The Amethyst Bio Mat™

Negative Ion and Far Infrared Ray Therapeutic Treatment System

For Professional and Home Use

FDA Approved Far Infrared Thermotherapy Mat

Leading Edge Bio – Technology to support health and well-being
Therapeutic Benefits

Reduces Stress and Fatigue
The gentle warmth of your Bio-Mat gives you an overall massaging effect, soothing jangled nerves and knotted muscles. You'll feel rejuvenated and renewed, restored in both body and mind.

Eases Joint Pain and Stiffness
Infrared Ray heat therapy is widely used to treat patients suffering from many forms of arthritis. In addition, it has been proved effective in the treatment of sprains, neuralgia, bursitis, muscle spasms, joint stiffness and many other muscular-skeletal ailments.

Speeds Recovery
The deep heat of your Bio Mat 2000 helps peripheral blood vessels dilate, bringing, relief and healing to muscle and soft tissue injuries. Increased blood circulation carries off metabolic waste products and delivers oxygen-rich blood to oxygen-depleted muscles, so they recover faster.
Improves the Immune System

Far Infrared Ray's deep heat raises your body temperature, inducing an artificial fever. As it works to combat the "fever", your body's immune system is strengthened. Combined with the elimination of toxins and waste produced by sweating, your overall health and resistance to disease is increased.

Increases Blood Circulation and Strengthens Cardiovascular System

FIR activates enzymes that stimulate the production of Nitric Oxide a key biological messenger, playing a role in a variety of biological process. These include blood vessel dilatation, neurotransmission, modulation of the hair cycle, and penile erections. "The more nitric oxide produced in arteries, the more the muscles relax and increase in diameter. Blood pressure also falls in the process.

Burns Calories and Controls Weight

As you relax on the gentle heat of the Bio Mat your body is actually hard at work, producing sweat, pumping blood and burning calories. According to a Journal of the American Medical Association report, in a single Infrared Ray sauna session you may burn as many calories as you would rowing or jogging for 30 minutes. So you lose weight not just water.
Improves Skin
The Bio-Mat’s Far Infrared and Negative Ions penetrate the skin deeply, helping to detoxify impurities from the skin and lymph. In addition, exfoliation is greatly enhanced by the Far Infrared, rapidly removing dead skin cells. Increased circulation draws your skin’s own natural nutrients to the surface, rejuvenating your skin’s health and appearance.

Assists in Detoxification
Far Infrared helps to detoxify the body in several important ways. Increased blood circulation stimulates the sweat glands, releasing built up toxins and waste. Daily sweating can help detoxify your body as it rids itself of an accumulation of potentially carcinogenic heavy metals, alcohol, nicotine, sodium, sulfuric acid, cholesterol, and uric acid. In addition to sweating, far infrared is capable of removing toxins via several other bodily systems.
Unique Combination of
Three Bio-Compatible Energy Therapies

1. **Far Infrared**: Though it is invisible to the human eye approximately 80% of the sun's rays fall into the *far infrared* range. It is simply a form of energy that is directly transmitted into objects because of its specific wavelength. First discovered by NASA, scientists propose it is the most beneficial electromagnetic energy available for the human body, directly affecting all metabolic and cellular functions.

2. **Negative Ion**: The key players in creating the electric energy within our body are structures called ions. Cells create electrical energy as ions move from the solutions inside the cells of our body to the solutions outside the cells. This becomes the energy source that initiates body functions ranging from muscle contraction to creative thought.

3. **Amethyst Crystal**: It has been deemed "nature's tranquilizer" by many healers because of it's effectiveness in relaxing not only the mind but also the nervous system. It is described as the crystal that works for clearing the energy blockages to provide the proper alignment of the Chakras and free flow of energy through them.
Benefits of the Therapies

**FIR Therapy** has been shown to:

- Reduce pain, stiffness, swelling and inflammation
- Improving lymph flow and the endocrine system.
- Increase blood circulation and strengthens the cardiovascular system.
- Activate healthy molecular vibration with long-lasting, life-sustaining activity by initiating enzyme activity.
- Found to penetrate deeply into the innermost parts of the body, stimulating healing and regenerating of cells, nerves and meridians hidden beneath surface, adipose (fat) and muscle tissue layers.
- Balance pH by decreasing acidity.
- Help remove toxins and detoxifying the body.
- Improve the Immune System
- Reduce Stress and Fatigue
- Improve Skin and Muscle Tone
- Help control Weight & Burns Calories
- Reduce Cholesterol
- Normalize Blood Pressure
- To attain a Deep Delta State of Relaxation

**Negative Ions** are considered to be "Natures Battery Charger".

Negative Ions are a major natural element that provides energy to the human body and have been shown to:

- Deliver a molecular level massage that accelerates and deepens all healing and cleansing processes.
- Be the "Master Power Switch", which activates the body's entire cellular communication system and makes every single body function work better. (Nobel Prize in Medicine 1991 - Reviving the Cell - When the amount of Negative Ions in the blood increases, the function of the cell is activated. Thus increasing nutrient absorption, waste elimination, metabolism and cell function.) **The reverse holds true if there is a lack of negative Ions, and too**
- many positive ions within a cell. Then, absorption of nutrition and elimination of waste material cannot be done effectively. As a result diseases happen.
- Alleviate allergies, migraines, and sinus problems.
- Purification of our Blood - Through research done by Dr. Tanaka in Japan, it was discovered that when Negative Ionization is introduced, the ions in calcium and sodium (salt) in the blood increases, and the blood is purified by increasing blood alkalinity.
- Increase the flow of oxygen to the brain; resulting in higher alertness, decreased drowsiness, and more mental energy, (Pierce J. Howard, PhD, author of “The Owners Manual for the Brain: Everyday Applications from Mind Brain Research” and director of research at the Center for Applied Cognitive Sciences in Charlotte, N.C.)
- To produce biochemical reactions that decreases levels of the mood chemical serotonin, helping to alleviate depression, relieve stress, and boost our daytime energy.

Amethyst Quartz is "Natures Super Conductor".

Scientifically found to offer the steadiest and most powerful delivery of beneficial far infrared light waves and highest vibrational frequencies into the human body.

Amethyst also aids inner alignment, balances inner body energies and clears energy blocks.

Has been shown to:

- Aid with sleep
- Improve mood and depression
- Help with swelling and inflammation
- Detoxify the body
- Enhance relaxation
- Balance and stabilize energies located within certain areas of the body
Benefits of Far Infrared Therapy

- As the molecules of your cells are illuminated with far infrared light rays of the same “frequency” it actually boosts your cellular metabolism and microcirculation.

- It can also promote the elimination of poisons, carcinogenic heavy metals and other toxic substances that the body encapsulates in water molecules and stores in the subcutaneous fat cells.
How it Works

BioMat ™ Amethyst contains more than **28lbs of amethyst crystals** which naturally produce and are superconductors of Far Infrared Rays

- When the Bio Mat™ mx Amethyst is turned on, pulses of energy (DC-Current) radiate through the layers containing the Japanese Kurare Carbon Ceramic Super Fiber Material generating Long wave Far Infrared Rays (8-12 micron) that the human body can easily absorb.

- The superconductor properties of the amethyst crystals amplify these Bio Natural rays so they can penetrate the body up to six inches unlike most other far infrared technologies which only penetrate 1 to 1.5 inches.

- Bio Mat™ mx Amethyst also has a special feature of direct conduction of negative potential that transforms positive ions to negative ions inside the human body. This process changes the acidic condition of the body to alkaline which is its natural healthy state.
The Bio-Mat 2005mx comes with an all natural silk and cotton removable mattress pad. Do not use the mat without the padding in place. To ensure heat consistency keep the Bio-Mat 2005mx covered with a natural fiber sheet, comforter or blanket.
Temperature Settings + Guidelines:

Start on lower settings and gradually increase as the body is ready to absorb more of these beneficial light rays.

Remember everyone has different backgrounds, needs, and metabolism, which can change on a daily basis. Therefore, it is important to use your intuition and listen to your own body. Kinesiology can be very helpful!

If medical guidance is needed, please consult your healthcare provider.

Improvement in the body system is felt by some people in 1 day, or it may take some people several months (2-3 months).

IMPORTANT: Drink a large glass of water before and after your Bio Mat session.

POWER ON: Negative Ions and Amethyst Crystal energy only!

**GREEN**: BROAD SPECTRUM COOL VITALITY

SAFEST FOR OVERNIGHT AND EXTENDED USE

The Green Settings have a cooling effect on body temperature, so these settings can be refreshing and energizing for rest in hot weather, or for any overheating conditions.

This setting also provides wonderful health benefits for those who would wish to begin their Biomat health program cautiously, such as those with any high-risk, pacemaker, heart condition, or sensitive to detoxification.

The ideal settings for a good, regenerative night’s sleep, and are excellent to use on a nightly basis, for cumulative health benefits.

- Provides all-purpose cellular renewal
- Clears energy blockages
- Relieves chronic symptoms (i.e. migraines)
- Uplifts and revitalizes body, mind, spirit
- Super Immunity and Energy Booster
- First Aid and Irritable Symptom Relief (i.e Headaches, Indigestion, Jet Lag)
LOW GOLD SETTINGS: Dynamic Subtle Warmth

Cycles of two hours or more

Yellow settings are ideal to use on a daily basis for relaxation, and as an adjunct to healing modalities such as massage therapy, acupuncture and physical therapies.

In addition, these settings can also be used as a great “warm up” prior to yoga, performance and athletic activities

- Safe for extended use Sports and Flexibility Training and Rehabilitation
- Injury Recovery
- Cardio and Respiratory Aid
- May Stabilize Blood Pressure Blood Sugar and Hormonal levels

HIGH GOLD SETTINGS: Deeply Penetrating Warmth

Gradually increase from 15 to 90 Minutes

Gradually increase duration from 15 min. to 1-2 hour sessions

- Joint ands Pain Relief
- Stress, Anxiety and Trauma Relief
- Profound Relaxation and Mood Elevator
- Relieves insomnia + physic-emotional trauma
- Enhances circulation, hormonal balance + sexual vitality
- Higher Consciousness Tool
RED SETTINGS

Deep Heat and Max. Therapeutics
Power Sessions of 1/2 to 1 hour: 1-2 times per week

For the deeply-purifying Biomat sauna, cover the body with a towel, and then on top of that, add several natural fiber heavy blankets. Biomat high-heat sessions are superb for relieving pain, stress, jet lag, hangover, flu, etc.

This is also a great first-aid device for winter maladies such as frostbite and winter chills. (Allow 20 minutes for the Biomat to heat up to the higher-heat settings.)

- Detoxifying for toxic, viral, cystic, acid + endemic conditions
- Restorative support for metabolic, organ + nerve functions
- Accelerates fat + cellulite-burning and natural weight loss
- Supports all-around immunity, prevention + regeneration
- Sanitizes + purifies air, bedding + environments
- Enhances Sexual Vitality

Remember you have immediate and complete control over the product temperature settings, and can accommodate comfort levels quickly and easily: simply at the touch of a button.

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1. The Bio-Mat 2005mx comes with an all natural silk and cotton removable mattress pad. Do not use the mat without the padding in place.

2. To protect the mat from soiling you may use an additional thick cotton towel on top of the mattress pad. Some people like to use an additional all natural padding on the mattress cover for comfort all night.

3. To ensure heat consistency keep the Bio-Mat 2005mx covered with a natural fiber sheet, comforter or blanket.
Importance of Hydration

- Drink a large glass of purified drinking water before and after each Bio Mat Session to prevent dehydration and to help your body detoxify the poisons that have been released.

- The optimal water to drink is alkaline ionized water from the Alka-Life water system. This water will enhance the results of the Bio Mat.
Bio Mat Special Features

• Bio Compatible
• Amethyst Effect
• Direct Conduction of Negative Ions
• Human Infrared
• Induces Delta State

Bio Compatible

• Amethyst has been found to be the only substance which clearly changes the spectrum of infrared light

• The field of Far Infrared Crystallography explains this effect in further detail. FIR refracted through amethyst crystals organizes FIR into geometrical patterns with higher bio-compatibility meaning it allows for greater increase in the utilization of the light by the human organism

• The Bio Mats Far Infrared Rays (FIR) penetrate 6-8 inches into the human body unlike most infrared saunas which only penetrate the body 1.5 to 2 inches
The “Amethyst Effect” was scientifically demonstrated using spectral analysis which showed a change in infrared light when it is refracted through amethyst crystals.

While no theory has yet been proposed regarding the Amethyst Effect, scientists hypothesize that the infrared light passed through the amethyst releases over 20 million years of information which is made available to the human body for healing purposes.

The Bio-Mat includes another sensor which generates 10 Hz infrared. World renown scientist Dr. Chian, of China has demonstrated that 10 Hz IR acts as an information carrier when passed through various materials, including human and animal DNA, pheromones, as well as gemstones such as Amethyst.

Bio-Mat’s with 10Hz IR sensors were tested along with a control group of Bio-Mat’s without the 10 Hz sensor. The most potent healing effects occurred only under the group with the 10Hz sensor. This means that infrared alone was not responsible for the healing, but rather the addition of information being released from the Amethyst as hypothesized by researchers.

As one Korean Research scientist said, “It appears that with infrared we are talking about energy, but with the addition of amethyst, and the 10 Hz IR, we are now talking about energy plus healing information. This is the critical difference between the use of infrared saunas, infrared mats (without 10Hz infrared or amethyst) and the Bio-Mat”.
Direct Conduction of Negative Ions

- The Negative Ions produced by Bio-Mat are delivered directly to the body through the skin’s surface via a bio compatible, direct current of negative potential

- The direct conduction of negative ions allows for an immediate response and change in the body’s electrical field for 100% of the people, whereby cell channels are activated for a rapid return to the body’s optimal physiological state. This greatly differs from ambient air ions delivered through the popular negative ion generators used for air cleaning, which NASA reported as only positively effecting 25% of people

- This negative potential applied to the body ionizes the Calcium and Sodium circulating in the blood

- This changes the blood pH into an alkaline state and has an overall alkalinizing effect on the body. Proper blood pH, between 6.9-7.2 is essential for optimal health. Most individuals run acidic, that is less than 6.9 and are therefore compromising their health.
Human Infrared

- The Bio-Mat is a totally unique medical device producing both, Far Infrared as well as generating 6.8 microns of Medium “Human” Infrared.

- According to NASA research, Human Infrared normalizes a variety of important physiological functions, especially glandular functions.

- This production of Human Infrared energy by the Bio-Mat makes it different from any other infrared device on the market.
Induces Delta State

- Restorative theories of sleep describe sleep as a dynamic time of healing and growth for organisms. For example, during stages 3 and 4, or slow-wave sleep (delta), growth hormone levels increase, and changes in immune function occur.

- Negative ions applied to the body via the Bio-Mat have been shown to induce a delta wave state within several minutes of usage. This greatly facilitates deep relaxation, reduction of stress, and improved sleep function. Those who have a history of poor sleep or insomnia may find the Bio-Mat very helpful.

<table>
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<td>0.5 - 3.5 cps</td>
<td>Generally associated with no thinking</td>
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<tr>
<td></td>
<td>- unconscious / superconscious</td>
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<tr>
<td></td>
<td>Access to non-physical states of existence</td>
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<td></td>
<td>A key state for healing, &quot;regeneration&quot; and &quot;rejuvenation&quot;</td>
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Hypothalmic dysfunction (a major player in CFS/FM) affects sleep, as well as blood pressure, hormonal systems, and temperature regulation. In animal studies done at the University of Tennessee by Carol Everson, Ph.D., sleep deprivation resulted in immune suppression, resulting in multiple infections (including yeast overgrowth in the gut). Many other abnormalities also occurred based on the sleep disorder. These same processes seem to occur in people with CFS/FM. (Chronic Fatigue)
Professional and Home Use of the Amethyst Far-Infrared BioMat

**Pre-Treatment**

- Waiting Room Relaxation
- Pre-Procedure Stress Reduction
- Pre-Physiotherapy Muscle Relaxation

Many practitioners are discovering how much better people respond to their sessions when their body and mind have been prepared with a soothing Bio Mat Session.
During Treatments

Works perfectly with and enhances almost every spa and therapeutic service offered

- Acupuncture
- Hypnotherapy
- Massage
- Stone Massage
- Physical Therapy
- Feldenkrais
- Chiropractic
- Bowen Therapy
- Shiatsu
- Reflexology
- Jin Shin Do
- Aromatherapy
- Lymph Massage
- Rolfing
- Detoxification
- Cranial Sacral
- Chakra Balancing
- Sound Healing
- Aesthetic Surgery Support
- Neuro-physiological Therapies

- Trigger point massage
- Point Massage
- Chi & Marma
- Athletic & Sports Massage
- Hair & Scalp Treatments (Mini Mat)
- Facials (Mini Mat)
- Manicure & Pedicure (Mini Mat)
Post Treatment

At Home Recovery & Therapy

- Pain Relief
- Accelerated Healing
- Treatments go deeper and last longer
- Increased Absorption of Supplements
- Follow-up Care

What if all a person had to do to receive such benefits was relax, and sit down for 15 to 30 minutes a day three or four times a week listening to music or watching TV or talking on the phone or even sleep all night --- now what would it be worth.
Medical Device used by Professionals

The BioMat 2000 MX is an U.S. F.D.A. Medical Device: 2954299

In the United States the BioMat 2000 MX is being prescribed by Chiropractors, Naturopathic Doctors, Medical Doctors, Orthopedic Doctors, etc. for the following conditions:

- Chronic pain
- Muscle Strain
- Lower Back and Leg Pain
- Fibromyalgia
- Chronic Pain of Neck and Back
- Lumbar Sprain
- Pelvic, Scapula and Compression Fractures
- Cervio Lumbar Strain due to Motor Vehicle Accident
- Insomnia
- Multiple Sclerosis
- Depression

Copies of prescriptions are available by request for viewing.

These prescriptions are being paid for by US. Medical Insurance Companies such as Kaiser Permanente, Ward North America, CNA, State Farm Insurance.


All products (except the amethyst pillow) are licensed medical devices, designated by the U.S. FDA. In the USA some health insurance companies have partially or fully covered the cost of the amethyst bio-mat with a doctor’s prescription.

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The Bio-Mat™ mx Amethyst is certified by the following regulators

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<th>US FDA Medical Device: 2954299 (Product Code 891-RT)</th>
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<tr>
<td>The US. Food and Drug Administration is responsible for protecting the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation’s food supply, cosmetics, and products that emit radiation. The FDA is also responsible for advancing the public health by helping to speed innovations that make medicines and foods more effective, safer, and more affordable; and helping the public get the accurate, science-based information they need to use medicines and foods to improve their health.</td>
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<td>Underwriters Laboratories is the trusted source across the globe for product compliance. Benefiting a range of customers - from manufacturers and retailers to consumers and regulating bodies - we’ve tested products for public safety for more than a century. Millions of products and their components are tested to UL’s rigorous safety standards with the result that consumers live in a safer environment than they would have otherwise.</td>
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<td>The Healthcare Common Procedure Coding System (HCPCS) was established in 1978 to provide a standardized coding system for describing the specific items and services provided in the delivery of health care. Such coding is necessary for Medicare, Medicaid, and other health insurance programs to ensure that insurance claims are processed in an orderly and consistent manner. Initially, use of the codes was voluntary, but with the implementation of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) use of the HCPCS for transactions involving health care information became mandatory. It is the standard HIPAA code set for reporting supplies, orthotic and prosthetic devices, and durable medical equipment. In combination with the Current Procedure Terminology (CPT) codes, it is also used to report physician and other health care services.</td>
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### FDA Device Listing Database

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<td>PAD, HEATING, POWERED</td>
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<td>RICHWAY INTL., INC.</td>
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<td>Establishment Operations:</td>
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Database Updated 9/06/2005
Safety Facts

• Your body’s cells will only accept and absorb FIR that’s identical in frequency. The rest passes through harmlessly. In other words it is a sympathetic energy completely safe to the human body

• The Bio-Mat protects your body from the harmful AC current by providing a 5 tiered buffering system in which the AC current is converted to DC (direct current) which is bio-electrically compatible with the human body. Alternating /AC current disturbs the human biological field and has been proven to be highly detrimental to human health. 
Note:Traditional infrared saunas and devices utilize 120 volt AC

• The Bio-Mat uses a bio-natural direct current which emits 600-1000 volts of negative potential at a speed of .001 amperes. The high voltage, low speed makes use of the higher voltage totally safe and effective

Uses High Quality Materials

• Bi-Metal is used inside Infrared Mats as a heat sensor to control heating functions within the mat.  

• There is only one type of ‘High-Quality, Long-Durability Bi-Metal’ sold on the market today. This Bi-Metal is manufactured by Texas Instruments and was originally developed for military usage. The Richway Bio-Mat is the only company that has access to and uses this high quality bi-metal in their mats. This means a guaranteed longer life of the mat, reflected in Richway’s warranty and repair policies.

• In addition, Richway recycles all of the Bi-Metal from its mats.
Third Party
Information, Research and Clinical studies
On Far Infrared Therapy
And Negative Ion Therapy
Ions in the Body

- Cells create electrical energy as ions move from the solutions inside the cells of our body to the solutions outside the cells. This form of energy is a staple in the normal function of many body systems.

- The replication of this process to adjacent areas of the cell membrane forms the electrical message, or nervous impulse, that moves along the nerve cell toward another cell in the body.

- This propagated action potential then becomes the energy source that initiates body functions ranging from muscle contraction to creative thought.

- Ion channels are present in the membranes that surround all biological cells. By conducting and controlling the flow of ions, these pore-forming membrane proteins help establish the small negative voltage that all cells possess at rest.

- Because "voltage-gated" channels underlie the nerve impulse and because "transmitter-gated" channels mediate conduction across the synapses, channels are especially prominent components of the nervous system.
So how do negative Ions make us healthier?

Through research done by Dr. Takada Maku in Japan, it was discovered that when negative ionization is introduced, the Ions in calcium and natrium (salt) in the blood increases, and the blood is purified by increasing blood alkaline. When the amount of negative Ions in the blood is increased, the function of a cell is activated. The electrical material exchange speeds up the cell function, and as a result, nutrition is fully absorbed by the cell and waste material is eliminated. Metabolism is increased and the function of the cell is gradually revived.

At the Public Hygiene Class at Shinsa University, clinical research showed the following: most people experienced good effects in relation to their internal organs after a few weeks of usage. The stomach showed the fastest effects, and the function of the liver was improved which counteracted many poisons.

Dr. Koudo Michio reported that symptoms of paralysis had been dramatically reduced after supplying negative Ions for 30 days. After 90 days of treatment, the patient had recovered completely. Dr. Koudo Michio said that the negative Ion treatment is very effective for light shoulder sclerosis, as well as, symptoms of paralysis in fingers, arms, and the whole body due to occupational effects experienced by the nervous system.
In Kumamoto Hospital Japan, Dr. Nagayama of the Kyoto Pain Research Institute found the pain relieving efficiency of the negative ion had a notable effect on most headache and neuralgia cases.

If 600 to 1000 volts of negative potential is applied to an insulated body, more calcium and sodium minerals in the circulating blood get ionized, thus changing an acidified body to an alkaline body. Although it uses a high voltage, since there is no current flowing there is no danger.

**Substantiated by the Nobel Medical Committee**

The Nobel Assembly at the Karolinska Institute has today decided to award the Nobel Prize in Physiology or Medicine 1991 jointly to Dr. Erwin Neher and Dr. Bert Sakmann for their discoveries concerning "the function of single ion channels in cells"
Effects of Negative Ions

Negative ions are exceedingly beneficial for human metabolism as a means of enhancing our behavior. They act in a complex mechanism to bring about hormone and biochemical reactions in the body and brain functioning. Positive ions, or the lack of negative ions, may cause serotonin hyper function syndrome or “irritation syndrome,” which involves sleeplessness, irritability, tension, migraine, nausea, heart palpitations, hot flashes with sweating or chills, tremor and dizziness. The elderly become depressed, apathetic and extremely fatigued.

Just as benefits accrue from immersing yourself in negative ions, detrimental effects come from breathing air high in positive ions. As the table above reveals, before a storm, the positive/negative ion ratio is 3:1. As the barometer falls, humans and animals alike react testily, leading to illness, accidents, stupid mistakes, and just irrationally “blowing off steam.” Once the storm passes, the positive/negative ratio is 1:3, and we all enjoy breathing the refreshing air.

Positive ion air encourages increased physical discomforts ranging from headaches and nausea to the familiar rheumatic twinges that precede storms. Even the healing rate of wounds has been found to slow, while the risk of infection accelerates. Tension and depression are certainly more common. On the dog days of summer, when the positive ion index climbs, psychiatrists find that more neurotics slip across into pathological psychosis than at other times. Law enforcement also finds that sex crimes rise, as do all other categories of violent crime, such as road rage.

Conversely, when the weather is quite comfortable, negative ion air not only stimulates morale but actually relieves certain chronic diseases. Experiments with negative ionization have shown marked improvement for sufferers from high blood pressure, asthma, and hay fever.

When we breathe, negative oxygen ions carry that health-giving negative charge throughout the body, whereas the positive charge may attack the blood platelets (thrombocytes), which in sensitive patients, release their irritating hormone, serotonin. This release produces dryness, burning and itching of the nose, nasal obstruction, headaches, dry, scratchy throat, difficulty in swallowing, dry lips, dizziness, difficulty in breathing, and itching of the eyes. Negative ions do not produce this unpleasant serotonin syndrome; they act directly on the respiratory enzyme, cytochrome ozidase and promote cell respiration.
Serotonin also acts as a bronchial constrictor and slows the clearing action of the cilia, thus allowing the mucus to thicken. With hay fever sufferers or other respiratory problems, serotonin greatly aggravates the condition. The elderly may experience difficulty in breathing; asthmatics wheeze, rheumatic people feel their joints, and in general, sleeplessness or insomnia, irritability and tension are exacerbated.

Migraine patients suffer with nausea and vomiting, and optical disturbances. Heart cases complain of palpitations, heart pain and oppression. Women before the age of menopause complain of hot flashes with sweats or chills.

In general, exposure to negatively ionized air has been shown to increase oxygenation of the lungs, vital capacity, and ciliary activity. All types of beneficial responses take place as a result of friendly negative ions. Also, negative ions help balance the endocrine glands, which play an important role in reducing the effects of stress. A shift toward alkalinity occurs in the blood, and the body normalizes metabolism of vitamins, which increases both static and dynamic work capacity and endurance.

Again, lack of negative ions and excessive positive ions cause illness. Negative ions have been found to improve health in a wide variety of areas:

1. Arthritis symptoms in the hands, feet, knees and neck.
2. Joint disease.
3. High blood pressure.
5. Sinusitis.
6. Pulmonary tuberculosis.
7. Peripheral neuritis, diseases of the peripheral nervous system.
8. Stress symptoms.
10. Mental instability, psychosis, mania, rage, clouded thinking with positive ions.
11. Pulmonary emphysema.
12. Pneumonia, laryngitis.
13. Dry hacking cough.
15. Allergies / hay fever.
17. Nausea, general malaise.
18. Anger, such as road rage, air rage, and shooting rage.
19. Asthma.
Negative Ion Research

**Negative ions help prevent migraine headaches.**

Migraine headaches originate when an overload of serotonin causes the diameter of blood vessels leading to the brain to dilate, and get wider in the brain. Consequently, blood flow increases, and pain receptors in the vessels are stretched, which leads to the excruciating pain associated with a migraine headache (*Borne, 1998; others*). In numerous tests and studies though, *negative ion* treatment has proven to prevent the overproduction of serotonin, and therefore the subsequent migraine headaches (*Kreuger, 1957; Soyka, 1991; Sulman, 1974*).

**Negative ions improve asthma and other respiratory conditions.**

In the early 1960s, Dr. A. P. Wehner used *negative ion generators* to treat over 1,000 patients in the U. S. suffering from various respiratory ills, such as bronchial asthma, pulmonary emphysema, laryngitis, bronchitis, dry hacking cough, upper respiratory tract infection, and allergies. He reported that the symptoms completely disappeared in 30.3% of the cases, improved significantly in 42.3% of the cases, showed some improvement in 20% of the cases, and showed no signs of improvement in 7.4% of the cases (*Wehner, 1962*).

Positive ions, which occur in high levels in many indoor environments, inhibit the body’s ability to prevent pollutants and contaminates from entering the vulnerable areas of the respiratory tract. However, an overdose of negative ions has proven to provide counteraction to this effect (*Kreuger, 1974; Soyka, 1991; Tchijewski, 1960*).

**Negative ions are a natural anti-depressant.**

In a study conducted by Columbia University, 25 people with SAD (Seasonal Affective Depression) sat in front of a *negative ion air purifier* for a half hour every morning for a month. Half the subjects were given a low level of negative ions, and the other half a high level. The higher level of negative ion treatment proved to be as effective against SAD as antidepressants, such as Prozac and Zoloft, and without the side effects of these drugs (*Finley, 1996*).

**Negative ions for a positive attitude**

Positive ions, which are found in abundance in most indoor environments, cause an overproduction of serotonin. Serotonin is a neurotransmitter that helps the body deal with mental, emotional, and physiological stress. An overproduction initially causes hyperactivity, which rapidly leads to anxiety, and in some cases depression. Negative ion treatment has proven to be successful in reducing the overproduction of serotonin, and therefore successful in alleviating depression in some cases (*Kreuger, 1957*).
The Nobel Prize in Physiology or Medicine 1991

"for their discoveries concerning the function of single ion channels in cells"

Erwin Neher

1/2 of the prize

Federal Republic of Germany

Max-Planck-Institut für Biophysikalische Chemie
Goettingen, Germany

b. 1944

Bert Sakmann

1/2 of the prize

Federal Republic of Germany

Max-Planck-Institut für medizinische Forschung
Heidelberg, Germany

b. 1942
Press Release: The 1991 Nobel Prize in Physiology or Medicine

NOBELFÖRSAMLINGEN KAROLINSKA INSTITUTET
THE NOBEL ASSEMBLY AT THE KAROLINSKA INSTITUTE

7 October 1991

The Nobel Assembly at the Karolinska Institute has today decided to award the Nobel Prize in Physiology or Medicine for 1991 jointly to

Erwin Neher and Bert Sakmann

For their discoveries concerning "the function of single ion channels in cells".

Summary
Each living cell is surrounded by a membrane which separates the world within the cell from its exterior. In this membrane there are channels, through which the cell communicates with its surroundings. These channels consist of single molecules or complexes of molecules and have the ability to allow passage of charged atoms, that is ions. The regulation of ion channels influences the life of the cell and its functions under normal and pathological conditions. The Nobel Prize in Physiology or Medicine for 1991 is awarded for the discoveries of the function of ion channels. The two German cell physiologists Erwin Neher and Bert Sakmann have together developed a technique that allows the registration of the incredibly small electrical currents (amounting to a picoampere - 10^-12A) that passes through a single ion channel. The technique is unique in that it records how a single channel molecule alters its shape and in that way controls the flow of current within a time frame of a few millionths of a second.

Neher and Sakmann conclusively established with their technique that ion channels do exist and how they function. They have demonstrated what happens during the opening or closure of an ion channel with a diameter corresponding to that of a single sodium or chloride ion. Several ion channels are regulated by a receptor localized to one part of the channel molecule which upon activation alters its shape. Neher and Sakmann have shown which parts of the molecule that constitute the "sensor" and the interior wall of the channel. They also showed how the channel regulates the passage of positively or negatively charged ions. This new knowledge and this new analytical tool has during the past ten years revolutionized modern biology, facilitated research, and contributed to the understanding of the cellular mechanisms underlying several diseases, including diabetes and cystic fibrosis.
What Happens Inside the Cell?

Inside the cell membrane there is a well-defined environment, in which many complex biochemical processes take place. The interior of the cell differs in important respects from its outside. For example the contents of positive sodium and potassium ions and negatively charged chloride ions are quite different. This leads to a difference in electrical potential over the cell membrane, amounting to 0.03 to 0.1 volts. This is usually referred to as the membrane potential.

The cell uses the membrane potential in several ways. By rapidly opening channels for sodium ions the membrane potential is altered radically within a thousandth of a second. Cells in the nervous system communicate with each other by means of such electrical signals of around a tenth of a volt that rapidly travel along the nerve processes. When they reach the point of contact between two cells - the synapse - they induce the release of a transmitter substance. This substance affects receptors on the target cell, often by opening ion channels. The membrane potential is hereby altered so that the cell is stimulated or inhibited. The nervous system consists of a series of networks each comprised of nerve cells connected by synapses with different functions. New memory traces in the brain are for example created by altering the number of available ion channels in the synapses of a given network.

All cells function in a similar way. In fact, life itself begins with a change in membrane potential. As the sperm merges with the egg cell at the instant of fertilization ion channels are activated. The resultant change in membrane potential prevents the access of other sperm cells. All cells - for instance nerve cells, gland cells, and blood cells - have a characteristic set of ion channels that enable them to carry out their specific functions. The ion channels consist of single molecules or complexes of molecules, that forms the wall of the channel - or pore - that traverses the cell membrane and connects the exterior to the interior of the cell (Figure 1B and 1D). The diameter of the pore is so small that it corresponds to that of a single ion (0.5-0.6 millionths of a millimetre). An immediate change in the shape of the molecule leads to either an opening or a closure of the ion channel. This can occur upon activation of the receptor part of the molecule (Figure 1D) by a specific signal molecule. Alternatively a specific part of the molecule that senses changes in membrane potential can open or close the ion channel.

![Figure 1](image_url)

**Figure 1.** Registration of the flow of current through single ion channels using the recording technique of Neher and Sakmann. **A** schematically shows how a glass micropipette is brought in contact with the cell, and **B**, using a higher magnification, a part of the cell membrane, with ion channels, in close contact with the tip of the pipette. The interior of the pipette is connected to an electronic amplifier. **C** shows a channel in greater magnification with its receptor facing the exterior of the cell and its ion filter. **D** shows the current passing through the ion channel as it opens.
Neher and Sakmann Record the Electric Current Flowing Through a Single Ion Channel

It has long been known that there is a rapid ion exchange over the cell membrane, but Neher and Sakmann were the first to show that specific ion channels actually exist. To elucidate how an ion channel operates it is necessary to be able to record how the channel opens and closes. This appeared elusive since the ionic current through a single ion channel is extraordinarily small. In addition, the small ion channel molecules are embedded in the cell membrane. Neher and Sakmann succeeded in solving these difficulties. They developed a thin glass micropipette (a thousandths of a millimeter in diameter) as a recording electrode. When it is brought in contact with the cell membrane, it will form a tight seal with the periphery of the pipette orifice (Figure 1A, B). As a consequence the exchange of ions between the inside of the pipette and the outside can only occur through the ion channel in the membrane fragment (Figure 1B). When a single ion channel opens, ions will move through the channel as an electric current, since they are charged. Through a refinement of the electronic equipment and the experimental conditions they succeeded in measuring this "microscopical" current by laborious methodological developments during the seventies (Figure 1C).

How Does an Ion Channel Operate?
Ion channels are of different types. Some only permit the flow of positively charged sodium, potassium or calcium ions, others only negatively charged chloride ions. Neher and Sakmann discovered how this specificity is accomplished. One reason is the diameter of the ion channel, which is adapted to the diameter of a particular ion. In one class of ion channels, there are also two rings of positively or negatively charged amino acids. They form an ionic filter (see Figure 1D), which only permits ions with an opposite charge to pass through the filter. In particular Sakmann through a creative interaction with different molecular biologists elucidated how the different parts of the ion channel molecule(s) operate. Neher and Sakmann's scientific achievements have radically changed our views on the function of the cell and the contents of text books of cell biology. Their methods are now used by thousands of scientists all over the world.

The Study of Secretory Processes
Nerve cells, as well as hormone-producing cells and cells engaged in the host defence (like mast cells) secrete different agents. They are stored in vesicles enclosed by a membrane. When the cell is stimulated the vesicles move to the cell surface. The cell and vesicle membranes fuse and the agent is liberated. The mast cell secretes histamine and other agents that give rise to local inflammatory reactions. The cells of the adrenal medulla liberate the stress hormone adrenaline, and the beta cells in the pancreas insulin. Neher elucidated the secretory processes in these cell types through the development of a new technique which records the fusion of the vesicle(s) with the cell membrane. Neher realized that the electric properties of a cell would change if its surface area increased making it possible to record the actual secretory process. Through further developments of their sophisticated equipment the resolution finally permitted recording of each little vesicle fusing with the cell membrane.
Regulation of Ion Channel Function

Neher and Sakmann also used the electrode pipette to inject different agents into the cell, and they could thereby investigate the different steps in the secretory process within the cell itself (see above). In this way a number of cellular secretory mechanisms have been clarified such as the role of cyclic AMP (see Nobel Prize to Sutherland 1971) or calcium ions. For instance, we now have a better understanding of how the hormone levels in the blood are maintained at a certain level.

Also the basal mechanisms underlying the secretion of insulin have been identified. The level of blood glucose controls the level of glucose within the insulin-forming cell, which in turn regulates the level of the energy rich substance ATP. ATP acts directly on a particular type of ion channel which controls the electric membrane potential of the cell. The change of membrane potential then indirectly influences other ion channels, which permit calcium ions to pass into the cell. The calcium ions subsequently trigger the insulin secretion. In diabetes the insulin secretion is out of order. Certain drugs commonly used to stimulate insulin secretion in diabetes act directly on the ATP-controlled ion channels.

Many other diseases depend entirely, or partially, on a defect regulation of ion channels, and a number of drugs act directly on ion channels. Many pathological mechanisms have been clarified during the eighties through ion channel studies, for instance cystic fibrosis (chloride ion channels), epilepsy (sodium and potassium ion channels), several cardio-vascular diseases (calcium ion channels), and neuro-muscular disorders like Lambert-Eatons disease (calcium ion channels). With the help of the technique of Neher and Sakmann it is now possible to tailormake drugs, to achieve an optimal effect on particular ion channels of importance in a given disease. Drugs against anxiety act for instance on certain inhibitory ionic channels in the brain. Alcohol, nicotine and other poisons act on yet other sets of ion channels.

In summary, Neher and Sakmann's contributions have meant a revolution for the field of cell biology, for the understanding of different disease mechanisms, and opened a way to develop new and more specific drugs.

References


This article can be found on the web at: http://nobelprize.org/medicine/laureates/1991/index.html
Why Far Infrared Therapy?

FIR has the ability to penetrate, refract, radiate and reflect. The human body can absorb FIR because of its deep penetrating ability. When FIR penetrates through skin to the subcutaneous tissues, it transforms from light energy into heat energy. The thermal effect within the deep layers of the tissues causes blood vessels and capillaries to dilate, promoting a better blood circulation, and the heat so produced helps to get rid of body toxins and metabolic wastes through sweating.

FIR energy that is absorbed by human cells, causes a physical phenomenon called "resonance". Thus the cellular activities are instantly invigorated, resulting in a better blood circulation and an overall improved metabolism.

The quicker metabolic rate causes extra toxic waste products to be purged from the body through the skin, during perspiration. The skin is often referred to as the 3rd kidney, because it is believed to be responsible for eliminating 30% of the body's waste.
Dr. Toshio Yamazaki is the author of "The Science of Far Infrared Ray Therapy", and other books. She notes health problems helped or reduced with Far Infrared technology include:

- Asthma, Bronchitis (cleared up)
- Rheumatoid Arthritis (7 out of 10 cases resolved in one clinical trial)
- Cancer pain (greatly relieved)
- Cirrhosis of the Liver (reversed)
- Chrone's disease (cleared)
- Cold hand and feet (20-25% improvement maintained)
- Cystitis (gone)
- Duodenal ulcers (eliminated)
- Gastritis (relieved)
- Haemorrhoids (reduced)
- Hepatitis (gone)
- High Blood pressure (reduced)
- Keloids (significantly softened and in some cases completely gone)
- Leg ulcers (healed)
- Radiation sickness (relieved signs and symptoms)
- Teenage skin problems (cleared)
- Tinitus (chronic case cleared in 10 treatments)
- Eczema and Psoriasis (responded well)
- Pain Relief

Far-infrared cellular purification

Dr. Toshiko Yamazaki, MD owns an Far-infrared therapy clinic in Japan where she has done extensive research on the uses of Far Infrared Therapy or Infrared Light Therapy. In her book, "The Science of Far-Infrared Therapies," she explains that one of the reasons Far Infrared Therapy has beneficial results in a variety of illnesses is the ability of Far-infrared waves to remove toxins with mercury detoxification, which is often at the core of many health problems. Since humans are bio-accumulators, numerous toxins that disturb natural body healing and cannot be removed immediately after entry are stored in our bodies and prevent future natural body healing.
Far Infrared in the Body

- First discovered by NASA, scientists

- Most beneficial electromagnetic energy available for the human body, directly affecting all metabolic and cellular functions.

- Our tissues normally produce infrared energy for warmth, tissue repair and is associated with a variety of healing responses.

- At times, the infrared energy in our tissues may require a boost to a higher level to ensure the fullest healing possible.
HOW IT WORKS IN THE HUMAN BODY

The human body absorbs Infrared quickly and easily. The water molecules in the body begin to vibrate which causes heat reaction through resonant absorption (click here more for info on resonant absorption). When the temperature under the skin increases, our capillaries expand which promotes increased blood circulation. This response eliminates obstacles that hinder metabolism and activates the tissues, which in turn produces certain enzymes.

The water molecules in the blood are likewise changed into micro-molecules, and rid the body of toxic waste as well as increase the body's metabolic rate. Far Infrared in the blood stream is able to neutralize blood toxicity, as well as smoothes the walls of arteries, capillaries and veins.

- A research conducted by Japanese medical Professor (Tanji) on white mice with cancer cells showed that application of FIR (Ceramic Heater Rays) could also help enhance the cancer cells back to normal healthy cells

WORLD WIDE CLINICAL REPORTS

Over the past 25 years, Japanese and Chinese researchers and clinicians have completed extensive research on infrared treatments and report many provocative findings. In Japan, there is an "infrared society" composed of medical doctors and physical therapists dedicated to furthering infrared research. Their findings support the health benefits of infrared therapy as a vital method of healing.

There have been over 700,000 infrared thermal systems sold in Asia for whole-body treatments. An additional 30 million people have received localized infrared treatment in Asia, Europe, and Australia utilizing lamps, which emit the same 2 to 25 micron wave bands as employed in a whole-body system.

In Germany, physicians in an independently developed forum have used whole-body infrared therapy for over 80 years.

Infrared is being used as a valuable whole body healing modality in many countries at this time. Unfortunately the majority of the population is still unaware of this essential tool for health and quality of life.

Dr. Tadashi Ishikawa, a member of the Research and Development Department of Fuji Medical, received a patent in 1965 for a zirconia ceramic infrared heater used in the first infrared thermal systems. For 14 years medical practitioners in Japan were the only ones using infrared thermal systems. They were finally released for public use in 1979. Further refined systems have been available in the United States since 1981. Have you ever been in a newborn nursery in a hospital? Infrared heat is used to keep the babies warm in hospitals around the world.
RESONANT ABSORPTION

The natural resonant frequencies of water and organic substances are within the FIR frequencies. Therefore water and organic substances absorb energy easily from the radiated FIR wave. The normal absorption of this resonant frequency for the human body is 8 to 15 microns. This is within the absorbable range all organic matter on our planet.

When an electronic wave of many different wave lengths is radiated on a substance, some waves are reflected away and some waves just pass through the substance. The visible light spectrum is comprised of very short wave lengths, which are generally reflected away from a substance. The radio frequencies are comprised of long wave lengths which generally pass through a substance and out the other side. Other frequency wave bands are absorbed by a substance and the temperature of that substance rises.

![Image of electromagnetic spectrum]

We live in an environment of FIR waves and our body receives and radiates them. The FIR waves coming from the sun are the safest and the most beneficial electromagnetic energy source available.

To prove that infrared supports life consider the following. Only few creatures can survive under the extreme conditions of the North and South Poles due to the lack of infrared rays from the sun. This clearly indicates that the warmth generated by infrared rays is key in promoting metabolism and subsequently supporting life.

* above material adapted from article by Dr Aaron M. Flickstein
What the experts say

The National Institute of Arthritis and Musculoskeletal and Skin Diseases
(NIAMS; a subsection of NIH) stresses that heat can reduce the pain and inflammation of arthritis by increasing blood flow, maximizing the patient's tolerance for pain, and enhancing flexibility.\[4\] The agency also points out that heat application does not require a professional physical therapist but may be safely applied at home.

Other Therapeutic Effects of Infrared Heat

summarized from Chapter 9 of Therapeutic Heat and Cold, Fourth Edition, Editors Justus F. Lehmann, M.D., Williams, and Wilkin

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</th>
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<tr>
<td><strong>Infrared heat affects soft tissue injury.</strong></td>
<td>Infrared healing is now becoming a leading edge care for soft tissue injuries to promote both relief in chronic or intractable &quot;permanent&quot; cases, and accelerated healing in newer injuries.</td>
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<tr>
<td><strong>Infrared heat assists in resolution of inflammatory infiltrates, edema, and exudates.</strong></td>
<td>Increased peripheral circulation provides the transport needed to help evacuate edema, which can help inflammation, decrease pain, and help speed healing.</td>
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<tr>
<td><strong>Infrared heat relieves muscle spasms.</strong></td>
<td>Muscle spasms have long been observed to be reduced through the use of heat, be they secondary to underlying skeletal, joint, or neuropathological conditions. This result is possibly produced by the combined effect of heat on both primary and secondary afferent nerves from spindle cells and from its effects on Golgi tendon organs. The results produced demonstrated their peak effect within the therapeutic temperature range obtainable with radiant heat.</td>
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<tr>
<td><strong>Infrared heat treatment leads to pain relief.</strong></td>
<td>Pain may be relieved via the reduction of attendant or secondary spasms. Pain is also at times related to ischemia (lack of blood supply) due to tension or spasm that can be improved by the hyperemia that heat-induced vasodilatation produces, thus breaking the feedback loop in which the ischemia leads to further spasm and then more pain. Heat has been shown to reduce pain sensation by direct action on both free-nerve endings in tissues and on peripheral nerves.</td>
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<tr>
<td><strong>Infrared heat increases blood flow.</strong></td>
<td>Heating one area of the body produces reflex-modulated vasodilators in distant-body areas, even in the absence of a change in core body temperature. Heating muscles produces an increased blood flow level similar to that seen during exercise. Temperature elevation also produces an increased blood flow and dilation directly in capillaries, arterioles, and venules, probably through direct action on their smooth muscles. The release of bradykinin, released as a consequence of sweat-gland activity, also produces increased blood flow and vasodilatation.</td>
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<td><strong>Infrared heat increases the extensibility of collagen tissues.</strong></td>
<td>Tissues heated to 45 degrees Celsius and then stretched exhibit a non-elastic residual elongation of about 0.5 to 0.9 percent that persists after the stretch is removed. Stretching of tissue in the presence of heat would be especially valuable in working with ligaments, joint capsules, tendons, fasciae, and synoviurn that have become scarred, thickened, or contracted. Such stretching at 45 degrees Celsius caused much less weakening in stretched tissues for a given elongation than a similar elongation produced at normal tissue temperatures.</td>
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The effects of repeated thermal therapy for two patients with chronic fatigue syndrome

Akinori Masudaa, Takashi Kiharab, Tsuyoshi Fukudomeb, Takuro Shinsatob, Shinichi Minagoeb, Chuwa Teib

Abstract

Objective This paper describes the successful treatment of two patients with chronic fatigue syndrome (CFS) using repeated thermal therapy. Methods: Two patients with CFS underwent treatment with prednisolone (PSL), with no satisfactory effect. They were subjected to thermal therapy that consisted of a far-infrared ray dry sauna at 60 °C and postsauna warming. The therapy was performed once a day, for a total of 35 sessions. After discharge, these subjects continued the therapy once or twice a week on an outpatient basis for 1 year. Results: Symptoms such as fatigue, pain, sleep disturbance, and low-grade fever were dramatically improved after 15 to 25 sessions of thermal therapy. Although PSL administration was discontinued, the subjects showed no relapse or exacerbation of symptoms during the first year after discharge. The patients became socially rehabilitated 6 months after discharge. Conclusions These results suggest that repeated thermal therapy might be a promising method for the treatment of CFS.

http://www.journals.elsevierhealth.com/periodicals/psr/article/PIIS0022399904006452/abstract

PMID: 15992574 [PubMed - indexed for MEDLINE]
Hyperthermia in Cancer Treatment: Questions and Answers

1. What is hyperthermia?

Hyperthermia (also called thermal therapy or thermotherapy) is a type of cancer treatment in which body tissue is exposed to high temperatures (up to 113°F). Research has shown that high temperatures can damage and kill cancer cells, usually with minimal injury to normal tissues (1). By killing cancer cells and damaging proteins and structures within cells (2), hyperthermia may shrink tumors.

Hyperthermia is under study in clinical trials (research studies with people) and is not widely available (see Question 5).

2. How is hyperthermia used to treat cancer?

Hyperthermia is almost always used with other forms of cancer therapy, such as radiation therapy and chemotherapy (1, 3). Hyperthermia may make some cancer cells more sensitive to radiation or harm other cancer cells that radiation cannot damage. When hyperthermia and radiation therapy are combined, they are often given within an hour of each other. Hyperthermia can also enhance the effects of certain anticancer drugs.

Numerous clinical trials have studied hyperthermia in combination with radiation therapy and/or chemotherapy. These studies have focused on the treatment of many types of cancer, including sarcoma, melanoma, and cancers of the head and neck, brain, lung, esophagus, breast, bladder, rectum, liver, appendix, cervix, and peritoneal lining (mesothelioma) (1, 3, 4, 5, 6, 7). Many of these studies, but not all, have shown a significant reduction in tumor size when hyperthermia is combined with other treatments (1, 3, 6, 7). However, not all of these studies have shown increased survival in patients receiving the combined treatments (3, 5, 7).
3. What are the different methods of hyperthermia?

Several methods of hyperthermia are currently under study, including local, regional, and whole-body hyperthermia (1, 3, 4, 5, 6, 7, 8, 9).

- **In local hyperthermia**, heat is applied to a small area, such as a tumor, using various techniques that deliver energy to heat the tumor. Different types of energy may be used to apply heat, including microwave, radiofrequency, and ultrasound. Depending on the tumor location, there are several approaches to local hyperthermia:
  - **External** approaches are used to treat tumors that are in or just below the skin. External applicators are positioned around or near the appropriate region, and energy is focused on the tumor to raise its temperature.
  - **Intraluminal** or **endocavitary** methods may be used to treat tumors within or near body cavities, such as the esophagus or rectum. Probes are placed inside the cavity and inserted into the tumor to deliver energy and heat the area directly.
  - **Interstitial** techniques are used to treat tumors deep within the body, such as brain tumors. This technique allows the tumor to be heated to higher temperatures than external techniques. Under anesthesia, probes or needles are inserted into the tumor. Imaging techniques, such as ultrasound, may be used to make sure the probe is properly positioned within the tumor. The heat source is then inserted into the probe. **Radiofrequency ablation** (RFA) is a type of interstitial hyperthermia that uses radio waves to heat and kill cancer cells.

- **In regional hyperthermia**, various approaches may be used to heat large areas of tissue, such as a body cavity, organ, or limb.
  - **Deep tissue** approaches may be used to treat cancers within the body, such as cervical or bladder cancer. External applicators are positioned around the body cavity or organ to be treated, and microwave or radiofrequency energy is focused on the area to raise its temperature.
  - **Regional perfusion** techniques can be used to treat cancers in the arms and legs, such as melanoma, or cancer in some organs, such as the liver or lung. In this procedure, some of the patient’s blood is removed, heated, and then pumped (perfused) back into the limb or organ. Anticancer drugs are commonly given during this treatment.
  - **Continuous hyperthermic peritoneal perfusion (CHPP)** is a technique used to treat cancers within the peritoneal cavity (the space within the abdomen that contains the intestines, stomach, and liver), including primary peritoneal mesothelioma and stomach cancer. During surgery, heated anticancer drugs flow from a warming device through the peritoneal cavity. The peritoneal cavity temperature reaches 106–108°F.
  - **Whole-body hyperthermia** is used to treat metastatic cancer that has spread throughout the body. This can be accomplished by several techniques that raise the body temperature to 107–108°F, including the use of thermal chambers (similar to large incubators) or hot water blankets.

The effectiveness of hyperthermia treatment is related to the temperature achieved during the treatment, as well as the length of treatment and cell and tissue characteristics (1, 2). To ensure that the desired temperature is reached, but not exceeded, the temperature of the tumor and surrounding tissue is monitored throughout hyperthermia treatment (3, 5, 7). Using local anesthesia, the doctor inserts small needles or tubes with tiny thermometers into the treatment area to monitor the temperature. Imaging techniques, such as CT (computed tomography), may be used to make sure the probes are properly positioned (5).
4. Does hyperthermia have any complications or side effects?

Most normal tissues are not damaged during hyperthermia if the temperature remains under 111°F. However, due to regional differences in tissue characteristics, higher temperatures may occur in various spots. This can result in burns, blisters, discomfort, or pain (1, 5, 7). Perfusion techniques can cause tissue swelling, blood clots, bleeding, and other damage to the normal tissues in the perfused area; however, most of these side effects are temporary. Whole-body hyperthermia can cause more serious side effects, including cardiac and vascular disorders, but these effects are uncommon (1, 3, 7). Diarrhea, nausea, and vomiting are commonly observed after whole-body hyperthermia (7).

5. What does the future hold for hyperthermia?

A number of challenges must be overcome before hyperthermia can be considered a standard treatment for cancer (1, 3, 6, 7). Many clinical trials are being conducted to evaluate the effectiveness of hyperthermia. Some trials continue to research hyperthermia in combination with other therapies for the treatment of different cancers. Other studies focus on improving hyperthermia techniques.

To learn more about clinical trials, call the National Cancer Institute’s (NCI) Cancer Information Service at the telephone number listed below or visit the clinical trials page of the NCI’s Web site at http://www.cancer.gov/clinical_trials/ on the Internet.

Selected References

Healing Qualities of Stones

AMETHYST

Mental Healing
Amethyst as a healing stone contains sobering and calming qualities which allow this stone to be commonly associated with peace. Amethyst is known to calm and protect the mind. It soothes those who have engaged in constant rigorous mental activity. It has been deemed "nature's tranquilizer" by many healers because of its effectiveness in relaxing not only the mind but also the nervous system. This stone has the ability to reduce negativity and alleviate anxiety.

Besides being a stone of tranquility and repose, amethyst is also known to enhance mental strength, stability, and vigor. It also is protective in averting the mind from psychic attacks and transforming negative energy into that of positive and tranquil tenacity. It is also used to bring understanding of all that is transitional, especially death and rebirth. It can provide security and peace of mind (along with understanding) when a loved one is lost or reborn. It is said to also have a relieving effect on stress, grief, depression, emotional despair and ineffective communication.

Amethyst and the Chakras
Amethyst has identified as a crystal that functions favorably in clearing certain types of blockage and in aligning the Chakras. By transforming energies on all levels amethyst also has the ability to balance and stabilize energies located within certain Chakra areas. Amethyst is related to and found to heal and align ailments of the 6th and 7th Chakras, which are the Third Eye or Brow (6th) and the Crown (7th).
Amethyst aides the 6th Chakra, Third Eye, by opening and heighten awareness, both spiritual and psychic. Its calming qualities help to awaken and ease stress in this area. It helps to also heighten perspective and allows development of strong introspection (inner-self view). Amethyst is used to also increase intuition and psychic development. The Third Eye is the energy center for all levels of consciousness for which amethyst aides the in the transition from a normal state of consciousness to a deeper awareness.

The 7th Chakra or the Crown controls the energies used in any mental activity. Amethyst helps to relieve strain or tension in this area. It is considered a helpful aide in meditation and in the facilitation of psychic visual enhancement. It is used on the Crown to allow past life recall to emerge. It’s tranquil sobering effect allows those who are energetic to relax. It also is a cure for insomnia and nightmares and makes the intuition sensitive to understanding that outside of scientific reasoning.

**Physical Healing**
Along with the many mental benefits of amethyst healing, there are also many physical afflictions for which the healing powers of amethyst are a remedy. As an elixir, (solution as a medicinal substance) amethyst can be used to treat toothaches, skeletal discomforts, posture and other bone and joint-related sicknesses (like arthritis). In elixir form amethyst also cures problems within the stomach and digestive tract, the heart and hearing disorders. It has been known to treat various types of blood disease and balancing blood sugar. Amethyst as a healing stone or crystal is used to treat and heal problems involving the central nervous system. Amethyst is a treatment for both convulsions and neuralgia.

The Tibetan monks also used amethysts in their rosaries, to ward off the evil or negative forces. All throughout the Orient, amethyst is thus viewed as the tool to deflect the negative energy.

According to Ayurvedic practices, amethyst is a very effective healer through the Chakra system which tends to divide the body in several energy circles. In Chakra therapy, amethyst is described as the crystal that works for clearing the energy blockages to provide the proper alignment of the Chakras and free flow of energy through them. Amethyst is associated with 6th and 7th Chakras located at brow and crown areas respectively. Amethyst is believed to stabilize energies and heal the ailments located within these Chakra areas.
TOURMALINE

Tourmaline is a naturally occurring mineral widely used as a semi-precious gemstone, and it has unique electric properties responsible for many beneficial health effects.

Tourmaline is known to generate a weak electric current, producing far infrared rays and converting moisture in the air to negative ions. In fact, many of the beneficial effects of tourmaline are thought to be brought about by the negative ions it emits.

Suppresses Electromagnetic Fields - In recent years, tourmaline has been closely investigated for its potential to counteract the effects of electromagnetic fields, which are thought to be harmful. Researchers suspect that the weak electric current generated by tourmaline suppresses electromagnetic fields in the immediate environment.

In holistic healing, tourmaline is known for a variety of healing properties (such as enhancing mental alertness, increasing self-confidence, and strengthening one’s psychic energy), with the particular use depending on the color of the gem. Black tourmaline has been used since ancient times to deflect negative energy. It is linked to the root chakra and spiritual grounding in energetic healing and is used for treating anxiety, nervous disorders, kidney and adrenal problems, and heart disease. Black tourmaline is also thought to boost immune function and shield the body from the effects of radiation.

These tourmaline crystals protect against the harmful energies of our fellow men, such as envy, anger, disfavor, greed etc. Furthermore, it helps us to neutralize our own negativity. They are true carriers of light and can take us, with regular use, to higher levels of consciousness. It feeds the ability to remain at higher levels of consciousness for longer period of time, which serves our spiritual evolution noticeably.
Bio-Mat™ mx Amethyst Professional Package

Measures  (31.91"w x 77.81"h
Electric Consumption: 160w Temperature: 35c to 70c / 95f to 158f

This mat comes in a massage-table size for all-purpose functionality and ease of mobility. Great tool, for massage therapists, chiropractors, or individual who works in a Health-related field. It comes with a travel case and 100% cotton padded cover.

This is an U.S. F.D.A. Medical Device: 2954299.

Includes the Bio-Mat™ mx Amethyst and Tourmaline Pillow which features a therapeutic Memory foam shape to provide additional support for your neck while comfortably cradling your head. Keeps your head cool while your body gets hot, and allows the healing properties of the Amethyst crystals to calm and relax your mind.

Includes a luxurious velour zip cover for easy cleaning.

Amethyst Pillow 480 x 300 x120mm / 19" x 12" x 4.3"
Net Weight 2.7kg / 6lb Amethyst Weight 0.7kg Tourmaline Weight 0.4kg

Price: $1,600  USD

$100 Professional discount with copy of license- $1,500 USD + $90 USD S&H
Bio–Mat™ mx Amethyst Professional

Measures (31.91"w x 77.81"h)

This mat comes in a massage-table size for all-purpose functionality and ease of mobility. Great tool for massage therapists, chiropractors or individual who works in a Health-related field. It comes with a travel case and 100% cotton padded cover.

This is an U.S. F.D.A. Medical Device: 2954299.

Electric Consumption: 160w
Temperature: 35c to 70c / 95f to 158f

Price: $1,350 USD.

$100 Professional discount with copy of license–

$1,250 USD. + $60 USD S&H

Bio–Mat™ mx Amethyst Single

Measures 35.43"w x 77.81"h.

Fits nicely on a twin bed.
Electric Consumption: 180w
Temperature: 35c to 70c / 95f to 158f

(Pillow sold separately.)

Price: $2400 USD. + $100 USD S&H
Bio-Mat™ mx Amethyst Queen

Measures 55.11"w x 77.81"h.

Comes with dual control to adjust settings on each side separately.

Electric Consumption: 330w

Temperature: 35c to 70c / 95f to 158f

Price: $3200 USD + $130 USD S&H

(Pillow sold separately.)

Bio-Mat™ mx Amethyst Mini-Mat

Great for Yoga!

Measures 20"w x 34"h.

Perfect for offices or salons anywhere a contoured shape is needed. Buy a converter and use it while driving for a soothing ride.

Electrical consumption: 100w.

Temperature 35c to 70c / 95f to 158f

Price: $750.00 USD. on SALE NOW for $550 USD + $40 USD S&H

Bio-Mat™ mx Amethyst and Tourmaline Pillow

Developed for NASA this space-age Elastic memory foam conforms to your head and neck to ensure an anatomically supportive sleep posture. Features a therapeutic shape to provide additional support for your neck while comfortably cradling your head. Keeps your head cool while your body gets hot, and allows the healing properties of the Amethyst crystals to calm and relax your mind.

Considered a must according to Eastern Medicine. Includes a luxurious velour zip cover for easy cleaning

Price: $250 USD + $30 S&H
Price: $1650 USD. + $80 USD S&H

Price: $1,100 USD. + $60 USD S&H

Silk Comforter with Jade Inserts One Size
Price: $500 USD +$35 USD (S&H)
PRODUCT WARRANTY AND SERVICE REGISTRATION FORM


We warrant to you, the original purchaser, that our products and all their parts and components are free of defects in material or workmanship. "Defects" as used in this warranty, is defined as any imperfections which impair or impede the function and use of the product.

This warranty applies under conditions of normal use. RichWay International, Inc. shall not be liable for any incidental or consequential damages as a direct result of negligence or misuse, use on improper voltage/current, or by usage contrary to the operation instructions indicated. Disassembly, repair, or alteration, by any person other than those from an authorized service center is strictly prohibited.

Our warranty obligation is expressly limited to repair or replace parts and components from the time of purchase to the period or warranty stated for that product.

If your products require service, please contact our customer service department at 808.589.2800.

To obtain service under this warranty, you must call the company prior to submitting your product to RichWay International at the address printed above.

In addition, you must also present or send your RichWay product together with a copy of the original sales slip, your charge or credit card receipt or other proof of the date of the original retail purchase of the product, to RichWay International at the address printed above.

Any postage, insurance, transportation or shipping costs incurred in presenting or sending your RichWay product for service is your responsibility. However, RichWay International, Inc. will pay for all repair and/or replacement costs.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the limitations or exclusion may not apply to you.

The duration of any implied warranty of merchantability, fitness for a particular purpose, or otherwise, on this product shall be limited to the duration of the applicable express warranty set forth above. In no event shall RichWay International, Inc. be liable for any loss, inconvenience or damage whether direct, incidental, consequential or otherwise with respect to this product, except as set forth herein.

PRODUCT WARRANTIES

Alkal-Life 3000SL: 1 year
BIO-MAT™: 1 year
Bio-Mat Professional: 1 year
Amethyst Pillow: 1 year
Rejuvena 2000SL: 1 year

CUSTOMER NAME ___________________________

ADDRESS ___________________________

CITY / STATE / ZIP ___________________________

SPONSOR NAME ___________________________

DATE OF PURCHASE ___________________________

PRODUCT / MODEL # ___________________________

RI NO. ___________________________

SIGNATURE ___________________________

DATE ___________________________

FOR CORPORATE USE ONLY

REC/D: ___________________________

EXP: ___________________________

CO: NO:

UPGRADING RICHWAY PRODUCTS. 50% OFF DIRECT EXCHANGE POLICY**

Greeting Everyone:

We are very pleased that the BIO-MAT™ is a huge success. As always, we strive for excellence by introducing new developments and enhancing our products to provide you with state of the art health benefits.

There are many of you who have been with us “for the long haul”. Therefore, in an effort to make sure that all members are benefiting from our new developments, we now provide PRODUCT UPGRADE OPTIONS. This upgrade applies to RichWay Products only.

50% OFF DIRECT EXCHANGE POLICY**

When you trade in your old RichWay’s Products (BIO-MAT™, Alkal-Life, Rejuvena, Pillow, Car-Bio Seat) you will be able to purchase a new RichWay’s Products, for half its retail value.

*Trade-in values for models different than your own are as follows: (No sales commission, and no sales volume points will be applied.)

SEE REVERSE SIDE FOR MORE BENEFITS AND A GREAT OFFER!!

LIFE TIME!
Practitioners Comments:

**Acupuncture**

I have found that by using the Amethyst Professional Bio Mat in my sessions with clients that the treatments are far more efficient and deeper states of receptivity to the treatments are experienced by my clients.

Garnet Watson, DTCM. RAC. Hyperbaric Oxygen Centre for Health, Victoria, B.C.

**Shiatsu and Acupuncture**

"The Amethyst Professional Bio Mat is truly a marvel, & an answer to my prayers for assistance in healing others & myself. One of the branches of Asian medicine I use, Zen Shiatsu, was unsurpassed in my practice until adding the Biomat to my healing tools. Now a dimension of treatment that goes even deeper & holds longer, with the additional modality of the Biomat, is being experienced. From my observations this is also true with acupuncture treatments performed on the Biomat – the experience is just incomparable! And, since these deep states of relaxation leading to healing are attainable with the Biomat alone, this can mean that often less (if any other) intervention is required, thus more freedom to focus on only the treatments that are most needed. I love this minimalist, less-is-more way of working & the Biomat makes it so much easier & more effective."

Janus Lee L. Ac., BA, MS Oriental Medicine, CP Zen Shiatsu ~ Austin, TX

**Hypnotherapy**

It is amazing to notice that once my clients have finished the pre session talk about the changes they would like to make and then they lye on the mat, the healing process is almost immediately complete. They go into such a deep relaxed state within 5 minutes it is easy for them to access the subconscious mind something that used to take up to 20 min. in a session. It is like lying in Heaven, as the Amethyst moves the energy up through the higher chakras putting them into the Delta healing state. Jenn uses it with all her massage treatments and I use it with my hypnotherapy clients. Personally, I love the mat as much, if not more than the day you first brought it here.

Bev Miller, Counselor, Hypnotherapist, Yoga Instructor, Victoria, BC Canada

**Yoga**

"I have been using the Mini-BioMat when I practice Restorative Yoga Postures in a reclining position - ie., Supta Baddha Konasana, Legs Up the Wall & Savasana; also, I am finding it to be useful for Pelvic Tilts, gentle Bridge, even Shoulderstand & Plough. Sometimes, I turn over onto my belly as it is cooling down & I am finding it to be very soothing - especially for Manipura Chakra. Often, I sit on the mat & meditate & chant after Relaxation. It seems that the chants vibrate more clearly through me when I sit on the BioMat. Sometimes, I just use it plain & simple - for healing & relaxation. Thank you so much."

Ginny Williamson, Lithe & Easy Yoga ~ Port Charlotte, FL
Massage

Hi I am Joyce Carrington, LMT my experience with the Biomat was to get a free session on the mat at a massage therapist's office. I immediately felt the tingling in my right elbow where I had been suffering with tendonitis for the past few years and the deep sense of relaxation. When I got up all the pain in my elbow was gone. I then went to a client's home to perform a massage and she commented that my hands were very hot, confirming that the treatment was continuing. I have been relieved of pain since receiving my mat and have placed them with several clients who have been helped with their complaints as well.

JC-FL

Pain Clinic

I've just returned from a 10 day residential stay at the Victoria Pain Clinic. I am slowly getting back on track. It was quite an extraordinary experience. While there I was able to borrow a Pro Bio-Mat for a few days so that clients and staff could have an opportunity to try it. Everyone loved it and it was always in use. So far I've received 3 testimonials, included below, and I'm expecting a few more and will forward them when received.

I loved the Bio-Mat; the warmth permeated my whole body and gave me the energy to get up and go again!  Tracy Mercer  Rossland, BC

My report of the Amethyst Bio-Mat was incredible warmth and energy (I went out walking in the surf for 45 min) and openness (also my angel card) (so there was overlap with other spiritual events/realities). And you can quote as much of that as you want to. I believe it could be used as another tool to unblock our energetic stuck ness.  Dr. Kathy Jans, Arizona

Laying on the mat gave me a great deal of comfort....I feel relaxed...Walking on clouds....Amazing experience...The mat brought calm, relaxation and good feeling....I will recommend it to everyone....Try it once and you will not regret it...Thank you!  Carmen Tomescu  Vancouver, BC

As for me, I love it too. It was a wonderful tool to have access to at the Pain Clinic. I found that it gave me energy to get through day; short sessions (10-15 min.) on High Gold setting boosted my energy and eased the pain so that I was able to be present in class. It gives me hope for my future.

AnnMarie Follett, Victoria, BC
Personal Experiences and results:

**Brain Tumor**

Date: June 23 2007  
Arthur L. Valbuena  
My name is Arthur Valbuena and I would like to share the unbelievable experiences I've made with the Bio mat.  
For the past two years, I have been experiencing severe headaches and dizziness and being rushed to the emergency room numerous times due to blackouts. I’ve consulted with many doctors and tried all medications that would possibly help my physical trauma.  
I was introduced to the Bio Mat and the Richway Water Ionizer from my cousin Tessie in august 2005. She advised and recommended that I use the product. I was skeptical about the product and never utilized it until February 2007, when I was diagnosed with a brain tumor and scheduled for surgery in April 2007.  
After using the Bio Mat for 2 months the cloudy mist and tumor has disappeared and my headaches and dizziness was gone, as well. I feel more energetic and active as I was before. As of today, the Bio Mat is my healing tool for all types of ailments.  
For the promotors and producers who designed the Bio Mat, I salute you!!  
I thank our Gracious Lord above daily for being introduced to this amazing product from my cousin Tessie Diga who continues her undying mission to help people with the Bio Mat. I strongly recommend this product to everyone with health ailments.  
Share my experience : (808) 224-1346  
Arthur L Valbuena , Hawaii, USA

**Prostate Cancer**

Date: June 29, 2007  
Attention: Richway International Inc.  
1314 S. King Street 520  
Honolulu Hawaii 96814  
Aloha Mr. and Mrs. Kim  
Again I am writing to you out of gratitude. Not only did you help save my life once with your water Ionizer, But again with your Amethyst Bio-Mat. As I stated in a previous testimony, about the results I received from drinking the Alkaline water, I was able to cut my insulin intake by 75% my blood pressure medicine was cut in half and my Health restored to the point that people would stop me and comment on how good I looked I had color in my skin again some people even questioned if I had plastic surgery. That was back in 2002.  
Today I am writing to let you know how beneficial your Bio-Mat has been to me. In March 2004 I was diagnosed with Prostate cancer. I had no Symptoms I had normal PSA blood levels. Yet after having a Biopsy preformed at Queens Hospital it showed I had a stage 4 Tumor and a Gleason score of 8(This is how they grade prostate Tumors) the only thing worse would have been a score of 9.1 had to have a radical prostatectomy, this was done in September 04 at Tripler Army Hospital where they removed my prostate, Unfortunately they weren’t able to get all the Cancer, the Dr's
never set the Margins wide enough, so I was left with basically more Cancer in me then they
removed. In March of 2005 I was given a Terminal Diagnosis they said I had 18 Months to live.
I had shared this information with my friends at Richway. They informed me of one of their newer
Products the Amethyst Crystal Bio-Mat. which produces negative Ions and also with a combination
of heat Infrared Waves that can penetrate the Body 6~7 Inches.
What I found to be so amazing I had just watched a TV special about Stanford University and
Harvard University Co-Sponsoring a study which uses Infrared Rays to treat Cancer rather then
the conventional radiation. Scientific studies show a Cancer Cell will die at 113’ Fahrenheit while
normal cells will actually rejuvenate at this Temperature.
I purchased a Professional size Bio-mat, as I left the building I bumped into my old Doctor who
new all about my drinking the ionized water and actually followed my progress for 6 Months while
drinking the water. He was amazed at the results.
When he asked what I was carrying? I told him about Bio-Mat and the possibilities it had of helping
with my Cancer. He told me I did the right thing and wished me luck.
I used the Bio-Mat for 6 Months on a regular basis. According to the Dr’s my expiration date was
September 06, Today I am sitting here writing this Letter alive and well. I saw my Cancer levels
drop to an undetectable level after only 3 Months. I saw my Dr. on Friday June 22, 07. He told me I
am a Miracle my levels have dropped to a point where my Cancer is basically gone.

Colon Cancer

A Year ago I had a Friend who was diagnosed with terminal Colon Cancer. He was a good size
Man 215lbs I visited him in the Hospital he was down to 120~130lbs . He went thru Chemotherapy,
he was very sick. I called him and told him about my results with the bio-mat and asked if he would
like to give it a try?
Six Months later I saw him he was 190lbs his Cancer had gone into Remission.

Prostrate Cancer

4 Months ago a dear Friend of mine had been Diagnosed with the same type of Prostate Cancer
as mine. He underwent surgery; His Dr.s had a long regiment of after treatments for him including
Hormone Therapy, Radiation, and Chemotherapy. I cringed when he told me Radiation and
Chemotherapy as the Treatment often has worse side effects then the Disease.
I lent him my Bio-Mat and also set him up with the Alkaline Water.
So far so good he says he has never felt better in his life.
So for the second time I thank you Mr. and Mrs. Kim for providing Products that save peoples lives,
and restores hope to the lives of others and their loved ones. I know your Products work I am living
Proof.
I would be more then happy to provide more detailed information to any of your Potential
Customers.
Please give them my Name, Address and Phone Number
Sincerely
John R. Peinert
P.O. Box 630376
Lanai city, Hawaii 96763
Tel: (808) 280-9652
e-Mail: aa8197@bluebottle.com