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Hot Baths Trigger Exercise-Like Effects

Analysis by Dr. Joseph Mercola | October 01, 2025

STORY AT-A-GLANCE

- A 45-minute hot bath raises your core body temperature by 1.1 degrees C (2 degrees F) and boosts cardiac output as much as a moderate-intensity cardio workout
- Hot water immersion increases immune activity, helps control inflammation, and supports immune surveillance
- Compared to traditional and infrared saunas, hot baths triggered the strongest cardiovascular and immune responses due to water's more efficient heat transfer
- Very hot water dries out your skin, alters its pH, and disrupts your skin microbiome, especially if you have eczema, rosacea, or sensitive skin
- You can reduce risks by keeping bath sessions under 30 minutes, moisturizing with coconut oil immediately afterward, and rotating with sauna usage if hot baths irritate your skin

A 45-minute soak in a hot bath raises your core body temperature by more than a full degree — 1.1 degrees C (2 degrees F) to be exact — and ramps up your cardiac output by 3.7 liters per minute. That's the kind of response you'd expect from a solid session of moderate aerobic exercise. Yet all you have to do is sit in a tub.

This finding comes from a University of Oregon study published in the American Journal of Physiology, which compared hot water immersion to traditional and infrared saunas.[1] Researchers confirmed that hot baths create a stronger thermoregulatory, cardiovascular, and immune challenge than either type of sauna.

Millions of adults struggle with physical limitations that prevent them from exercising. Others are burned out, recovering from illness, or fighting chronic fatigue. For them, a passive therapy that offers comparable metabolic stress and immune stimulation without requiring movement could be a breakthrough.

That doesn't mean it's risk-free. Hot water also strips moisture from your skin and disrupts your skin's microbiome, which triggers itching, irritation, and flare-ups — especially if you already deal with eczema, rosacea, or psoriasis. Understanding how your body responds to different types of heat is the first step in using it as a real therapy. So, let's take a closer look at how hot water immersion stacks up against other options.

Hot Baths Push Your Heart, Immune System, and Thermostat — Without Moving a Muscle

For the American Journal of Physiology study, researchers wanted to understand how three common types of passive heat therapy affect your core temperature, cardiovascular system, and immune response when used exactly how most people use them in real life — not under artificial lab conditions.[2]

- **Young, healthy adults were the focus —** The study included 20 healthy adults (10 women and 10 men), mostly in their early 20s, who weren't on medications and reported working out about three times a week. None were doing heat therapy before the trial. Each person tried all three modalities over separate sessions spaced a week apart, allowing researchers to measure their unique responses to each type of heat exposure.

- **Hot baths raised core temperature more than saunas —** Hot water immersion at 40.5 degrees C (about 105 degrees F) for 45 minutes raised participants' core temperature by 1.1 degrees C. Traditional sauna (80 degrees C for three 10-minute sessions) only increased it by 0.4 degrees C, and the far infrared sauna didn't raise core body temperature at all.

This core temperature jump was enough to activate the body's heat-dissipation mechanisms — vasodilation, sweating, and cardiac output changes — mimicking the stress of moderate aerobic exercise.

- **Cardiac output shot up significantly —** Hot baths produced a 3.7 liters per minute (L/min) rise in cardiac output — the amount of blood your heart pumps each minute. For comparison, traditional sauna raised it by 2.3 L/min and infrared sauna by just 1.6 L/min. That kind of increase is usually associated with cardio exercise like jogging or brisk walking.

- **The body worked harder to cool down during hot baths —** Participants in the hot water immersion group lost nearly 2 pounds of water from sweat during their session. Their skin couldn't cool them effectively since sweat doesn't evaporate well underwater. The result? An even stronger cardiovascular and thermoregulatory effort, forcing the body to adapt more intensely than in either type of sauna.

Biologically, Heat Mimics Exercise Through Multiple Stress Pathways

The rise in core temperature triggers hypothalamic control centers that open skin blood vessels and stimulate sweating. This drops systemic vascular resistance, which forces your heart to pump harder and faster to maintain blood pressure. That same thermal stress activates immune cells and increases IL-6, which initiates anti-inflammatory cleanup and promotes tissue repair, just like exercise does.[3]

- **Immune system activity spiked only after hot baths —** IL-6, a key inflammatory cytokine that triggers downstream anti-inflammatory responses, increased after hot water immersion. Neither sauna method produced this effect. Researchers also noted that immune cells that identify and destroy infected or damaged cells remained elevated 24 to 48 hours after the bath.

- **Immune cell balance temporarily shifted —** After the hot bath, CD4+ helper T cells dropped while CD8+ killer T cells rose — similar to what happens after an intense workout. This short-term redistribution is linked to improved immune surveillance, which enhances your body's ability to detect abnormal or infected cells. These shifts didn't happen after sauna use.

- **The hydrostatic pressure of water adds to the effect —** Water surrounding your body pushes blood from your legs toward your heart. This natural pressure gradient enhances blood return and increases stroke volume — the amount of blood pushed out with each heartbeat. Combined with heat stress, it puts your cardiovascular system through a rigorous workout without the joint impact or oxygen demand of physical movement.

Excessive Hot Water Disrupts Your Skin Barrier and Fuels Irritation

While hot baths offer powerful benefits for circulation, immune activation, and overall recovery, caution is warranted — especially if you have sensitive skin or underlying dermatological conditions. High water temperatures don't just stimulate your cardiovascular system; they also affect your skin barrier in ways that lead to dryness, irritation, or even flare-ups if you're not careful.

An article published in The Conversation examined what happens to your skin when you take very hot showers or baths, especially over time.[4] The piece focused on the physiological changes triggered by high water temperatures and highlighted why people with sensitive or damaged skin are at higher risk for irritation and infection.

- **There are risks for people with chronic skin conditions —** Extremely hot water strips moisture from your skin and alters its natural pH balance, which worsens conditions like eczema, rosacea, psoriasis, and acne. It also describes why skin reactions — including itchiness and even hives — are more likely to occur after long, hot baths in vulnerable individuals.

- **Hot water raises skin pH, inviting harmful bacteria —** The normal pH of your skin is slightly acidic. Healthy skin usually falls between 4 and 6 on the pH scale, which helps beneficial bacteria thrive. Heat pushes skin pH toward neutral.

  When your skin is exposed to very hot water, the pH rises closer to 7, a shift that makes it easier for harmful microbes like Staphylococcus aureus, a bacteria linked to infections, to take over. Your natural defenses also break down. As the pH shifts and your skin loses moisture, your body's ability to produce antimicrobial peptides drops, weakening your first line of defense.

- **The hot water also dehydrates your skin from the inside out —** Your dermis is the deeper layer of your skin, where sweat glands, nerves, and blood vessels live. Immersing your body in very hot water causes water to leave this layer quickly, drying you out from within. You lose moisture in two ways.

  You sweat more and also pull water out of deeper layers of your skin, making it harder to rehydrate fully, especially if you skip moisturizer afterward. Because of the fluid shift, your kidneys also start producing more urine to regulate water balance, which further contributes to dehydration after a hot bath.

- **Heat triggers immune chemicals that worsen irritation —** Cytokines and histamines spike. These compounds signal inflammation and allergic responses, and can lead to skin that feels itchy, red, or hypersensitive after bathing. Some people also break out in raised, itchy bumps after hot water exposure, a condition called chronic inducible urticaria.

How to Use Heat Therapy Safely Without Harming Your Skin or Heart

If you're trying to use hot baths as a natural therapy to boost your circulation, lower inflammation, or support immune function, you're on the right track — but only if you're smart about how you do it. Hot water immersion does more than just help you unwind. It

mimics moderate aerobic exercise by pushing your heart rate up, increasing blood flow, and triggering immune changes that your body interprets as healthy stress.

But if you have low blood pressure, a heart condition, or sensitive skin, there are some important adjustments you'll want to make. Long baths in very hot water dry your skin, disrupt your skin microbiome, and can leave you feeling lightheaded and dehydrated. These steps help you get the benefits without the backlash.

1. **Start with shorter sessions and work your way up —** If you're new to hot water therapy, aim for just 15 to 20 minutes at first. This gives your cardiovascular system time to adjust. The study that showed strong immune and heart effects used 45 minutes at 40.5 degrees C (about 105 degrees F), but if that feels too intense, cut it in half and gradually build up. Don't rush it — what matters is consistency, not endurance.

2. **Use warm — not scalding — water and limit full-body immersion —** You don't need to push the temperature to the edge of discomfort to get results. If the water feels painfully hot when you sit down or makes your skin turn red quickly, it's too much.

   Stick with water around 100 degrees F to 104 degrees F, and keep your torso or face out of the water if you're prone to flushing, itchiness, or heat rashes. This helps you get the immune and circulatory effects without overwhelming your skin or nervous system.

3. **Rotate with sauna therapy if baths are too harsh on your skin —** If you're dealing with eczema, rosacea, or chronic itch, you might not tolerate hot baths well. Daily sauna use is a smart alternative that offers numerous health benefits, including cardiovascular improvements and mental health benefits similar to those gained from exercise.

   When using a sauna, it's important to start at lower temperatures (around 120 degrees F) and gradually increase. Frequency should be tailored to your individual needs, typically ranging from every other day to once every three days.

4. **Seal in hydration with coconut oil right after bathing —** Skip the commercial lotions and reach for organic coconut oil. It's a natural occlusive that locks moisture into your skin while also offering antimicrobial benefits. Right after your bath, gently pat your skin dry and massage in a thin layer while your skin is still damp. Coconut oil helps restore your barrier and protect against the dryness and pH disruption that hot water creates.

5. **Use it as a reset, not just a reward —** This isn't just self-care — it's strategy. If you're sedentary, burned out, or can't tolerate physical exercise right now, hot water immersion is a powerful tool to wake up your circulation and reboot your immune system. Just make sure you treat it with the same structure and purpose you would apply to exercise, not just as a way to unwind at the end of a hard day.

FAQs About Hot Baths

Q: How does a hot bath mimic exercise?

A: A 45-minute soak in 105 degrees F water increases your core temperature, raises your heart rate, and boosts cardiac output, similar to what happens during moderate aerobic activity. This thermal stress activates immune cells and promotes blood flow without requiring physical movement.

Q: Which type of heat therapy is most effective?

A: According to a 2025 study in the American Journal of Physiology, hot water immersion was more effective than both traditional and infrared saunas at raising core body temperature and stimulating immune and cardiovascular responses.[5]

Q: Can hot baths help if I can't exercise?

A: Yes. If you're recovering from illness, dealing with chronic fatigue, or have mobility issues, hot baths offer a low-impact way to stimulate circulation and immune function. They provide a passive method to activate many of the same systems triggered by physical activity.

Q: Are there risks to taking hot baths?

A: Prolonged exposure to hot water dries out your skin, disrupt its natural pH, and triggers flare-ups if you have conditions like eczema or rosacea. It may also cause dizziness in people with low blood pressure. Moisturizing with coconut oil after your bath and limiting exposure time helps reduce these risks.

Q: What's the best way to safely benefit from hot baths?

A: Start with shorter sessions and build up gradually. Use warm, not scalding, water and hydrate before and after. If your skin is sensitive, consider using a sauna instead.

Sources and References

- [1, 2, 3, 5] American Journal of Physiology, Volume 329, Issue 1, July 2025, Pages R20-R35
- [4] The Conversation June 15, 2025