

Wound Care After Burn Injury

September 2017

www.msktc.org/burn/factsheets

BURN Factsheet

This factsheet explains how to take care of a burn injury. It gives an overview of the three degrees of burns and the standard treatments for each. It also discusses the types of products available to treat burn injuries. The wound care described here is following discharge from the hospital.

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).

Understanding the Extent of Your Burn

Burn injuries are caused by fires or flames, hot liquids or steam, contact with a hot object or agent like grease or tar, chemicals, or electricity. When evaluating a burn injury, doctors look at two factors: how deep the burn is and the burn size which is measured by the *percent total body surface area (% TBSA)*. The burn depth depends on how hot the agent was and how long the burned area was in contact with the agent and how thick the skin is in the area. There are three levels of a burn injury:

- *First-degree burns* affect the top layer of skin, called the epidermis (ep-i-DUR-mis). These burns cause minor damage to the skin. Skin may be red and tender or swollen. An example would be a mild sunburn that turns red and may peel. First-degree burns can generally be treated at home.
- *Second-degree burns* (also called partial thickness burns) go through the second layer of skin, called the dermis (DUR-mis). These burns cause pain, redness, and blisters and are often painful. The injury may ooze or bleed. They usually heal within 1 to 3 weeks. After healing, skin may be discolored. These burns generally do not leave raised scars. Treatment for second-degree burns varies. It may include ointments or special dressings. Surgery may be necessary for very deep second degree burns or those that are slow to heal.
- *Third-degree and more severe burns* (also called full thickness burns) damage both layers of the skin and may also damage the underlying bones, muscles, and tendons. Injured skin may turn white, black, and/or gray. It may feel dry and leathery. Sometimes there is no pain because the nerve endings under the skin are destroyed. Third-degree burns have a high risk of infection. They are usually treated with skin grafts. This surgery, done with general anesthesia, removes the injured skin and replaces it with healthy skin from an uninjured area of the body. Full thickness burns that are not grafted may take months or even years to heal. Third-degree burns likely leave raised scars. Burn survivors may have a combination of first, second, and third degree burns. Talk with your health care providers to better understand your specific injuries.

Treatment Options for Burn Injury

Wound Care

Antibiotic (an-ti-bahy-OT-ik) ointments or creams are often used to prevent or treat infections in patients with second-degree burns. Using these ointments may require the use of bandages. Dressings may need to be changed daily. This can be a painful process. Your doctor can assist you in coordinating the dressing changes with your pain medication. Dressings can be soaked off with water in a sink or shower. The skin and the burn wound should be washed gently with mild soap and rinsed well with tap water. Use a soft wash cloth or piece of gauze to gently remove old medications. A small amount of bleeding is common with dressing changes. Your doctor will decide on the appropriate dressing and ointment. This will be based on the location of the burn, the need to control drainage, and your comfort.



There are many “advanced wound care products” available for burns. These products don’t require daily dressing changes and can be left in place until the wound heals. This can make pain control much easier and may decrease anxiety about wound care. These types of dressings include impregnated (im-PREG-neyt-ed) gauzes, foams, honey, and silver dressings. Many of the currently available dressings are combinations of these categories. There are many different brand names. Your burn care team will determine the most appropriate product to use. They will also decide when to apply and remove it.

Skin Grafts

Larger areas of third degree (full thickness) burns are treated with skin grafts. This surgery removes dead skin and replaces it with healthy skin from another part of the body. The grafted skin is often treated with an antibiotic ointment and a nonstick dressing. There are three types of skin grafts.

- *Sheet grafts* are usually applied to the face or hands for better cosmetic effect. Sheet graft uses the whole piece of skin without the holes in it. It gives a better cosmetic appearance but requires much more skin to cover a specific area. Newly healed grafts are very fragile. Special care should be taken to protect them. Be careful not to bump, rub, or scratch them. Do not wear rough clothing or anything that rubs; this can cause blistering.
- *Meshed grafts* are used for larger wounds. For permanent wound coverage, a piece of your own skin is taken from another part of the body (donor skin) to close the open area. When the donor skin is taken off the body, it shrinks. To stretch the donor skin, it is put through a machine that makes small slits or holes in the skin. This stretched skin covers a larger area than an unmeshed sheet graft, but leaves a permanent mesh pattern similar to fish net stockings. The wound heals as the areas between the mesh and the holes fill in with new skin. Once the mesh sheet sticks to the skin and the drainage stops, the wound is considered healed and can be left open to air. Lotion can be used to keep it moist.
- *Full-thickness grafts* are used for reconstruction of small areas that are prone to contracture such as the hand or chin. It consists of the full thickness of the skin and shrink the least compared to other grafts.

The area of the donor site is similar to a second-degree burn. Most burn providers use one of the advanced wound dressings that can be left in place for 7–14 days while healing occurs. Any remaining small open areas on the donor site can be treated with antibiotic ointment. Notify your burn provider of any areas of redness, warmth, and increased pain. These can be symptoms of an infection.

Moisturizing

Moisturizing will be very important after burn injury.

- Once the skin is closed and no longer draining, it is important to keep it well moisturized. This decreases the chances of developing blisters or skin tears. It also decreases itching and can make movement easier.
- There are many different lotions available.
- Lotions in bottles have a higher water content. They are also easier to apply. They often need to be applied frequently.
- Lotions in tubes and jars are thicker. They need to be massaged in more thoroughly. They last longer on your skin.
- Unscented lotion should be applied and massaged into the scar several times per day. Unscented lotion is important – ask your doctor for recommendations.
- Applying lotion is a good time to touch your scars using light pressure; touching your scars is helpful in keeping them from getting sensitive. It is also a good time to do a little stretching. This factsheet has more information about stretching:
<http://www.msktc.org/burn/factsheets/Exercise-After-Burn-Injury>.

Blisters

- Newly healed skin is fragile. Minor shearing (rubbing force) on the scar can cause blisters. Blisters also can develop from clothes that fit too tightly, shearing while putting on pressure garments, or rubbing or scratching the burn scar.
- Blisters should be pierced and drained as soon as you notice them. Use a sterile (STER-il) needle to make a small hole. Then drain the blister onto a piece of gauze. Put a little antibiotic ointment on the area.
- If a blister opens up, you might need to bandage it with a nonstick dressing. Do not use adhesive or sticky bandages or tape that is difficult to take off. Your skin might tear.
- Over moisturizing especially on face can occlude pores and cause pimples. If this occurs, reduce moisturizing and consult your doctor or the burn team.

Skin Tears

- Skin tears occur when you bump into something such as a doorway, a counter top, or a piece of furniture. They can also be caused by scratching.
- If the area bleeds, put firm pressure over the wound for about 5 minutes until the bleeding stops.
- Wash the area gently and thoroughly with mild soap and water.
- Use a small amount of antibiotic ointment and a nonstick dressing and allow the wound to heal. If the surrounding area becomes red and warm, you might have an infection. Contact your health care provider for further evaluation.
- If the wound continues to crack open, get bigger, or deepen, your health care provider may recommend a splint or cast. This will keep the wound area still.

Ulcerations

- Ulcerations (uhl-suh-REY-shuhns) are breakdowns in the skin. They usually occur across bands of scar tissue around your shoulder, the front of your elbow, and the back of your knee.
- These areas can be difficult to heal. Physical movements like exercise can cause the wound to continuously crack open or get bigger.
- Keep the wound covered with a thin film of antibiotic ointment. Keep the surrounding skin well moisturized, especially when you are exercising and stretching.

Allergic skin reactions

- Be sure to let your doctor know if you have any skin allergies.
- Allergic skin reactions can be caused by using antibiotic ointments for a long time. Other causes include changing the type of lotion or soap that you use, changing laundry detergents, or changing the elastic in pressure garments.
- If you have an allergic skin reaction, stop using all soaps, lotions, and ointments for 2 to 3 days.
- Once the reaction has gone away, you can start using soaps and moisturizers again. Add these products back into your daily routine one at a time.
- Allow 2 to 3 days in between adding each product back into your daily routine. This will allow time to see if the reaction returns.

What Can You Do?

- Be active in your recovery. Ask questions and help make decisions about your care.
- Take a list of questions or concerns to your medical appointments for your health care provider to address.
- Follow your provider's wound care instructions.
- Always keep your skin clean and well moisturized.
- Avoid bumping, scraping, or scratching.
- Start exercises as soon as possible. Refer to this factsheet for more information about exercise after your burn:
<http://www.msktc.org/burn/factsheets/Exercise-After-Burn-Injury>

Additional Resources

For more information regarding the care of your wounds, please contact your doctor or therapist so that they can address your specific needs.

Johnson, R.M., and Richard, R. (2003). "Partial-Thickness Burns: Identification and Management." *Advances in Skin Wound Care*, 16 (4), 178-287.

Kowalske, K. (2011). "Burn Wound Care." *Physical Medicine & Rehabilitation Clinics of North America*, 22, 213-227.

Honari, S. (2004). "Topical Therapies and Antimicrobials in the Management of Burn Wounds." *Critical Care Nursing Clinics of North America*, 16 (1), 1-11.



Authorship

Wound Care After Burn Injury was developed by Karen J. Kowalske, MD, Sandra Hall, PT, DPT., Radha Holavanahalli, PhD, and Lynne Friedlander, M.Ed, in collaboration with the Model Systems Knowledge Translation Center.

Source: Our health information content is based on research evidence and/or professional consensus and has been reviewed and approved by an editorial team of experts from the Burn Injury Model Systems.

Disclaimer: This information is not meant to replace the advice of a medical professional. You should consult your health care provider regarding specific medical concerns or treatment. The contents of this factsheet were developed under a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90DP0082). The contents of this factsheet do not necessarily represent the policy of Department of Health and Human Services, and you should not assume endorsement by the Federal Government.

Copyright © 2017 Model Systems Knowledge Translation Center (MSKTC). May be reproduced and distributed freely with appropriate attribution. Prior permission must be obtained for inclusion in fee-based materials.