

# FAR INFRARED TECHNOLOGY RESEARCH (FIR) WITH OBSERVATIONS ABOUT THE USA CONSUMER MARKET

## FIR Research Review

### Definitions

- **FIR's** are specific wave-lengths of light from the sun (over 1/2 the sun's energy).
- **FIR waves** are the safest and the most beneficial of the sun's waves.
- **"Radiant heat"** is neither ultraviolet radiation nor atomic radiation.
- **"Radiant heat"** is a form of energy that directly heats objects directly through a process called "conversion" without having to heat the air in between;
- **"Radiant heat"** is also known as **infrared energy-IR**;
- The **infrared segment** of the electromagnetic spectrum is divided into three segments by wave length, measured in microns or micrometers (a micron = 1/1,000,000 meter); **.076-1.5 microns = near or close; 1.5-5.6 = middle or intermediate; 5.6-1000 = far or long-wave infrared. The infrared segment of the electromagnetic spectrum occurs just below or "infra" to red light as the next lowest energy band of light.** This band of light is not visible to human eyes but can be seen by special cameras that translate infrared into colors visible to our eyes. **However, we feel this type of light, perceived as heat.**
- **The sun creates most of its energy within the infrared segment of the spectrum.** Our atmosphere has a "window" in it that allows **FIR rays** in the 7-14 micron range to safely reach the earth's surface. When warmed, the earth radiates infrared rays in the 7-14 micron band and has a peak output at 10 microns .
- **The infrared heat in a green house is just like the heat from our sun or that which our own bodies produce as they burn fuel to keep us warm.** Supposedly, bodily tissues needing a boost in their output selectively absorb FIR rays. **The internal production of infrared energy that normally occurs within our tissues is associated with a variety of healing processes.** After boosting a tissue's level to maximum, the remaining rays pass onward harmlessly. This phenomenon is called **"resonant absorption."**

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### What are the reported effects of "resonant absorption"

- **Elevates the temperature of subcutaneous layers**, by expanding blood capillaries, stimulating blood circulation, increasing metabolism between blood and tissue, promoting tissue regeneration and reducing cramping.
- **Penetrates 4-5 centimeters into the dermis** (middle skin layer) from muscles into blood vessels, lymphatic glands and nerves.
- **Affects every living cell and produces warmth.** Through this cell tissue "micro-friction" and the vibration of molecular resonance, chemicals within cells are activated.
- **The warming effect can help in reducing or eliminating** the waste products generated by aging, heavy metals and toxic substances, which are then secreted by the sweat and dermis-layer fat glands.
- **Adjusts autonomic nerve function** and reduces over-stimulation of sensory

nerves.

**What organic/physical/chemical processes do existing research suggest are involved in "resonant absorption"**

- *FIR waves reach into the cell and create water molecule resonance*
- *The waves then produce atomic molecule resonance*
- *Energy conversion occurs through absorption*
- *It forms an effect on the heart*
- *It enters to the subcutaneous cell layer*
- *Temperature is elevated*
- *Capillary dilation takes place*
- *Extravagated blood and congested toxins are excreted*
- *Cells are activated*
- *Organ cells are repaired and protected*
- *The formation of enzymes is promoted*

Proponents of FIR contend that when these waves penetrate our bodies, they are converted into the appropriate energy. **This activates self-regulating systems in our living tissue so as to alleviate bodily imbalances and leading to recovery. It is not only a beneficial health therapy, but can also be a substitute for other therapeutic modalities.** Because of its heat penetration property, FIR is reported to radiate to the meridian points of the body. A current treatment generally last 20 minutes to an hour, but supposedly it does not hurt to use it longer. Initially, relief is only temporary, but with repeated treatments relief duration can become longer and eventually lasting.

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**Scientific Interest in Studying the Energy Spectrum and Especially FIR**

**Today, scientists and physicians are studying specific wavelengths of light, such as Far Infrared, to understand their therapeutic effects on our body.** The human body is nourished directly by the stimulation of sunlight or nourished indirectly by eating foods, drinking fluids, or breathing air that has been vitalized by the sun's light energy. If certain wavelengths are missing in the light we receive, the body cannot fully absorb certain nutrients. The result is that, even with adequate nutrition, the body may be malnourished without exposure to sufficient light. Sunlight increases the ability of the lungs to absorb more vital oxygen, as well as the blood's capacity to carry and deliver it. Oxygen deficiency has been suggested as a link to a host of illnesses and maladies ranging from chronic fatigue to cancer.

When **near infrared (NIR) waves heat organic substances the surface gets hotter than the interior, and conduction from the surface heats the interior. By contrast, far infrared (FIR) penetrates deeply with a very uniform warming effect.** Recent studies suggest that not enough illumination contributes to fatigue, depression, suppressed immune function, and hair loss, skin damage. Lack of a balanced spectrum of light may contribute to loss of muscle tone and strength. **Among the energy spectrum coming from the sun, FIR waves seem to be both the safest and most beneficial electromagnetic energy sources available.**

## FAR INFRARED SUGGESTED ACTIVITY AT THE CELLULAR LEVEL

- *Far Infrared emits photons*
- *Photons help release enzymes*
- *Enzymes stimulate macrophage activity increasing the elimination of damaged and diseased tissues*
- *Nitric oxide is released which expands capillaries and increases circulation*

Infrared photons produce enzymes that activate macrophages, which help eliminate damaged and diseased tissue. Macrophages work on a cellular level. Nitric oxide is released and expands capillaries. It also increases circulation and carries toxins to the lymph system and out of the body.

**One of the reasons FIR is suggested to produce beneficial results in a variety of illnesses is the ability of FIR waves to remove toxins, which are often at the core of many health problems.** Numerous toxins are stored in our bodies. Clusters of water may encapsulate toxic gases. Where these toxins are accumulated, blood circulation is blocked and cellular energy is impaired. When a 10-micron FIR wave is applied to these large water molecules, the water begins to vibrate, which reduces the ion bonds of the atoms, which are holding together the molecules of water. As the breakdown of the water molecules occurs, encapsulated gases and other toxic materials are released.

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### More Discussion About Ions and FIR

**For over half a century, researchers have studied the relationship between ions and health.** Agreement seems to exist that our health is influenced to a significant degree by the quality and quantity of ions, which virtually saturate our natural environment. A.D. Moore, a university professor from Michigan, is a world-renown expert in the study of ions. He writes that the control of ion quantity in our air can induce positive effects on the human body, and that, for example, the intake of ion-saturated air can assist in curing patients. So it is common knowledge, today, that ions (**and particularly anions**) are integral factors in improving and sustaining health. **The best source of anions seems to be FIR.** Many ions are floating in the air at all times, but very light negative ions are among the most active.

### Some of the Benefits of Negative Ions to Human Society

There are many underlying principles, some known and some unknown, regarding the favorable effects of the negative ion. Science has applied its knowledge of negative ions to agriculture, for example, in the preservation of vegetable freshness all year round. Favorable effects have also been applied to human ergonomics and home environmental comfort. Negative ion technology is a crucial factor in effective under-floor heating systems, in soothing mud baths, in muscle-relaxing saunas, and in heating pads, etc. **Much of the consumer product advertisements that appear in health magazines and on the Web have to do with these latter-kinds of FIR applications.**

### **Traits of Far-Infrared Rays**

**Three main traits or basic characteristics need to be considered in FIR: (1) Radiation; (2) Deep-Reaching Effects; and (3) Resonance and Absorption.**

Radiation refers to the aspect of FIR in which energy is emitted in form of particles and waves, transmitted, and absorbed by matter. **The ability to exist as both particle and wave is called “electromagnetism,” manifested in FIR as well as in all other light spectra.** Other types of light, such as microwaves, travel as heat energy. In order for FIR to have a heating effect the waves must hit matter and reflect off its surface. This phenomenon is responsible for cold temperatures at higher altitudes. On tall mountain peaks, surface area decreases greatly, and there is less matter for infrared rays to reflect from objects, or to demonstrate “resonant absorption.” Heat is, therefore, not emitted.

**Most common heat sources do not affect our internal bodily organs or functions, due to their inability to “deep reach.”** Our average bodily temperature of 36.5 C is not affected substantially by fluctuating environmental conditions. Unlike environmental temperature or even visible light rays or close-infrared rays, FIR rays have the ability to penetrate deeply (up to 1.5 inches) and permeate thoroughly into the hypodermic layer of human skin. In other words, revitalizing human cells and tissue by warming the body from the inside.

We humans, and all living things are made up of organic (carbon-based) compounds including DNA, which is a giant molecule containing the genetic information for every species. Carbon compounds in our diets furnish the energy that sustains life (absorption).

Organic compounds make up most of our clothing, fuel, medicines, vehicles, pesticides, etc. but organic chemicals also are among our worst enemies including pollutants, threats to the ozone layer, etc. **There is much ongoing and future research that needs to be completed to more specifically identify the characteristics of FIR, but many investigators believe FIR to be critical in many of the most basic biochemical processes within life forms.**

### Some Representative Research

- There is a vast body of research data accumulating on FIR, with much ongoing scientific investigation being conducted in Japan, Taiwan, and South Korea. Results of these investigations show many hopeful and efficacious clinical improvements in patients receiving FIR treatments of various types. Clinical conditions being treated range from skin lacerations, teen age skin problems, scars and burns; to detoxification of the body from heavy metals, bio-toxins, and toxic gases; to increasing blood circulation and oxygen supply to damaged tissues; to blood pressure reduction due to peripheral vessels dilation. Additional conditions cited in the medical literature include significant relief from serious sunburn; to detoxification in toxic electromagnetic poisoning; to therapeutic improvement in joint stiffness, sprains, muscle pain, and arthritis; to potential use in treating many dental conditions. Treating several serious lung conditions with FIR; reducing stress related syndromes and conditions; and reported positive effects of FIR in treating side effects of installing and wearing artificial limbs; simply add to the promising research to date. *A book entitled: The Scientific Basis and Therapeutic Benefits of Far Infrared Therapy, written by Japanese medical doctor, Dr. Toshio Yamazaki, is certainly one excellent resource for citing further possible clinical advantages of using FIR.*
  
- *What is especially exciting and positive relative to this field of scientific endeavor is the creation of a Japanese FIR Professional Association <http://homepage2.nifty.com/ensekikyo/>, Korea FIR Professional Association <http://www/kfr.or.kr/>, and a most-recently incorporated Hong Kong FIR Professional Association (as of 8/11/06) (need website address).*
  
- *Dr. Tsu Tsair Oliver Chi summarized the effect of infrared rays on the body in these words, “These rays are selectively absorbed by tissues needing a boost in within our tissues is associated with a variety of healing responses and may require a boost to a maximal level to ensure the fullest healing response possible in a tissue, which is being repaired. After boosting a tissue’s level to its maximum, the remaining rays pass onward harmlessly.”*
  
- *Japanese researchers report various positive results in application to musculoskeletal cases:*
  - ✓ **TMJ Accel-Decel Injury Sequelae**
  - ✓ **Traumatic Arthritis Brain Contusion-accelerated healing**
  - ✓ **Low Back Pain relieved**
  - ✓ **Muscle Spasms-reduced or eliminated**
  - ✓ **Disc Protrusion-related Neuralgia Brain Contusion -accelerated healing**
  - ✓ **Tight Shoulders-relaxed /Muscle Tension -relaxed**
  - ✓ **Bursitis-eliminated/ Shoulder Pain-relieved or eliminated**

- ✓ **Spinal Cord Shock-reversed/ Post-exercise Muscle Pain**
- ✓ **Arthritis: Gouty, Rheumatoid-each substantially relieved or improved**
- *Medical practitioners make use of Infrared radiant heat to treat sprains, bursitis, peripheral vascular diseases, arthritis and muscle pain,” according to McGraw-Hill Encyclopedia of Science and Technology.*
- *Summary from Therapeutic Heat and Cold, 4th Ed., Ed Justus F. Lehmann M.D.*
  - Generally it is accepted that heat produces the following desirable therapeutic effects:*
    - ✓ **It increases the extensibility of collagen tissues.**
    - Tissues heated to 45 C exhibit an increase of length in tissues when stretched.
    - This effect would be especially valuable in working with ligaments, joint capsules, tendons, fascia and synovium that have become scarred, thickened or contracted.
    - Such stretching at 45 C caused much less weakening in stretched tissues than a similar stretching at normal temperatures.
    - The experiments cited clearly showed that low-force stretching can produce significant residual elongation when heat is applied together with stretching or range-of-motion exercises, and is also safer than stretching tissues at normal tissue temperatures.
    - This safer stretching effect is crucial in properly training competitive athletes so as to minimize their “down” time from injuries.
      - ✓ **It decreases joint stiffness directly;**
      - ✓ **It relieves muscle spasms;**
      - ✓ **It produces pain relief;**
      - ✓ **It increases blood flow;**
      - ✓ **It assists in resolution of inflammatory infiltrates, edema & exudates;**
      - ✓ **More recently, it has been used in cancer therapy.**

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- *Otto Warburg was nominated for the Nobel Prize in 1944 for research concerning photosynthesis in connection with the chemotherapeutics of cancer & the use of rays. His research has shown that infrared impacts cancer.*
- *Dr. Masao Nakamura of the O & P Medical Clinic in Japan has reported great success with the use of Infrared treatment for:*
  - ✓ Whiplash Menopause Shoulder stiffness;
  - ✓ Rheumatism Sciatica Arthritis;
  - ✓ Insomnia Acne Ear diseases;
  - ✓ Gastroenteritis problems.
- *Chinese Researchers reported over 90% success in a summary of Chinese studies that assessed the effect of Infrared on:*

- ✓ Soft tissue injury Lumbar strain Sciatica;
  - ✓ Eczema with infection Cholecystitis-Pelvic infection;
  - ✓ Tinea Neurodermatitis Diarrhea;
  - ✓ Neurasthenia Pediatric pneumonia menstrual pain;
  - ✓ Periarthritis of the shoulder/post-surgical infections;
  - ✓ Facial paralysis (Bell's Palsy) Frostbite with inflammation.
- *1998 Nobel Prize in Medicine Award Winners Murad, Furchgott & Ignaro found that nitric oxide gas, which is produced, by far infrared, is used by white cells to defend against tumors and allows healing to take place.*
  - *Dr. Valentino Fuster, past president of the American Heart Association, called the nitric oxide discovery "one of the most important discoveries in the history of cardiovascular medicine because it promotes expansion of the capillaries and allows blood to increase circulation in the affected area and to then reduce the risk of heart attacks and strokes.*
  - *Dr. Lon R. Horwitz reports in Augmentation of Wound Healing Using Monochromatic Infrared Energy; Advances in Wound Care; author's unpublished research, that a FIR energy modality increases nitric acid in the blood and plasma of normal adult subjects.* A 1999 publication by Dr. Horwitz strongly suggests that Far Infrared produces nitric oxide gas, which aided in the recovery of the five patients in a study, who could not get healing conventionally. They had various diabetic problems and were not able to heal, but they received the nitric oxide technology produced by the FIR, and healing took place for all of them.

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**When you apply FIR technology, these researchers report seeing healing results from the production of nitric oxide by the hemoglobin due to the reaction of the photons of the FIR on the enzymes, which produces the nitric oxide gas. The immune cells get into the area and the circulation is increased. Pain is reduced, and the area then is reported to have the immune cells necessary to get complete healing.**

- *The wide-ranging results of nitric oxide may pay off in new treatments for:*
  - ✓ Atherosclerosis (a thickening of artery walls);
  - ✓ Septic shock (a dangerous drop in blood pressure);
  - ✓ Cancer.

The Infrared protocol has been instituted after conventional management protocols were shown to be ineffective in wound healing. The rate and quality of healing of these previously refractory wounds, following use of FIR energy, may be related to local increases in nitric oxide concentration. Increases in nitric oxide previously have been demonstrated to correlate with vasodilatory and anabolic responses.

*Additional research has suggested that FIR heat produces therapeutic effects in the*

*following:*

✓ **Brain**

Short-term memory reportedly improved/accelerated repair in brain contusions;  
Cerebral hemorrhages healing with FIR both speeds up and is significantly enhanced.

✓ **Collagen Tissues**

Helps Ligaments /Joint capsules /Tendons;  
In Fascia Synovium, FIR allegedly increases range of motion;  
FIR reportedly can assist in treatment of scarred, thickened or contracted tissues;  
Can increase extensibility of collagen tissues.

✓ **Body Tissues**

Reduces acidity in the body (FIR causes fruit to ripen faster by reducing acidity).

✓ **Nerves**

Neurasthenia –FIR reportedly adjusts autonomic nerve function;  
Reportedly FIR reduces over-stimulation of sensory nerves.

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✓ **Cells**

FIR attracts calcium ions to the cellular level;  
FIR promotes adhesion and osmosis of water molecules across the cellular membrane;  
FIR stimulates enzyme activity.

✓ **Joints**

Supposedly assists in reduction of swelling and inflammation by improving lymph flow;  
Purportedly decreases joint stiffness directly.

✓ **Pain Relief**

FIR reportedly reduces neuralgia headache pain during menstruation;  
May lead to increased endorphin production, which reduces pain.

✓ **Conditions Affected by Circulation**

Reportedly increases blood flow by promoting dilation of capillaries;  
Reportedly reduces clogged capillary vessels in hypertension arteriosclerosis;  
Reportedly affects high blood pressure/low blood pressure in coronary artery disease;  
Can reportedly reduce arthritis sciatica backaches;  
Can be positive in treating hemorrhoids/nervous tension/diabetes;  
May be useful in treating varicose veins/neuritis bursitis;  
Can be effective with rheumatism /strained muscles/fatigue;  
Can reduce stretch marks/menstrual cramps/upset stomach;  
Can reduce negative symptoms of piles/poor peripheral circulation.

✓ **Cardiovascular**

Fir may be effective in treating atherosclerosis (thickening of artery walls due to fatty



deposits)

May assist with septic shock (dangerous drop of blood pressure)

- ✓ ***Research by NASA in the early 1980's led to the conclusion that infrared stimulation of cardiovascular function would be the ideal way to maintain cardiovascular conditioning in American astronauts during long space flights.***

As the body works to cool itself, there is a substantial increase in heart rate, cardiac output and metabolic rate, and blood flow rises.

- ✓ **Inflammatory infiltrates, edema, and exudates**

Reportedly reduces edema of the joints/inflammation of joints/tendonitis

Can positively influence sprain joint stiffness/peripheral occlusive disease

Can reduce the symptoms of gout

Can reportedly speed up healing / Reports of treatment with infrared have been so successful that hospital stays were reported to have been reduced by 25%.

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- ✓ **Cancer**

FIR has possible efficacy in cancer therapy/cancer of the tongue

FIR may assist in treating radiation sickness/seems to relieve signs & symptoms

Suggested efficacy in treating cancer pain/pain reportedly relieved in later stages of cancer

### **FIR heat can penetrate through the body and will reportedly kill cancerous cells**

(Cancerous cells cannot exist if blood circulation is smooth. Good circulation in the capillaries leave no room for a cancerous cell to settle down. (A cancerous cell has to settle down so it can proliferate.) FIR helps capillaries to expand, improving circulation. The cancer cell also has a weakness: heat above 42 deg C can kill it. FIR heat can reportedly penetrate through the body and kill cancerous cells. FIR treatment raises body temperature. FIR therapy can reportedly alleviate pain and prolong life when conventional cancer treatment fails. Surgery, radiotherapy and chemotherapy are considered detrimental to health, since they are invasive treatments. FIR therapy and immuno-therapy are currently regarded as non-invasive. FIR may be very beneficial).

- ✓ **Dentistry**

- ***Dr. John Tate, DDS, is quoted as saying; "I have used the FIR dome with over fifty high risk surgical cases without complication or dry sockets on 92% of the patients . . . . They get what we call complete healing. The macrophages produce collagen necessary to stimulate the fibroblasts, and the tissue of the fibroblasts then will stimulate the osteoblast-which is bone. That is where the bone forms and it starts in the first three days - but it takes about six months for complete healing. The two main cells we need in dentistry and in surgery around the bone area are the macrophages and the neutrophils" (which are activated by far infrared heat).***

"The macrophage is called the "pac man" of the immune system. The macrophage is a cell that engulfs and digests microorganisms. Everything

starts with the macrophage - “macro” meaning big and “phage” meaning eater. So we have a big eater here. The tentacle on the macrophage grabs the staphylococci and a bacillus rod, and that macrophage extends a pseudo paw to get the bacteria that is now invading our blood!”

✓ **Immune System**

FIR may assist in pelvic infection/post-surgical infection;

FIR may be an efficacious treatment in toe-and-finger-nail fungus;

[There is an immune response facilitated by the photons of the FIR technology that turns on the enzyme system, particularly the nitric oxide synthase enzyme.

More white blood cells means greater immune function and resistance to disease and viruses. It is well established medically that this is the mechanism involved in the FIR technology. One autoimmune disease which may be assisted by FIR is Scleroderma (an autoimmune disease where collagen builds up and healing cannot take place because the circulation can't get to the area due to the buildup of the collagen).]

✓ **Problems that may accompany aging and may be assisted by FIR treatment**

Menopause/ cold hands & feet/high blood pressure

Rheumatoid arthritis/radiation sickness/sequelae of strokes

Leg ulcers/rheumatism/insomnia

Benign prostatic hypertrophy/pain which affects ability to sleep

Pain from a metal joint implant/speeds healing of joint implants

Compression fracture pain

✓ **Diseases of organs which may be assisted by FIR treatment**

Duodenal ulcers/hepatitis gastritis

Cirrhosis of liver/hemorrhoids/asthma

Bronchitis/Crohn's Disease/post-surgical adhesions

Cystitis/heartburn/nephritis

Gastric and duodenal ulcers/stomach ache/gastroenteric

Reduces density of uric acid/cholecystitis

✓ **Ear, nose and throat conditions that might be assisted by FIR treatment**

Sore throats/earache/nosebleeds

Tinea

Chronic middle-ear inflammation & infection

Tinnitus chronic (one reported severe case cleared with 10 FIR treatments )

✓ **Respiratory conditions possibly assisted by FIR treatment**

Chest colds/bronchitis/pneumonia

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✓ **Skin conditions that may be assisted by FIR treatment**

Clogged pores/poor skin tone/open wounds

Laceration/body odor/loosens dead outer skin

Eczema/psoriasis/aging skin  
Chapping/chilblains/frostbite  
Rashes/removes roughness/improves skin tone  
Nettle rash/neurodermatitis  
Leg & decubitus ulcers improved, when previously resistant to other care  
Dandruff due to increased blood flow through the scalp  
Burns-scars and pain from burns and wounds are decreased in severity and extent. FIR therapy is used routinely in burn units throughout Asia.  
Keloids-significantly softened and in some cases completely gone  
Acne-FIR may open pores that have not been functioning in years  
Sunburn - FIR radiations are the only antidote to excessive ultraviolet radiation, according to Clayton's Electrotherapy, Ninth Ed.

✓ **Musculoskeletal conditions possibly assisted by FIR treatment**

Arthritis/Accel-decel injury sequelae /brain contusion  
Lumbago/relieves muscle spasms/TMJ/arthritis  
Cramping/whiplash/lumbar strain  
Muscle tension/spinal cord shock/post-exercise muscle pain  
Bursitis/muscle spasms/knee injuries  
Paralysis/sciatica/neuralgia  
Abnormal nerve functions  
Back, shoulder, neck and muscle pain  
Facial paralysis (Bell's Palsy)  
Reduces muscle spasms as muscle fibers are heated  
Great for warming up before exercise

✓ **Soft Tissue injuries which may be assisted by FIR treatment**

Soft tissue injuries-promotes relief in chronic cases/accelerated healing in newer injuries  
Auto accident-related soft tissue injury/cellulite  
Aids in regeneration of tissue  
Reduces soreness through direct action on nerve endings in tissues and on periphery.

✓ **Weight Loss may be assisted by FIR treatment**

Direct excretion of fat. /burns calories/increases metabolism  
Weight loss can come through the energy use needed to produce sweating  
Cellulite (a gel-like substance made up of fat, water and wastes, which are trapped in pockets below the skin). FIR heat can be significantly more effective than other heat methods, due to the heat penetration being twice the depth into cellulite.

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✓ **Possible reduction of fatty tissue**

Two of the highest caloric output forms of exercise are rowing and marathon running. Peak output in these sports burns about 600 calories in 30 minutes. Infrared use may better this effect by burning some 900 calories in a 30-minute session. Thus Infrared might stimulate the consumption of energy equal to that expended in a 6.9 mile run

during only a single session.

The cleansing and purifying benefits attributed to the traditional sweat lodges are now available for daily purification without the time-consuming set-up process that a sweat lodge requires. Various FIR domes and FIR sauna products may mimic the sweat lodges.

✓ **Exercise and conditioning effect**

An infrared system can play a pivotal role in both weight control and cardiovascular conditioning. FIR products may assist people in wheelchairs, or those who are otherwise unable to exert themselves or who won't follow through on an exercise and conditioning program to achieve a cardiovascular training effect. This also allows for more variety in any ongoing training program. Regular use may be as effective, as a means of cardiovascular conditioning and burning of calories, as regular exercise. For athletes, the FIR treatments seem to assist the oxygen-debt to be repaid more quickly. The FIR dome is great for warming up before stretching or starting any vigorous activity. Allow the FIR rays to pour right through your clothing until you just begin to break a sweat. Now you are pre-warmed for stretching, running, skiing in cold weather. This should help to prevent injuries.

**Caution**

**If you have a disease or are using any prescription drugs, be certain to consult with a primary-care physician before use. Some authorities consider its use inadvisable with systemic lupus, erythematosis, chronically hot and swollen joints, enclosed infections, predisposition to hemorrhage, multiple sclerosis, or during pregnancy. If you have a recent (acute) joint injury it should not be heated for the first 48 hours after an injury. If you have metal pins, rods, artificial joints or other surgical or silicone implants, consult your surgeon prior to using FIR. (Metal pins, rods, etc. generally reflect infrared rays.) FIR use must be discontinued if you experience pain near any implants. Heating of the low back area of women during the menstrual period may temporarily increase their menstrual flow.**

**The data presented herein is offered for reference purposes only and to stimulate further observation. No implication of Infrared to cure or treat any disease is implied nor should it be inferred.**

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### OBSERVATIONS ABOUT THE USA FIR CONSUMER MARKET

Any market research today is naturally subject to question, due to the incredible rate of change in the (global) public's buying appetites, along with the complexities introduced by Web-based marketing and consumer-buying patterns, which are also global rather than national or regional.

In this context of global complexity and changeability, we have the relatively recent marketing phenomena of websites such as "Shopzilla," "Yahoo! Shopping," and the like. A very recent (10-12-06) review of Shopzilla revealed a variety of far infrared saunas, clothing, massage beds, underwear, gloves, braces, UV protection, and detox consumer products for sale. On the same date, Yahoo! Shopping website listed far infrared heater technologies, saunas, and other equipment for sale.

What appears to be the case, from just casual observation is that far infrared technology-related products are at least emerging in the USA consumer market, although they are not well known, and the variety of products is limited. The fact that the FDA or other governmental agencies in the USA have not restricted or eliminated the advertising and/or sale of FIR products is encouraging, again in the context that this researcher has not found any reports, to date, of any US government restrictions or negative health reports relative to this FIR technology.

The USA consumer is, generally speaking, totally ignorant of FIR and of its possible health benefits or its application and efficacy in treating a myriad of clinical and health-related problems. This writer believes that the old American adage of "letting sleeping dogs lie," may apply in the current situation relative to introducing new FIR products to the US and European consumer publics.

In other words, instead of trying to introduce and promote FIR products to the US and Europe with claims of medical/clinical/health advantages and opportunities; this writer believes that simply introducing these products as advantageous in terms of their warming or cooling benefits (etc.)

**without reference to any health issues, might be the first, best approach to making these products known in these Western consumer markets. If health advantages and positive effects accrue to the users of these products, so much the better. Any attempt to introduce these products must be accompanied by a commitment on the part of the manufacturer to always be checking, investigating, and validating that there are no negative health or negative clinical consequences to consumers resulting from the use of these products. This must always be first and foremost in the manufacturers and distributors minds. However, the relative benign nature of these products and of the FIR technology that underpins these products gives a great deal of reassurance, on the front end, that we are dealing with a “organic-friendly” kind of technology, which is less likely to harm its customers than may be the case with many other products of modern scientific discovery.**