

SUNETTE

CUSTOM INFRARED SAUNA SYSTEMS

Vancouver, BC, Canada
Tel.: (604)220-3338
internet: www.sunette.com

An Introduction to Infrared Heated Saunas

Index:

- Page 2: Contraindications
- Page 3: Quick Highlights of Selected Topics of Interest
- a) Beauty
 - b) Rosacea and Mottling
 - c) Scars on Skin
 - d) Cellulite
 - e) Pain Relief
 - f) Injuries
 - g) Sports
 - h) Relaxation and Enjoyment
 - i) Weight Loss
- Page 4: Tips for Use
- Page 5: Description of the **Sunette** Infrared Sauna System
- Page 7: Health Benefits Attributed To Infrared Rays in Reports From
Around The World
- Page 9: Comparison of Traditional and Infrared Saunas

The information presented herein is offered for reference purposes only and to stimulate further observation.

NO IMPLICATION OF AN INFRARED SAUNA CREATING A CURE FOR OR TREATING ANY DISEASE IS IMPLIED NOR SHOULD IT BE INFERRED

If you have a disease, be certain to consult a primary-care physician concerning your condition.

If you are using any prescription drugs, check with your physician or pharmacist for any possible change in the effect of the drug due to any interaction with infrared energy.

It is considered inadvisable by some authorities to raise the core temperature in a person with adrenal suppression, systemic lupus erythematosus or multiple sclerosis.

If you have a recent (acute) joint injury it should not be heated for the first 48 hours or until the symptoms of heat and swelling subside. If you have a joint or joints that are chronically hot and swollen, these joints may respond poorly to vigorous heating of any kind. Vigorous heating is strictly contraindicated in cases of enclosed infections be they dental, in joints or in other tissues. Consult your primary-care physician in these cases.

If you are pregnant or suspect you may be, discontinue your sauna use. Most Finnish women who are pregnant use their saunas whose heat does not penetrate as deeply into the body as infrared heat, for only 6 - 12 minutes because they find it uncomfortable. Sauna usage at the low level of intensity is not linked to birth defects. However, infrared saunas may be 2 - 3 times more intense than conventional hot-air saunas. Shorter 2 - 6 minute sessions do not appear to justify any minimal risk they may present.

Metal pins, rods, artificial joints or any other surgical implants generally reflect infrared rays and thus are not heated by this system. Nevertheless, you should consult your surgeon prior to using an infrared sauna. Certainly, infrared sauna use must be discontinued if you experience pain near any such implants.

Silicone does absorb infrared rays. However, since silicone fails at temperatures above 200 °C (390 °F), it should not be adversely affected by an infrared sauna. It is still advised that you check with your surgeon and possibly a representative from the product manufacturer to be certain.

Haemophiliacs and anyone predisposed to hemorrhage should avoid infrared usage or any other type of heating that would induce vasodilation which can increase the tendency to bleed.

Radiant heat should not be used in the presence of photosensitivity or heat sensitivity. People with extremely low blood pressure should consult with their physicians before using an infrared sauna.

Obviously, should any condition worsen with the use of an infrared sauna, use of the system should be discontinued.

People do not experience any pain using these infrared saunas unless such treatment is contraindicated. If you do experience pain, the use of radiant heat is clearly inappropriate for you at this time.

DO NOT ATTEMPT TO SELF-TREAT ANY DISEASE WITH THIS INFRARED SAUNA

SYSTEM WITHOUT DIRECT SUPERVISION OF A PHYSICIAN

Quick Highlights of Selected Topics of Interest

The following benefits have been reported by regular users of infrared saunas

a) **Beauty:** Excellent for increasing blood circulation to the skin which is essential for beautiful, youthful, glowing skin.

A new 'inner glow' as the skin is freed of accumulated dirt and dry skin cells, due to deep cleansing of impurities.

Help for acne, eczema, psoriasis, burns and any skin lesions or cuts.

Open wounds heal more quickly and with reduced scarring.

Removes roughness, leaving skin smooth and soft.

Firms and improves skin tone and elasticity.

b) **Rosacea and Mottling:** Rosecea is one of the few skin conditions which may not respond well to infrared radiation, as the infrared heat increases vasodilation and may worsen the condition in some people. A possible solution is to apply cold compresses (not ice!) to the cheeks and nose while having a sauna to counteract the effects of vasodilation.

A light redness of the skin may appear using a sauna. This is normal. Should irregular mottling appear end your session in the sauna. This condition is associated with an overdose of IR radiation. Permanent skin damage has not been recorded. **SUNETTE** saunas are amongst the lowest temperature IR saunas and therefore mottling does not occur with proper use.

c) **Scars on Skin:** Scars fully formed, even keloid, may be gradually softened. Burns, wounds and incisions may heal with significantly reduced scarring.

d) **Cellulite:** Cellulite is a gel-like substance made up of fat, water and wastes which are trapped in pockets below the skin. An infrared sauna can help alleviate this condition, as profuse sweating helps clear this form of unwanted debris from the body. European beauty specialists confirm that a sauna will greatly speed any anti-cellulite program. Because there is at least twice the depth of heat penetration into cellulite combined with up to ten times the level of heating in these tissues, an infrared sauna can be significantly more effective than any conventional sauna.

e) **Pain Relief:** Effective for arthritis, back pain, muscle spasms, headache etc

f) **Injuries:** Radiant heat helps with sprains, strains, arthritis, muscle spasms and pain. If you are an athlete, this infrared sauna is good news. It allows oxygen-debt to be repaid more quickly. This is likely to lead to improved and faster healing of sprains and muscle pain.

g) **Sports:** The infrared sauna is the perfect solution for keeping up your cardiovascular fitness while avoiding a exercise during unpleasant weather. You may also want to just skip a workout or need to rest to allow an injury to heal. Also, infrared saunas are great for warming up before stretching or starting any vigorous activity. You simply get into the sauna with your clothes on and allow the physical heat to soak right through your clothing until you just begin to break a sweat. Now you are pre-warmed for stretching, skiing, running in cold conditions, etc.

For the maximum benefit of stretching exercises you will need a 40 minute sauna before beginning your stretch. Research indicates that stretching after a 40 minute session should produce a 0.5% permanent increase in your flexibility. Even one 20-minute session may create a temporary increase in your flexibility of up to 10%. As a warm-up, an infrared sauna should

help prevent injuries and enhance your ability to stay with your training program or enjoy any outdoor activity. An infrared sauna is also a great cold weather post-activity warm-up, especially for any frostbitten areas of the body.

h) **Relaxation and Enjoyment:** The comfortable, warm temperature removes stress.

i) **Weight Loss** - Burns 600 or more calories in just one 30-minute session! Here are how many calories a 150-pound person normally burns up in 30 minutes of various exercises.

Sport	Calories
Rowing (peak effort)	600
Swimming (crawl stroke)	300
Jogging	300
Tennis (fast game)	265
Chopping wood	265
Cycling (10 mph)	225
Golfing (without a cart)	150
Walking (3.5 mph)	150
Bowling	120
Vigorous Racquet Ball	510
Marathon Running	590

Some weight loss authorities believe that our bodies use fat to dilute toxins. Although an infrared sauna is an unsurpassed expeller of toxins, it must be noted that sweating without exercise will not reduce fat.

TIPS FOR USE

Drink liquids prior to and after your session. Water works just fine. Use the best quality of water available to you.

Eating a piece of potassium-rich fruit, such as an orange, kiwi or banana, helps to replace potassium which is lost through sweating.

The typical North American diet can replace phosphorous which is lost through perspiration.

Magnesium can be replaced by eating green leafy vegetables or with supplements.

Some facts about Gatorade: The 'energy' Gatorade supplies to muscles comes from SUGAR. The fluids are water and minerals, salt (110 mg of sodium), 97 mg of chlorine, 25 mg of potassium and 24 mg of phosphorous. People eating an average diet of commercial food already consume too much salt and phosphorous. While people could use a little more potassium, there is more than 25 mg in a tablespoon of orange juice.

If you shower or bathe before your infrared sauna session, you may sweat more. Try it with and without first bathing or showering and see which you prefer.

If you have a cold or sinusitis, try leaving an open bottle of menthol or eucalyptus oil in the sauna. This will help to clear the sinuses and facilitate breathing. Any aromatic oil, such as lavender, will increase your relaxation and enjoyment of the sauna.

Use at least 2 - 3 towels:

- a) Sit on one towel folded over several times for cushioning.
- b) Use another towel on the floor to absorb extra sweat.
- c) A third towel draped over the knees may aid in your comfort and is useful for toweling off sweat as you sauna.

SUNETTE INFRARED THERMAL SYSTEM

Radiant heat is simply a form of energy that heats objects directly through a process called conversion, without having to heat the air in between. Radiant heat is also called infrared energy (IR). It has no harmful ultraviolet rays which are found in sunlight and has nothing to do with atomic radiation. The infrared segment of the electromagnetic spectrum is divided into three segments by wave length, measured in microns or micrometers. 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. We can, however, feel the type of light which we perceive as heat. Our sun produces most of its energy output in the infrared segment of the spectrum. Our atmosphere has a 'window' in it that allows IR 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 with its peak output at 10 microns.

The sun is the principle source of radiant energy that we experience daily. We have all been outside on a partly cloudy spring day of about 10 °C (50 °F) and felt quite comfortable. When suddenly the sun was obscured by a cloud, we felt chilled although the air temperature had not had time to drop. The cloud would not let the warming infrared rays through to reach us. The infrared heat in the **SUNETTE** sauna is just like the heat from the sun or that which our own bodies produce as they burn fuel to keep us warm.

Sauna use has been popularized by the Finns, who have used it as a ceremony for mental, spiritual and physical cleansing for many centuries. This custom came with the Finns when they migrated from an area north-west of present day Tibet, between 5,000 and 3,000 years B.C. to their present location in Finland.

Dr. Tadashi Ishikawa received a patent on zircon ceramic infrared heaters used in thermal systems in 1965 after five years with the Fuji Medical Research and Development department. The thermal systems based on these heaters were used exclusively by medical practitioners in Japan until 1979 when they were released for public use. The idea has now been further refined into infrared saunas which have been sold in the United States since 1981. Panels that produce similar infrared rays are used in hospitals to warm newborn babies.

The source of infrared heat in these saunas is from solid ceramic emitters with a specific sized electrical wire embedded throughout. This wire determines the temperature and the micron output. The heaters in the infrared sauna system emit about one-third of their output in the middle infrared band, from 2-5.6 microns, for deep penetration and the other two-thirds in the long band, from 5.6-25 microns. This distribution maximizes the higher penetration of the middle-band waves and combines them with the long waves that produce a resonant absorption amplification of healthy tissue output. Researchers consider the band from 2-25 microns as the most therapeutic.

WHY THE **SUNETTE** INFRARED SAUNA SYSTEM IS UNIQUE

A **SUNETTE** sauna uses infrared radiant energy to directly penetrate the body's tissues to a depth of approximately 1". It's energy output is tuned to correspond so closely to the body's own radiant energy that our bodies absorb close to 93% of the infrared waves that reach our skin.

A conventional sauna must rely on indirect means of heat; first on convection (air currents) and then conduction (direct contact of hot air with the skin) to produce its heating effect. In an infrared sauna, less than 20% of the infrared energy heats the air, leaving over 80% available to be directly converted to heat within our bodies. Thus, an infrared system can warm its users to a much greater depth and much more efficiently than a conventional sauna, as its energy output is primarily used to convert energy directly to heat in the body and not to create excessively hot air that only heats the skin superficially. This crucial difference explains many of the unprecedented benefits reported to be available through infrared sauna systems that are not attainable through the use of a conventional sauna.

The infrared energy applied in these thermal systems may induce up to 2 - 3 times the sweat volume of a hot-air sauna while operating at a significantly cooler air temperature range of about 30 to 60 °C (86 to 140 °F) versus 82 to 107 °C (180 to 225 °F). The lower heat range is safer for those concerned about cardiovascular risk factors that may be adversely affected by the higher temperatures encountered in the conventional hot-air saunas. German researchers report beneficial effects from hour-long whole-body infrared exposure in two groups of hypertensive patients that they studied in 1989 including a 24-hour-long increase in peripheral blood flow and decreases in high blood pressure. It is also more pleasant to breath air that is 50 °C (120 °F) cooler while taking a sauna.

Due to it's 'user-friendly' nature, people naturally prefer to use a radiant heat sauna and will continue to do so on a regular basis due to the ease of breathing much cooler air while feeling as warm as they choose, and to a distinctive feeling of well-being reported by users as an after-effect. An infrared sauna may even be used with the door fully opened if the only effect required is infrared penetration or if a very cool, no-sweat experience is desired, as in a pre-activity warm-up while fully clothed. This approach might be used in warming prior to stretching, working out, running or exposure to cold weather.

Infrared saunas are easier and more comfortable to use than conventional hot-air saunas. Hot-air saunas require extensive warm-up periods of 30 - 90 minutes, making them much less practical than the modern infrared sauna systems which warm up in 5 - 10 minutes from room temperature. Consistent and convenient at-home use is thus much more likely with an infrared system.

Significantly lower operating costs make the **SUNETTE** sauna more desirable than a regular sauna. A 40-minute session, including a 10-minute warm-up in the infrared sauna costs less than one-third than that of a conventional sauna. if each is used for 40 minutes after warm-up.

The **SUNETTE** sauna brings you the same benefits experienced in the traditional American Indian sweat lodge but in a much more convenient form easily used in the privacy of your home. The cleansing and purifying benefits attributed to the traditional sweat lodges are now available for daily purification without the time-consuming and extremely labour-intensive set-up process that a sweat lodge requires.

HEALTH BENEFITS ATTRIBUTED TO INFRARED RAYS IN REPORTS FROM AROUND THE WORLD

Over the last 25 years, Japanese and Chinese researchers and clinicians have done extensive research on infrared treatments and report many provocative findings. In Japan there is an Infrared Society composed of medical doctors and physical therapists to further research and support the health benefits of infrared as a method of healing.

There have been over 700,000 infrared thermal systems sold in the Orient for whole-body treatments and an additional 30 million people have received localized infrared treatment in the Orient, Europe and Australia, with lamps tuned to the same 2 - 25 micron wave band as employed in these whole-body thermal systems. Whole-body infrared therapy has been used for over 80 years by German physicians in an independently developed form.

"Medical practitioners make use of Infrared Radiant Heat to treat sprains, strains, bursitis, peripheral vascular diseases, arthritis and muscle pain" according to the McGraw/Hill Encyclopedia of Science and Technology.

Rheumatoid Arthritis

A clinical trial in Japan reported the successful solution of seven out of seven cases of rheumatoid arthritis treated with whole body infrared therapy.

These case studies and the clinical trial indicate that further study is warranted on the use of whole-body infrared therapy in the care of patients with rheumatoid arthritis.

The following is summarized from Therapeutic Heat and Cold, 4th edition, E.D. Justus, F. Lehmann MD, Williams and Williams, Chapter 9 or concluded from the data therein.

Generally it is accepted that heat produces the following desirable therapeutic effects:

- a) It increases the extensibility of collagen tissues

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, which 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.

- b) It decreases joint stiffness directly

There was a 20% decrease in stiffness at 45 °C (113 °F) as compared with 33 °C (91 °F) in rheumatoid finger joints, which correlated perfectly to both subjective and objective observation of stiffness.

Any stiffened joint and thickened connective tissue should respond in a similar fashion.

- c) It relieves muscle spasms

Muscle spasms have long been observed to be reduced through the use of heat, be they secondary to underlying skeletal, joint or neuropathological conditions. The effects produced by each of these mechanisms demonstrated their peak effect within the therapeutic temperature range obtainable with radiant heat.

- d) It produces pain relief

Pain may be relieved via the reduction of attendant or secondary muscle spasms.

Heat has been shown to reduce pain sensation by direct action on both free-nerve endings in tissues and on peripheral nerves. In one dental study, repeated heat applications finally led to abolishment of the whole-nerve-response which was responsible for pain arising from dental pulp.

- e) It increases blood flow

Heating of one area of the body produced reflex-modulated vasodilation in distant body areas, even in the absence of a change in core body temperature; i.e. heat one extremity and the contralateral extremity also dilates, heat a forearm and both lower extremities dilate, heat the trunk and the blood vessels of the hand dilate.

Heating of muscles produces an increased blood flow level similar to that seen during exercise.

Coronary Artery Disease, Arteriosclerosis and Hypertension

Finnish researchers, talking about the regular use of conventional saunas state that "there is abundant evidence to suggest that blood vessels of regular sauna-users remain elastic and pliable longer due to the regular dilation and contraction of blood vessels induced by sauna use".

Skin conditions benefited by Infrared Treatments

Clogged pores are unplugged of cosmetics, creating a skin texture and tone of unexcelled quality. Mikkell Aalodnd's book *Sweat* (Capra Press, 1978) quotes a Finnish doctor to the effect that, "the best dressed foreigner can come into a doctor's office and when his skin is examined it is found to be rough as bark. On the other hand, as a result of the sauna, the skin of any Finnish worker is supple and healthy".

Poor skin tone is restored to a more youthful level

Scars and pain from burns or wounds are decreased in severity and extent

Lacerations heal more quickly and with less pain and scarring

Acne - three or four infrared treatments may open pores that have not been functioning in years, forcing out clogged cosmetics and loosening dead outer skin

Body odor - by improving the function of the skin, the infrared sauna may eliminate the cause of offensive body odor. It definitely reduces body odor induced by occupation exposure to odorous chemicals.

Eczema and Psoriasis - have reportedly responded extremely well to Infrared treatments.

Sunburn - according to the Ninth Edition of Clayton's Electrotherapy, exposure to infrared radiation is one of the few antidotes available to treat excessive ultraviolet radiation. If the pain increases discontinue the use of the sauna.

Dandruff - reduced or eliminated due to increased blood flow through the scalp

As can be seen, the segment of the infrared spectrum emitted by the infrared sauna is reputed to offer an astounding range of possible therapeutic benefits and effects in research conducted around the world. Research is continuing and may reveal additional benefits to be derived from infrared sauna application.

TRADITIONAL vs. INFRARED HEATED SAUNAS

A compilation of the differences between traditional and infrared heated sauna follows. Some steam-room and spa manufacturers erroneously add the term "sauna" to their product literature. These types of products are not included in this comparison.

TRADITIONAL SAUNA

INFRARED SAUNA

COST

Traditional saunas generally require 230 volt/amp. electrical service. This raises the cost of an installation to US\$4,000 or more. Some suppliers now offer portable traditional saunas that plug into 115 volt electrical service. These saunas are available at US\$3,000 and up. These portables require approximately 16 square-feet of floor space. Operating costs for traditional saunas is about four times that of an equivalent infrared unit.

Infrared heated saunas generally operate from a standard 115 volt/15 amp. electrical wall outlet. Special electrical service is not required. Electrical kits for infrared saunas are available from US\$ 850 to US\$1,200. Finished portable infrared saunas are available from a variety of manufacturers and range in price from US\$3,500 to US\$6,000.

Continued

SAFETY

Great care must be taken when pouring water onto the heated rocks to generate the steam associated with a traditional sauna. Although metal cages cover the heater and the hot rocks, injuries can occur if the hot metal or a water back-splash comes in contact with bare skin.

The heating elements of infrared saunas have protective covers with a fireproof fabric coating that prevents injury if touched.

HEAT

The air in a traditional sauna is heated with one electric stove. After a warm-up time of 30 to 60 minutes the air temperature in the sauna easily exceeds 200 degree F (93 degree C). Air temperature from floor to ceiling varies greatly.

SUNETTE Custom Infrared saunas warm up in about 10 minutes. The temperature in the sauna is generally less than 140 degree F (60 degree C) and due to the strategic placement of multiple heaters, the temperature varies little from top to bottom. The lower temperature also makes it easier to breathe.

LENGTH OF USAGE

Recommended usage is in cycles of up to 15 minutes in the sauna with short cool-downs with a cold shower or dip in a pool.

The low air temperature of the infrared sauna allows uninterrupted sessions of 30 to 45 minutes.