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Infrared Sauna After Training Speeds Recovery and Supports Athletic Performance

Analysis by Dr. Joseph Mercola | December 27, 2025

STORY AT-A-GLANCE

- Athletes using infrared saunas post-workout experience faster reductions in soreness, improved strength recovery, and better neuromuscular performance within 24 hours compared to passive rest
- Using infrared saunas immediately after exercise yields stronger results than delayed sessions, as it extends the body's natural repair window when circulation and metabolic signaling are elevated
- Consistent post-workout infrared sauna sessions over several weeks increase muscle thickness, explosive strength, and power output more effectively than training alone, especially for intermediate lifters
- Far-infrared saunas provide safer, more practical detoxification and circulation benefits, while near-infrared units risk burns and don't effectively deliver photobiomodulation benefits despite higher costs
- When using a sauna, begin at 120 degrees Fahrenheit three times weekly, gradually increasing temperature by two degrees weekly. Avoid overuse — start with daily sessions for 10 to 11 days initially, then every two to three days for maintenance

Saunas are quickly becoming a popular health activity in America. This contrasts with Finland, wherein most homes contain a sauna. In fact, it's estimated that Finland has 3.3 million saunas to accommodate their population of 5.5 million people.[1]

Why go inside a sauna in the first place? According to exercise scientist Rachelle Reed, Ph.D., deliberately subjecting your body to heat (known as heat exposure) in a controlled environment promotes benefits such as improved stress management and cardiovascular health.[2] Research also shows that high-activity individuals, such as athletes and regular exercisers, can recover faster and improve their overall fitness through regular sauna use.[3]

Infrared Sauna Enhances Muscle Recovery and Neuromuscular Performance

In a dissertation published by the University of Jyväskylä in Finland, Ph.D. candidate Essi Ahokas investigated how post-exercise infrared sauna sessions can help athletes recover faster and maintain better performance during repeated bouts of high-intensity training.

To create the theoretical framework and perform the analysis, Ahokas compiled information from three of her previous studies (plus some unpublished data), examining how using infrared heat immediately after exercise improved muscular function, reduced soreness, and helped restore neuromuscular coordination between practices and games.[4]

The information discussed below focuses on her first study, titled Study I in her dissertation. Participants were composed of healthy, physically active national-level athletes, and Ahokas found that those who used an infrared sauna after workouts experienced measurable improvements in muscle recovery and overall readiness compared to those who only rested passively. The participants also reported less muscle soreness, better sleep quality, and higher perceived energy the next day.

- **A noteworthy finding was the speed of recovery —** Muscle soreness ratings dropped significantly faster in the sauna group within 24 hours, while objective performance metrics like maximal voluntary contraction (a measure of strength) rebounded quicker.

- **Infrared sauna exposure produced improvements in muscle function through both local and systemic effects —** Locally, the heat increased blood flow deep within the muscle tissue, helping deliver oxygen and nutrients while flushing out toxins that contribute to soreness. Systemically, the heat exposure triggered beneficial hormonal and cellular responses that aid tissue repair. This combination made recovery more efficient, shortening the time athletes needed to feel "ready" for their next session.

- **Neuromuscular performance improved after sauna sessions —** This means athletes regained coordination, speed, and reaction time faster. The study reported that these benefits persisted across repeat training days, indicating that consistent infrared sauna use supports cumulative recovery.

- **How quickly you go into a sauna after training matters —** Using the sauna immediately after training yielded the strongest benefits, compared to using it hours later or on rest days. This highlights that the post-exercise window is a period of heightened adaptability, when circulation and metabolic signaling are already elevated. By extending that window with heat exposure, athletes amplified their body's natural repair processes.

- **Not every athlete experienced the same level of benefit —** Those with higher training volumes (more frequent or intense sessions) saw the greatest improvements in performance recovery. That's because they had the most to gain — their baseline fatigue levels were higher, and they were already under substantial stress.

  Interestingly, even moderately trained participants still benefited, showing that infrared sauna therapy isn't only for elite athletes — it also helps recreational lifters and exercisers recover more effectively.

How Infrared Saunas Improve Strength, Power, and Muscle Growth

In a study published in Frontiers in Sports and Active Living (the data of which was used in the featured dissertation), Ahokas and her team examined how repeated infrared sauna use after exercise influenced muscle development and neuromuscular performance in female athletes.

Unlike other studies that focused on short-term recovery, this one looked at long-term adaptation. The goal was to find out whether consistent infrared heat exposure could help athletes build more strength and size over several weeks of training.[5]

The study included 40 healthy female team sport athletes who performed structured resistance-training sessions two to three times per week. Each session was followed by either infrared sauna exposure or a passive rest period. Those using the sauna consistently after their workouts showed measurable increases in muscle thickness, strength, and speed compared to the control group. This means that adding heat therapy helped them perform better and adapt faster to their training.

- **A look at the rate of improvement —** Over six weeks, the sauna group improved their explosive strength more than those who skipped the heat exposure sessions. This metric reflects how quickly muscles can generate power, which is crucial for athletic performance.

- **Muscle size also improved —** Using ultrasound measurements, researchers found that muscle cross-sectional area increased faster in those who consistently used infrared sauna sessions after lifting. In other words, participants who used the sauna gained more visible and functional muscle mass from the same workouts compared to those who didn't.

- **Entering the sauna right away is key —** The study showed that immediate post-exercise sauna sessions had a stronger effect than sessions done hours later or on rest days. This reinforces the idea that your body enters a special repair window right after training. Extending that window with targeted heat exposure made recovery more efficient and promoted faster adaptation.

- **The biggest gains were seen in intermediate-level lifters —** Beginners already experience rapid improvements from almost any consistent training, while advanced athletes require extreme stimulus to trigger new growth.

  For most people who train regularly but feel their progress slowing, this is where infrared sauna therapy could make a real difference. It offers an external recovery and performance boost without extra wear and tear on joints or connective tissues.

- **Power-related metrics improved faster than maximal strength measures —** Infrared heat enhances blood flow and neuromuscular coordination, both of which affect fast-twitch muscle fibers. These fibers are responsible for quick, high-intensity movements like sprints and jumps. By restoring and conditioning these fibers more efficiently, athletes maintain performance quality across training sessions.

A Closer Look at the Mechanisms Behind the Benefits of Saunas

Ahokas' dissertation went deeper into how saunas benefit your health, going over important concepts such as heat-shock proteins (HSPs), autonomic nervous system, and the human body's ability to adapt to controlled heat exposure:

- **How infrared saunas work —** Compared to traditional dry saunas, infrared models operate at lower air temperatures but emit wavelengths that penetrate deeper into muscle tissue. This allows for longer sessions with less cardiovascular strain while still stimulating heat-shock responses.

  Participants tolerated these sessions well, with minimal side effects reported. Safety guidelines emphasized proper hydration and short session durations (10 to 20 minutes based on the experiments) immediately post-exercise.

- **Exploring the physiological groundwork behind the benefits —** The heat exposure from infrared saunas induces the production of HSPs, which are specialized proteins that repair damaged proteins and prevent further breakdown. The findings

show that consistent sauna use increased HSP expression, which correlated with improved muscle function and reduced soreness over time.

- **Infrared sauna therapy also influenced the autonomic nervous system —** This refers to the balance between "fight or flight" (sympathetic) and "rest and recover" (parasympathetic) states. By promoting parasympathetic activation, heat exposure helped lower heart rate and cortisol, the primary stress hormone.

  This shift supports better sleep quality and hormonal balance, both necessary for muscle repair and growth. The participants who used infrared saunas regularly reported feeling calmer and are better able to recover between sessions.

- **Heat exposure promotes vasodilation —** The infrared heat stimulates nitric oxide production, which relaxes the inner lining of blood vessels and improves circulation. Enhanced blood flow delivers more oxygen and nutrients to working muscles while clearing metabolic waste.

- **Long-term adaptation is possible —** After several weeks of consistent post-exercise infrared sauna use, the athletes showed measurable improvements in overall training capacity. They were able to perform more repetitions, maintain higher intensity, and recover between sessions without signs of overtraining. This suggests that the body learns to handle heat stress better over time, turning infrared sauna use into a form of passive conditioning that builds resilience.

Even a Single Infrared Sauna Session Already Benefits Your Muscles

In 2022, Ahokas also published a study in Biology of Sport that explored how a single session of post-exercise infrared sauna therapy influences muscle recovery, soreness, and neuromuscular performance after a demanding resistance workout. She and her team of researchers wanted to know whether this form of heat exposure could restore strength and reduce soreness between back-to-back training days.[6]

The study recruited healthy, resistance-trained men who performed a standardized strength training session before undergoing either infrared sauna therapy or passive rest. The findings were clear — the group that used the sauna for 20 minutes recovered muscle strength and function faster, and they reported significantly less soreness the following day.

- **The rate of improvement in muscle function —** Within just 24 hours, the participants who used the infrared sauna regained nearly all of their pre-exercise strength, while the control group continued to experience reduced performance and lingering fatigue. This means that if you train multiple times per week, adding a short sauna session after your workout can keep your strength output more consistent.

- **Another finding was the reduction in muscle soreness after exercise —** Participants in the sauna group reported noticeably lower soreness scores on a standardized scale, suggesting that infrared heat aids in muscle comfort and functional recovery. For athletes and active individuals, this means returning to training with less discomfort, lower stiffness, and better range of motion.

- **The researchers also measured neuromuscular performance —** Results showed that post-exercise sauna use preserved the efficiency of this communication system, helping muscles fire more quickly and forcefully. In simpler terms, you regain coordination and strength faster, which is especially important in sports that rely on precise movement and timing.

- **The greatest improvements occurred in participants who reported higher baseline soreness and fatigue —** Those who pushed hardest during training reaped the biggest benefits from the infrared heat. This pattern suggests that heat exposure therapy is most valuable when your body is under significant stress — after especially tough workouts, tournaments, or double training days.

- **Infrared sauna therapy consistently outperformed passive recovery —** Muscle stiffness decreased, mobility improved, and the participants described feeling more ready, both physically and mentally.

- **Vasodilation was identified as a beneficial factor —** For this study, the researchers also touched on vasodilation. Heat exposure increases circulation, delivering more oxygen and nutrients to tired muscles while accelerating the removal of waste products like lactic acid. Better circulation helps muscles repair faster and reduces the inflammatory compounds that cause soreness.

- **The nervous system also benefits from infrared sauna therapy —** The study noted that participants had lower markers of sympathetic nervous system activity and higher parasympathetic activity, which governs rest and recovery. This shift helps the body relax, repair, and prepare for the next competition.

Going to Use a Sauna? Choose the Far-Infrared Variety

I've been using saunas for a long time, and previously, I thought near-infrared light (NIR) saunas were superior based on the belief that the NIR spectrum penetrates deeply into tissues, making them beneficial for detoxification and physical healing. However, I have changed my position on this.

I now understand that most NIR saunas do not provide significant photobiomodulation (PBM) benefits, which you get from far-infrared light (FIR). Depending on the wavelength, you'll get a diverse range of benefits, such as improved pain management, muscle recovery, faster healing from wounds, and reduced inflammation. You'll even gain cardiovascular benefits at 1,050 nanometers (nm).

- **The problem lies in the equipment itself —** Traditional NIR saunas use high-temperature heat lamps that emit both light and intense heat. To get an effective therapeutic dose — somewhere between 10 and 100 milliwatts per square centimeter (cm^2) — you'd have to sit dangerously close to those bulbs.

  Doing that puts you at risk of burns long before you reach the required intensity. So, while they do aid detoxification, they aren't an effective way to achieve PBM.

- **The sauna of your choice depends on your needs —** Choosing between NIR and FIR saunas really depends on what you want out of them. If your focus is detox support and improved circulation, FIR systems are often a more practical and affordable option. NIR units still promote sweating and toxin release, but they're not ideal for those seeking direct cellular benefits from light exposure.

- **Don't dismiss NIR saunas entirely —** Even if they don't provide the PBM benefits of far-infrared saunas, NIR saunas are still effective for detoxification. Here's a brief overview of their pros and cons:

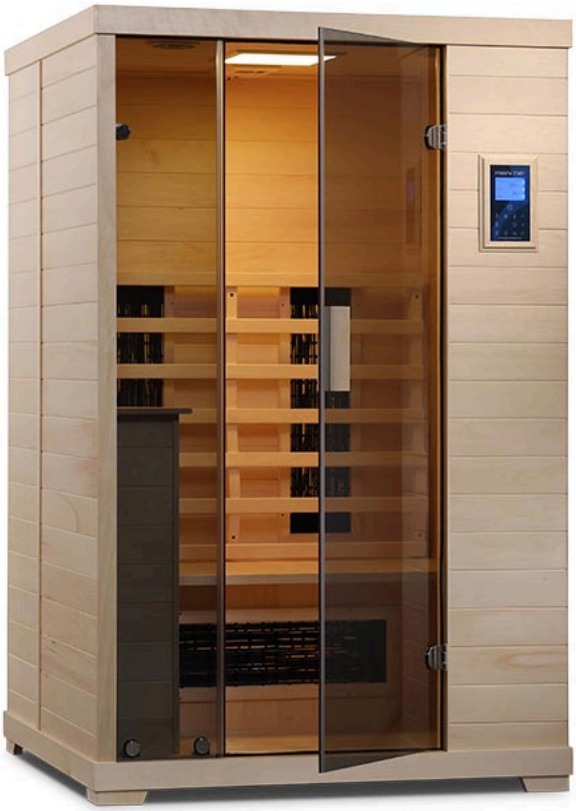
  Pros of NIR saunas:

  - Virtually no electromagnetic fields (EMFs)
  - Effective for detoxification

  Cons of NIR saunas:

  - Typically more expensive
  - Less aesthetically pleasing than far infrared saunas
  - Can be cramped for taller individuals
  - Risk of burns due to very hot bulbs

The Sauna by High Tech Health is my top choice for its superior quality, and Mercola subscribers can enjoy exclusive pricing on it. Click below to learn more.



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Temperature and Usage Frequency Is Important to Maximize the Benefits

Whether you're a high-level athlete or just exercising for fun and fitness, you can gain the benefits of a sauna when done properly. I recommend following these steps:

- **Temperature control and frequency of use —** The heat level you choose determines how long you'll need to stay in to reach a therapeutic threshold. For instance, sessions at 110 degrees Fahrenheit (F) are mild but require longer exposure, while those at 120 to 130 degrees F achieve benefits faster. To match the effects of a 140 or 150 degrees F session, you might need to stay in for about an hour at 120 degrees F.

- **A good starting point is to begin at around 120 degrees F, three times per week —** As you adapt, you can raise the temperature slightly, adding about 2 degrees each week. Experienced users often prefer the 140 degrees F range, which aligns with the temperatures used in many of the far-infrared sauna studies.

  Personally, my body can handle temperatures up to 160 to 170 degrees F, though that level isn't wise for beginners. If you're just starting, keep it low and increase gradually.

Core Body Temperature Monitoring Is the Best Way to Determine When You've Had Enough

While sauna room temperature and session duration are useful starting points, the most accurate way to optimize your sauna session is to monitor your actual core body temperature using an oral digital thermometer. This personalized approach accounts for individual variations in heat tolerance, body composition, and acclimation status.

Research shows that the therapeutic benefits of sauna — including heat shock protein activation, cardiovascular improvements, and enhanced recovery — are triggered when your core body temperature rises to specific thresholds, not simply by the room temperature or time spent inside.

Since individual responses to heat vary significantly based on factors like body mass, hydration status, fitness level, and heat acclimation, using a thermometer gives you direct feedback on what matters most: your body's actual response.

- **Target temperature guidelines —** Using an oral digital thermometer:
  - **Beginner target —** Work toward reaching an oral temperature of 100 degrees F (37.8 degrees C)
  - **Optimal target —** Gradually progress to 101 degrees F (38.3 degrees C) for maximum heat shock protein activation

    - **Do not exceed —** 101.5 degrees F oral temperature (38.6 degrees C)
- **The science behind these numbers —** Heat shock proteins (HSPs) are activated when core temperature reaches approximately 38.5 degrees C (101.3 degrees F) or higher. Research shows that time spent with core temperature ≥38.5 degrees C correlates with greater HSP72 mRNA expression. Core temperatures above 39.4 degrees C (103 degrees F) approach hyperthermia risk territory. The 101 degrees F to 101.5 degrees F oral target keeps you in the therapeutic zone while maintaining a safety margin.

- **Why this beats room temperature alone —** A 175 degrees F traditional sauna may raise one person's core temperature to 101 degrees F in 15 minutes while taking another person 25 minutes to reach the same point. Similarly, a 140 degrees F infrared sauna session may be perfectly adequate for one person while insufficient for another. Your oral thermometer tells you what's actually happening in your body.

- **Important note on oral vs. core temperature —** Oral temperature typically reads approximately 0.5 degrees F to 1 degrees F (0.3 degrees C to 0.5 degrees C) lower than true core (rectal) temperature. An oral reading of 101 degrees F corresponds to a core temperature of approximately 101.5 degrees F to 102 degrees F (38.6 degrees C to 38.9 degrees C) — the range research associates with robust heat shock protein induction and therapeutic benefits.

Here's are step-by-step instructions for how to use this method:

1. **Take your baseline —** Before entering the sauna, record your oral temperature (typically 97.5 degrees F to 98.6 degrees F/36.4 degrees C to 37 degrees C).

2. **Check periodically —** Keep thermometer out of the sauna as it will prolong its life and give you better measurements. After 10 to 15 minutes in the sauna, or as soon as you feel hot, measure your temperature. Be sure to put thermometer outside the sauna after measuring your temperature.

3. **Track your progress —** First few weeks: Exit when you reach 100 degrees F (37.8 degrees C). After acclimation (2 to 4 weeks of regular use): You may extend sessions until reaching 101 degrees F (38.3 degrees C). Never exceed 101.5 degrees F oral temperature.

4. **Listen to your body —** If you feel dizzy, nauseous, or unwell at any temperature, exit immediately regardless of the thermometer reading.

Quick Reference Summary

Parameter	Guideline
Measurement tool	Oral digital thermometer
Beginner target	100 degrees F (37.8 degrees C) oral
Optimal target	101 degrees F (38.3 degrees C) oral
Maximum safe limit	101.5 degrees F (38.6 degrees C) oral
Thermometer	Keep outside of sauna

Safety Precautions

Finding balance matters more than frequency. Some enthusiasts overdo sauna sessions, thinking more heat equals better results. That's a mistake because there's no added value in multiple daily sessions, and overexposure can result in severe dehydration and other problems. Hence, I recommend sticking to these guidelines:

- **Beginners —** Daily use for 10 to 11 days to acclimate
- **Regular users —** Once every three days for maintenance or every other day

- **Mind your hydration —** Naturally, you'll be sweating a lot when you go into saunas, which is why it's important to pay attention to your hydration and electrolyte levels. I recommend that you drink a quart of water with some electrolytes an hour before a sauna session.

  How much water do you typically lose during a single session? Depending on your size, you may lose 1 to 2 pints of sweat (a single pint equals 1 pound) and that water needs to be replaced to avoid dehydration.

- **Basic, safe guidelines for sauna use —** Most people will benefit from sauna, but it's best to discuss this with your doctor first. Here are some basic tips to follow:

  - Set a timer in case you get drowsy, and either have someone with you in the sauna or have someone come check on you from time to time
  - Start slow and work your way up to the recommended temperature and duration ranges
  - Rehydrate with electrolytes to replace lost sodium and minerals. One simple option is to make a salt sole with natural, unprocessed salt dissolved in water, and take some extra magnesium
  - Never drink alcohol before or during sauna use, as it could have lethal consequences
  - Take extra precautions if you're elderly, have recently had a heart attack or other cardiac problem or have low blood pressure
  - Children do not have the same thermal regulation mechanisms as adults, so they should limit their time in the sauna to five minutes
  - Avoid sauna bathing while pregnant, as there may be poorly understood risks to the fetus

- **Final word on using saunas —** Listen to your body and adjust your frequency and temperature accordingly. Watch out for signs of dehydration, such as dizziness or excessive fatigue, and adjust your duration and frequency accordingly. Finally, remember that saunas are supportive tools, not a cure-all solution.

Frequently Asked Questions (FAQs) About Using Infrared Saunas for Exercise Recovery

Q: What makes infrared saunas beneficial for athletes and regular exercisers?

A: Infrared saunas help accelerate muscle recovery, reduce soreness, and restore coordination after intense training. The deep-penetrating infrared heat increases circulation, delivers oxygen and nutrients to muscles, and triggers the release of repair proteins. This process shortens recovery time, allowing athletes and fitness enthusiasts to return to training faster with improved strength and energy.

Q: How soon after a workout should you use an infrared sauna for the best results?

A: Research shows that using the sauna immediately after exercise provides the strongest recovery benefits. This post-exercise window is when the body's circulation and cellular repair activity are already heightened. Entering the sauna during this time extends those natural repair processes, improving performance and reducing soreness more effectively than waiting until later in the day.

Q: Are near-infrared or far-infrared saunas better for recovery and detoxification?

A: Far-infrared saunas are generally more practical and cost-efficient for detoxification and muscle recovery. Near-infrared saunas do promote sweating and toxin release but do not deliver meaningful photobiomodulation benefits because

their bulbs get too hot to safely achieve the needed light intensity. Far-infrared systems, on the other hand, also penetrate muscle tissue while operating at a comfortable air temperature.

Q: What temperature and frequency are ideal for sauna use?

A: Start around 120 degrees Fahrenheit (F), three times a week, and gradually increase by a couple of degrees as your body adapts. Experienced users often prefer between 140 and 150 degrees F, while beginners are advised to build tolerance slowly. At lower temperatures, sessions last longer — up to an hour — to match the effects of shorter, hotter sessions. Overuse also doesn't improve results — one session every other day or a few times per week is typically sufficient for recovery and maintenance.

Q: What are the immediate and long-term benefits of infrared sauna therapy?

A: Even a single 20-minute session improves strength recovery, reduces muscle soreness, and enhances coordination within 24 hours. Long-term use compounds these effects, promoting greater muscle growth, endurance, and resilience. Consistent sauna exposure supports hormonal balance, better sleep, and improved circulation, helping the body handle physical stress more efficiently over time.

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