

How an Infrared Sauna Gave Me My Life Back and What to Look for When Buying and Using an Infrared Sauna

by Randy Gomm B.Sc.

Years ago, when I was a firefighter in British Columbia, I encountered some major health challenges. My previous high levels of physical activity became very limited and I could no longer work. I was eventually diagnosed with fibromyalgia, also known as chronic fatigue syndrome. However, it turned out that I was actually very high in both toxins and heavy metals. By lowering my toxic load using a far infrared sauna, my muscle soreness and fatigue were greatly reduced. This eventually allowed me to return to work and get back to enjoying the physical activities that I have always loved.

I became so passionate about how the far infrared sauna changed my life that I created a company to introduce far infrared sauna therapy to healthcare practitioners, medical doctors, commercial spas, and to individuals for their home use. We have been selling far infrared saunas in Canada and the United States now for over 20 years. Practitioners asked that I put together a detailed checklist to share with their patients and clients to make informed decisions when purchasing or using an infrared sauna.

I compiled the information below from in-depth scientific clinical data research and from my 20+ years of manufacturing experience in the infrared sauna industry. I am grateful for those who inquired and have given me great feedback, encouraging me to create this list.

I have been quite concerned with the information I see shared on websites and the internet about infrared saunas. I think it is important to verify what information is backed by legitimate research and what is simply unsubstantiated opinions shared from website to blog to social media without checking the facts. Even if one doesn't buy an infrared sauna from our company, by asking informed questions, it is my hope that one will end up purchasing an infrared sauna that is the most beneficial for their health concerns. More importantly, making sure that an infrared sauna does not contribute more to one's toxic load.

Important Points and Concerns to Consider When Buying or Using an Infrared Sauna

- 1) 'Near' Infrared Saunas vs. 'Far' Infrared Saunas
- 2) EMF (Electromagnetic fields) and Infrared Saunas
- 3) VOC (Volatile Organic Compounds)
- 4) Ceramic heaters vs. Carbon_Fiber heaters

1. Near Infrared Saunas vs. Far Infrared Saunas

After doing extensive research on near infrared and far infrared, all the legitimate clinical studies on infrared saunas that I could find, cite far infrared technology. I couldn't find a single study proving any benefit for 'near' infrared technology in the application of a sauna.

Near Infrared (NIR)

I did find some excellent research on near infrared and red light wavelengths for tissue repair and other health benefits, but the studies used either **LED lights or lasers in a very specific frequency of 630-940 nm (nanometers)**.¹ In these hundreds of clinical studies, the LED lights were touching the surface of the skin or within very close proximity to the skin. The **Inverse Square Law**¹⁴, substantiates that the intensity and effectiveness is dramatically reduced as one moves further away from the light source.

Questions to ask regarding the use of near infrared in a sauna:

- 1) What is the source of near infrared light found in the sauna?
- 2) What is the frequency range of the near infrared light?
- 3) How big is the surface area of the light source?
- 4) Where is the near infrared light source located and what is the distance from your body in the sauna?
- 5) Are there published scientific studies that show the benefit and use of near infrared light in a sauna? Are these near infrared studies the same studies that show LED's used on or very near the skin as noted above?

Far Infrared (FIR)

The human body generates far infrared waves in a range of 6 to 20 microns. Far infrared is the frequency that is cited in numerous clinical studies on infrared sauna use. LED's, Red Lights and Low Level Laser Therapy (LLLT) are different frequencies and use different technology as noted below.

Frequency Range:

Far infrared : 3 -1000 microns (or micrometers)

Most of the research papers on far infrared saunas, cite the range of 6 -20 microns.

Near Infrared: 0.7 - 1.4 microns or 700 -1400 nanometers

Red Light : 0.63 - 0.7 microns or 630 -700 nanometers

Proven Far Infrared Sauna Benefits:

Clinical research studies show far infrared frequency is beneficial for improving rheumatoid arthritis², vascular flow³, promoting skin circulation⁴, wound healing⁵, nitric oxide production⁶, chronic fatigue⁷, cardiovascular disease, heart failure, peripheral artery disease^{8,9}, detoxification and other health benefits.

Far Infrared Saunas vs. Traditional Saunas:

A far infrared sauna is different than a conventional sauna because the far infrared wavelengths directly penetrate your body and do not heat up the air to the same degree by convection as in a conventional sauna. The beneficial effects of a far infrared sauna are produced at a much lower temperature, usually in the range of 115-150 °F (46-65°C) while the temperature range in a conventional sauna is usually between 180-200 °F.



Far infrared saunas do not heat up the outer room making them desirable for in-home use and practitioner offices.

If there is valid published clinical research that shows near infrared heaters / lights used in an infrared sauna have the same recorded benefits as the near infrared studies using lasers and LED's, I would appreciate receiving this research. Until that time, we will keep the heat source in our saunas in the far infrared range, for that is what the published scientific studies support.

2. EMF (Electromagnetic Fields) and Infrared Saunas



Electromagnetic Fields (EMF) and Electric Fields (EF) can be emitted by a number of sources like overhead power lines and many appliances both at work and at home.

To know whether a sauna has high levels of EMF, the entire sauna must be tested. not just the heaters in isolation. Some infrared sauna companies downplay the effects of EMF. Working with doctors and other healthcare practitioners over the years, we have found many who state that the effects of EMF are of great concern.

There are a number of research studies addressing health concerns and effects of exposure to EMF; including disruption of the neuroendocrine system in children and adolescents¹⁰; and neurobehaviorial issues in children¹¹. EMF exposure has also been shown to promote differentiation in pituitary cells, changes in plasma membrane and influx of intracellular calcium. ¹²

Gauss or milligauss is a measurement scale used to measure the strength of an electromagnetic field (EMF). EMF levels drop off dramatically with distance. For example: If one was two inches away from a microwave, it might measure 30 mG (milligauss), but moving two feet away, the readings may be zero. Unfortunately, one doesn't have this luxury when sitting in an infrared sauna. Therefore, you are likely sitting within one or two inches of the heaters and may also be exposed to other electrical components. If these are not tested or safely addressed, you may be unknowingly exposing yourself to a very high electromagnetic field for an extended period of time.

TCO or Swedish Standards are 2 mG (milligauss) or less at the "point of body contact" (the wooden slats one leans against in front of the heaters in an infrared sauna).

Many of the infrared saunas on the market (some even stating zero or low EMF) often, in actuality, measure EMF in the 10 -100 mG range. This is because companies often

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test only the heaters in isolation at a lab and not the entire sauna. This mistakenly leads a sauna user to believe that the entire sauna is low in EMF when this is absolutely not the case. Adding to more confusion, when marketing on websites and in brochures, companies state low EMF but do not disclose that only a heater was tested in a lab. A sauna manufacturer should be able to provide you with a complete, multi-page, documented testing report from a government certified independent lab, stating very clearly that the entire sauna was tested for EMF. If only heaters are tested, then the testing does not include electrical connections, control panels and wiring which can all emit high levels of EMF.

If EMF averages are given, all readings should be taken at “point of body contact,” for this is where you sit when using the sauna.



Radiant Health Saunas government certified independent testing shows the lowest EMF levels we have found in the industry and zero VOC's.

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Radiant Health Saunas invests in independent government certified lab testing of the entire sauna, not just the heaters in isolation.

Radiant Health Saunas® are tested with a trifield gauss meter at over 100 different locations within the entire sauna. The average reading in a Radiant Health Sauna is a very low 0.3mG at the “point of body contact”. These are the lowest EMF readings in the industry that we have found. We have spent a great deal of time perfecting the engineering of our saunas thanks to valuable input from hundreds of practitioners and customers. We constantly work to improve safety, comfort and effectiveness.

3. VOC's (Volatile Organic Compounds)

One of the reasons a person may be using an infrared sauna may be to detoxify, lowering one's toxic load of chemicals and heavy metals. It is very important to make sure that the environment in the infrared sauna is completely nontoxic.



Particle board used in inferior infrared saunas in their framing construction is just one component that can off-gas volatile organic compounds (VOC's).

A number of infrared sauna companies use plywood, particle board or an engineered wood composite as a less expensive option for framing materials in their saunas. This typically can not be seen after construction has been completed. These materials can off-gas formaldehyde and other VOC's (Volatile Organic Compounds) that can be detrimental to your health. The United States Environmental Protection Agency (EPA) considers formaldehyde a Group B1 probable human carcinogen.¹³ Inferior heaters and other components inside the sauna can also off-gas chemicals, so it is very important that the whole sauna is being tested in a lab and not just the heaters.

An infrared sauna company should be able to provide you with independent lab testing where the inside of a brand new sauna was tested for VOC's so that one knows that when they are using the sauna they are sitting in a pristine, nontoxic environment.

Radiant Health Saunas® are independently tested by a government certified lab and the entire sauna is tested and shown to have zero VOC's.

4. Ceramic Heaters vs. Carbon Fiber Heaters

We have used ceramic heaters in the past and received feedback from practitioners we work with stating patients and clients encountered hot and cold spots within the sauna. We took this feedback and upgraded our saunas years ago to high quality, carbon fiber heaters utilizing Japanese technology. These carbon fiber heaters provide a much

larger surface area of the heater close to the body and more consistent heating. The lower surface temperature of the carbon fiber heaters is also more comfortable and has the benefit of increasing the micron wavelength into the beneficial far infrared range.

Below are links to research papers supporting our position on far infrared saunas versus near infrared saunas and studies supporting concerns regarding high EMF and VOC levels in infrared saunas. I hope this checklist will assist one in asking specific questions, so they will end up with an infrared sauna that is very beneficial for their health.

We take great pride in the quality of our saunas and stand behind our products. We have carefully crafted and custom engineered our saunas for safety and quality to be completely nontoxic, very low in EMF, and have superior far infrared heater coverage so one can get the maximum health benefits when using our saunas.

If you have any questions about infrared saunas, please give us a call.

All the best,

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Tel: 604-221-1799 or toll free at 1-888-291-6544

<http://www.radianthealthsaunas.com>

* **The Inverse Square law**¹⁴ from a light source states: the strength of the field is inversely proportional to the square of the distance from the point source of the light. ... or stated another way: the light intensity is proportional to 1 over distance squared. What does this mean? It means if you are 5 inches away from the light source, you

would only have 1/25 the intensity compared to 1 inch from the source; and if you are 12 inches away, you would only have 1/144 the intensity compared to 1 inch from the light source. It is for this reason that LED lights (in the correct frequency) that are used for tissue repair and other health benefits, are placed very close or directly against the surface of the skin.

References:

- ¹ <http://neurosurgery.imedpub.com/contributions-of-near-infrared-light-emittingdiode-in-neurosurgery.pdf>
- ² <http://doc.utwente.nl/71336>
- ³ <https://www.ncbi.nlm.nih.gov/pubmed/17267744>
- ⁴ <https://www.ncbi.nlm.nih.gov/pubmed/16606412>
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- ⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920465>
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- ¹¹ <https://www.ncbi.nlm.nih.gov/pubmed/23843999>
- ¹² <https://www.ncbi.nlm.nih.gov/pubmed/16838272>
- ¹³ <https://www.epa.gov/sites/production/files/2016-09/documents/formaldehyde.pdf>
- ¹⁴ https://en.wikipedia.org/wiki/Inverse-square_law