

# Scar Management After Burn Injury

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[www.msktc.org/burn/factsheets](http://www.msktc.org/burn/factsheets)

BURN Factsheet

This factsheet explains scarring after burn injury, including different types of scars and information about how to manage them.

Burn survivors can become frustrated that they still have issues with scarring after their initial burn injury has healed. Hypertrophic burn scars (raised scars in the area of the original burn) are the most common complication of a burn injury and can limit a survivor's ability to function as well as affect their body image. It is difficult to predict who will develop scarring. Research shows that less severe burns that heal in less than 14 days generally have no scarring. More severe burns heal in 14 to 21 days and put you at a risk of scarring. Burns that take more than 21 days to heal are at very high risk for scarring and may require skin grafting.

## Why do scars form?

Scarring is related to age, ethnicity, and the depth and location of the burn. Scars form when the dermal or lower layer of the skin has been damaged. The body forms a protein called collagen to help heal the damaged skin. Normally the collagen fibers are laid down in a very organized manner, but in hypertrophic scars these fibers are created in a very disorganized manner, which gives the new skin/scar a different texture and appearance. Scar healing can take a long time. Scarring usually develops within the first few months after the burn, peaks around 6 months and will resolve or "mature" in 12-18 months. As scars mature they fade in color, become flatter, softer and generally less sensitive.

## What are hypertrophic burn scars?

Hypertrophic scars:

- Stay within the area of the original burn injury
- Develop within the first few months after the injury
- Often have a deep red to purple color and are raised above the surface of the skin
- Can be warm to touch, hypersensitive and itchy
- Are more prominent and noticeable around joints where skin tension and movement are high

## Common problems with hypertrophic scars

- Scars across joints can cause a decrease in your ability to move. These are called contractures.
- People with visible scars may feel self-conscious and avoid social situations. This can lead to isolation, depression and lower quality of life.
- Scars can be dry and result in cracking or breakdowns in the skin.
- Scars are more sensitive to sun and chemicals.

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



## Contractures

Contractures can affect your ability to move and take care of yourself. If your contractures involve your legs, you may have difficulty squatting, sitting, walking, or climbing stairs. If your contractures involve your trunk and arms, you may have difficulty with grooming, eating, dressing and bathing as well as working with your hands. Some contractures are unavoidable, but many can be prevented with active involvement in your rehabilitation program. Here are a few reminders:

- Stretching should be performed a minimum of 5-6 times per day. To make stretching easier, first moisturize your scars with a moisturizer recommended by your doctor.
- Your therapist may make a cast or splint to help position your scar in a stretched position. It is important that you wear the cast or splint as prescribed and tell your therapist if it becomes painful or causes skin irritation.
- Do as much for yourself as possible such as getting dressed and self-grooming. It may take longer than you are used to, but movement and activity will improve your ability to move and take care of yourself.

## Itching

Burns can damage or destroy the oil glands that normally keep skin from getting too dry. Partial thickness burns have few oil glands and full thickness burns or skin grafts have no oil glands. The lack of oil glands leads to dry skin. The chaotic organization of collagen in the healed skin may trap nerve endings, which also contributes to itching.

Many patients experience intense itching after their burn. Studies have shown that the larger the burn, the more likely that itching will be a problem.

**Ask your doctor for recommendations on what moisturizer is best for you.** Moisturizers with high water content—such as those that come in a bottle—generally soak into the skin faster and will need to be applied more frequently. Moisturizers that come in a tube or jar are generally thicker and have less water, so they need to be applied less frequently. Be sure to avoid products that you may be allergic to, such as perfumed lotions.

- Moisturizers can be applied to all healed areas frequently throughout the day.
- Moisturizers should be applied in thin layers and massaged in gently while the scars are more fragile. As your scars mature, you can begin to add more pressure to help your scars loosen so that they are not so stiff.
- Hot showers remove the natural oils from the skin. Therefore it is essential to re-moisturize well after showers. Bathing may feel good but also removes the natural oils. Adding baby oil to the water may alleviate some of this effect.

The approaches for itching are varied. Keep skin moist is the starting point. Also massage or pressing down firmly on the scars may help. Scratching increases inflammation and will make itching worse. Elastinet garments or custom pressure garments may also help with itching.

Medications such as gabapentin or pregabalin (which are commonly used for nerve pain) have been shown to be the first line medication for itching. Antihistamines may also be helpful. Talk to your doctor about what medication is right for you. You should never use mineral oil, Vaseline or antibiotic ointments to moisturize your skin. These can lead to allergic reactions and skin breakdown. Do not use antibiotic ointment to lubricate after the wound is healed.

## Sun Exposure

You should avoid exposing your healing scars to sunlight. Scars that are discolored and have not matured burn easily. If you go out in the sun, we recommend:

- Planning activities in the early morning or late evening when the sun is the least intense.
- Apply sunscreen with SPF level greater than 15 frequently to maintain protection.
- Reapply sunscreen every 2 hours.

## Treatment of hypertrophic scars

You will need to work closely with your doctor and therapy team to make sure your scars heal as completely as possible. A strong commitment is required from you and your family member to follow through with the treatment plan to ensure the best scar result.

No single treatment is ideal for treating scars. For many years, custom pressure garments were thought to be the best treatment for hypertrophic scars. Custom fit pressure garments may be useful for decreasing postburn itch and scar formation.

- If you and your medical team decide to use **custom pressure garments**, they should be worn 23 out of 24 hours/day. Even though the use of pressure garments may not improve your scar, they can decrease itching and protect the skin from injury. Some burn survivors also feel that the pressure garments look better than the scars themselves.
- **Silicone gel sheets** are pieces of thin, flexible medical grade silicone that are placed over the scars and may decrease itching and dryness. They are generally durable and comfortable to wear. They can be worn alone or underneath pressure garments, splints, or casts. Some people find they are sensitive to silicone, so check your skin frequently for irritation or rashes.
- Your therapist may recommend **custom-made inserts** to be worn under gloves, compression bandages or custom garments to increase pressure on the scar and improve healing. These inserts can be made from a variety of substances, ranging from soft foam to a rubber consistency.
- **Massage can help soften and desensitize the scar.** When combined with stretching, massage can make the scar looser, softer, and more comfortable. Talk to your therapist to learn about specific massage techniques.
- **Surgical treatment including laser treatment may be** an option if scarring prevents you from performing certain activities. It is important to stay in contact with your treating burn physician for evaluation.

## What can you do?

- Be actively involved in your recovery by asking questions and participating in decision-making about your care. Take a list of questions or concerns to your medical appointments for your health care provider to address.
- Always keep your skin clean and well moisturized.
- Keep up your exercise program as recommended by your doctor.
- Massage your scars with lotion to keep them moist, make them less sensitive and make your stretching easier. This may also prevent skin breakdown.
- It is important to follow your providers' instructions for using pressure garments, inserts, splints or silicone gel sheets. If they do not fit properly or if they cause problems such as pressure or skin breakdown, let your health care provider know right away.

The healing process can often seem long and frustrating for a burn survivor and his or her family. If you have concerns or questions about your healing process or treatments, contact your health care providers.

**Additional Resources for garments and scar products:** For more information regarding compression garments, wound care, and scar management products, please contact your doctor or therapist so that they can make recommendations based on your specific needs.



## Authorship

Scar Management After Burn Injury was developed by Sandra Hall, PT, Karen Kowalske, MD, and Radha Holavanahalli, PhD, in collaboration with the Model Systems Knowledge Translation Center.

## Factsheet Update

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