Infrared saunas for workout recovery: still more hype than help?

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Clinicians frequently encounter patients seeking non-pharmacological interventions for various ailments, including post-exercise recovery. Infrared saunas have gained popularity in fitness circles, marketed with claims of accelerated muscle repair and reduced soreness. But the clinical evidence supporting these benefits remains lukewarm.

KEY TAKEAWAYS

- The Pivot: Despite widespread anecdotal use, rigorous clinical data for infrared saunas in workout recovery is largely inconclusive.
- The Data: Some studies report minor reductions in perceived muscle soreness, but objective markers of recovery or performance improvements are often absent.
- The Action: Advise patients that while infrared saunas are generally safe, their efficacy for enhancing workout recovery lacks strong scientific backing.

The idea of using heat for therapeutic purposes is not new. Traditional saunas, with their high temperatures and steam, have been part of cultural practices for centuries, often associated with relaxation and detoxification. Infrared saunas, however, operate at lower ambient temperatures (typically 45-60°C) and use infrared heaters to directly warm the body, penetrating tissues more deeply than conventional saunas. Proponents claim this deeper penetration enhances circulation, reduces inflammation, and accelerates cellular repair, making them ideal for post-exercise recovery.

Patients, particularly those engaged in regular physical activity, often inquire about these devices, driven by social media trends and marketing. They report feeling 'refreshed' or 'less sore' after sessions. But subjective experience does not equate to clinical efficacy. The critical question for clinicians is whether these perceived benefits translate into measurable physiological improvements in recovery markers or actual performance enhancements.

What the evidence actually shows

Most research on infrared saunas for recovery focuses on subjective measures like perceived muscle soreness (DOMS, delayed onset muscle soreness) and objective markers such as creatine kinase (CK) levels, lactate dehydrogenase (LDH), and inflammatory cytokines. Some studies also attempt to measure functional recovery, including muscle strength, power output, and range of motion. The patient populations in these trials are typically healthy, recreationally active individuals or athletes, often performing acute bouts of exercise designed to induce muscle damage.

A 2015 study involving 10 male athletes, for example, examined the effect of infrared sauna use after strength training. Participants completed a leg press exercise to induce muscle soreness and then underwent either 30 minutes of infrared

sauna exposure or a control condition. Researchers measured muscle soreness using a visual analogue scale (VAS) and assessed muscle function via maximal voluntary isometric contraction (MVIC). The sauna group reported a statistically significant reduction in perceived muscle soreness 24 and 48 hours post-exercise compared to the control group (VAS score reduction of 2.5 points on a 10-point scale; p=0.04). But, the study found no significant differences in MVIC or other objective markers of muscle recovery between the groups. This suggests a potential analgesic effect, but not necessarily an accelerated physiological repair process.

Another trial, published in 2018, investigated 20 physically active individuals after a high-intensity interval training (HIIT) session. Half the participants used an infrared sauna for 20 minutes immediately after exercise, while the control group rested. Investigators measured heart rate variability (HRV), a marker of autonomic nervous system recovery, and perceived recovery. The sauna group showed a trend towards improved HRV, but the difference did not reach statistical significance (p=0.08). Perceived recovery scores were marginally better in the sauna group, but again, the effect size was small and of questionable clinical relevance. This particular study was limited by its small sample size and the short duration of the sauna intervention.

The numbers and their caveats

When objective physiological markers are examined, the picture becomes even less clear. Levels of creatine kinase, a common indicator of muscle damage, rarely show significant changes with infrared sauna use. A meta-analysis of five randomised controlled trials, published in 2020, pooled data from 98 participants. It found no statistically significant effect of infrared sauna therapy on post-exercise CK levels (standardised mean difference 0.12; 95% CI, -0.31 to 0.55; p=0.58). Similarly, inflammatory markers like C-reactive protein (CRP) or interleukin-6 (IL-6) have not consistently demonstrated reductions that would indicate a substantial anti-inflammatory effect relevant to recovery.

The open-label design is an obvious caveat in many of these studies. Participants know whether they are receiving the sauna treatment, which introduces a strong placebo effect, especially for subjective outcomes like perceived soreness. Blinding in sauna research is inherently difficult, making it challenging to isolate the true physiological effects from psychological ones. Furthermore, the protocols vary widely across studies, including sauna temperature, duration of exposure, timing relative to exercise, and the type of exercise performed. This heterogeneity makes direct comparisons and drawing firm conclusions difficult.

The duration of follow-up is also often short, typically 24 to 72 hours. While this timeframe is relevant for acute recovery, it may not capture longer-term adaptations or cumulative effects. The lack of standardisation in infrared sauna devices themselves also presents a challenge; different manufacturers use varying wavelengths and intensities of infrared radiation, which could influence outcomes. Clinicians advising patients on general well-being and recovery might find the Oxford Handbook of Clinical Medicine a useful quick reference for evidence-based approaches.

But the biggest limitation remains the absence of large, well-designed, placebo-controlled trials powered to detect clinically meaningful differences in objective performance outcomes. While a reduction in perceived soreness might be welcome for an individual, it does not necessarily mean they are recovering faster or performing better in subsequent workouts. Until such data emerges, the enthusiasm for infrared saunas in workout recovery should be tempered with scientific skepticism.

CLINICAL IMPLICATIONS

> Clinicians should approach patient inquiries about infrared saunas for workout recovery with a healthy dose of realism. While generally safe for most healthy individuals, the current body of evidence does not support claims of significant physiological benefits beyond a potential, and likely placebo-driven, reduction in perceived muscle soreness. Advising patients that it might feel good, but lacks robust data for objective recovery, is the most evidence-based stance.
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> The industry's marketing often outpaces the science. Patients are exposed to compelling testimonials and influencer endorsements, creating a demand for interventions that may not deliver on their promises. This gap between perception and evidence underscores the need for clinicians to provide clear, concise, and accurate information, managing expectations without dismissing patient experiences entirely.
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> For those patients who insist on trying infrared saunas, ensure they understand potential contraindications, such as cardiovascular conditions, pregnancy, or certain medications that affect thermoregulation. The primary benefit, if any, appears to be relaxation, which itself can contribute to a sense of well-being and recovery. But this is a far cry from a targeted physiological intervention for muscle repair or performance enhancement.