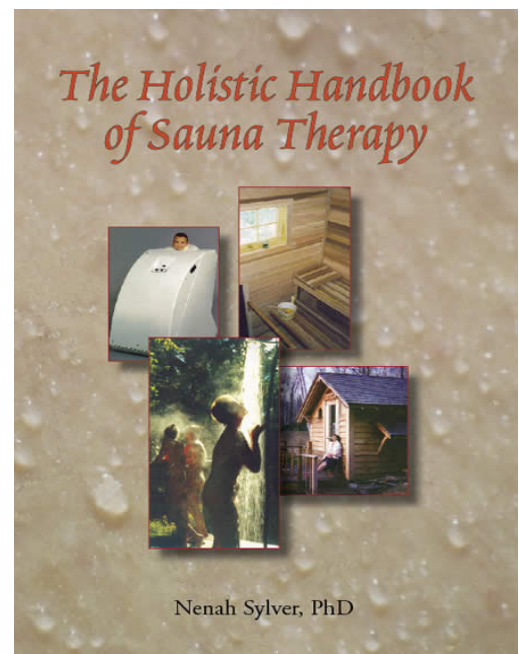


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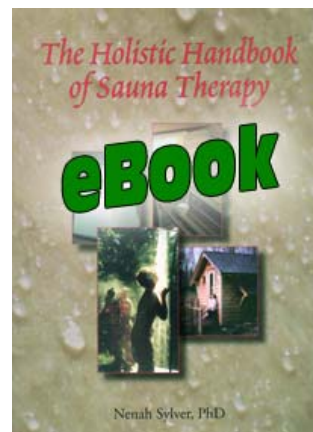
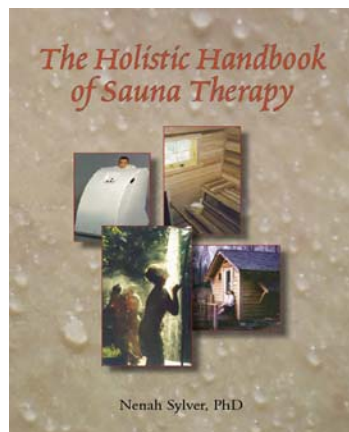
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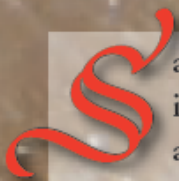
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The Holistic Handbook of Sauna Therapy



Nenah Sylver, PhD



sauna therapy, writes Dr. Sylver, was conceived as not only a means for physical healing, relaxation, and socialization, but also communion and spiritual purification. It is an ancient and respected tradition many thousands of years old, and the reason it has survived is that it works.

"This is an excellent book on saunas, one of a kind. Never have I seen this subject dealt with so comprehensively and in a manner that shows a full understanding of how saunas work and how they function."

Joan Amtoft-Nielsen, MD, PhD, Healthcare for the 21st Century

"This comprehensive reference for sauna therapy is an invaluable resource for all consumers and professionals. The use of this guide can do much to improve a person's general health and well-being."

Abbas Qutab, MD, Élan Vital Medical Centers and Spas

"Truly magnificent—an 'everything you ever wanted to know and should have asked' book. It is clear, concise and to the point, very complete, well organized, well written, and extremely informative, full of interesting and practical details. It's a Godsend for those who want and need to know more before they use a sauna. Dr. Sylver is to be commended for creating such a useful and necessary book that more and more people will soon find out they need. This is simply the best book I have ever seen on this topic."

Doris J. Rapp, MD, FAAA, FAAP, FAEM

author of *Is This Your Child?* and *Chemical Time Bomb*

"Anyone concerned with their health, lifestyle, and longevity, needs to read this book. *The Holistic Handbook of Sauna Therapy* is a definitive work on sauna: comprehensive and thorough, academically discussing the science as well as the practice of sauna therapy. It is well documented, covering the historical origins, technical aspects, and the application of sauna. This book is transcultural and global in nature, and should have an impact on the world of health."

J. Paul DeVerville, MSSW, PhD, professor of history, humanities and interdisciplinary studies,
St. Philip's College; director, Alamo Plaza Spa, San Antonio, Texas;
and secretary, International Spa Association Education Foundation

"For the past twenty years, I have used the sauna to detoxify several thousand patients exposed to a multitude of toxic chemicals at work, in the environment, and from drug abuse. This is an excellent guidebook, backed by solid research, explaining all aspects of sauna therapy. Dr. Sylver provides a good overview of the history of body heating in past and present civilizations. She discusses the materials that may be used in sauna construction, and the advantages and disadvantages of each. She also describes in wonderful detail how to use the sauna, what the limitations of use might be, and what to do and what not to do before, during, and after being in the sauna. This book also contains the most readable discussion of the physiology of sweating that I have ever seen. You are given all the necessary information to start your journey into the world of heat therapy, whether you are a novice, advanced user, or physician contemplating the use of sauna treatment in your practice. This book fills a great need, and I cannot recommend it highly enough. After 3,000 years' use in recorded history, sauna therapy is finally coming of age and achieving the recognition it deserves!"

David E. Root, MD, MPH

Fellow, American College of Occupational and Environmental Medicine

\$34.95 USD



The Holistic Handbook of Sauna Therapy

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FOREWORD

I came to know Dr. Nenah Sylver through a physician friend of mine who is a sauna expert. The minute Dr. Sylver and I started talking about sauna therapy, I could tell that she is well-versed in the subject. Later, when I had the privilege of previewing *The Holistic Handbook of Sauna Therapy*, I was delighted to discover the thorough research and fact-collecting she has accomplished to produce this authoritative work. Dr. Sylver's description of how the body perspires, various types of saunas, indications and contraindications of sauna therapy, and how to take a sauna, are exhaustive and complete. The facts she presents are not hearsay statements, but are based on scientific documentation.

Using the sauna to raise body temperature provides numerous health benefits; the list is endless. Regular sauna, along with good exercise and wholesome food, is one of the primary components of maintaining good health and preventing disease. In fact, sauna therapy is one of the most important prophylactic measures one can take to stop acute and chronic conditions before they start—including heart diseases and cancers. In the early stages before both cancer and heart disease take root, sauna therapy can actually repair the damages done to the body.

Sauna therapy is also the most efficient way to eliminate toxins and metals from the body. Pesticides, petroleum-based and organic chemicals, drugs, toxins of all kinds are eliminated through sweat produced in the sauna. Dr. Sylver cites research showing that 15 minutes of sauna, through sweat, eliminates the same amount of heavy metal that would take the

kidneys 24 hours to excrete. Mercury loss by sweating may be even more substantial. It is my opinion that most of today's practicing physicians have become pill pushers of pharmaceutical products that are toxic to the body. They have forgotten that an ounce of prevention is worth more than a pound of cure.

It was therefore a joy to read Dr. Sylver's book, which is filled with step-by-step guidelines on how to use this extraordinary natural healing method. It is written in simple language and will be appreciated by medical professionals, paramedical personnel, and the general public. Every health care provider, health club, bath house, sauna club, exercise and physical fitness center, weight watching group, medical school, and public library should carry this book. The preservation of health is our duty. Using sauna in a daily routine should be an integral part of your program, whether you are a healer, a health promoter, or an individual who desires to preserve your own health.

Sauna is an island of hope in a sea of hopeless health habits. As the saying goes, "If money is lost, you can make more. If character is lost, you can build it back. But if health is lost, everything is lost."

The information you are about to read is a refreshing eye opener for those who have forgotten the natural ways of healing. This book is a must for everyone who wants to maintain good health!

Dr. T. R. Shantha, MD, PhD, FACA
 Medical director, Integrated Medical Specialists of Atlanta
 Visiting professor, JJM Medical College, Davanagere, India

INTRODUCTION

It is more elegant to pontificate than it is to sweat.

HAROLD EVANS, BRITISH JOURNALIST AND PUBLISHER,
AT A MEMORIAL SERVICE FOR JOURNALIST DAVID BLUNDY, JANUARY 24, 1990.

In the year 2000, archaeologists from Boston University trekking through the lowlands of Central America came upon an unusual structure. In an ancient, simple Mayan village of thatched roofs, where natives had grown corn and manioc and hunted deer and wild pig, someone had taken the trouble to construct a partially closed building with a domed roof and a fire pit.

What could it be? the excavation team wondered. This building was in the center of the village, occupying a position of obvious importance. But it was only eight feet wide—surely not large enough for a meeting place, nor comfortable enough for a home of even just one occupant. In one corner of the hut the walls were red and gray, obviously burned by a very hot fire of long duration. For what purpose would such a fire be needed? Then the team saw another puzzling sight: near the ash deposits of the fire pit, low benches of stone had been erected. Obviously, whoever had built this structure had wanted to make sure that the furniture inside would not burn up. But why would someone want to sit so close to a roaring fire—in tropical heat of 90°Fahrenheit (32.2°Celsius), or higher?

Perplexed, the archaeologists tossed ideas back and forth one day as they erected a tarp over part of the excavation site to protect themselves from the fierce sun. Suddenly, “a chance remark suggested the answer.” As one of the researchers wrote later, “It was hot and humid—like a sauna, someone said—and we suddenly realized what we had was a *pib na*, or sweat house.” This was a historic find, the remains of “the earliest known Maya sweat house, a place for therapy and ritual”¹—built 3,000 years ago.

Throughout history, people all over the world have gone out of their way to build heating chambers of various sizes so they could go inside and sweat. The temperatures used for these rooms range between 175°F and 205°F (79.4°C and 96.1°C), although sometimes the temperature climbed even higher. Today, we call this practice of therapeutic body heating, as well as the space in which the heat bath is located, sauna.

Why would anyone enter a cubicle, sometimes the size of a small closet, to deliberately perspire? In some cultures in this modern age, people in so-called polite society have an aversion to sweating, and will do anything to hide it. Yet body heating is enjoying a tremendous renaissance now, and the reason is simple: people want to experience the tremendous relaxation and health benefits that it provides.

Although sauna bathing is one of the oldest therapeutic modalities in human history, our forebears did not always understand exactly how or why it works. Now, with modern scientific methods available, we are privileged to know in detail what our ancestors sensed intuitively: that when used properly, heat—a major life-giving force of nature—will heal.

“The History of Saunas,” the theme of Chapter 1, introduces sauna bathing as both a cultural and medical phenomenon. When I began my research, I had no idea that body heating had so many forms, or so many rituals connected to it. You may be as surprised as I was, at how various cultures have used the sauna, and under what circumstances—and how the practice was eventually adopted as a medical procedure by some sophisticated physicians. “How and Why We Sweat,” the topic of Chapter 2, describes in detail how and why the body produces sweat, and explores why deliberate sweating can induce such powerful and positive results. Chapter 3, “What We Sweat, and Why We Need to Get Rid Of It,” discusses toxins—which take the form of biological wastes, heavy metals,

and organic chemicals—and why it’s a matter of life or death to pay attention to them.

Chapter 4, “The Three Types of Heat,” addresses the mechanics of heat transfer and how these principles apply to traditional and modern sauna methods. Both dry and moist heat are explored. Chapter 5, “Construction of the Sauna,” focuses on the materials used for the heat source and for the sauna chamber itself. Taken together, Chapters 4 and 5 will help you to decide which method of body heating is best for you, and to select the appropriate sauna building materials and heating system that will deliver the desired results.

Chapter 6 provides valuable information on “Who May Use the Sauna and Who Should Not.” Whether you are being treated by a physician for chronic or acute illness, have general wellness issues, or simply want to use the sauna to relax, you need to understand how heat affects the ways in which your body functions. There are actually very few conditions that contraindicate the use of a sauna. However, since this therapy might not be suitable for everyone all the time, it is important to know when not to heat the body.

Chapter 7 provides step-by-step instructions on “How to Take a Sauna.” Knowing how to use the sauna can make the difference between having a pleasurable and healing experience or possibly hurting yourself. This chapter is packed with practical advice gleaned from data collected over many years by doctors, clinics, spas, and sauna manufacturers. Our “how-to” focus continues in Chapter 8 with “Detoxification Programs for Getting Well and Staying Well.” You will learn what to expect when the sauna therapy starts to work, and get an overview about some successful detoxification programs used by respected doctors, some of them experts in the environmental medicine field.

A number of health care professionals as well as laypeople feel that a sauna session is incomplete without the addition of ozone. If you are curious about ozone and its benefits, or how to use it in conjunction with sauna therapy, read Appendix A, “A Brief Summary of Ozone.”

If you want to know where to find a doctor, clinic, or spa that features some form of body heating as part of an overall treatment regimen or general wellness program, see Appendix B, “Resources.” Appendix B also

contains a listing of sauna manufacturers, spa and service organizations, and products related to sauna therapy. (The entries were carefully culled from many sources. If you are a manufacturer, doctor, or other service provider and feel that you should be included in the next edition of this book, please contact me.)

Finally, the Bibliography provides an extensive list of books, journal and magazine articles, and a few websites devoted to the science of body heating. Although some of these primary sources date back to the 1800s, the scientific methodology and degree of accuracy they display is impressive; these materials have as much relevance today as they did one hundred years ago.

This book covers all aspects of sauna *therapy*—as well as advice on how to choose a sauna suited to your needs, based on the materials of which it is constructed, and how those materials influence the quality of the sweat. But *instructions* on how to *build* your own sauna are not included. If you are handy with tools or need to make your own unit due to financial considerations, instructions for the design and construction of saunas can be found in Marilyn McVicker's *Sauna Detoxification Therapy: A Guide for the Chemically Sensitive*, in Bert Olavi Jalasjaa's *Art of Sauna Building*, and in Mikkel Aaland's *Sweat* (whose chapter "Build Your Own Sauna or Sweat-lodge" is reproduced on Aaland's website and sold as a separate booklet). In addition, Dr. Lawrence Wilson offers plans for an inexpensive infrared light bulb heating unit and sells a kit of hard-to-find parts. See Appendix B for detailed contact information on all of these do-it-yourself ventures.

This book is devoted primarily to the obviously physical aspects of wellness. However, since my background is also in psychology, I want to comment here on the difference in attitudes toward body functions that often exist between Americans and people in other countries. These differences were hard to miss as I immersed myself in the multicultural aspects of body heating. Quite a few other cultures are much more comfortable with sweating and nudity than are Americans. The reasons for our cultural aversion to natural bodily processes and odors are many—some understandable, others not—but we as a culture pay a steep price for indulging in this body hatred, for by denying ourselves the right to sweat, we keep ourselves ill.

The aversion to sweating is often related to a negative attitude toward

nakedness, and the repression of sexuality in general. I was surprised and a bit saddened to discover how many people do not use a sauna because it would involve getting undressed in front of strangers (unless one can afford to purchase a sauna to use in the privacy of one's own home). Sauna bathing, even if done in a mixed gender group, should never be confused with flirting, foreplay, an orgy, or some other sexual behavior. A sauna chamber is sacrosanct to people who use it. In fact, combining sex with sauna bathing is considered an insult to—and distortion of—the entire sauna culture. Not surprisingly, people raised to incorporate sauna therapy into their daily lives have a much more relaxed and natural relationship with their bodies than those who do not. (There are studies that show this, but it should be self-evident from simple observation.) Americans would benefit greatly—and would certainly enjoy their sauna experience more—by adopting the more relaxed attitude of our European friends about group nudity.

A few editorial comments: first, out of respect for both American readers and those across the oceans, temperature readings are given in both Fahrenheit and Celsius. Second, in the text that I write I keep spelling, numerical notation, and capitalization consistent, according to modern rules of grammar and punctuation. However, when quoting other authors, I leave their passages alone and do not make corrections for consistency; so the quoted remarks do not always correspond to the style of my own text. Third, when referring to people suffering from various health problems, I use terms like “people with cancer” or “people with multiple sclerosis” as opposed to “cancer patients” or “multiple sclerosis patients.” Although this can be a bit cumbersome, I avoid the word “patient” because all too often it reflects and reinforces a hierarchical medical model that relegates the seeker of health services to a role that is subordinate to the doctor. Since one theme of this book is self-empowerment, I want the words I use to reflect this.

The ancient and respected tradition of sauna bathing has survived because *it works*. In the United States, the Food and Drug Administration approves saunas as therapeutic devices, and some insurance companies even reimburse claimants for the cost of sauna therapy or the saunas themselves. But as with any modality that promises relief from what ails you, it is wise to use some common sense by learning what sauna therapy actually can

and cannot do, instead of blindly believing any affirmative claim made by a sauna manufacturer—or any negative comment made by a detractor.

The Holistic Handbook of Sauna Therapy is designed to help people who are considering sauna therapy, but first want to educate themselves about why it is effective, and how it may be used safely. It has been written for both the health care professional and the layperson—so that anyone can, with a little effort, improve their health and the health of those they care about. This book is also directed to those who already use saunas, and want to enrich their experience with practical suggestions on how to make the most of what they are already doing. It serves as a brief introduction to holistic health as well, so that even if you don't have access to a sauna, you can still learn what detoxification really means, and why it's important. And, it is hoped, that based on what you learn, you'll be tempted to try a sauna at least once.

The ancient Greek physician Hippocrates is thought to have declared, "Give me a chance to create fever and I will cure any disease." An exaggeration? Maybe not. This statement is closer to the truth than one might think—especially today, with high levels of pollution contributing to problems far more complex than anyone might have imagined two millennia ago. In the following pages, I will show you how sweating can make a huge difference in the way you feel—whether you are sick or well.

Nenah Sylver, PhD
Stone Ridge, New York
February 2004

NOTES

1. Wilford, John Noble, “Before Rome’s Baths, There Was the Maya Sweat House,” *The New York Times*, March 20, 2001, -F5.

In *The Columbia Encyclopedia*, a passage on hydrotherapy states that skin temperature water—approximately 93°F or 33.9°C—“prevents [the] loss of body heat.”²¹

The Roman physicians Galen and Celsus are reported to have used hydrotherapy in the first century AD for a variety of maladies, including joint pain, hysteria, convulsions, and kidney disease. However, the medical art of hydrotherapy as we know it today originated with Vincent Priessnitz, who was born in Austria in 1799. Priessnitz, according to the *Columbia Encyclopedia*, “is credited with a number of inventions still in use, including the sponge bath, the douche, and the wet sheet pack, and he is acknowledged as an important contributor to the rise of the health spa movement in Europe.”²²

In Gräfenberg, Priessnitz built a large stone house to treat people with cold spring water in the form of baths, packs, and showers. By the end of 1839, the spa’s first year in operation, Priessnitz had seen more than 1500 guests. Of this number, 120 were European doctors who had come to study his therapeutic methods so that they could establish hydrotherapy centers in their own countries.

In 20 years, the Gräfenberg spa enjoyed such an extraordinary reputation, reports Priessnitz historian Dr. Miloš Kočka, that “the Emperor’s commission from Vienna declared Priessnitz’s hydrotherapy a ‘new remarkable discovery in the area of medicine.’” Hydrotherapy facilities were started at the Universities in Vienna and Munich by doctors Wilhelm Winternitz and Ed Schnitzlein. “The Prussian King enacted regulations regarding the approval for the establishment and managing of hydrotherapeutic institutes by doctors as well as by laymen under the supervision of doctors.” Moreover, Priessnitz “was so famous he received a letter from South America with an address of only: ‘Vinzenz Priessnitz—Europe.’”²³ Monuments were built in many countries to honor this innovative healer, and by 1905, more than four hundred books had been published about Priessnitz and his hydrotherapy.

A number of people, including the British physician Sir John Floyer, are credited with helping to publicize the benefits of water treatments. However, the hydrotherapy movement was given an even more dramatic boost

when Bavarian priest Sebastian Kneipp (born in 1821) was cured of tuberculosis through cold water applications based on Priessnitz's methods. Kneipp wrote abundantly on the subject and opened a series of hydrotherapy centers known as the Kneipp clinics, which are still in operation today. The Spa that Priessnitz founded in Gräfenberg is still operating as well. Today, thousands of spas all over the world provide hydrotherapy as well as sauna bathing.

WORLDWIDE POPULARITY IN RECENT TIMES

Sauna Treatments in Early Medical Science

By the 1800s, when the formalized medical profession gained a strong foothold across the globe, some early published reports of the benefits of hot air therapy became rather technical and scholarly in nature as opposed to anecdotal. According to Sidney Licht,

The first scientific clinical study in thermotherapy occurred in France before 1840. . . . Jules Guyot, a young Parisian surgeon, began in 1833 to meditate on the value of heat in wound healing. He selected some rabbits and dogs and went to his house in the country, where he set up an animal hospital and for three months devoted himself to experiments and observations on therapeutic heat. He constructed a hot air cabinet, very similar to one that Bier devised about a half-century later, heated with alcohol lamps in such a manner that he could maintain, at will, an environmental temperature anywhere between 30 and 70 degrees Celsius [86° and 158°Fahrenheit]. He found that when the temperature was maintained at about 30 degrees [86°F], the healing of wounds was more rapid. When Magendie saw the results, he insisted that the method be tried on his patients at the Hôtel Dieu. Guyot began with the treatment of ulcers, white tumor (tuberculosis) and sciatica. "Each new trial confirmed my belief that heat incubation was a powerful therapeutic agent. . . ." Eventually he was allowed to work on the kind of wound he felt could be helped most—the fresh wound following amputation.²⁴

"As might have been expected," Licht notes, "the new treatment with heated air was used by many in different countries with glowing reports."

Hollaender found currents of hot air under pressure of value in lupus (1897); Cabbitto found the warm air bath effective in relieving attacks of epilepsy (1897); and Schmeltz used thermal insufflations of the vagina in pelvic inflammations (1899). The most glowing reports were on joint disease. Sarjeant, using a temperature of 240°F [115.6°C] for 40 minutes, wrote of eight cases of arthritis and sprain in which the “pain is generally not only relieved but entirely removed.”²⁵

Of historical interest is an article called “On Hydrophobia and Its ‘Treatment’: Especially by the Hot-air Bath, Commonly Termed the Bouisson Remedy,” which appeared in the June 9, 1888 edition of the *British Medical Journal*. “Hydrophobia” literally means “fear of water,” one of the symptoms of rabies and an early name for that disease. The article refers to the hot air sauna promoted by Etienne Frederic Bouisson (who was also known, in the 1850s, for conclusively identifying cancer of the mouth with pipe smoking, based on a statement made by a John Hill in 1761 that certain cancers were caused by smoking). It should be noted that the “hydrophobia” author categorically denounced the hot-air bath, writing that “All those patients who have been reported by respectable practitioners to have been suffering from genuine hydrophobia have died in spite of the Bouisson treatment.” Rabies is deadly; anyone suffering from the disease should *not* self-treat but see a doctor immediately. Nevertheless, the author’s objectivity is called into question when one also reads, “As might be supposed, its [the hot-air bath’s] adoption is principally urged by those who are, for obvious reasons, opposed to the progress of medical science, the paid antivivisectionist agitators.”²⁶ It is clear that the medical community was very aware of the widespread use of saunas, even if there appeared to be political reasons for not condoning their use.

Dr. John Harvey Kellogg’s Heat Therapy

All early saunas and baths were made from natural materials such as wood, stone, clay, skins, and cloth. The heat source of these saunas was fire, rocks that had been placed in the fire, and/or water that was heated by fire. With the advent of modern technology, saunas were heated by gas-burning stoves, and

later electric light bulbs and electric heaters. Although modern saunas deviate from centuries of tradition, they have produced consistent health benefits.

Perhaps the most radical changes in sauna construction, the greatest number of changes, and the most profound healing as a result of those improvements, were launched by John Harvey Kellogg in Battle Creek, Michigan in the late 1880s. Dr. Kellogg, a renowned and highly successful surgeon whose neat stitches became his trademark, performed over 22,000 operations in his lifetime until the age of 88. Most people today associate Kellogg solely with the name of the company that manufactures “empty calorie” junk food cereals, not realizing that the breakfast food Kellogg did in fact design was whole grain and sugarless, intended for sick people who needed a high-energy, nourishing morning meal. (What eventually became Kellogg’s corn flakes was soaked grain accidentally left in the oven overnight and flattened to a crisp. The public liked it so much that a multi-million dollar, multi-company breakfast cereal industry was consequently born in Battle Creek.) But Kellogg was essentially a holistic doctor. Realizing the importance of diet, exercise, fresh air and pure water in the prevention of disease, he established a serious healing center in the late 1800s called the Battle Creek Sanitarium, which people from all over the world visited to receive hydrotherapy and other holistic treatments.

Dr. Kellogg was a prolific scientist and inventor, always searching for ways to improve people’s health. Although he was already getting excellent results with hot and cold water baths and the steam cabinets he had built for the sanitarium guests, he wanted an even more efficient modality. So he began administering ozone in his steam cabinets. He was the first American to therapeutically utilize ozone in medical treatments, as reported in his book *Diphtheria: Its Nature, Causes, Prevention, and Treatment*. (A discussion of ozone combined with sauna therapy can be found in Appendix A.) Then in 1891, Kellogg started constructing horizontal cabinets large enough to hold the entire body.

The design of Kellogg’s upright cabinets was not totally original—such structures had already been produced and sold for some 30 years—but at least Kellogg’s saunas were not the renovated caulked barrels heated with small wood fires or hot bricks that others were using. They were far more sophisticated than the method offered in the *Encyclopedia Britannica* of

CHAPTER 2

How and Why We Sweat

Sweat is the cologne of accomplishment.

HEYWOOD HALE BROWN, SPORTS COMMENTATOR
SPEAKING ABOUT RODEOS, CBS-TV, JULY 21, 1973

Have you ever heard the popular expression, “Don’t sweat it”? It means *don’t fret, because whatever your concern, it isn’t worth worrying about*. According to this model, perspiring is not a good thing. Yet sweating is essential to maintain proper health. In fact, if we were prevented from sweating, we would become ill and die! That is why this entire chapter is devoted to how we sweat, and the positive changes that occur in the body when we do it.

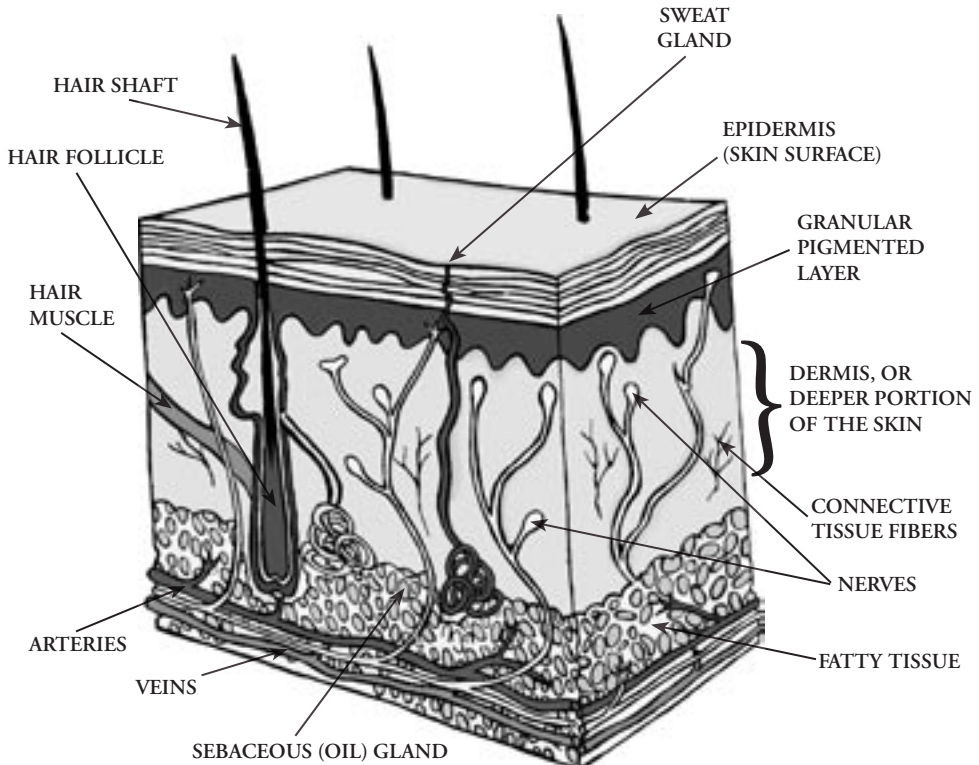
Sweating is sometimes also called hyperthermia, which means “unusually high fever.” Technically speaking, sweating is not always due to hyperthermia—for instance, one can also sweat when simply overheated, or when frightened—but the two are related. This chapter, however, will mainly discuss the sweating that occurs as a result of body heating.

The act of perspiration performs several important functions. It is a means by which the body removes excess water. It helps the body rid itself

bacteria including *E. coli*, *Enterococcus faecalis* and *Staphylococcus aureus*, and the fungus *Candida albicans*. It is quite possible that the skin also has other important functions that haven't been discovered yet.

One square inch of skin contains 90 oil glands, also known as *sebaceous glands*. These glands secrete an oil known as *sebum*, which coats the hair follicles as well as the skin. Sebum seals in much-needed moisture, making the hair and skin supple and preventing drying and cracking (skin) or breakage (hair). People may think that the fat-like, waxy sebum eliminated by the sebaceous glands is the same as the unwanted body fat or *lipid* that gives us our "spare tire." But they are different types of fat; we do not emit lipid from the sweat glands. Sometimes excreted with the sebum are harmful bacteria that could clog the glands. Although skin is waterproof, it does absorb fats and oils, provided the molecules of fat are small enough to penetrate its pores. Other materials can also penetrate the skin, such as

FIGURE 1



Convection, then, is the dispersion of heat from one point in space to another due to the circulation of a fluid such as water or air. Here, the molecules of a *fluid*, rather than a solid, are responsible for the transport of heat. (Note that I said *transport* of heat. Once the heated molecules touch the cooler ones, the eventual *transfer* of heat is by conduction.)

A fluid can be either a liquid or a gas. However, since with liquids the distinction between convection and conduction can be ambiguous, it is much easier to explain convection heating in terms of air. When air comes into contact with a heated object or body, its temperature rises. The molecules in the vicinity of the hot object move faster and further apart, and this region of air becomes less dense than the air surrounding it. So the hot air rises and is replaced by cooler air, which in turn becomes heated. This is how currents are formed through convection. The same process occurs with wind.

You may have heard of a convection oven. Electric heating coils are at the top and bottom of an enclosed metal box. Fans are placed in the oven to increase the air movement beyond naturally occurring convection. The fan moves the air, the hottest air rises, and there is a continuous cycle of moving air. This process decreases cooking time by about one-third.

Don't forget that even though the heat is *dispersed* primarily by displacement of the fluid—in other words, through the *currents that convection creates*—ultimately, the heating of an object occurs through *conduction*. Once the molecules of water or air collide, Collins writes, there is an “immediate process of energy transfer from one fluid particle to another.”⁴

Again, all objects with a temperature above absolute zero are *radiating* heat; and radiation is direct heat. However, convection as a method of heat transference provides an indirect heating method as well.

Radiation

In this nuclear age, when one hears the word “radiation” it's easy to think of a dangerous nuclear powered reactor. But radiation simply means the emanations of energy that are emitted by a source, whether that source is a nuclear power plant, a radiator that's used to heat your house, or the sun. Radiation can be harmful or beneficial.

The Electromagnetic Spectrum

The electromagnetic energy that travels through space or air and is emitted by the sun is the most common form of radiation. As I explain in *The Handbook of Rife Frequency Healing*, the electromagnetic spectrum consists of many different lengths of energy oscillations that comprise our universe:

Most of the waves on the electromagnetic spectrum are invisible to the human eye except for the small band of visible light, which we see as colors. The most important thing to remember about electromagnetic waves is this: *even though we cannot see most of the frequencies themselves, we can nonetheless utilize the electromagnetic waves, as well as visually see, thermodynamically sense (temperature-wise), or perceive in some other way, the byproducts or effects of the electromagnetic waves that manifest as physical phenomenon.* For instance, radio waves and x-rays are part of the electromagnetic spectrum. Radio waves are rather long and x-rays are much shorter. We cannot “see” these frequencies in the usual sense, but inventions make it possible to harness them for the purposes of radio broadcasts and taking pictures of the inside of the body.

... What some people think of as distinct energies or energy phenomenon—electric waves, radio waves, microwaves, infrared light, visible light, ultraviolet, x-rays, gamma rays—are all oscillations on the electromagnetic spectrum, progressively ranging from very low to exceedingly high. *We tend to think of this continuum of cycles per second as separate phenomena or unrelated energies because we perceive them differently with our senses (and often perceive them not at all).* For instance, we cannot see radio waves, microwaves or infrared, but between infrared and ultraviolet radiation, a brief section of the electromagnetic spectrum *is* visible to us visually. We call this “visible light.” But it is important to remember that on one level, visible light is not something radically unconnected to, for instance, microwaves or gamma rays. All are lower or higher frequencies that simply *have different manifestations* and uses for us on the physical plane at this time.⁵

All wavelengths on the electromagnetic spectrum oscillate, or possess a back-and-forth movement. These wavelengths travel at 186,000 miles per

second in a vacuum, otherwise known as the speed of light. As you can see from the diagram on page 94, the electromagnetic spectrum spans a continuum of energies. These energies are characterized by either their frequencies (the *number of cycles per second*, or CPS, at which they vibrate), or their wavelengths (the *distance of one complete cycle*). At the beginning of the chart (the bottom) are the largest wave forms. They are literally miles in length: 100 megameters is 62,137 miles, at 3 CPS. As the oscillations *increase* in number *per second*, by definition the *size* of the oscillations becomes smaller. “It is evident that the shorter waves must vibrate at a greater frequency and vice versa,” wrote Kovács in *Electrotherapy and Light Therapy with Essentials of Hydrotherapy and Mechanotherapy*. “A homely comparison to visualize this may be a motley army of giants and dwarfs, all under orders to reach the same goal simultaneously; in order to do so the giants step out leisurely, while the dwarfs run and take hundreds of steps for each one of the giants.”⁶ Depending on the wavelength (size) of the particular electromagnetic wave, electromagnetic energy may be reflected away from the surface of the object or body, may pass right through, or may be absorbed by it.

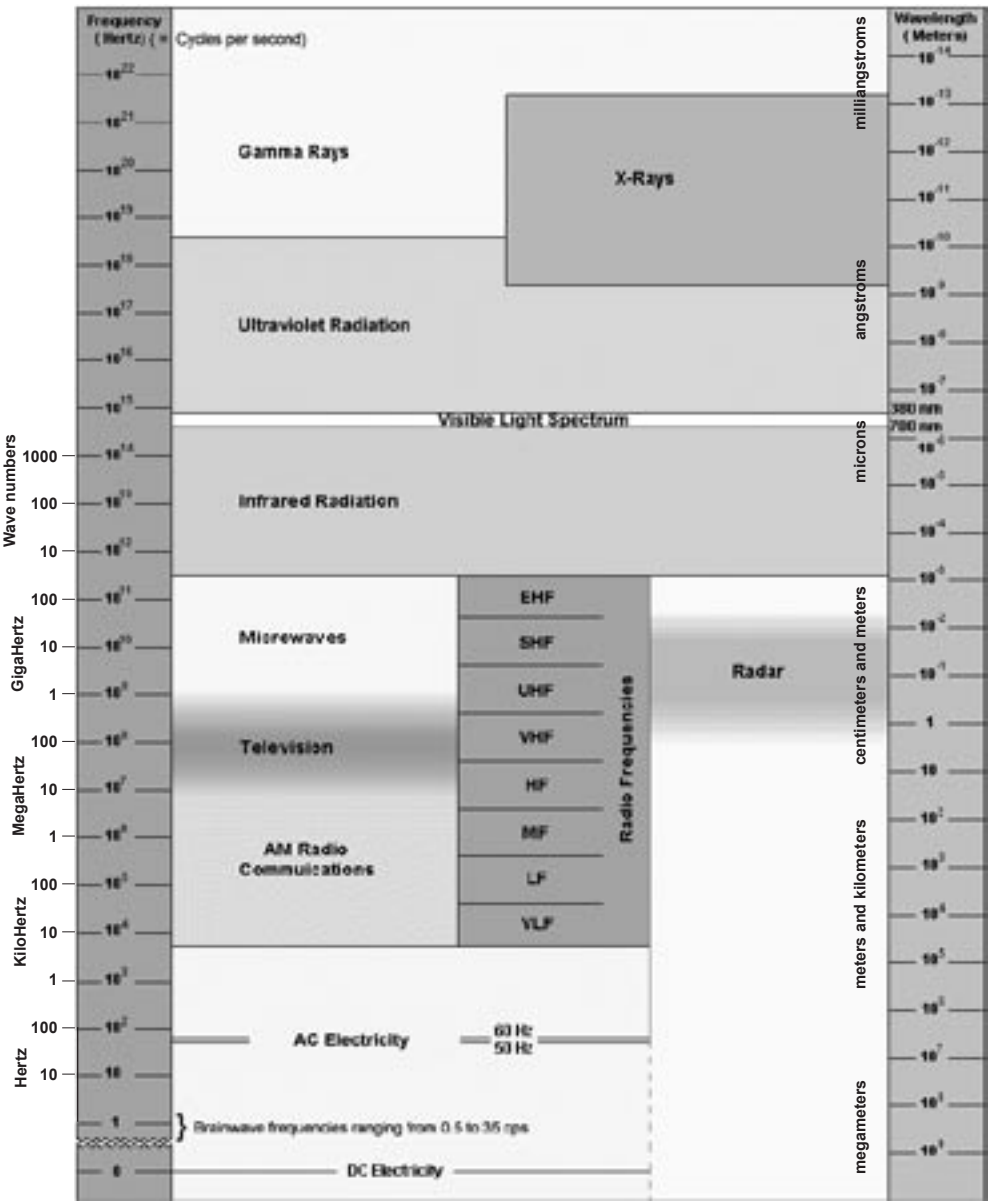
Electromagnetic wavelengths, measured from the longest to the shortest, are: the extremely low frequency waves (ELF) we use for power and telephone (measured in megameters), radio waves (meters and kilometers), and microwaves (measured in centimeters and meters). Next comes infrared radiation (IR)—near (NIR), middle (MIR), and far infrared (FIR) radiation (all measured in microns)—followed by visible light (measured in microns), ultraviolet radiation (called ultraviolet light, measured in angstroms), x-rays (also measured in angstroms), gamma rays (measured in milliangstroms), and finally, cosmic rays.

Infrared Radiation (IR)

Of the various types of radiation that the sun emits, several are capable of producing heat in body tissue: microwaves, high-frequency radio waves, and infrared radiation (IR). Some microwaves and high-frequency radio waves can produce tissue damage. Fortunately, most of the time there are not enough traveling through the atmosphere to cause any problems.

Infrared radiation, on the other hand, comprises a full 80% of the sun’s

THE ELECTROMAGNETIC SPECTRUM



Items on the left side of this chart are measured in frequency; items on the right are measured in wavelength. As you can see, there is often an overlap between various categories—X-rays, for example, exist within the gamma ray and ultraviolet regions of the EM spectrum, just as radar exists within the microwave and television band. (In fact, the word “radar” is shorthand for the phrase “Radio Detection and Ranging.”)

drip. There are several types of fire-fueled saunas, due to the different kinds of fuel and the varied methods of containing the fire.

To many rural people, the only real sauna is one that uses a wood-burning fire. This is understandable, as fire has been the main heating method for saunas throughout humankind's history. Wood is usually readily available and works well—although it does have to be replaced, and if the fire is not maintained constantly it will flicker out. Fire has a romantic and earthy appeal, although some people do not like to be around open fire, since it can pollute, and the smoke can contain irritants and allergens. (There are conflicting studies as to whether particles from wood fires are carcinogenic.) Coal, although used occasionally in some parts of the world, is generally not even regarded as a sauna fuel, since it is highly toxic when burned and can be quite dangerous to people with sensitive lungs.

Fire can be contained in a clay oven or metal stove, or burn in a partially or completely open pit in the room itself. Fire that is enclosed in a clay oven or metal stove gives off mostly radiant heat. If the fire is in a partially or completely open pit, a fair number of convective air currents may be produced. But regardless of whether the fire is in an open or enclosed space, the pleasantness and safety of the sauna experience is still determined by how efficiently the fire burns, and even the type of wood used.

Heated Stones

People familiar with Native American sweat lodges know that properly treated stones can be a wonderful heat source. Some sweat lodges are heated by wood-burning fires, but most use large igneous rocks, which hold warmth for a long time. First the rocks are heated outdoors to immensely high temperatures in a wood fire. The rocks are then placed into a pit at the center of an enclosed lodge. The lodge is a low, dome-shaped structure made of long curved branches covered with animal skins, blankets or canvas. The heat is primarily radiant, although, since heat rises, the larger the area the more convective air currents are produced. In *Sweat*, Mikkel Aaland describes in great detail how to test the stones to make sure they are suitable for a sauna. The stones must be the right size, packed neither too loosely nor too tightly, and they must not explode or crumble into



ABOVE: Dr. Kellogg's original electric light bath, where the seated subject was exposed to 32 bulbs. Several of these units are still fully functioning and in use today at the Battle Creek Lifestyle Health Center in Battle Creek, Michigan.

RIGHT: Steam bath cabinets. The early version (top) is a three-piece model made out of metal. The later models (bottom) were made by Bernarr Schaeffer in 1957 for the Battle Creek Equipment Company. Constructed of masonite (comparable to a very dense, hard particle board), wood, and stainless steel, the cabinets had to be painted 10 times, inside and outside, to protect them from degradation by steam.

The steam was dispensed from an electrically-fitted aluminum pot, which the consumer had to fill with water before each use. Considered state-of-the-art at the time they were made, the cabinets cost about \$500. Among the first dozen cabinets produced, two were sold to the Senate office building. Just before Mr. Schaeffer left Battle Creek in 1961, the company began using fiberglass for the cabinet shells.



HEAT SOURCE

A detailed evaluation of the different types of electric heaters is not possible. Nevertheless, one can determine somewhat the effect of the heat source based on what type of sauna houses the heater.

	Time spent heating the sauna	Possibility of being burned	Harmful electromagnetic fields	Positive ion emissions (harmful)	Chemical or byproduct emissions	Manageability of heat	Compatibility with steam inside the sauna
Wood Fire, Open or Semi-open Convection	One to two hours.	Moderate. Do not touch fire, and avoid flying sparks.	No.	No.	Yes.	Poor to good.	Yes. Bring in water bucket and splash water on skin.
Stove: Fire, Gas, or Wood-Burning Stove Convection & Radiant	Thirty minutes to one hour.	Low, as long as you do not touch stove and avoid overfeeding the fire.	No.	No.	Possibly minimal, depending on stove used.	Fair to excellent, depending on stove used.	Yes. Bring in water bucket and splash water on skin.
Hot Rocks (pre-heated, then placed in sauna—used as sole heat source) Convection & Radiant	Four to five hours (first the fire must be made, then the rocks must be heated).	Low, as long as you do not touch rocks and avoid throwing too much water onto them (too much steam at very high temperatures can burn the skin).	No.	No.	Possibly, depending on type of rock used; definitely, if herbs are thrown on the rocks.	Fair to good.	Yes. Bring in water bucket and splash water on skin. Water can also be poured onto the stones to moisturize the air.

Electric Heater, Room (non-FIR) <i>Convection</i>	Perhaps one hour. Smaller rooms will heat more quickly than large rooms.	Low, as long as you do not touch the heater. Some heaters are specially shielded.	Probably, unless the heater is shielded.	Often yes.	Depends on materials comprising sauna.	Fair to excellent, depending on heater and thermostat sensitivity.	Place pan of water on floor. If heater can accommodate löyly, splash water onto the rocks.
Electric Heater, Room (FIR) <i>Radiant</i>	With FIR, air temperature is not important. However, subject will sweat sooner in a small room.	Low, as long as you do not touch the heater. Some heaters are specially shielded.	Probably, unless the heater is shielded.	Possibly yes.	Depends on materials comprising sauna.	Fair to excellent, depending on heater and thermostat sensitivity.	Place pan of water on floor. If heater can accommodate löyly, splash water onto the rocks.
Electric Heater, Cabinet (FIR only) <i>Radiant</i>	With FIR, air temperature is not important. Subject will sweat soon.	Low, as long as you do not touch the heater. Some heaters are specially shielded.	Possibly, unless the heater is shielded.*	Possibly yes.	Depends on materials comprising sauna.	Fair to excellent, depending on heater and thermostat sensitivity.	If there is space, place pan of water on floor. Cabinet heaters are not designed to hold rocks for a löyly.
Electric Light Bulbs (home built unit) <i>Radiant</i>	Ten minutes to one-half hour. But with FIR, air temperature is not important.	Yes, unless screen is used.	No.	No.	Depends on materials comprising sauna.	Fair to excellent.	If there is space, place pan of water on floor.

* At least one manufacturer has eliminated virtually all of the harmful electromagnetic radiation.

benefit from mild sauna therapy *if a cabinet only is used, if the body temperature does not exceed 100°F (37.8°C), and if the treatment is medically supervised.* For such a person, low-level body heating can improve circulation, carry immune bio-chemicals and other therapeutic agents close to the tumor, enhance lymphocyte activity near the site, and remove metabolic toxins surrounding the site.

Cardiovascular problems

In America, sauna manufacturers—fearing lawsuits from warranted or unwarranted liability—explicitly advise people with cardiovascular problems not to use the sauna. However, research indicates that sauna therapy can be helpful in certain situations. A two-week Japanese study was recently conducted by M. Imamura and colleagues with 25 men who had at least one risk factor for heart disease. After 60°C (140°F) sauna therapy for 15 minutes per day, followed by 30-minute bed rest covered with a blanket, the subjects had the thickness of their artery lining measured by ultrasound. The test showed a 40 percent reduction of the inner lining of blood vessels—leaving more room for the blood to flow, which in turn lowers blood pressure. Vascular endothelial function was discernibly improved, the researchers report, “suggesting a therapeutic role for sauna treatment in patients with risk factors for atherosclerosis.”¹ Far infrared saunas, which are very popular in Japan, were used.

The article “Benefits and Risks of Sauna Bathing,” appearing in *The American Journal of Medicine*, is based on a large database of 130 studies of Finnish saunas. The authors state that “long-term sauna bathing may help lower blood pressure in patients with hypertension and improve the left ventricular ejection fraction in patients with chronic congestive heart failure,” although they add that additional research is needed to conclusively confirm this. They mention that sauna bathing is contraindicated in cases of “unstable angina pectoris, recent myocardial infarction, and severe aortic stenosis,” but add that sauna therapy is safe “for most people with coronary heart disease with stable angina pectoris or old myocardial infarction.”² (Note their observation that “Very few acute myocardial infarctions and sudden deaths occur in saunas, but alcohol consumption during sauna

holistic practitioners recommend low heat, short periods of time (about 15 or 20 minutes, maximum), and sauna use of not more than twice a week.

Implants

See “Cochlear implants,” “Metal pins or rods,” and “Silicone implants.”

Inflammatory conditions

Not everyone with an inflammatory condition feels better with sauna therapy. According to H. Isomäki, about 25% of women with fibromyalgia find heat detrimental. Most men with fibromyalgia find it helpful. Those who react badly to sauna therapy generally feel better at first, and have an inflammatory reaction the next day. However, an inflammatory response can be avoided by cooling off thoroughly with cold water directly after sauna use. An initial inflammatory reaction might also indicate the beginning of a healing response rather than a negative backlash, so check with a qualified health care provider who is familiar with sauna therapy and your particular situation.

Injuries (sprains, pulled muscles, etc.) that are very recent

In most cases, the injury should not be exposed to heat for the first forty-eight hours—or at least until the swelling subsides. However, some people initially feel much better with heat than with cold, so you will have to experiment to see what is best for you.

Lupus erythematosus

This autoimmune disorder causes heat sensitivity in the skin. However, all of the doctors I interviewed for this book stated that sauna therapy can be helpful for people with lupus (as long as they are not taking steroids). Obtain medical supervision from someone familiar with sauna therapy.

Menstruation

Heating of the low back area during a woman’s menstrual period may temporarily increase the flow. However, the relief from menstrual cramps can be immediate, so most woman don’t mind a little extra discharge.

	Medical Condition	Increases cardio-vascular activity, enhancing circulation	Increases norepinephrine, beta-endorphin and possibly thyroxin production, raising metabolism and increasing waste removal and nutrient absorption	Increases white blood cell production, helping the body eliminate toxins, foreign proteins and microbes	Increases production of enzymes (needed by white blood cells)	Relaxes muscles, reducing pain	Kills or disables microbes
Blood and Cardio-vascular Disorders Saunas increase the amount of hemoglobin in red blood cells, augment its ability to carry oxygen, and cause it to release oxygen faster.	Angina Pectoris, unstable	Ask your doctor! If your condition is stable, Far infrared at very low to moderate temperatures for a brief time may be helpful and relieve pain due to the dilation of the blood vessels. But you should be under medical supervision, at least initially.					
	Aortic Stenosis, severe	Not advised! Far infrared at very low temperatures briefly may be helpful, but ask your doctor first.					
	Arterio/ athero Sclerosis	●●	●	●●	●●	●●	●
	Cardiac Arrhythmia	Not advised! Far infrared at very low temperature for a brief time may be helpful, but check with your doctor first. Do not dive right into cold water after perspiring; cool off slowly to avoid risk of cardiac arrhythmia.					
	Cardiac Edema	Ask your doctor.					
	Cerebral Thrombosis	If condition is unstable, do not use sauna. If condition is stable, consult with your doctor after receiving a thorough medical examination.					
	Blood Pressure, high	Doctors disagree about harm, since heat can raise uncontrolled high blood pressure to the extent that stroke results. Consult with a doctor knowledgeable about your condition and sauna therapy.					
	Blood Pressure, low	●●	●	●●	●●	●●	●

	Medical Condition	Increases cardio-vascular activity, enhancing circulation	Increases norepinephrine, beta-endorphin and possibly thyroxin production, raising metabolism and increasing waste removal and nutrient absorption	Increases white blood cell production, helping the body eliminate toxins, foreign proteins and microbes	Increases production of enzymes (needed by white blood cells)	Relaxes muscles, reducing pain	Kills or disables microbes
Nervous System / Brain Disorders Alternating with cold packs may help. Even though high heat is not advised for multiple sclerosis, in many cases the presence of chronic viral and bacterial infections indicate a moderate, supervised use of the FIR sauna.	Anxiety and Stress	●●	●●	●●	●●	●●	●●
	Autism	●●	●●	●●	●●	●●	●●
	Bell's Palsy	●●	●●	●●	●●	●●	●●
	Brain Tumor	For very small brain tumors only, use a sauna cabinet (not enclosed chamber), if the body temperature does not exceed 100°F (37.8°C), and if supervised by a doctor.					
	Cerebral Palsy	●●	●●	●●	●●	●●	●●
	Depression	●●	●●	●●	●●	●●	●●
	Dizziness	People subject to dizzy spells should use sauna only if supervised by qualified health care practitioner.					
	Encephalitis	●●	●●	●●	●●	●●	●●
	Epilepsy	Most modern health care practitioners say that people with epilepsy should not use the sauna. But Dr. Kellogg successfully treated this condition with cold applied after the sauna, and strict diet.					
	Fainting	People who faint should use the sauna only when supervised by a qualified health care practitioner.					

Autistic children often respond well, as they are usually filled with toxic chemicals. People with Parkinson's and similar diseases may also respond well.	Mental / Behavioral Problems	●●	●●	●●	●●	●●	●●
	Multiple Sclerosis	Since some people with Multiple Sclerosis have a hard time sweating, many health care practitioners advise against sauna therapy. However, medically supervised FIR sauna therapy at low levels might be helpful.					
	Neuralgia, Neuritis	●●	●●	●	●●	●●	○
	Paralysis	●●	●●	●	●●	●●	○
	Parkinson's disease	●●	●●	●●	●●	●●	○
	Raynaud's	●●	●●	●●	●●	●●	○
	Sciatica (nerve pain caused by misplaced bone)	●●	●●	●	●●	●●	○

Key

- Function is crucial in helping condition heal
- Function is useful in helping condition heal
- Function might or might not help condition heal

of the atom]. But when weak bonds split, free radicals are formed. Free radicals are very unstable and react quickly with other compounds, trying to capture the needed electron to gain stability. Generally, free radicals attack the nearest stable molecule, “stealing” its electron. When the “attacked” molecule loses its electron, it becomes a free radical itself, beginning a chain reaction. Once the process is started, it can cascade, finally resulting in the disruption of a living cell.²

In *The Complete Book of Enzyme Therapy*, Anthony Cichoke describes the myriad problems that can be caused by free radicals:

Free radicals lead to faulty metabolism of proteins, including DNA and enzymes, by oxidizing cells so that they practically rust...Free radicals can inactivate enzymes in the cell membrane. This damages the membrane, interfering with the cell's ability to take in nutrients and expel wastes. They can cause lipid peroxidation in cell membranes, in which the protective lipid layer of the cell is oxidized, which damages it. This causes body fat compounds to become rancid and release even more free radicals.³

The free radical damage created as the body detoxifies illustrates the complexity and precision of liver function. If, during any phase, the liver cannot produce enough enzymes and other biochemicals to efficiently break down the toxins, whatever has not been neutralized—be it the original toxin or a metabolite of that toxin—goes right back into the bloodstream and lodges in the fat tissue. Therefore, it is vitally important to support the liver so that it can complete its entire detox cycle. (Incidentally, free radicals can also be produced and augmented during exercise and sauna therapy.)

Liver support means obtaining plenty of the right nutrients, including those with antioxidant properties. “Antioxidants,” writes Cichoke, “protect the body from free-radical damage by helping the body repair cellular damage caused by free radicals or by intercepting the free radicals before they can do any harm.”⁴ Below is a list of nutrients, some of which have antioxidant properties. All of them help protect the liver, and provide materials for the creation of enzymes and other bio-chemicals, during Phase I of the detoxification cycle.

function (drugs, surgery) until it can function on its own. *If, despite sauna therapy and the other protocols that you are doing, you continue to feel bad with no relief from your symptoms—or you feel worse and even more depleted—you may be experiencing a disease crisis and should see a qualified health care professional immediately.*

Interestingly, many of the herbs and spices that people use to cleanse—when used in large enough amounts—induce or increase perspiration. These include cayenne pepper, cinnamon, ginger, and peppermint. The essential oils of these plants, provided you are not allergic or chemically sensitive to them, can produce excellent results. Be sure to obtain good quality nutritional supplements, since nutritional deficiencies play a huge role in whether or not the body can absorb and assimilate food, and eliminate wastes.

DETOXIFICATION PROGRAMS

The L. Ron Hubbard Sweat Purification Program

Some of the most important research on eliminating systemic toxins was conducted by the late L. Ron Hubbard in conjunction with scientists from the United States Environmental Protection Agency (EPA). Unfortunately, Hubbard has received almost no recognition for his remarkable work with niacin in conjunction with the earliest publicized sauna therapy. For decades, this program helped thousands of people eliminate poisonous chemicals from their bodies. Niacin (also called nicotinic acid or Vitamin B-3) is known as the “flushing” vitamin because it causes the skin to redden or become flushed due to capillary enlargement and increased blood flow. It also makes the skin feel itchy and prickly. If people take high enough doses of B-3, they sometimes also feel nauseated, dizzy, disoriented, and even mentally unstable and volatile. For these reasons, niacinamide—a close relative chemically to niacin that does not cause skin flush or other symptoms—has become a popular substitute. However, it turns out that this “flushing” property unique to niacin is not only crucial to the detoxification process, but indicates that a detoxification process is actually occurring.

Hubbard's research on niacin, begun in 1950, explains how this detox process works. In *Clear Body, Clear Mind: The Effective Purification Program*, he wrote:

Odd manifestations occurred when this vitamin [niacin] was administered to individuals. Its most startling effect was that it would turn on, in a red flush, a sunburn on the person's body in an exact pattern of a bathing suit! These were very neat patterns. The bathing suit outline was unmistakable.

What kind of "educated vitamin" was this that caused bodies to turn on a flush exactly like a previous sunburn, showing the exact pattern of a bathing suit outline?⁸

Could it be, Hubbard wondered, that niacin in itself does not cause a flush, but instead *causes the body to start discharging old waste materials that had been stored in the fatty tissue*? What if these people were simply recovering from a prior case of sun poisoning, acquired from too much sunbathing while in a swim suit? The subjects in this research program took carefully controlled dosages of niacin. At a 200 mg. (milligram) dose, the "sunburnlike" flushes eventually disappeared, at which point the dose was increased to 500 mg. At a 500 mg. dose, the flushes recurred, but with less intensity, at which point the dose was increased to 1000 mg. (which equals one gram). At a 1000 mg. dose, there was a small reaction for several days, at which point the dose was increased, and so on. Finally, at a 2000 mg. dose, Hubbard reported, there were no more niacin flush "side" effects. "The person would feel fine, his 'sunburn' would be gone, and he would experience no more flush from the niacin."⁹

Both British and American pharmacopoeia agencies, Hubbard also pointed out, "advertised" that the niacin flush—presumably an intrinsic characteristic of the vitamin—is inherently negative to the body, and thus the vitamin is "toxic" in large amounts. "But if niacin was toxic," the author asked, "how was it that the more you 'overdosed' [on] it the sooner you no longer experienced the sunburnlike flushes from it?"¹⁰ Those in orthodox medicine circles hypothesized that this was an example of the body's adjusting to unfavorable conditions by repressing the symptoms, and thus appearing asymptomatic. But this hypothesis was completely unsatisfactory, in view of the bathing suit outline on the test subjects!

Nevertheless, Hubbard's revealing evidence was mostly ignored by mainstream doctors and scientists. They didn't consider Hubbard qualified to do research, regardless of how carefully he designed his experiments or how coherent and rational his observations were.

Six years later, Hubbard had the opportunity to gather even more compelling data when working with subjects who had been exposed to fallout from atomic bomb tests, atomic accidents, and materials that had been part of an old atomic bomb explosion. "In 1956," he wrote, "niacin was reacting differently on people than it had in 1950, and the effects were more severe."

People on the research program in 1950 had experienced only past sunburn flushes. In 1956, people on the research program, while experiencing a flush, were also experiencing nausea, skin irritations, hives, colitis and other uncomfortable manifestations, on the same vitamin and in the same dosages as had been used in 1950.¹¹

One highly significant detail is that some of the same people participated in both Hubbard's earlier and later research. What had changed? Only the newly developed health problems the subjects brought with them to the second research project! The first group of research subjects, who needed to recover from sun poisoning, developed symptoms uniquely related to sun exposure. The second group manifested symptoms specific to atomic radiation poisoning (as well as more symptoms in general) because they had been exposed to nuclear waste. Hubbard's explanation 50 years ago was convincing then, and seems equally convincing today—that niacin is an effective and powerful catalyst that induces the body's detoxification response without itself becoming transformed in the change. Niacin's use in sauna therapy is also a wonderful choice because its dilation of surface blood vessels allows heat to escape.

Then in 1977, Hubbard noticed many young people who had smoked marijuana, taken LSD (lysergic acid diethylamide), and/or been addicted to narcotics, and now wanted to quit. So he devised his Sweat Purification Program to help them eliminate their drug cravings. His program, administered under the supervision of medical doctors, consisted of controlled, escalating doses of niacin, along with other vitamin and mineral supplements whose

amounts were based on need *but were also proportional to the amount of niacin taken*, as the extra niacin could unbalance the system. (The B-vitamins must always be in the correct ratio to each other; otherwise, deficiency diseases can result.) Hubbard also insisted on exercise in the form of running to stimulate the circulation; sauna therapy; sufficient water to replace the fluids lost through sweating; plenty of fresh vegetables, both raw and very lightly cooked; and adequate restful sleep, eight hours a night average. Most people took two to three weeks to complete the Sweat Program, although some required a longer period of time. For those who were very ill, frail or in poor physical condition, to prevent overexertion Hubbard advised a gradual increase in the amount of time they exercised, and a gradual increase of their sauna time as well. The sauna therapy and exercise were coordinated in one five-hour period daily, consisting of 4 to 4½ hours of sauna therapy for every 20 to 30 minutes of running. The ratio was important, Hubbard wrote. "The bulk of the period is best spent in the sauna after the circulation has been worked up by running. In other words, the five-hour period is *not* 50 percent exercising and 50 percent sauna. The program gives best results with a much lower percentage of time exercising and a much higher percentage in the sauna."¹² Interestingly, Hubbard reported that a dry rather than a wet sauna "proved to be the most successful in inducing profuse sweating in most people"—although he freely acknowledged that since people's responses to sauna therapy are very individual, "there is no regulation on the program that outlaws the use of a wet sauna...the whole idea is to use the system which permits the person to sweat the most."¹³ People left the sauna periodically to cool off for five or 10 minutes.

Here is Hubbard's report on what happened to the drug addicts who took niacin:

Taken in sufficient quantities, niacin appears to break up and unleash LSD, marijuana and other drugs and poisons from the tissues and cells. It can rapidly release LSD crystals into the system and send a person who has taken LSD on a "trip." (One fellow who had done the earlier Sweat Program for a period of months, and who believed he had no more LSD in his system, took 100 milligrams of niacin and promptly turned on a restimulation of a full-blown LSD experience.)¹⁴

The ability of fatty tissue to store, for an unlimited time period, either the original intact poison or its incompletely processed metabolites, explains the re-occurrence of symptoms that drug users experience. Since fat cells tend to get replaced rather slowly in the system compared to other components (such as muscle or red blood cells), toxins can remain dormant for years or even decades. Once the fat cells do get broken down, they quickly release the stored drugs and/or their metabolites back into the bloodstream. The materials are now free to travel to all of the body's cells—including the brain—where (depending on their chemical makeup and degree of breakdown) they can *re-stimulate the same receptor sites as if the person had just taken the drug*. This is why even people who stopped taking drugs years ago might experience flashbacks now of past drug trips. This is also why drug levels in blood and urine—levels that may have been minimal or even non-existent—suddenly increase during a detox program before lessening and finally vanishing. Finally, this explains why people on a drug detox program often feel a sudden, fresh craving for the drug: the chemicals have been liberated from fat cells and are circulating throughout the bloodstream, free to latch on to any convenient receptor site. As the toxins are completely eliminated from the body, the residual drugs in the blood and urine, and the person's cravings and flashbacks, disappear at last.

Hubbard was very aware of how a detoxification program for drug and other substances worked, so he was not troubled by sudden increases of symptoms. In fact, he welcomed them, since this meant that his subjects were finally clearing harmful substances from their bodies. It was often necessary to remind people not to be concerned about symptoms as long as they were following the protocol; the body was in a healing crisis rather than a disease crisis. Niacin, Hubbard emphasized, “apparently does not do anything by itself. It is simply interacting with niacin deficiencies which already exist in the cellular structure. It doesn't turn on [cause] allergies; it appears to run out [eliminate] allergies.” However, taking niacin is not without its risks. The symptoms that result from taking niacin can be quite horrifying. Hubbard described seeing a “full-blown” case of skin cancer appear in someone who took high enough dosages. Apparently the condition was latent in the body, and was thus able to be “turned on.” “If that should

happen,” Hubbard advised, “the handling [of the condition], by observable fact, has been to continue the niacin until the skin cancer has run out [run its course] completely.”¹⁵

Allowing the body to completely eliminate its poisons is important for the success of any detox program. It is tempting to want to stop the process—if indeed it can be stopped—particularly if you are experiencing many and varied symptoms that are uncomfortable and even scary. However, if you are truly undergoing a detoxification response, *keep going* until the symptoms subside. You might be able to slow down the rate of elimination—after all, the goal is to cleanse, not suffer. Or, you might be able to speed up the response. But if you try to stop it permanently, without addressing the waste products that are still in your body, you will eventually suffer from their presence. Fortunately, sweating is an easy and efficient way to detoxify with a minimum of stress. In fact, sauna therapy is desirable *because* the act of perspiring relieves the detox burden from so many systems in the body.

Another potential problem with a detox program, which Hubbard articulated quite clearly, is that imbalances of the body could be misinterpreted as effects of the sauna therapy itself—a common mistake made by laypersons and health care practitioners alike. This is why you might want to learn as much as possible about sauna therapy (as with any health protocol you are using). The better informed you are, the better prepared you are for any kind of reaction.

Be aware, too, that during a detox program the body can become unbalanced due to the lack of proper support—be it dietary, emotional, or other. This is usually how the person got sick in the first place. Hubbard addressed the nutritional aspect. “What could slow down the Purification Program, and make it appear incomplete would be a nutritional failure—a failure to flank the niacin on either side by sufficient amounts of the other needed vitamins and minerals in proportion, and a failure to provide food intake which included vegetables (with their vitamin and mineral content) and oil.”¹⁶ (Oils will be discussed in the following paragraph.) Again—and this cannot be emphasized enough—it is imperative to take other vitamins along with the niacin, especially all of the B-complex, since flooding the system with some B vitamins while omitting others can produce severe

conditions due to deficiencies. In the journal *Medical Hypotheses*, D. W. Schnare and colleagues write that “the reported side effects of niacin may actually be the creation of other vitamin and mineral imbalances...*as negative side effects were not noted when correct proportions were administered.*”¹⁷ [emphasis added]

David Root, David Katzin, and David Schnare explain why consuming oil is an important part of Hubbard’s program. Ordinarily, “as the fat-soluble toxic chemicals are released into the bloodstream [from various tissues in the body], many of them are carried to the gut where they are released intraluminally” (in other words, they pass from the bloodstream back through the intestinal wall into the small intestine). “There, they are reabsorbed into the lipophilic [fat-loving] bile acids and recirculated back through the liver.” (A cluster of veins runs directly from the small intestine to the liver; their purpose is to deliver the contaminated contents of the intestine to the liver for cleaning before the stuff is then discharged back into the bloodstream.) However, in many people, the liver is already toxified and overextended with its cleanup jobs. “The polyunsaturated oil,” the authors explain, “tends to retard this recirculation effect and allow[s] the toxic substances to be [directly] excreted through the colon.”¹⁸ The extra large amount of oil consumed at one time (between two and eight tablespoons)—too much for the body to digest and use as food—instead binds to the toxins that are lipid-soluble and leaves straight through the colon. The liver, bypassed entirely in this process, is thus prevented from becoming even more toxified. Since there are still plenty of toxins circulating through the bloodstream, this precaution is a sensible one.

A blend of ordinary heat-processed vegetable oils were fed to Hubbard’s detox subjects. Heating oils at high temperatures—the manner in which most vegetable oils are produced—creates free radicals and other harmful substances. Today, given our knowledge of the dangers of heat-processed fats, more healthful oils such as *cold*-processed coconut and olive are often substituted, just in case any of the oils happen to be absorbed by the body. (Krohn and Taylor point out in *Natural Detoxification* [2nd ed.] that the body “exchanges” flaxseed, evening primrose, and black currant seed oils “for contaminated fat, which is eliminated through bile excretion and feces.”¹⁹ The first edition of the book advises that people known as slow

natural medicine, establishing the world-renowned Environmental Health Center in Dallas, Texas. For 25 years, Rea has helped over 40,000 people with environmental illness and multiple chemical sensitivity, lupus, neurotoxicity, cardiac problems, and cancer, among other conditions. About 10 years ago, Rea and his colleagues began using saunas, both Swedish (hot air) and far infrared. Made of wood, glass and ceramic, the saunas emit temperatures varying from 120°F to over 160°F (48.9°C to over 71.1°C). Different people have an affinity for different types of saunas, Rea notes. The success of one type of sauna over another depends on the unique characteristics of the person, *not* the illness.

Although sauna manufacturers customarily give a list of conditions that contraindicate sauna use (probably to avoid possible liability), Rea has discovered that, with adequate medical supervision, almost everyone can and does benefit from sauna therapy. Multiple sclerosis (discussed in Chapter 6) is a good example. Most doctors unfamiliar with sauna therapy categorically claim that body heating is dangerous for people with MS because typically, the sweating mechanism is damaged. However, if the temperature inside the sauna is increased gradually, people with MS can *learn* to sweat and thus have a successful therapeutic sauna experience. Their symptoms will actually go into remission as the environmental toxin load is lessened and the immune function is strengthened. People with a history of seizures can also use the sauna, as long as they are closely supervised. Likewise, for Rea, cardiac problems are not necessarily a deterrent. The only people who absolutely should not use the sauna, he says, are those who have suffered damage to their brain's thermostatic control. Incidentally, Rea believes that people should not use the sauna, alone and unsupervised, without first being tested and monitored in a physician's office. However, his caution may be explained by the fact that he tends to see clients who have not been helped by other modalities and come to him only after they are seriously ill.

I find it significant that Rea uses niacin in his detoxification programs. "Twenty-five to thirty percent of chemically sensitive individuals are deficient in [vitamin] B₃," he observes. A niacin deficiency can cause a host of symptoms such as canker sores and dermatitis, indigestion and nausea, depression and memory impairment, headaches and insomnia, limb pain and inflammation—and a "failure to detoxify xenobiotics [substances foreign

APPENDIX B

Resources

The more you sweat in peace, the less you bleed in war.

ADMIRAL HYMAN G. RICKOVER,
AT HIS US NAVY 1983 RETIREMENT SPEECH

The inclusion of a particular doctor, facility, organization, service, spa, or sauna manufacturer does not imply unconditional endorsement by the author. The listings are provided solely for the convenience of the reader, who is responsible for investigating and evaluating these entries.

Please note: The 011 code in front of all the international phone numbers is *only if you're calling from the United States*.

CLINICS, DOCTORS, AND MEDICAL TREATMENT CENTERS

Most of these facilities are equipped to handle people with serious problems such as allergies, arthritis, cancers, cardiovascular disease, environmental illness, hard-to-treat infections, and neurological disorders. They administer sauna sessions, hyperthermia, or other heat treatments as part

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*Genius is one per cent inspiration
and ninety-nine per cent perspiration.*

THOMAS ALVA EDISON

U.S. INVENTOR 1847–1931, REMARK MADE ABOUT 1903

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