic relief and management of chronic, intractable pain and adjunctive treatment in the management of post-surgical and post-traumatic pain. Licensed health practitioners can use it in their practice. However, it's not necessary to see a health care professional if you need treatment. Laypersons who want a device for their own use can obtain a prescription from their physician or from Dr Tennant.

Pulsed Electromagnetic Fields The ONDAMED® System

While some devices utilise a generalised weak magnetic field that oscillates, or travels back and forth, others use a pulsed electromagnetic field that also conveys frequencies.

One such device is the ONDAMED® System, developed by German electronics engineer Rolf Binder. The machine, which comes in a heavy-duty case, consists

of the base unit and various applicators that are placed on the body (spine, abdomen, neck, foot, etc.) or are held. The software includes three operating modules that introduce various frequency patterns, times and intensities, and one module of 173 pre-set programs. Frequencies range from 0.1 to 32,000 hertz. The pulsed magnetic field emitted by the unit covers a small but focused area.

At the start of the session, the practitioner hangs an applicator around the client's neck. Then the practitioner holds the subject's wrist while simultaneously scrolling the machine through a range of rapidly and sequentially emitted programs. When a frequency is emitted that the body may need, a sudden change in the subject's radial (circulatory) pulse occurs. The change in the pulse can feel like excitation (jumping or throbbing) or weakening (slower, less obvious). Thus, the "biofeedback" aspect of

the ONDAMED is the person's bodily response, as perceived by the practitioner, to the unit's EM radiation emissions.

The practitioner enters into the machine's memory those frequencies that elicit a response. Then the practitioner scrolls through the entered frequencies, choosing the top two frequency patterns that caused the strongest reaction—and which therefore will have the greatest therapeutic value.

The frequencies best suited to the client at that moment are induced through the neck applicator (worn by the subject) as the practitioner scans the body with the hand-held applicator, feeling the person's pulse for the strongest response. The body area causing the strongest response is the site of application.

Not everyone's pulse completely normalises for the duration of treatment; Binder says that the client undergoes a period of integration. The next time the client is tested, other areas (and other frequency patterns) may prove more useful. During therapy, not more than two frequencies are administered at one time to ensure that the communication pathways in the body are clear.

While the company is not allowed to make medical claims for the device, 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, lymphatic and hormonal problems, infections and pain report that their symptoms subside or are completely eliminated through use of the device. The ONDAMED is rapidly becoming very popular with smokers to stop nicotine addiction, as it shows a 95 per cent effectiveness rate with an average of one to three

When a frequency is emitted that the body may need, a sudden change in the subject's radial (circulatory) pulse occurs.

sessions to achieve results. Those with other health conditions generally notice improvement in five sessions, although many people require more.

Wolf-Dieter Kessler, MD, PhD, recounts discussions 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... One way to visualize...the underlying mechanism of ONDAMED® is to 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 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.¹⁷

Continuing what Dr Kessler states is an hypothesis: deviations from the frequencies of healthy tissue indicate energy blockages that can lead to health problems. On the biochemical level, blockage of an area is synonymous with a static field, characterised by accumulated acids or excess hydrogen ions (H+) which block the transfer of the magnetic impulses that the body needs for the smooth flow of information. The ONDAMED's function may be based in part on Maxwell's finding that superimposing

one magnetic field on another induces the flow of electrons.

Says ONDAMED inventor Rolf Binder:

We don't want to assume that we know why the body responds to the ONDAMED in the way it does. There are physical, emotional, biological, physiological and energetic responses. We know there is a lot of information flowing back and forth. But how the body is processing that information—and why it changes in response to one stimulus and not another—is something we cannot answer right now. The body and its functions are simply too complex. What we do know is that the therapy works.¹⁸

What we can say with certainty is that the ONDAMED introduces specific electromagnetic impulses into the body, which in turn "jump start" the movement of electrons to the organs, glands, muscles, vessels, bones, nerves or other tissues that require a more efficient flow of information. The ONDAMED can be used by physicians and laypeople alike, but it can be difficult to use in self-treatment. The inventor, though naturally pleased by the machine's success rate, is circumspect.

"It's very important to get the body working by itself," he emphasises. "You don't want to get the body dependent on a drug, or the machine, for that matter."¹⁹

In part three, I'll discuss light and sound as they relate to the EM spectrum and explore their therapeutic uses.

Continued next edition...

About the Author:

Nenah Sylver, PhD, is an internationally published author in the fields of holistic health, electromedicine and psychology. She gives educational seminars on electromedicine and frequency healing, and has been a featured speaker at Rife conferences.

Dr Sylver previously contributed to NEXUS with her article "Poisonous Products, Deceptive Labels" (7/02-03). She is the author of *The Holistic Handbook of Sauna Therapy* (The Center for Frequency, 2004, ISBN 978-0-9672491-7-1, 356pp, softcover book and e-book) and *The Rife Handbook of Frequency Therapy, with a Holistic Health Primer* (Desert Gate Productions LLC, 2009, ISBN 978-0-9818075-0-8, 760pp, hardcover book and e-book; reviewed in NEXUS 17/03; previous edition reviewed in 9/05).

Both books can be ordered from Bibliotique/Barner Books, 3 Church Street, New Paltz, New York 12561, USA, telephone +1 (845) 255 2635, web pages www.bibliotique.us/si/sauna.html and www.bibliotique.us/si/rife2009.html.

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Dr Nenah Sylver can be contacted at The Center for Frequency, PO Box 74324, Phoenix, AZ 85087-4324, USA, tel +1 (623) 249 4202, email nenah@nenahsylver.com, website <http://www.nenahsylver.com>.

Editor's Note:

Due to space constraints, we have omitted coverage of several therapeutic devices from Dr Sylver's article. To see these, including the accompanying endnotes and resources, go to <http://www.nenahsylver.com>.

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HEALING WITH ELECTROMEDICINE AND SOUND THERAPIES

Devices utilising lasers and LEDs, far-infrared heat as well as sound can target living cells with the precise frequency needed to restore cellular balance and achieve good health in a remarkably short time.

Part 3 of 3

by Nenah Sylver, PhD © 2009

The Center for Frequency
Post Office Box 74324
Phoenix, AZ 85087-4324, USA
Email: nenah@nenahsilver.com
Website:
<http://www.nenahsilver.com>

Monochromatic Visible Light: Laser and LED Therapies

Safe laser therapy has been used by health practitioners all over the world for almost 30 years. Most of the early research and published data, which spanned the late 1970s to the early 1980s, was from Russia. As more medical studies were published, various medical organisations and government agencies around the world (including the National Aeronautics and Space Administration in the USA) also began using this modality.

Lasers and LEDs (light-emitting diodes) can be made to produce any colour wavelength. The emission of the light is due not to glass, paint or pigment; it is solely the wavelength of the light itself that gives the beam its characteristic colour. Since the wavelength is always a single frequency, the colour is known as *monochromatic*. For this discussion, we are interested in lasers and LEDs that utilise, for *phototherapy*, single-wavelength (monochromatic) visible light in the *red* spectrum.

Laser and LED therapies differ in some important ways, but they also share similarities. Both are based on the energetic behaviour of electrons. Normally, electrons occupy a fixed place in one or more orbital rings that sequentially surround the atom's nucleus. When 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 light (photons). A photon's wavelength—in other words, its colour—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 are almost always identified by their wavelength rather than their frequency. In the band of visible light, wavelengths are measured in nanometres (nm). One nanometre, the length of one complete wave, is one billionth of a metre and roughly about the size of a human cell.

The lasers and LEDs that emit a red colour have a wavelength ranging from about 630 to 670 nm. Some clinicians prefer a 660-nm wavelength, asserting that this is easiest overall for the tissues to absorb. Others prefer a ruby-red 630- or 635-nm wave. Research published in the *Journal of Clinical Laser Medicine & Surgery* states that a 630-nm wavelength appears to be "most commonly associated with bacterial inhibition", or the retardation of growth and functioning of pathogens.²⁰ "What is good for the body is usually bad for pathogens," says chiropractor and laser therapist Dr Gerry Graham. "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."²¹

All wavelengths of red light work on the principle of *bio-modulation*—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 within the cell. (Mitochondria are tiny living organelles that 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 that they can more efficiently disable pathogens.

Dr Tiina Karu, of the Institute for Laser and Informatic Technologies in Russia, reportedly discovered that:

*...there are photo-receptors 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.*²²

Single-wavelength light maintains its integrity while radiating. Its ability to travel along the body's meridians without being dispersed into the surrounding tissues makes it useful for Chinese medicine treatments.

Only monochromatic light affects the photoreceptors. If different wavelengths are simultaneously applied to the tissue, the cell receives conflicting signals and cannot respond properly.

• LazrPulsr™ 4X LLLT Laser

Laser is an acronym for Light Amplification by Stimulated Emission of Radiation. 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 6). 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.

Most people are familiar with the high-intensity, high-power "hard" lasers that are used by industry (to cut

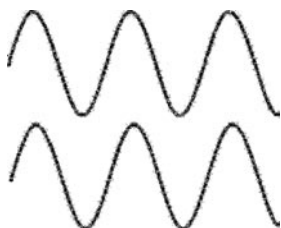


Figure 6: Coherent waves (in phase with each other), an alignment found in lasers.

through steel and other metals) and by doctors during surgery (to make clean cuts into the body, cauterise wounds and remove unwanted tissue). These high-intensity lasers are legally restricted devices because of the damage they can cause.

Genuine low-intensity, low-power lasers—also called "soft" or "cold" lasers—emit far less power than their restricted high-intensity counterparts. Their use in 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 (LLL) can be confusing, however, because in some countries a device legally classified as LLL has enough power to heat tissue.

Some laser therapists maintain that devices affecting cells through bio-modulation should not be categorised with devices that heat tissue. Australian laser experts

Kerry Tume and Sean Tume suggest the following standard: "[T]he energy output is low enough so that the treated tissue does not rise above...normal body temperature."²³

Dr Graham concurs. "Most people still fall for the idea that if 10 milliwatts [mW] will do a job in 10 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 ... [which] can damage the meridians and over-stimulate tissues."²⁴ Here is an instance where "less can be more".

Dr Graham developed the rechargeable hand-held LazrPulsr™ 4X that emits a 635-nm antimicrobial beam (www.lazrpulsr.com). The LazrPulsr 4X contains 10 channels that can be programmed by the user, in addition to over 40 channels that emit pulses shown to restore different tissues and bodily functions.

Laser therapy works on all manner of conditions, including 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. "It would take several seconds of continuous direct exposure, shining directly into the eye, to cause significant permanent damage," Dr Graham points out. "This is virtually impossible for any adult to do accidentally."²⁶

Some laser therapists maintain that devices affecting cells through bio-modulation should not be categorised with devices that heat tissue.

Safety features of the LazrPulsr 4X include a laser cover to protect the user from accidentally shining the unit into the eyes, and a low power density (5.0 mW). There is also a digital lock that ensures against accidental use by children and inexperienced users. The unit is designed so that the user can program and operate it with one hand while maintaining control of the direction of illumination with the other.

Dr Graham's LazrPulsr is available for sale by prescription only. With a little practice and training, it can be employed safely and effectively for healing by practitioners and knowledgeable laypersons.

• Good Energy Products LEDs

The light-emitting diode is sometimes erroneously called a soft laser or laser, but 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 7). In practical terms, this means that the light is multidirectional and diffuse, *not* directional and focused (collimated).

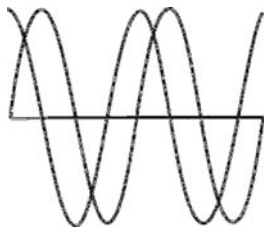


Figure 7: Incoherent waves (out of phase with each other), an alignment found in LEDs.

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 Anna Cocilovo and Ron 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."²⁷

Until the 1980s, low-level lasers were used almost exclusively for phototherapy, 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."²⁸

There is 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 in a living body. Nevertheless, enough users report benefits with LEDs to warrant its further investigation as a serious therapy. There is one anecdotal report that cannot be contested: this author successfully treated a scratch on the cornea

with an 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.

Although LEDs are fairly common and easy to obtain, some unique products were developed by naturopath and biological dentist Dr Bill Wolfe (www.drwolfe.com). They use incoherent light, but for a secondary function: they are carriers of frequencies that are imprinted in water. Slightly larger than a fountain pen and smaller than a flashlight, both the Chi Pen® and the Advanced Chi Stimulator® contain water cartridges through which the light shines. When applied to the body, the energy produces different results depending on which frequencies have been programmed into the fluid.

The frequencies in both devices are geared more towards balancing the body than they are

to destroying microbes: most of the energy in the water is from either homoeopathic remedies or frequencies that researchers have established are emitted by healthy tissue. Dr Wolfe has seen major positive changes occur with his clients who use the devices. The 5½-inch [~14-centimetre] Chi Pen operates on two AAA batteries. Embedded in the casing is a vial of water that has been imprinted with the frequencies emitted by healthy organs, glands and bodily tissues. A 625-nm red light, at 900 mW power, passes through the water to the tip of the penlight, carrying regenerative frequencies designed to restore and balance the body's energy meridians. The implications are profound, as blockages in the meridians can cause unlimited symptoms and conditions ranging from inflammation and pain to organ and gland malfunction. This easy-to-use instrument is intended for people to use at home for self-treatment.

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The Advanced Chi Stimulator, which is 10½ inches [~27 cm] long, operates on two AA batteries and contains three light emitters. These lights are in the infrared (IR) spectrum (950 nm at 450 mW power), which promotes deeper penetration into the tissue than does visible light. (When the instrument is turned on, it emits a blue colour, so the user can direct the wave to the targeted area and avoid shining the invisible IR light into the eyes.) Instead of a permanent cartridge in the casing that contains only one program, the Advanced Chi Stimulator is equipped with 11 interchangeable, programmed, water-filled lenses. These discs are screwed onto the tip of the device, allowing the user to select from a range of frequency formulas: Chi Energy, Detox, Infection, Inflammation, Lymphatic, Root Canal, Sinus, Stimulation, Toothache, Trauma and Relaxation.

The LEDs from Dr Wolfe's company, Good Energy Products, stimulate acupuncture and muscle trigger-points and assist with pain management, skin conditions, wound healing and dental problems. To stimulate points, the user places the laser against the skin for about one minute per point. For local pain and swelling, the laser is placed for three minutes on the area with the most intense symptoms, and then for a minute each on spots surrounding the main area. For skin conditions such as acne, burns, insect bites and cold sores, the light is held about ¼ inch [~0.6 cm] above the target area and moved very slowly back and forth for a few minutes, two or three times a day.

For tooth or gum pain, the user places the light against the skin over the most painful region for three minutes. Less painful areas are treated for only a minute each. If the subject experiences pain directly after applying the frequencies, this is a good sign: it signifies a desirable improvement in blood flow and increased waste removal. Relief is usually felt the next day. These instruments can be used on animals as well as humans.

Dr Wolfe has also produced an impressive line of highly effective, frequency-infused dental products and skin creams, including toothpaste, mouthwash and anti-ageing and analgesic preparations. The MSM supplement crystals are infused with neurotransmitter frequencies for mental clarity, to be taken during the day, and frequencies to help with sleep, to be taken before bedtime.

Although the personal care products are made with natural (not synthetic) ingredients, Wolfe considers that the benefits from the botanicals, herbs, essential oils and other materials are secondary compared to their

main purpose: as carriers of frequencies into the body. For those disinclined to use high-tech devices, the skin and dental health products are a wonderful way to administer frequency healing. And those who like devices find that these personal care products augment the effects of whatever else they're using.

Far-Infrared Heat Therapy

Sweat therapy using hot air, steam and hot water is thousands of years old. The ancients understood that when people perspire, they feel better. 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 often encapsulated by the fat cells 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 special about the chemical industry's suppression of evidence that their own products cause cancer. When newsman Bill Moyers had his blood drawn and analysed, his sample contained over 80 common industrial chemicals including alcohols, solvents, pesticides, petroleum-based synthetics, polychlorinated biphenyls (PCBs) and persistent organic pollutants (POPs). 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 also raises the pH of some portions of the body to a more alkaline state, because many chemical and metabolic wastes are 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" microbes, 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 microbes to survive if the core temperature is raised enough. During fever and sauna therapy, the body produces more endorphins (natural pain-killers) as well as more enzymes, which the white blood cells need to destroy pathogens. Body heating alone helps to relax the nerves and tissue fibres.

Modern scientists have discovered that the source of

The MSM supplement crystals are infused with neurotransmitter frequencies for mental clarity...and frequencies to help with sleep...

heat can make a difference between highly effective and less satisfactory detoxification.

Dr John Harvey Kellogg, famous for developing breakfast cereals, is less known for having invented the electric light bath that preceded today's far-infrared (FIR) sauna cabinet. Early in the 20th century, 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. 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, their constituent particles and 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 1,000 microns. For healing purposes, we are interested in only a tiny portion of the FIR spectrum that ranges from about 5.6 microns to 9.0 microns in wavelength, radiating heat from, respectively, 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 9.0 microns in length. This wavelength also causes water clusters to become smaller, more motile and more easily absorbed into the tissues. 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 is absorbed by the water and causes its temperature to rise. People's ability to absorb and emit FIR is related to the water's ability to absorb and emit FIR. The human body is comprised of nearly 70 per cent water, which explains why people respond so positively to FIR.

For the vast majority of people, FIR is the most

effective means of inducing a sweat. There are many FIR saunas on the market today. One sauna cabinet manufacturer, Saunex™, uses heaters that selectively emit only the most beneficial FIR wavelengths, and it also has almost completely eliminated the harmful EM field that normally accompanies electrical wiring (www.saunex.com).

Sound Therapies

During the educational seminars I give on Rife therapy and electromedicine, people often ask me if tones can be substituted therapeutically for various EM frequencies. The answer is: "Yes, under certain conditions."

Sound is commonly defined as existing only if there is a medium (such as air or water) to carry the vibrations, as sound cannot be heard in a vacuum. *But all frequencies in the electromagnetic spectrum—whether in the form of visible light, radio waves, gamma waves, etc.—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 is probably the origin of the phrase, "the music of the spheres".) Since sound and EM radiation are mathematically related, theoretically all electromagnetic waves can be translated into audible sound, and the two modalities might be interchangeable for healing purposes.

• VoiceBio©™

We already know that every organ, gland and tissue in the body emits EM radiation, and that this radiation corresponds to tones. A unique use of this principle via sound, called VoiceBio©™, was first developed in 1995 by naturopath Dr Kae Thompson-Liu (www.voicebio.com). VoiceBio is a non-invasive way of analysing 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-Liu 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, faulty genetics or a combination of these conditions, most voiceprints show

This wavelength also causes water clusters to become smaller, more motile and more easily absorbed into the tissues. Water intrinsically resonates within these particular wavelengths.

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 overemphasised, 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 a small Walkman®-sized piece of proprietary equipment called VIBE (an acronym for Visual Image of Body Energy). Then VIBE sorts, translates and graphs the tones (ignoring word content) onto a voiceprint that quantifies the frequencies. The graph is displayed on a computer screen connected to the VIBE. Thompson-Liu developed VIBE because she found that the sound cards in computers are unreliable, sometimes varying as much as two tones in accuracy. The actual voice sampling takes five minutes or less.

There are several ways to supply the body with the balancing frequencies. The client can listen, through stereo headphones, to a palm-sized tone box (called a "sonic balancer") encoded with personalised sound formulas. Derived by Thompson-Liu 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 organised.

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 disorganised noise, in part because the notes are in the very low range of human hearing. Most importantly, 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 overemphasised notes, the VoiceBio practitioner suggests detoxification and cleansing of the corresponding organs and systems.

The most powerful of all therapies, however, is for the clients themselves to generate the needed tones by

singing or humming. (This also makes the therapy more cost-effective.)

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, states Dr Thompson-Liu: "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."²⁹

After a month, the client is re-tested to see what formula is needed or if the client needs to continue at all.

Although results from 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.

Dr Thompson-Liu'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, there may be another drug that produces the same (desired) effect but resonates with a note that's too low (or at least not as high).

There are many nutrients that resonate in any given note (C, C#, D, etc.), because each note has a range of cycles per second. However, the frequency of each nutrient is extremely precise, which is why any transmission device must be accurate to the second decimal point.

Thompson-Liu devoted many years of research (and expensive laboratory testing) to finding the frequencies

...the notes are in the very low range of human hearing. Most importantly, the tone boxes can be programmed so that the brain learns to produce the weak or missing notes on its own.

of nutrients (vitamins, minerals, amino acids, fatty acids, etc.) as well as toxins and drugs.

Some sound treatment systems have nutrient frequencies posted on the Internet that are incorrect because they are 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.) Sound protocols obtain the best results with the exact frequencies.

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

Summary

The body emits EM and responds to EM waves. All biological functions correspond to electromagnetic phenomena. The electromagnetic energies that exist in living tissue are extremely potent. When you target a living cell with the precise frequency that it needs, it will

respond favourably and health can be restored in an amazingly short period of time.

Electromedicine covers a vast territory of different energies. The therapies reviewed here—EM radiation, electrical current, pulsed magnetic fields, visible red light and FIR (perceived as heat)—are only a few. Other frequency therapies include radiowaves and microwaves on the benign portion of the EM spectrum, and bands of visible light besides red.

Conventional physics does not regard sound as part of the EM spectrum *per se*. However, every frequency in the EM spectrum has a corresponding sound, even if we cannot hear it. Thus, audible sound has an intricate relationship to EM frequencies and can also be utilised for healing.

The health restoration effects of correctly applied energetics cannot be underestimated.

As with any modality, one must be careful when using frequencies, be they disseminated by electromedical equipment or sound. However, the correct energies, properly used, can be an integral part of one's wellness protocol.

Electromedicine and sound are the healing of the future. Whether you are a health care professional or a seeker of health, these therapies are well worth exploring. ∞

Conventional physics does not regard sound as part of the EM spectrum *per se*. However, every frequency in the EM spectrum has a corresponding sound, even if we cannot hear it.

About the Author:

Nenah Sylver, PhD, is an internationally published author in the fields of holistic health, electromedicine and psychology. She gives educational seminars on electromedicine and frequency healing, and has been a featured speaker at Rife conferences.

Dr Sylver previously contributed to NEXUS with her article "Poisonous Products, Deceptive Labels" (7/02-03). She is the author of *The Holistic Handbook of Sauna Therapy* (The Center for Frequency, 2004, ISBN 978-0-9672491-7-1, 356pp, softcover book and e-book) and *The Rife Handbook of Frequency Therapy, with a Holistic Health Primer* (Desert Gate Productions LLC, 2009, ISBN 978-0-9818075-0-8, 760pp, hardcover book and e-book; reviewed in NEXUS 17/03; previous edition reviewed in 9/05). Both books can be ordered from Bibliotique/Barner Books, 3 Church Street, New Paltz, New York 12561, USA, telephone +1 (845) 255 2635, web pages www.bibliotique.us/si/sauna.html and www.bibliotique.us/si/rife2009.html.

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Dr Nenah Sylver can be contacted at The Center for Frequency, PO Box 74324, Phoenix, AZ 85087-4324, USA, tel +1 (623) 249 4202, email nenah@nenahsylver.com, website <http://www.nenahsylver.com>.

Editor's Note:

Due to space constraints, we have omitted coverage of several therapeutic devices from Dr Sylver's article. To see these, including the accompanying endnotes and resources, go to <http://www.nenahsylver.com>.

Endnotes

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