Healing with Electromedicine and Sound Therapies

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Part Two

EM Radiation: Rife Frequency Healing

Rife frequency healing 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.

Royal Rife was born in Nebraska in 1888. Educated in the fields of optics, electronics, biology, and chemistry, he studied at Johns Hopkins University and had two years of training to perform eye surgery and six years of training with optical scientist and researcher Hans Luckel (who worked for German-based company Zeiss Optics). Rife designed and built many medical research instruments including spectroscopes, optical tools, micromanipulators, and stop-motion photomicrographs. However, one of his most famous inventions was the 200-pound, 5,682-part Universal Microscope, which stood between two and three feet 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, because in order to make the specimens visible, an electron microscope bombards them with electrons in a vacuum. Completed in 1933, the Universal Microscope allowed microorganisms (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, you may find a way to destroy them.

As it turned out, this "stimuli" from Rife 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—Rife 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 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 [as well]....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."[1]

The microbe's frequency (the number of cycles per second at which it vibrated) was also known as its Mortal Oscillatory Rate (MOR). An analogy explaining how Rife's ray tube worked was the cliché of the soprano who shatters a glass with her pure, focused tone. If enough power were applied, the resonant frequency killed the microbe or debilitated it enough so

that the body's own immune cells could then dispose of it.

Royal Rife's ray machine (whose inspiration and fundamental operation appear to have come from Albert Abrams's Oscilloclast) delivered frequencies in the Radio Frequency (RF) range by sending an electrical current through a tube filled with noble gases (mostly argon and neon). The gases would light up the tube, and the frequencies were emitted as EM radiation. It was the *EM wave*, rather than the luminescence from the light, that disabled or killed the pathogens. Rife discovered the resonant frequencies for cancer, typhus, *E. coli*, and other microorganisms. People given "terminal" diagnoses by their doctors would often become well when exposed to Rife's ray tube. A microbial MOR frequency administered at a low power level is harmful to a microbe, but does not harm a larger host such as a human being or 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 (though some Rife-type frequency devices utilize hand-held, tubular metal electrodes to deliver frequencies into the body via electrical current). Most of the tubes are freestanding; one unit has long glass rods that are held. Due to technology changes—and FCC regulations against devices transmitting over long distances in the RF range because they interfere with radio broadcast signals—today's units emit much weaker signals in lower ranges, mostly from one to 20,000 hertz. The advantage of freestanding light tube over electrode devices is that many people can receive a session at the same time. Also, some people prefer being able to engage in activities that leave their hands free, rather than having to remain in one place holding onto the unit.

Rife technology devices can range from simple to elaborate, with varying programming capabilities. Smaller units can be the size of large loaves of bread, while large ones equal the size of tower computers. The user inputs the desired frequencies into the computerized machine, and a signal is sent to the noble gases in the tube. The resulting EM field disables or kills the microorganisms in the body, while also inputting energy into the body's cells. Frequencies are selected from the pre-programmed channels, from lists on the Internet, or from various print sources (including this author's *Handbook of Rife Frequency Healing*).

In countries outside the United States, such as Germany and Romania, Rife technology is seriously researched and publicized. Its legal status as a 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 frequency devices, because after the 1940s, the FDA quashed this technology. About a dozen manufacturers in North America are making Rife-style devices. In Europe, there are even more companies making frequency devices.

The PERL is a highly respected frequency device made by Resonant Light Technology Inc., from Canada. The 18-pound, 13" x 5.5" x 17" machine is equipped with a leaded silica glass tube filled with 100% 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. Frequency selection is from .001 to 400,000 hertz. The selectable waveform (square, sine, or sawtooth) has a range of up to 30 feet. The customer can either program frequencies into the unit or use one of 25 banks of pre-programmed protocols. The equipment's management system (manufacturing quality and customer support) has received an international standard of certification; so should the company decide to apply for Class II Medical Device status for the PERL, they will have met all the requirements. 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 mold and fungi in greenhouses; and reducing the parasitic count within fruit orchards. Energizing the body is an obvious application as well.

Pulsed Technologies—with offices in both the United States and Romania—also carries excellent machines, whose frequency outputs range from .01 to an impressive 1,000,000 hertz (1 megahertz). The

Precision Pulsed Plasma system (P3) is a non-contact, radiant device that operates on principles that do not require RF. The P3 is driven and controlled by the Precision Function Generator (PFG or PFG2) for precision programming and unlimited waveform manipulation and control. Both PFG models may also be used separately from the plasma unit as high-end contact (electrode) devices. The computer software, included with the machines, contains modules suitable for laboratory, professional, group, or individual use. Thus, many practitioners and researchers as well as lay customers use this equipment. The company's emphasis on research—Pulsed Technologies sponsors the Eastern Europe-based professional Research and Resource Exchange Network—has been particularly welcome in Europe, where doctors have seen great improvements in the subjects enrolled there in clinical trials. Applications of a Pulsed Technologies unit are similar to that of the PERL. The uses for a freestanding plasma light unit are limited only by the imagination of the user.

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

In Rife's era, it was commonly assumed that his frequency devices worked solely by disabling microbes that made humans and animals sick. But we now know that selected frequencies can regenerate tissue. Some of the frequencies that Rife used may have done both. More research is needed to explain precisely how this works.

Electrical Current Frequency Specific Microcurrent

Most people are familiar with the ubiquitous TENS unit, which uses electrical current for pain control. For this treatment, specific frequencies (generally ranging from 40 to 150 hertz) are applied to the body through electrodes. But consider the mechanism by which TENS suppresses pain: it stimulates A-beta suppressing fibers and *overwhelms* the C-pain fibers in the body. The effects are similar to that of continually rubbing a painful spot; after a while, the pain lessens because the area becomes numb. However, from a holistic perspective, this is not the best way to manage pain, since the TENS unit relieves pain not through body awareness (which allows the system to self-correct), but through lack of awareness (which may not allow for self-correction). This is why the effects of TENS treatments are often temporary.

Frequency Specific Microcurrent (FSM) treats nerve, muscle, and fascia pain by using a wider range of frequencies (from 3 hertz to 970 hertz) to favorably alter tissue and restore health, using minute amounts of micro-amperage current. A TENS unit has an output of up to 100 milliamps, which can overwhelm the body with current that is easily felt. In contrast, the output of FSM is in microamps (millionths of an amp), which is not readily perceived by the body even though its effects are. (An ampere is a measure of the movement of electrons or current.) Significantly, the output of FSM imitates the output produced naturally by the body within each cell. The amount of FSM current is not strong enough to stimulate sensory nerves, so the treatment usually cannot be felt and is painless, as well as safe, non-invasive, and effective.

Microcurrent can often eliminate pain entirely because instead of simply masking symptoms, it helps to restore cell function. A TENS unit decreases cell energy (ATP production) by about 50%, decreases cell membrane transport by up to 40%, and decreases protein synthesis by 50%. However, since Microcurrent uses less than 500 microamps, cell energy (ATP production) increases (rat studies show by 500%), as does amino acid transport into the cell. This aids in waste product removal, and protein synthesis. Preliminary studies also suggest that FMS helps insulin bind with the appropriate receptor sites on the cell wall and that it activates fibroblasts, connective tissue cells that secrete collagen and other beneficial substances around living cells.

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

There are several size units, ranging from the largest (18" x 9.5" x 6.5") to the "home care" portable unit that's about the size of a portable Walkman and is operated by one nine-volt battery. All come with various electrode attachments. Although the use of frequencies is not regulated (so is neither approved nor disallowed by the FDA), the devices that provide the current—the Precision Microcurrent machine and the FSM Auto Care and Sports Care unit—are permitted by the FDA to be used in a medical setting, and by prescription. The FDA has approved all microcurrent devices for sale in the category of TENS devices, even though TENS devices all deliver milli-amperage current rather than the much smaller (and biocompatible) levels of micro-amperage current.

Candidates for this therapy have arthritis, chronic low back pain, fibromyalgia (especially associated with neck injury), diabetes-related and other neuropathic pains, and myofascial pain (from trigger points in the head, neck, face, and lower back). People with asthma, liver dysfunction, kidney stones, shingles, endometriosis, and irritable bowel syndrome also benefit, although Dr. McMakin reports, "Most cases of post herpetic neuralgia improve with five to six treatments but require the frequencies for scar tissue and inflammation in the nerves damaged by the virus."[2] Many practitioners know how difficult it can be to manage, let alone cure, fibromyalgia. However, those diagnosed with fibromyalgia and treated with FSM no longer meet the diagnostic criteria for fibromyalgia as set by the American College of Rheumatology.

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

"Body tissues," says McMakin, "respond to frequencies through the principles of biological resonance—responding to the signals like a radio responds to frequencies from a radio station."[3] She continues to publish in journals and teach professionals how to use the equipment. Since there is no human or electronic biofeedback component to this technology (just a needle on the instrument indicating whether or not the current is flowing), the practitioner is trained to recognize the most common pain complaints and to diagnose and treat them.

The Tennant Biomodulator®

Another electromedical device that emits small amounts of current is the hand-held biofeedback unit, the Tennant Biomodulator®. The Biomodulator has its origins in the Russian Scenar, acronym for Self-Controlled Energo Neuro Adaptive Regulation. 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 is recycled into the shared drinking water. Creating an electromedical device to treat cosmonauts in space would eliminate the "need" to administer antibiotics. This device—about the size of a remote control—was aptly nicknamed the "Star Trek Device" by the press. According to Russian clinical studies, the Scenar proved effective in 80% of all cases. Of those, 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 Jerry Tennant, MD, developed an easier-to-use, more effective version of the Russian invention, powered by two AA batteries, called the Tennant Biomodulator. Whether moved across the body or sitting still on a particular area, 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. 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 Tennant 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 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 says.[4] 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 normalizing the sympathetic and the 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 treatment of muscle pain and injuries. However, it is also being clinically studied for the improvement or complete elimination of symptoms of arthritis, tendonitis, hypertension, hearing loss, and asthma.

The Tennant Biomodulator works primarily by stimulating the C-fibers. C-fibers, which comprise 85% of all nerves in the body, produce healing neuropeptides and other regulatory peptides that, in turn, reestablish 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 Tennant, "the gut will start absorbing nutrients, the endocrine glands will rest and recover, [and] the immune system will recover."[5] A key to the success of these units is the restoration of voltage to the cells. A malfunctioning cell cannot metabolize properly. Once the voltage to organs and other bodily tissues is normalized, cellular toxins can be eliminated and water imbalances can be corrected.

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

The Biomodulator comes with optional attachments that can treat through hair and on smaller skin areas. The Biomodulator is a 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. Laypersons who want a device for their own personal use can obtain a prescription from their own physician or from Dr. Tennant.

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

Within the last decade, some exciting research emerged from the University of Washington. Bioengineering professor Henry Lai, along with three colleagues, discovered a way to eliminate malaria using very weak magnetic fields. This has enormous significance, since in addition to symptoms of fever, head and joint aches, and shivering, malaria often causes seizures and death (if infected blood cells block the blood vessels leading to the brain). The World Health Organization estimates that up to 2.7 million people die of malaria every year, one million of whom are children. In the last two decades, the Plasmodium parasite that causes malaria has become increasingly resistant to pharmaceuticals, so they are no longer effective in eradicating the disease.

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

The principle behind Lai's magnetic device is based on the parasite's unique metabolism. After the person is bitten by the mosquito carrying Plasmodium, the parasite first penetrates the liver and then re-enters the bloodstream to feed off the hemoglobin in red blood cells. Plasmodium eats the globin portion of the hemoglobin molecule, but it lacks the enzyme needed to break down the iron-containing heme in the hemoglobin. Since free heme molecules can cause membrane damage, Plasmodium protects itself by arranging the heme molecules into long stacks—like "tiny bar magnets."[6] Lai believes that the oscillating magnetic field affects the parasite in two possible ways. Either the heme molecules cannot form stacks and are free to move in the parasite and cause harm. Or, the stacks spin as a result of the magnetic field and mechanically injure the parasite. Both scenarios cause damage and death to the parasite. Although there is only a minute amount of iron in a heme stack, it is enough to be affected by magnetic fields.

Experiments show 33 to 70% fewer parasites in exposed than unexposed samples. According to Lai, this indicates a significant slowing of the parasite's metabolic functions—sufficient to manage the disease. The researcher says it is unlikely that Plasmodium would develop a resistance to magnetic fields. Lai also believes this treatment will not harm the human host: "It's a very weak magnetic field, just a little stronger than the earth's. The difference is that it is oscillating."[7] "I think," he adds, "it should be safe for short-term (hours) exposure" (Henry Lai, private email to author, March 27, 2006).

This modality is in the experimental stage, as there is still more research to be done.

Pulsed Electromagnetic Fields: the ONDAMED®

Whereas Dr. Lai's technology utilizes a generalized weak magnetic field that oscillates, or travels back and forth, other devices use a pulsed electromagnetic field that also conveys frequencies. One such device is the ONDAMED Biofeedback System®, which was developed by German electronics engineer Rolf Binder. The machine consists of the base unit (18½" x 14" x 4"), which weighs about 25 pounds in its heavy-duty case, and various applicators that are placed on the body (spine, abdomen, neck, foot, etc.) or held. The software includes three operating modules that introduce various frequency patterns, times, and intensities; and one module of 173 preset programs. Frequencies range from 0.1 hertz 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 radial (circulatory) pulse occurs. The change in the subject's pulse can feel like excitation (jumping or throbbing), or weakening (slower, less obvious). (This physiological response, known as the Vascular Autonomic Signal (VAS) was discovered by medical doctor Paul Nogier in 1966.) Thus, the "biofeedback" aspect of the ONDAMED Biofeedback System 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 frequencies that had been entered, 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 normalizes 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. The ONDAMED is rapidly becoming very popular with smokers to stop nicotine addiction, as it shows a 95% effectiveness rate, with an average of one to three sessions to achieve results. Those with other health conditions generally notice improvement in five sessions, although people generally opt for one to 20 sessions.

While the ONDAMED is non-invasive yet effective (based in part on the fact that its frequencies are custom applied for each person), one can only speculate at this time as to how it works. To this end, medical doctor W.D. Kessler recounts discussions with physics professor J.B. Sharma:

> Each organ has specific natural frequencies corresponding 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 difference between an optimally functioning state and a diseased state in the human body is detectable by Nogier's pulse feedback method.... [during which] a very small shock is created to the cardiovascular system when a specific frequency hits a diseased site, which then evokes a tempering or "tuning" of the oscillating components through resonance….The asynchronously vibrating components of the diseased body will resonate harmoniously for a brief moment when hit by the proper frequency....Further treatment with the appropriate frequencies would then bring all components back into synchronous vibration with the tendency to maintain that state of higher order....[9]

Continuing what W.D. Kessler states is a hypothesis: Deviations from the frequencies of healthy tissue indicate energy blockages that can then lead to health problems. On the biochemical level, blockage of an area is synonymous with a static field, characterized by accumulated acids or excess hydrogen ions (H+), which block the transfer of the magnetic impulses 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.

"We don't want to assume that we know why the body responds to the ONDAMED in the way it does," says Binder. "There are physical, emotional, biological, physiological, and energetic responses. We know there is lots 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" (Rolf Binder, personal interview, August 3, 2006).

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 Biofeedback System is approved by the Institutional Review Board as a non-invasive secondary therapeutic device for the alleviation of pain, discomfort, and general malaise in the treatment of various disorders. The device can be used by both practitioners and laypeople. The medical doctors and other practitioners who use the device in their practice report a high success rate. The inventor, though naturally pleased, is circumspect. "It's very important to get the body working by itself," he emphasizes. "You don't want to get the body dependent on a drug, or the machine, for that matter" (Rolf

Binder, personal interview, August 3, 2006).

Monochromatic Visible Light: Laser and LED

To the uneducated general public, the word "laser" evokes a dangerous beam, usually red, that is used in restricted industrial and medical situations. But safe laser therapy has been used by health practitioners all over the world for almost 30 years. Most of the early research and published data, which spanned the late 1970s to early 1980s, was from Russia. Later, as more medical studies and research papers continued to be published, various medical organizations and government agencies all over the world (including the National Aeronautics and Space Administration in the United States) began using this modality as well.

Lasers and LEDs can be made to produce any color wavelength. The emission of the light (whether it's a red, green, blue, or other color) is due not to glass, paint, or pigment—it is solely the wavelength of the light itself that gives the beam its characteristic color. Since the wavelength is always a single frequency, the color is known as *monochromatic*. Although the several types of lasers include instruments that emit heat in the form of invisible infrared radiation, for this discussion we are interested in lasers (and LEDS) that utilize single-wavelength (monochromatic), visible light for *phototherapy*, in the *red* spectrum.

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

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

The lasers and LEDs that emit a red color range from about 630 to 670 nm. Some clinicians prefer a 660-nm wavelength, asserting that this length wave is overall easiest for the tissues to absorb. Others prefer a ruby red 630- or 635-nm wave, based on research published in the *Journal of Clinical Medical Laser Surgery* stating that a 630-nm wavelength appears "to be most commonly associated with bacterial inhibition. The findings of this study might be useful as a basis for selecting LLLT [low level laser therapy] for infected wounds."[9] In this case, "bacterial inhibition" consists of the retardation of the growth and functioning of pathogens. "What is good for the body is usually bad for pathogens," says chiropractor and laser therapist Gerry (pronounced "Gary") Graham. "For example, the right pH for the body is the wrong pH for pathogens. Similarly, 635 nm is the worst wavelength for most pathogens but is beneficial for human tissue" (Gerry Graham, personal interview, August 7, 2006).

Regardless of the specific favored wavelength, researchers and practitioners who use red light find that it works 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 living within the cell. (Mitochondria are tiny living organelles with their own DNA and reproduction cycles, which live in symbiotic harmony with the cell, and control many important cellular processes including energy production.) Except on the eyes in the case of a laser (explained in a moment), the light can be applied to every part of the body: skin, soft tissue, muscle, bone, brain, organs, lymphatic fluid, glands, and blood. Used over an artery, the light can improve the condition of immune cells—leukocytes, T-cells, and B-cells within the bloodstream—so they can more efficiently disable pathogens.

Dr. Tina Karu, who is affiliated with the Laser Technology Center in Russia, is reported to have discovered the following:

There are photoreceptors at

the molecular-cellular level which, when triggered, activate a number of biological reactions: DNA/RNA synthesis, increased cAMP levels [cyclic adenosine monophosphate, a molecule involved in many biological processes], protein and collagen synthesis, and cellular proliferation. The result is rapid regeneration, normalization, and healing of damaged cellular tissue. In essence, light is a trigger for the rearrangement of cellular metabolism.[10]

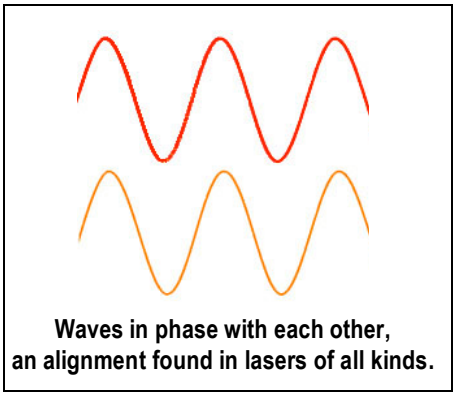
Single-wavelength light maintains its integrity while radiating. Its ability to travel along the meridians of the body without being dispersed into the surrounding tissues makes it useful for Chinese medicine treatments. A phototherapy device can be built to house a single light or many, but only one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

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

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 1). In practical terms, this means that the light is directional and focused—or *collimated*—instead of scattered. This optical arrangement provides the intensity and precision of the beam and is probably the most expensive component of a laser diode assembly.



Waves in phase with each other, an alignment found in lasers of all kinds.

Figure 1: Waves in Phase with Each Other

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

Genuine low-intensity, low-power lasers—also called "soft" or "cold" lasers—emit far less power than their restricted high-intensity counterparts. Their use for healing is also known as *Low-Intensity Laser Therapy* (LILT) or *Low Level Laser Therapy* (LLLT). The legal standard for what constitutes a low level laser can be confusing, however, because in some countries, a device legally classified as a LLL has enough power to heat tissue. Some laser therapists maintain that devices affecting cells through bio-modulation should not be categorized with devices that heat tissue. Australian laser experts Kerry Tume and Sean Tume suggest the following standard: "the energy output is low enough so that the treated tissue does not rise above...normal body temperature."[11] Similarly, Dr. Graham allows "up to only a 0.1 degree Fahrenheit increase in temperature, because otherwise it is a hot laser with different, and less desirable, effects." Here is an instance, Graham points out, where "less can be more. Most people still fall for the idea that if 10 mW [milliwatts] will do a job in ten minutes, then 100 mW will do the same job in one minute, and 1000 mW will do the same job in one-tenth of a minute. But this isn't true. The majority of lasers used for meridian therapy use [excessively high-powered, tissue-heating] infrared lasers. With these instruments, you can damage the meridians and over-stimulate tissues" (Gerry Graham, personal interview, August 7, 2006).

With these parameters in mind, Graham developed the rechargeable hand-held LazrPulsr™ 4X. His device emits a 635-nm beam, which as stated earlier is reported as anti-microbial. The LazrPulsr 4X contains ten channels that can be programmed by the user, in addition to over 40 channels that emit pulses consistently shown

to restore different tissues and bodily functions.

Pulse refers to the number of times the beam of light is turned on and off in one second. The pulse rates can be as low as one, or as high as 1,000,000, in which the light is being turned on one million times and then turned off one million times each second. "Even though the eye cannot detect movement above 45 Hertz or so," Graham explains, "the body's tissue can clearly detect and recognize these pulse rates in the tens of billions per second" (Gerry Graham, personal interview, August 7, 2006). Numbers commonly used as Rife technology frequencies are often applied as laser pulse rates; the effects are similar.

One success story of many that Dr. Graham recounts involves a man whose ability to climb stairs improved dramatically (assessed with a radial pulse test) after laser treatment because the oxygen-carrying capacity of the hemoglobin increased by 400%. The Tumes agree with Graham that laser therapy works on all manner of conditions. These include 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.

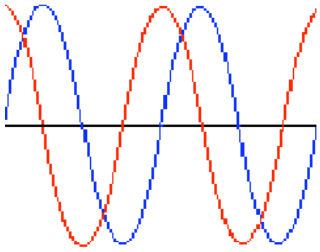
The laser beam can be applied without risk to almost any part of the body (including trigger points and fascia). However, due to the precision of the beam, care must be taken to avoid shining the device directly into the eyes or even on the closed eyelid, because this can cause tissue damage and even blindness. "It would take several seconds of continuous direct exposure, shining directly into the eye, to cause significant permanent damage," Graham points out. "This is virtually impossible for any adult to do accidentally" (Gerry Graham, personal interview, August 7, 2006). The FDA, which has classified the LazrPulsr 4X as a IIIa device, has not determined that the device causes significant risk to the eye, so protective eyewear is not required.

Safety features for the LazrPulsr 4X include a laser cover to protect the user from accidentally shining the unit into the eyes, and a low enough power density (five milliwatts) to ensure additional protection. There is also a digital lock that ensures against accidental use by children and inexperienced users. Finally, 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.

LED Devices from Light Energy Company

LED is an acronym for *Light Emitting Diode*. It 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 2). In practical terms, this means that the light is multi-directional and diffuse, *not* directional and focused (collimated).



Waves out of phase with each other, an alignment found in LEDs.

Figure 2: Incoherent Wave Patterns in LEDs

The lack of beam coherence and precision makes LED therapy safe enough to be used even by children—and difficult to abuse. The advantage of LEDs over lasers is their ability to be used directly on the eyelid to regenerate injured eye tissue. Also, an LED array is much less expensive than a soft laser. It too has widespread applications. "In Israel," report Cocilovo and Rosen, "medical doctors utilize incoherent light transmitted by light emitting diodes (LEDs) in the practice of neurology, dentistry, dermatology, physiotherapy, and in cosmetic applications to promote collagen and elastin formation."[12]

Although LEDs are fairly common and easy to obtain, some unique products were developed by Dave Olszewski of Light Energy Company. He has some very powerful multiple-diode LED products that, due to the pattern and spacing of the lights, have enhanced effects because the penetration is deeper than what would be achieved with a single light. The 17-LED Light Disc, a

plastic 8 inch x 5 inch paddle with detachable 12-inch handle, has a penetration range of 8 inches, from up to 15 inches away, and the beam can travel through clothes. (An attachable handle allows easy application of the light on hard-to-reach areas of the body such as feet, ankles, and back.) The 23-LED Light Pad, which is like a stiff, flexible, wide belt with tie-strings, can be strapped onto the body or draped during sleep. Penetration ranges from eight inches to 15 inches, and this beam can also travel through clothes.

Other items include the 3-LED Tri-Light, which is safe to be used for skin conditions, cosmetic facial treatments (such as wrinkle removal), or even eye injuries. This device can run either on a nine-volt battery or an AC/DC adapter, is about the size of a Sony Walkman, and has a penetration range of two inches. The simplest device is the single-diode Light Shaker that runs on a nine-volt battery.

Up until the 1980s, low-level lasers were used almost exclusively for phototherapy because researchers thought that the light needed to be coherent, and prior promising research with incoherent light was nearly forgotten. Subsequently, some clinicians determined that coherency did not make a huge difference. "Dr. Karu," write Cocilovo and Rosen, "contends that coherent light is not necessary, that incoherent light is equally effective at producing clinical results. Furthermore, she found that coherent light is converted to incoherent light in the body. The exact effect depends on the wavelength, dose, and intensity."[13] 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 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 the Light Shaker 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.

Far Infrared Heat Therapy

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

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

During sweating, the fatty tissue vibrates faster, dumping its toxic load into the interstitial fluid (outside and between the cells). These interstitial wastes—which normally would have to be processed by the lymph system, urinary tract, and/or liver—are released through the pores of the skin. This lightens the elimination burden of these other systems, giving them a chance to rest.

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

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

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

Far infrared wavelengths range from about 5.6 to 1000 microns. For healing purposes, we are interested in only a tiny portion of the FIR spectrum that ranges from about 5.6 microns to 9 microns in length, 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 microns in length. This wavelength also causes water clusters to become smaller, more motile, and more easily absorbed into the tissues. Put another way, water *intrinsically resonates* within these particular wavelengths. Whereas other EM spectrum wavelengths (such as the much longer radio waves) pass through water, a 9.4 micron far infrared wavelength will be absorbed by the water itself and cause its temperature to rise. People's ability to absorb and emit FIR is related to the ability of water to absorb and emit FIR. The human body is comprised of nearly 70% water, which helps to explain why people respond in such a positive way to FIR.

For the vast majority of people, FIR is the most effective means of inducing a sweat. There are many FIR saunas on the market today. One sauna cabinet manufacturer, Saunex™, not only uses heaters that selectively emit only the most beneficial FIR wavelengths, the company also has almost completely eliminated the harmful EM field that normally accompanies electrical wiring.

Sound

Although electromedicine is the name of a class of various therapeutic devices that utilize selected EM frequencies, 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 and 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, "music of the spheres.") Since (as discussed in Part One) 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.

Sound and music therapies (as with heat therapies) have existed for centuries. But in the last several decades, sound healing has enjoyed a renaissance. Tuning forks, crystal and metal bowls, classical music from certain composers, and sounds from nature (cricket and bird songs, waterfalls) have become popular for soothing the soul and emotions, if not outright physical healing. The scientific precision of our modern

age demands a different focus. We already know that every organ, gland, and tissue in the body emits EM radiation, and that this radiation corresponds to tones. New systems are based on this knowledge. For instance, biologist David Deamer decoded and translated some of the vibrational frequencies from select portions of DNA into audible tones, and musician Susan Alexjander later added voice and instruments to these tones on a CD. Also, scientists are using acoustically translated DNA in a number of novel experiments (the tones emitted by live and dying yeast cells occupy many Internet websites). However, a unique use of sound, called VoiceBio™©, was first developed in 1995 by naturopath Kae Thompson-Liu.

VoiceBio™© is a non-invasive way of analyzing the function of organs, glands, and various body systems, based on the tones (EM radiation) they emit. If we could hear the symphony expressed by a living body, we would hear the liver vibrating to the note of G, the heart vibrating to the note of A#, and so on. Thompson-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 unequally represented notes that have huge variations beyond the normal, expected, uneven "bell curve." The notes can all be present (thus falling within the range of good health) or be overemphasized, weak, or missing entirely from the voice (thus falling within the range of compromised health). Assessing the heavy, normal, and weak areas of a voiceprint can help pinpoint which body parts or systems are off-balance.

For the VoiceBio assessment, the client records a voice sample into a sensitive microphone connected to a small Walkman-size 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. VIBE was developed because Thompson-Liu 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-size tone box (called a "sonic balancer") encoded with personalized 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 organized. Although the VoiceBio sound formulas are subjectively experienced by the conscious ear more as white noise than patterned pitches, the effects are like healing music rather than disorganized noise, in part because the notes are in the very low range of human hearing. Most important, the tone boxes can be programmed so that the brain learns to produce the weak or missing notes on its own. This brings VoiceBio therapy into the realm of holistic self-regulation, rather than allopathic substitution. The client can also listen to the missing notes as either straight musical tones or music in that key. In the case of overemphasized notes, the VoiceBio practitioner suggests detoxification and cleansing of the corresponding organs and systems.

The most powerful of all therapies, however, is for the clients themselves to generate the needed tones by singing or humming. (It also makes the therapy cost-effective for the client.) One might think that a highly depleted or stressed individual cannot muster enough energy to hum, and that the very ill need a "jump-start" from an external source, such as the sonic balancer. However, the reality is "quite the opposite," Dr. Thompson-Liu states. "The very ill see the fastest results by even humming the note for just a brief period a day. I have *never* found a client who could not hum something. Trials conducted in the past year in four states show that having the clients do it themselves is more effective than the sonic balancers by over 200 percent" (Personal email, August 6, 2006).

Usually, after a month, the client is retested to see if the same formula is needed, if a different formula is needed, or if the client needs to continue at all. Although results to sound therapy can be felt within days or even hours, the

listening or humming continues over a period of weeks and even months, depending on the severity of the condition and the person's ability to respond.

Thompson-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 relationship between the missing or weak notes can have an obvious relationship to the organ or gland whose note it shares; but sometimes it does not. Nevertheless, the system works.) Thus, nutritional support in the form of vitamin, mineral and herbal supplementation is integrated with the VoiceBio therapy.

The voiceprint can also show which pharmaceuticals might be useful. If the client is taking a drug whose frequency matches a note that is already too high, continuing to take the drug can further stress the note. However, the voiceprint can help determine the drug that may be better suited to the client, if there is another drug that produces the same (desired) effect but resonates in a note that's too low (or at least not as high).

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

Healing with sound will become imperative if global government restrictions to 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 is comprised of EM radiation. It emits EM waves 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 favorably, 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, oscillating and pulsed magnetic fields, visible red light, and FIR (perceived as heat)—are only a few samples. Other frequency therapies not covered include radio waves 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 utilized for healing.

The health restoration effects of correctly applied energetics cannot be underestimated. 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, as those who have benefited from electromedical therapies can attest, 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.

Notes

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4. "Frequently Asked Questions Tennant Biomodulator™ Cybernetic Biofeedback" at www.senergymedicalgroup.com/faq.htm (August 3, 2006).

5. Ibid.

6. Rob Harrill. "University of Washington Researchers Find Magnetic Fields May Hold Key to Malaria Treatment," *Townsend Letter #276* (July 2006), 40.

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11. Kerry G. Tume and Sean Tume. *A Practitioner's Guide to Laser Therapy and Musculo-Skeletal Injuries*, 1994: Southern Pain Control Centre, 24 Fremantle Road, Port Noarlunga South, South Australia, 5165

12. Cocilovo A, Rosen R. op cit.

13. Cocilovo A, Rosen R. op cit.

Resources

EM Radiation: Rife Frequency Healing

- **PERL:** Resonant Light Technology, 4875 North Island Highway, Courtenay, British Columbia, Canada V9N 5Y9; 250-338-4949; www.resonantlight.com; contact Eddie (Edna) Tunney.
- **P3, PFG, and PFG2:** Pulsed Technologies, 3217 Brunchberry, Plano, Texas 75023 and Str. Brasov 22, Bl. Z132, Sc.1, Ap.45, 061448, sect. 6, Bucuresti, Romania; 214-453-0066 / 800-857-814, 214-453-0095 / 800-801-4798; www.pulsedtech.com; contact Jimmie Holman or Paul Dorneanu.

Electrical Current

- **Frequency Specific Microcurrent:** Integrated Pain Solutions, 6956 SW Hampton Street, Tigard, Oregon 97223; 503-443-6100; www.frequencyspecific.com. Contact Carolyn McMakin, DC.
- **Tennant Biomodulator®:** sEnergy Medical Group, 5601 North MacArthur Blvd, Suite 226, Irving, TX 75038; 866-514-8221 or 972-580-0545; www.senergymedicalgroup.us; contact Christine Ebner or Karla Bass.

Oscillating Magnetic Fields

- **Henry Lai, PhD:** Bioengineering Department, University of Washington; hlai@u.washington.edu.

Pulsed Electromagnetic Fields

- **ONDAMED®:** Ondamed Inc., 80 Waterview Terrace, New Windsor, New York 12553; 845-496-6673; www.ondamed.net. Contact Silvia Locke.

Monochromatic Visible Light: Laser and LED

- **Laser—LazrPulsr™:** LED Healing Light LLC, 1276 S. Chambers Road, Aurora, Colorado 80017; 303-696-6532; www.lazrpulsr.com. Contact Gerry Graham, DC.
- **LEDs—Light Disc, Pad, Shaker, and Tri-Light:** Light Energy Company, 1425 Broadway, PMB 526, Seattle, WA 98122; 800-544-4826 (local and international); www.lightenergycompany.com. Contact: Pam Baker or David Olszewski, EE, IE (owners).

Far Infrared Heat

- **Saunex® saunas:** U.S. Health Equipment Company Inc., 138 Maple Hill Drive, Kingston, New York 12401; 877-772-8639 or 845-658-7576; www.saunex.com. Contact Jim Schaeffer or Bernarr Schaeffer.

Sound

- **VoiceBio™©**; 540-297-6485; www.voicebio.com. Contact Kae Thompson-Liu, ND.

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. Portions of this article were excerpted from her two most recent books, *The Handbook of Rife Frequency Healing* and *The Holistic Handbook of Sauna Therapy* (both reviewed in past issues of *Townsend Letter*).

You can contact Dr. Nenah Sylver by regular mail at the address at the bottom of this page, or through her website, www.nenahsylver.com.

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online order, Sauna Therapy book: www.bibliotique.us/si/sauna.html

Contact the Author

Nenah Sylver, PhD
The Center for Frequency
PO Box 74324
Phoenix, Arizona 85087-4324

email: nenah@nenahsylver.com; nenahsylver@cox.net
website: www.nenahsylver.com