

## The Science of Sauna: How Heat Therapy Could Extend Your Life

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From enhanced heart health and stress reduction to improved immunity and longevity, learn how to optimize your sauna experience.

Saunas have never been more popular. Commonly known as a Finnish health practice with origins dating back thousands of years, sauna's appeal is growing among wellness seekers worldwide.

Today sauna use is increasingly promoted as an important tool for supporting health, and possibly for extending your life. We're diving into the research to examine how this traditional form of heat therapy works, and what it can and cannot do.

### The Science-backed Benefits of Sauna

Studies have found that regular sauna bathing benefits cardiovascular health, alleviates stress, reduces pain, and may increase immunity, among other benefits

Exactly how some of these benefits occur isn't totally understood. But many appear to stem from the central premise of sauna therapy: Intentionally exposing the body to heat prompts physiological stress responses that can strengthen various systems and improve resilience.

More specifically, this exposure creates **heat shock**, a physiological reaction to an environmental stressor that triggers the release of heat shock proteins (HSP) that both repair and protect other proteins.

This process may be behind sauna's potential longevity benefits: By repairing damaged proteins, HSPs

could offer protection against age-related cardiovascular and neurodegenerative diseases and muscle atrophy.

## How Sauna Boosts Your Cardiovascular, Respiratory, and Mental Health

**Sauna and Cardiovascular health:** Sauna use has been found to impact cardiac conditioning similar to the effects of moderate-intensity exercise. The benefits appear to be both protective and curative.

The **Finnish Kuopio Ischemic Heart Disease Risk Factor Study**, a long-term population-based study to determine risk factors for cardiovascular disease (CVD), found:

- Middle-aged men who used a sauna 4-7 times per week had decreased risk of death by 40% over those who used a sauna once per week; and using a sauna 2-3 times per week was associated with a 24% decrease.
- Greater sauna use was also associated with decreased risk of **CVD**, by 50%, while 2-3 time use was associated with a 27% reduction in risk.
- A **subsequent cohort study** found similar cardiac benefits: Men and women (median age 62.7), who took sauna baths 4-7 times per week were 61% less likely to have a stroke than people who used a sauna once per week. Both studies adjusted for other potential protective factors.

Other research has shown sauna use **improves vascular function** among people at risk for atherosclerosis.

Even a single sauna session may provide cardiac benefits. A **2019 German study** found that one sauna session positively impacted heart rate and blood pressure equal to a session of moderate-intensity exercise.

**Another small study** found that 16 minutes of sauna, split into two 8-minute sessions, decreased vascular resistance among people with hypertension. When the sauna intervention followed 30 minutes of aerobic exercise, people experienced additional positive effects on blood pressure up to 24 hours later.

**Sauna and Pulmonary function:** By improving lung capacity and **function**, sauna use may help improve breathing among people with asthma and **bronchitis**. It may also reduce risk of respiratory disease, including COPD and pneumonia.

Meanwhile sauna use **in conjunction with physical activity** has been shown to increase cardiorespiratory function (CRF). In one small but important study, researchers assigned 48 sedentary middle-age men and

women at risk for CVD, into three intervention groups:

- One did 60 minutes of exercise, including aerobic activity and resistance training, 3 times per week for 8 weeks
- One did the same exercise program followed by 15 minutes of sauna after each exercise session
- A control group

**The results?** Compared to the control group, the exercise-only group increased their CRF and decreased fat mass. But those who did a sauna after exercise not only experienced additional CRF gains, they also had considerably lower blood pressure and cholesterol levels.

“These beneficial changes are promising, given that [the] sauna exposure, such as duration and frequency, were not only relatively short and tolerable, but [feasible] and replicable as well,” the study authors noted.

**Sauna and Stress reduction:** The body’s response to sauna heat triggers a cascade of physiological reactions that promotes relaxation and support stress reduction:

- Increased blood flow helps muscles relax, and delivers oxygen and nutrients throughout the body to promote healing
- The release of endorphins promotes a sense of well-being
- Post-sauna reduction in cortisol levels indicates increased stress reliance
- Sauna use seems to help modulate the nervous system
- By triggering heat shock, and the subsequent release of HSP, sauna use may help the body counter oxidative stress and inflammation, both of which are linked to chronic stress.

## 6 Surprising Sauna Benefits

While cardiac health and relaxation are the most recognized benefits of sauna use, some studies have indicated other potential benefits, including:

- 1 **Reduced Inflammation:** One study of more than 2,000 middle-age men found that sauna use 4-7 times per week, resulted in lower levels of C-reactive protein, a marker of systemic inflammation.

- 2 **Pain Reduction:** One small study of 3 men and 15 women with rheumatoid arthritis found that 4 weeks of infrared sauna use twice a week relieved both pain and stiffness. A **small Korean study** found that twice-daily, 15-minute sauna sessions over 5 days, significantly reduced low back pain.
- 3 **Improved Cognitive Health:** Regular sauna use may support brain health: The Finnish study found that men who use a sauna 4-7 times per week had a 66% lower dementia risk than once-per-week users. How sauna use might protect the brain isn't understood, but could be related to the release of HSP and their cellular benefits; increased blood flow to the brain; or the expression of brain-derived neurotrophic factor (BDNF), which is important for the creation, health, and plasticity of brain neurons.
- 4 **Increased Calorie Burn and Improved Metabolic Health:** Sauna can indirectly impact weight loss, by increasing heart rate and caloric burn, although most weight reduction will be through water loss and therefore temporary. However, regular sauna use appears to help lower total cholesterol and enhance insulin sensitivity.
- 5 **Preserved Muscle Mass:** Sauna use may help preserve age-related muscle loss (sarcopenia), by reducing protein degradation that contributes to muscle atrophy. Heat stress can also stimulate the release of growth hormone, which is important for muscle recovery, and when combined with exercise, may support muscle growth.
- 6 **Strengthened Immunity:** Sauna use can increase white-blood cell count, and may offer protection against respiratory illness.

Although a growing body of research points to a variety of *potential* benefits of sauna bathing, in some cases, the excitement may surpass the evidence. Most of the largest studies have been observational, which don't determine cause and effect. And those were done in Finland, where sauna use is deeply culturally ingrained, and may not be reflective of a more general population. Meanwhile, randomized control studies on sauna use have been small.

## How to Sauna Bathe

The concept behind sauna bathing is simple: You enter an enclosed structure, usually made of wood, that is heated to temperatures ranging from 113-212°F. While saunas were traditionally heated with fire, many modern saunas use electricity, or infrared light panels, although wood stoves are still popular, especially in cold climates.

Inside the sauna, stones are sometimes placed on top of a heating grid to both hold heat and disperse it as steam when doused with water.

As you sit, your body temperature rises, creating a cascade of physiological events, including:

- Increased heart rate
- Increased and redistributed blood flow
- Rise in core body temperature
- Rise in skin temperature
- Sweat response

## The Different Types of Saunas

- **Traditional:** The Finnish model of sauna is still the most common. These complete-wood structures, typically made from warp-resistant wood like aspen, cedar, or hemlock, have benches for sitting, and provide a dry-heat experience, with any humidity produced by pouring water over sauna rocks. Temperatures must be at least **150°F**, according to the North American Sauna Society, to 190°F, and as high as 212°F.
- **Infrared sauna:** Instead of heating an entire room, infrared sauna uses electromagnetic lamps to produce thermal radiation that's absorbed directly into the body. Temperatures are lower, typically 113-140°F.
- **Steam or wet sauna:** While traditional saunas utilize steam to provide some humidity and increase heat, they are for the most part dry. In a wet sauna, steam from boiling water is pumped into a room, creating 100% humidity, and temperatures of **100-110°F**.

## How Often Should You Use a Sauna?

Most studies find benefit from using a sauna 3 or more times per week. But even one sauna session can promote relaxation and help reduce stress.

## How Long Should You Stay in a Sauna?

Although the Finnish study found the greatest mortality protection after more than 19 minutes of sauna use, there is no established sauna time guideline.

Most studies find that 15-20 minutes of use, 3-7 times per week, seems to be enough **to experience benefits**

The lower temperature of the infrared sauna allows for longer sessions, up to 30 or more minutes.

Getting used to extreme heat can take time. If you're curious about sauna use, start with just a few minutes and increase your exposure time incrementally. With longer sessions, it's common to take brief breaks outside the sauna.

## **Are There Any Risks /Dangers?**

Because saunas rely on extreme dry heat, dehydration and lightheadedness are an immediate risk. And some people and others with certain conditions should be careful or avoid saunas altogether. For example, children under age 6 should not use a sauna. Caution is advised for people with blood pressure issues, heart conditions, or during pregnancy.

Consult with your healthcare provider before using a sauna for any of the following conditions or circumstances:

- Pregnancy
- Severe cardiac conditions, including recent stroke or heart failure, angina or advanced aortic stenosis
- Extremely low or high blood pressure
- Kidney disease
- Active infection, rash, or inflamed skin
- Using blood thinners or diuretics
- Are on drugs or alcohol

If you don't have any of the mentioned risk factors, and are curious about sauna use, give it a try. It can be a relaxing adjunct to a healthy lifestyle. But take any claims of extreme benefits with a grain of salt. Most of all, be safe.

# Pro Sauna Tips

## BEFORE YOU SAUNA

- **Hydrate Well:** Drink plenty of water beforehand to avoid dehydration.
- **Prep Comfortably:** Shower first, and bring a towel, flip-flops, and a wool/felt sauna hat to regulate heat around your head and protect your hair and ears.

## DURING THE SESSION

- **Ideal Temperature & Time:** Aim for 160–195°F (70–90°C). Start conservatively (10–15 minutes), gradually increasing session length over time.
- **Monitor Your Comfort:** Pay attention to how you feel. If you become dizzy, short of breath, nauseous, or uncomfortable, exit the sauna calmly and slowly.
- **Breathing Comfort:** Consider using a damp cloth over your nose and mouth to ease breathing in dry heat.
- **Stretch Gently:** Light stretching during or after sauna sessions can improve flexibility and muscle relaxation.

## REPEATING SAUNA ROUNDS

- **Multiple Rounds:** Aim for 2–3 rounds per session, totaling around 30–45 minutes. Adjust based on your comfort and tolerance.

## COOLING OFF

- **Cold Shower or Plunge:** Step out after each sauna round and cool off with a **cold shower or plunge**. Rest for 5–10 minutes to help regulate core temperature and enhance circulation.

## POST-SAUNA RECOVERY

- **Rehydrate & Rest:** Drink plenty of water or electrolyte-rich fluids, shower again to cleanse and refresh, and take some time to rest afterward.

## FREQUENCY RECOMMENDATIONS



Begin with 2–3 sessions per week, gradually increasing frequency if your body tolerates it comfortably.

Tell us about your sauna experience! Write to us at [editors@superage.com](mailto:editors@superage.com)

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