

Temperature Sensitivity After Burn Injury

August 2023

<https://msktc.org/burn/factsheets>

BURN Factsheet

This factsheet explains the causes of temperature sensitivity, how it may affect your life, and tips to cope with it.

What Is Temperature Sensitivity?

Many people deal with temperature sensitivity after a burn injury. Temperature sensitivity is a broad term that includes several issues. Some people may have issues when they touch warm or cool objects or liquids. Others may have challenges regulating their body temperature or tolerating extremes of temperatures or air movement; the ability of your body to control its temperature is called thermoregulation.



Temperature sensitivity is more common among people who had flame burns or large burns, those whose scars are in areas that are more exposed (e.g., hands, face), or those who had more skin grafting. Desensitization is a way to re-train your nerves by slowly exposing yourself to more and more intense textures, pressures and temperatures.

Causes of Sensitivity to Warm or Hot Environments

One way your body cools itself down is to increase blood flow to the skin, which lets heat out. Grafted and scarred skin does not do this as well as uninjured skin. Another way your body cools itself is through sweating, which cools the skin. Grafted and scarred skin may not sweat like uninjured skin due to loss of sweat glands. If your skin can't perform these methods of cooling, you will be more sensitive to warmer temperatures. Conversely, uninjured skin may sweat excessively as it tries to overcome the lack of sweat from grafted or scarred skin. Some tips for cooling are listed below.

Causes of Sensitivity to Cold Environments

Cold temperatures can trigger nerve pain and cause skin to dry out and crack. It can be challenging for people living with burn injuries to be outside when it's cold or windy. These environments may even cause pain that requires accommodations like those described below.



When it's cold, our bodies decrease blood flow to the skin, which limits heat loss from our bodies. Although this may initially be impaired, grafted or scarred skin may be able to do this normally over time.

Causes of Touch Sensitivity and Numbness

Neuropathic pain, or nerve pain, commonly occurs after burn injury. Damage to and re-growth of nerve endings in your skin can cause this type of pain. Nerve endings sense pain, itch, pressure, sharpness, and temperature. They also send signals to your brain to tell you that something feels hot, cold, or painful. When nerves are injured and recovering, these signals can increase and are sometimes

The Burn Model System Program is sponsored by the National Institute on Disability, Independent Living, and Rehabilitation Research, Administration for Community Living, U.S. Department of Health and Human Services. (See <https://msktc.org/burn/model-system-centers> for more information).



incorrect. For example, your nerves may sense pain for usually non-painful stimuli like air or clothes moving across a wound, graft, or scar. This leads to more intense hot or cold feelings than you would get from uninjured skin or pain from touching something that shouldn't cause pain.

Damaged nerve endings don't always repair themselves fully. In these cases, you may feel less sensation to hot, cold, or pain, or even numbness. These signals normally let you sense when something is too hot or too cold, which triggers a reflex to pull your hand or exposed body part away. This reflex helps to prevent injury from intense temperatures. When you can't feel temperature or pain, you will not have the same reflex. This puts you at greater risk of hurting yourself on surfaces that are too hot or cold, leading to reinjury of your burn scars. You must pay special attention to high-risk situations and injured areas, for example, when using a heating pad or soaking feet in warm water.



Donor Sites and Temperature Sensitivity

A donor site, the area where skin is taken for skin grafts, should keep relatively normal blood flow and sweat production after it heals. This means that it should be able to help regulate your body temperature to the surrounding air temperature.

How Can Temperature Sensitivity Affect Your Life?

Impact of Warm and Cold Environment Temperature Sensitivity

- Becoming overheated or cold because of issues with regulating your internal body temperature.
- Overheating is dangerous and can cause heat exhaustion and heat stroke. If you start to feel a headache, nauseated, dizzy, weak, or especially thirsty get help and cool down immediately.
- Increased sweating of the uninjured skin that is trying to compensate for the skin and scar that can no longer sweat normally when hot.
- Trouble doing daily activities in hot or cold temperatures. This includes social activities.
- If you work outside, temperature sensitivity can make it hard to go back to work or to do pre-injury tasks. People often require accommodations at work, like being able to take additional breaks, cool down, or change clothes. Some people need to work in different environments (e.g., indoors during the summer or winter when they worked outdoors year-round before the injury).

Impact of Touch Sensitivity

- It can be painful and uncomfortable to touch surfaces and liquids that are warm or cool. This requires focused retraining and desensitization. Talk with your burn team about this process.
- The feeling of pain can lead to avoidance of contact and fear of physical movement. This is known as kinesiophobia.

Tips for Coping With Temperature Sensitivity

Warm or Hot Environment Sensitivity Tips

- Plan your day so that you are active during the cooler times.
- If you work outside, talk with your employer about your comfort and safety needs.
- Add a few drops of peppermint essential oil to your moisturizer.



- Wear light, synthetic, breathable fabric.
- Wear a wide brim hat out in the sun.
- Wear layers so you can easily adjust to changes in temperature.
- Stay well hydrated.
- Use wearable cooling devices such as a cooling vest, a cooling hat insert, or a neck fan.
- Move to a cool location before you begin to overheat.
- Mist yourself with cool water if you are feeling overheated.
- If you need to cool down fast, find air conditioning and/or fans and use cold packs and damp cloths on your forehead or neck and call for help.
- Work with a therapist to learn relaxation, meditation, and visualization techniques. This may, for example, help you visualize yourself in a cooler place or in a place where you feel more comfortable when you are experiencing discomfort from heat.



Cold Environment Sensitivity Tips

- Wear a base layer made of fabric like wool or synthetic material that wicks sweat away from your skin.
- Wear layers so you can adjust to changes in temperature.
- Cover any areas that are sensitive to protect them from wind and cold air. You may need gloves, a hat or a ski mask.
- Slowly adjust to the cold. For example, gradually exposing yourself to cold air daily.
- Use thicker moisturizers to act as a barrier to cold and wind. They can also help with the dryness and tightening of skin and scars.
- If you work outside, talk with your employer about your comfort and safety needs.

Touch Sensitivity Tips

- Talk to your health care provider about creating a personal pain management plan to help you cope with pain. A pain management plan may include a mix of medicine and behavioral approaches. Examples of behavioral approaches include breathing, visualization and mindfulness techniques.

Resources

- Contact your health care provider or burn team for more information and for help coping with temperature sensitivity.
- Reach out to support groups or other burn survivors for additional help coping with temperature sensitivity.
- Resources on itchy skin after burn injury: <https://msktc.org/burn-topics/itchy-skin-after-burn-injury>
- Resources on managing pain after burn injury: <https://msktc.org/burn-topics/managing-pain>
- Resources on sun protection after burn injury: <https://msktc.org/burn/factsheets/sun-protection-after-burn-injury>
- Phoenix Society for Burn Survivors: 1-800-888-2876: <https://www.phoenix-society.org/>



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Authorship

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Source: The content in this factsheet is based on research and/or professional consensus. This content has been reviewed and approved by experts from the Burn Model System (BMS) centers, funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). The content of this factsheet has been reviewed by burn survivors and/or their families.

Disclaimer: This information is not meant to replace the advice of a medical professional. You should consult your health care provider about specific medical concerns or treatment. The contents of this factsheet were developed under grants from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant numbers 90DPKT0009 and 90DPBU0005). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this factsheet do not necessarily represent the policy of NIDILRR, ACL, or HHS, and you should not assume endorsement by the federal government.

Recommended Citation: Orton, C., Oh, J., Flott, G. A., Crandall, C., & Kowalske, K. (2023). *Temperature sensitivity after burn injury*. Model Systems Knowledge Translation Center (MSKTC).

<https://msktc.org/burn/factsheets/temperature-sensitivity-after-burn-injury>

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