

FAR INFRARED SAUNA THERAPY

At BrainworX Pediatric Development Center, we are constantly looking for safe, effective, and research-proven treatment methods. Far Infrared Sauna Therapy has been proven effective in the following areas:

- Decreasing Oxidative Stress
- Reducing Inflammation
- Increasing Angiogenesis (Creating Vasculature)
- Alleviating Chronic Pain
- Increasing Metabolic Rate (Burning Calories)
- Reducing Symptoms of Allergic Rhinitis
- Reducing Symptoms of Depression

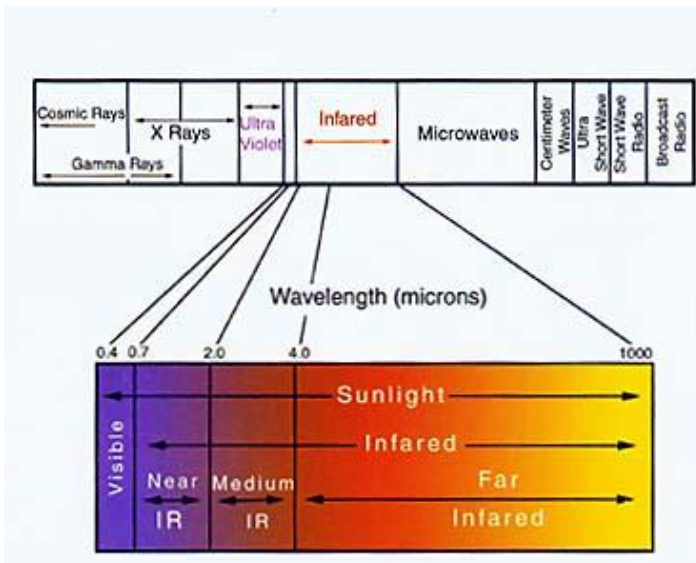
HISTORY

Palm healing, a type of healing in which one person lies their palm on the “patient,” has a 3000 year old tradition in China. This technique is based on the healing properties of the natural infrared rays that we as humans give off. German physicians have used whole body infrared therapy for over 80 years. Dr. Tadashi Ishikawa of Japan received a patent on the *zirconia* ceramic infrared heaters in 1965. These were mostly used exclusively by medical practitioners in Japan until they were released for public use in 1979. Infrared therapy has been further refined and sold in the United States since 1981.

WHAT IS FAR INFRARED?

The electromagnetic spectrum is divided into three segments by wavelength, which is measured in microns (1/1,000,000 of a meter).

1. 0.76 to 1.5 microns = near infrared
2. 1.5 to 5.6 microns = middle infrared
3. 5.6 to 1000 microns = far infrared



This wavelength of light warms objects without warming the air between the source and the object (known as conversion). This radiant heat can also be called Infrared Energy (IR). Do not confuse this with UV radiation (sunburn) or atomic radiation (nuclear) - see the diagram above for where these types of light fall on the spectrum. Infrared waves are not visible to human eyes but can be seen by special instruments that translate infrared into colors that are visible to our eyes. The best example is the sun (80% of the sun's rays are infrared). Our atmosphere allows infrared rays in the 7 to 14 micron range to safely reach the earth's surface.

When warmed, the earth radiates infrared rays with its peak output at 10 microns. The human body radiates infrared energy out through the skin at 3 to 50 microns, with most around 9.4 microns.

HOW DOES FAR INFRARED THERAPY WORK?

Far infrared sauna therapy is said to duplicate the healthy frequencies of our own cells. The tissues are purported to selectively absorb these rays as the water in the cell reacts in a process called “resonant absorption”. This resonant absorption is said to occur when the frequency of the far infrared matches the frequency of the water in the cell. This causes toxins from the cells to be put out into the blood stream and excreted in sweat, feces, and urine. Proponents of this therapy state that our tissues, which are undergoing the healing process,

may need a boost of infrared to ensure the fullest healing response. Far infrared is claimed to penetrate the body's tissues to a depth of 1.5 to 3 inches. Due to the deep penetration of infrared rays, a heating effect is observed deep in the muscular tissues and even into the internal organs. This deep heating, along with sweating, is thought to be responsible for the healing effects and the other health benefits associated with these infrared rays.

RESEARCH SUPPORTED BENEFITS

IMPROVEMENTS IN PATIENTS WITH CHRONIC PAIN

A study in *Psychotherapy and Psychosomatics* tested 46 patients with chronic pain using a variety of treatment modalities with and without far-infrared sauna. They found a decrease in pain score, pain behavior, self-rating depression and anger score in both groups of patients, but a more significant drop was noted in the sauna group. Two years after treatment, more of the patients in the sauna group had returned to work than those without sauna treatment. This may be a very promising method for the treatment of chronic pain.

Masuda, A, et al. The effects of repeated thermal therapy for patients with chronic pain. *Psychotherapy and Psychosomatics*. 2005; 74 (5): 288-94.

IMPROVEMENT IN PATIENTS WITH MILD DEPRESSION

A study out of *Psychosomatic Medicine* looked at a group of 28 mildly depressed patients with appetite loss and subjective symptoms and treated half of the patients with sauna once a day for 4 weeks and half with just bed rest for 4 weeks. They showed a significant improvement in somatic complaints, hunger and relaxation scores in the group treated with sauna compared to the control group. In addition, the plasma ghrelin and daily caloric intake improved in the sauna group significantly more than controls. More research is needed on long-term effects.

Masuda A, et al. Repeated thermal therapy diminishes appetite loss and subjective complaints in mildly depressed patients. *Psychosomatic Medicine*. 2005 67 (4): 643-47.

POSSIBLE IMPROVEMENT IN RISK FOR HEART DISEASE

A study in the *Journal of the American College of Cardiology* suggested that repeated use of a sauna improves the function of the impaired vascular endothelial cells in patients who are at risk for coronary artery disease. The mechanism of this is not fully understood and more research needs to be done in order to assess the role of sauna in prevention of heart disease.

Imamura, M, et al. Repeated thermal therapy improves impaired vascular endothelial function in patients with coronary risk factors. *Journal of the American College of Cardiology*. 2001, 38 (4): 1983-88.

[Circ J](#). 2011 Feb;75(2):348-56. Epub 2010 Dec 14.

EFFECT OF WAON THERAPY ON OXIDATIVE STRESS IN CHRONIC HEART FAILURE.

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SOURCE

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BACKGROUND:

A previous report by our team showed that Waon therapy, using a far infrared-ray dry sauna at 60°C, improves cardiac and vascular function in patients with chronic heart failure (CHF). The purpose of the present study was to clarify the effect of Waon therapy on oxidative stress in CHF patients and investigate its mechanism by animal experiments.

CONCLUSIONS:

- Waon therapy decreases oxidative stress in patients and hamsters with heart failure.

- Far infrared therapy inhibits vascular endothelial inflammation via the induction of heme oxygenase-1.

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SOURCE

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OBJECTIVE:

Survival of arteriovenous fistulas (AVFs) in hemodialysis patients is associated with both far infrared (FIR) therapy and length polymorphisms of the heme oxygenase-1 (HO-1) promoter. In this study, we evaluated whether there is an interaction between FIR radiation and HO-1 in regulating vascular inflammation.

CONCLUSIONS:

These results demonstrate that FIR therapy exerts a potent antiinflammatory effect via the induction of HO-1. The ability of FIR therapy to inhibit inflammation may play a critical role in preserving blood flow and patency of AVFs in hemodialysis patients.

[Conf Proc IEEE Eng Med Biol Soc.](#) 2007; 2007:1479-82.

CLINICAL EFFECTS OF FAR-INFRARED THERAPY IN PATIENTS WITH ALLERGIC RHINITIS.

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SOURCE

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ABSTRACT

Allergic rhinitis (AR) is the sixth most common chronic illness worldwide, which has a significant impact on patients' quality of life. The actual cost of AR is staggering, approximately \$5.6 billion being spent annually in direct medical costs and other indirect costs. Therefore, it should be taken seriously upon its evaluation and treatment. AR is an IgE-mediated inflammation, which symptoms are likely due to increased vascular permeability. Current therapeutic options such as avoidance of allergen, medication and immunotherapy are unsatisfactory. Far-infrared (FIR) is an invisible electromagnetic wave with a wavelength longer than that of visible light. It has been used to treat vascular diseases as a result of an increase in blood flow. The objective of this study was to evaluate the clinical effects of FIR therapy in patients with AR. Thirty-one patients with AR were enrolled in this study. A WS TY101 FIR emitter was placed to face the patient's nasal region at a distance of 30 cm. The treatment was performed for 40 min every morning for 7 days. Every day, patients recorded their symptoms in a diary before and during treatment. Each symptom of rhinitis was rated on a 4-point scale (0-3) according to severity. During the period of FIR therapy, the symptoms of eye itching, nasal itching, nasal stuffiness, rhinorrhea and sneezing were all significantly improved. Smell impairment was not improved until after the last treatment. No obvious adverse effect was observed in the patients during treatment and follow-up. We concluded that FIR therapy could improve the symptoms of AR and might serve as a novel treatment modality for AR.

Circ J. 2006 Apr; 70(4):463-70.

REPEATED THERMAL THERAPY UP-REGULATES ENDOTHELIAL NITRIC OXIDE SYNTHASE AND AUGMENTS ANGIOGENESIS IN A MOUSE MODEL OF HINDLIMB ISCHEMIA.

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SOURCE

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BACKGROUND:

Nitric oxide (NO), constitutively produced by endothelial NO synthase (eNOS), plays roles in angiogenesis. Having reported that thermal therapy up-regulated the expression of arterial eNOS in hamsters, we investigated whether this therapy increased angiogenesis in mice with hindlimb ischemia.

CONCLUSION:

Angiogenesis was induced via eNOS using thermal therapy in mice with hindlimb ischemia.

Jpn Heart J. 2004 Mar;45(2):297-303.

REPEATED SAUNA THERAPY REDUCES URINARY 8-EPI-PROSTAGLANDIN F (2ALPHA). (OXIDATIVE STRESS)

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SOURCE

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ABSTRACT

We have reported that repeated sauna therapy improves impaired vascular endothelial function in a patient with coronary risk factors. We hypothesized that sauna therapy decreases urinary 8-epi-prostaglandin F(2alpha) (PGF(2alpha)) levels as a marker of oxidative stress and conducted a randomized, controlled study. Twenty-eight patients with at least one coronary risk factor were divided into a sauna group (n = 14) and non-sauna group (n = 14). Sauna therapy was performed with a 60 degrees C far infrared-ray dry sauna for 15 minutes and then bed rest with a blanket for 30 minutes once a day for two weeks. Systolic blood pressure and increased urinary 8-epi-PGF(2alpha) levels in the sauna group were significantly lower than those in the non-sauna group at two weeks after admission (110 +/- 15 mmHg vs 122 +/- 13 mmHg, P < 0.05, 230 +/- 67 pg/mg x creatinine vs 380 +/- 101 pg/mg x creatinine, P < 0.0001, respectively). These results suggest that repeated sauna therapy may protect against oxidative stress, which leads to the prevention of atherosclerosis.