



Far Infrared Sauna Therapy & the heart

What can an infrared sauna do for you?

~ Take a look at the research...

Summary: Infrared sauna treatment reduces arrhythmias in patients with chronic heart failure.

After 2 weeks of 10, 15 minute infrared sessions, patients with class II or III congestive heart failure had significantly fewer premature ventricular contractions and lower brain natriuretic peptide, a polypeptide secreted by the ventricles of the heart in response to excessive stretching of heart muscle cells (cardiomyocytes).

Kihara, T., Biro, S., Ikeda, Y., Fukudone, T., Shinsato, T., Masuda, A., et al. **Effects of repeated sauna treatment on ventricular arrhythmias in patients with chronic heart failure.** *J Am Coll Cardio*, 39(5): 754-9, 2002.

Summary: Infrared sauna treatment improved vascular endothelial function, which aids in the heart's ability to pump farther and improve many of the symptoms of vascular disease common in people with hypertension, diabetes mellitus, obesity and smoking and suggests a preventative role for atherosclerosis.

Following 10, 15 minute sessions over 2 weeks, clinical symptoms improved in 17 of 20 patients with class II or III congestive heart failure, including decreases in systolic BP and brain natriuretic peptide, and improved vascular endothelial function.

Kihara, T., Biro, S., Imamura, M., Toshifuku, S., Takasaki, K., Ikeda, Y., et al. **Repeated sauna treatment improves vascular endothelia and cardiac function in patients with chronic heart failure.** *J Am Coll Cardiol*, 39(5): 754-9, 2002.



Summary: Infrared sauna treatment improves exercise tolerance and clinical symptoms in patients with chronic heart failure.

In the longest study yet, 15 hospitalized patients with class II or III congestive heart failure underwent daily 15 minute far-infrared sauna treatments over 4 weeks. Clinical symptoms improved in 13 of 15 patients with improvements in left ventricular ejection fraction (LVEF), 6 minute walking distance, systolic BP and cardiothoracic ratios and decreases in epinephrine and norepinephrine concentrations.

Miyamoto, H., Kai, H., Nakaura, H., Osada, K., Mizuta, Y., Matsumoto, A., et al. **Safety and efficacy of repeated sauna bathing in patients with chronic systolic heart failure: a preliminary report.** *J Card Fail*, 11(6):432-6, 2005.

Summary: Infrared sauna treatment may prevent atherosclerosis by decreasing oxidative stress.

Patients with at least 1 coronary risk factor that underwent 15 minute daily infrared sauna treatments over 2 weeks significantly reduced systolic BP and post-intervention urinary 8-epi-prostaglandin F(2alpha) (a marker for oxidative stress).

Masuda, A., Miyata, M., Kihara, T., Minagoe, S., Tei, C. **Repeated sauna therapy reduces urinary 8-epi-prostaglandin F(2alpha).** *Jpn Heart J*, 45(2):297-303, 2004.

Summary: Improves clinical symptoms and cardiac function and decreases cardiac size in chronic heart failure patients.

CHF patients underwent daily infrared sauna therapy for 15 minutes, then kept on bed rest with a blanket for 30 minutes over 2 weeks. Significant improvements in cardiothoracic ratio, left ventricular diastolic dimension, left atrial dimension, ejection fraction, plasma concentration of brain natriuretic peptide.

Miyata, M., Kihara, T., Kubozono, T., Ikeda, Y., Shinsato, T., Izumi, T., Matsuzaki, M., Yamaguchi, T., Kasanuki, H., Daida, H., Nagayama, M., Nishigami, K., Hirata, K., Kihara, K., Tei, C. **Beneficial effects of Waon therapy on patients with chronic heart failure: results of a prospective multicenter study.** *J Cardiol*, 52(2):79-85, 2008.



Far Infrared Sauna Therapy & arthritis

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Summary: Infrared sauna treatment decreases pain, stiffness and fatigue in persons suffering from rheumatoid arthritis.

Rheumatoid arthritis and ankylosing spondylitis patients participated in study over a 4 week period of 8 IR sauna treatments (30 minutes each) at 55 degrees celcius. Pain, stiffness and fatigue decreased clinically and was statistically significant after single sauna sessions. Pain, stiffness and fatigue showed clinical improvements over the 4 week period, though was not statistically significant. These results indicate excellent short-term benefits, with a trend towards long-term positive effects in rheumatoid arthritic patients.

Oosterveld, F. G.J., Rasker, J. J., Floors, M., Landkroon, R., van Rennes, B., Zwijnenberg, J., van de Laar, M. A. F. J., Koel, G.J. **Infrared sauna in patients with rheumatoid arthritis and ankylosing spondylitis.** Clin Reherumatol, 28:29-34, 2009.



Far Infrared Sauna Therapy & fibromyalgia

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Summary: Far-Infrared sauna treatment decreases pain by up to 78% in fibromyalgia patients.

13 female fibromyalgia patients (age 25-75) received “Waon Therapy” (far-infrared sauna therapy at 60 degrees Celsius for 15 minutes/session then transferred to a room (26-27 degrees Celsius) and covered in blankets to stay warm for 30 minutes). Treatment was once per day for 2 or 5 days/week. All patients experienced a decrease in pain by up to 78% after 10 treatments (20-78%).

Matsushita, K., Masuda, A., Tei, C. *Efficacy of Waon Therapy for Fibromyalgia. Inter Med, 47: 1473-1476, 2008.*



Far Infrared Sauna Therapy & your weight

What can an infrared sauna do for you?

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Summary: Infrared sauna treatment significantly decreases body weight and body fat in obese subjects, and decreases sensitivity to hunger hormones.

10 obese subjects that underwent daily, 15 minute infrared sauna sessions significantly decreased body weight and body fat over a 2 week protocol, without increasing plasma ghrelin concentrations, a prominent “hunger-hormone,” or decreasing plasma leptin concentrations, a satiation hormone. Furthermore, sauna treatment appeared to decrease sensitivity to circulating ghrelin, as acceleration of appetite did not occur, even on a restricted 1800 calorie diet.

Biro, S., Masuda, A., Kihara, T., **Clinical implications of thermal therapy in lifestyle-related diseases.** *Exp Biol Med*, 228(10): 1245-9, 2003.

Summary: Infrared sauna therapy dramatically reduced body fat and weight in one obese patient over 10 weeks.

Case study of one obese patient who underwent sauna therapy over 10 weeks with a 1600 cal/day diet and no exercise rapidly decreased body weight from 117.5kg to 100.0kg and body fat from 46% to 35%. The therapy also improved anxiety, anger and irritability, with no acceleration of appetite or abnormal eating during the treatment.

Biro, S., Masuda, A., Kihara, T., **Clinical implications of thermal therapy in lifestyle-related diseases.** *Exp Biol Med*, 228(10): 1245-9, 2003.



Far Infrared Sauna Therapy & skin conditions

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Summary: Hyperthermia decreases prevalence of skin lesions and prevents psoriasis recurrences.

19 of 22 patients whose skin temperature was elevated to 42-43 degrees Celcius had skin lesions disappear after the use of hyperthermia (average time=27 days). In 17 patients who were examined afterwards, the hyperthermia produced an equal or longer duration of remission than did Goeckerman's regimen.

Urabe, H., Nishitani, K., Kohda, H. **Hyperthermia in the treatment of psoriasis.** *Arch Dermatol*, 117(12):770-774, 1981.

Summary: Infrared therapy improves psoriasis symptoms in 80% of patients.

12 psoriasis patients either underwent infrared treatment for 30 minutes on both sides of the body 3 or 5 times a week for 1 month or received no treatment. There was an 80% treatment in patients who received the therapy, 30% which showed a dramatic remission.

Westerhof, W., Siddiqui, A.H., Cormane, R.H., Scholten, A. **Infrared hyperthermia and psoriasis.** *Arch Dermatol Res*, 279: 209-210, 1987.



Far Infrared Sauna Therapy & immunity

What can an infrared sauna do for you?

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Summary: A one hour infrared sauna treatment boosts immune function for at least 8 hours afterwards.

8 volunteers underwent 60 minute sessions of whole-body hyperthermia with infrared irradiation and had blood drawn at multiple times after the start of treatment. A significant increase in production of reactive oxygen species (ROS) by human polymorphonuclear leucocytes (PMN) occurred at 240 min, increasing until 510 min, suggesting a hyperthermia-dependent priming effect of ROS in PMN leucocytes (increase in immune reaction) lasting far beyond the treatment.

Loer, D., Elsner, J., Michalsen, A., Melchart, D., Volker, K., Dobos, G., **Hyperthermia-induced priming effect in neutrophil granulocytes.** *Forsh Komplementarmed*, 6(2): 86-8, 1999.

Summary: Hyperthermia boosts the primary humoral immune response in vitro.

The action of IL-1, a macrophage-derived immune booster in vitro, as a co-factor in murine (mice) T-cell mitogenesis in vitro is greatly increased at febrile temperatures. This hyperthermia-induced T cell proliferation is shown to increase the response of primary in vitro humoral immunity.

Jampel, H.D., Duff, G.W., Gershon, R.K., Atkins, E., Durum, S.K. **Fever and Immunoregulation: Hyperthermia augments the primary in vitro humoral immune response.** *J. Exp. Med.*, 157:1229-1238, 1983.



Far Infrared Sauna Therapy & chronic fatigue syndrome

What can an infrared sauna do for you?

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Summary: Far-Infrared sauna treatment decreases fatigue, pain and low-grade fever in persons with chronic fatigue syndrome.

2 Patients with chronic fatigue syndrome (CFS) received far infrared sauna treatment and had improvements in fatigue, pain and low-grade fever. Physical symptoms of pain and fatigue improved in 11 other patients as well. Furthermore, relaxation effects and diminishment in appetite loss and subjective complaints was reported in mildly depressed patients.

Masuda, A., Munemoto, T., Tei., C. **A new treatment: thermal therapy for chronic fatigue syndrome.** Nippon Rinsho, 65(6): 1093-8, 2007.



Far Infrared Sauna Therapy & anorexia nervosa

What can an infrared sauna do for you?

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Summary: Infrared sauna treatment decreases over-activity, followed by progressive recovery in three patients suffering from anorexia nervosa with marked symptoms of over-exercising.

Gutierrez, E., Vazquez, R. Heat in the treatment of patients with anorexia nervosa. Eat Weight Disord, 6(1): 49-52, 2001.