

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

BURN CARE

SKIN ANATOMY

The skin is comprised of 3 layers that can be injured by a burn:

- The epidermis, or outer layer, acts as a barrier against infection and moisture loss.
- The dermis, or middle layer, provides elasticity and protection against trauma. It also contains the blood vessels that supply all the skin layers.
- The subcutaneous tissue, the deepest layer, consists of fat, connective tissue, larger blood vessels, and nerves. This layer is important for temperature regulation and acts as a shock absorber against injury.

BURN CLASSIFICATION

Burns are classified according to their size, location, and depth. The previous classification based on the depth of the burn (first, second, third, or fourth degree) has been replaced by a system that helps identify burns that require surgical treatment.

- ❖ **Superficial burns (or 1st degree)** involve only the epidermis or outer skin.
 - They are red, dry, painful, and blanch to the touch (eg. a non-blistering sunburn).
 - They usually heal in 3-6 days without scarring.
- ❖ **Superficial partial-thickness burns (or superficial 2nd degree)** involve all of the epidermis and part of the underlying dermis, which includes blood vessels that supply the skin.
 - These burns usually form blisters and are characterized by painful, red weepy skin that blanches with pressure.
 - They usually heal within 2 weeks (up to 20 days). Scarring is not typical, though changes in skin color may be permanent.
- ❖ **Deep partial-thickness burns (or deep 2nd degree)** involve the deeper layers of the dermis, including hair follicles and glandular tissue.
 - These burns are patchy white to red in color. They almost always blister, may be wet or waxy dry, and do not blanch with pressure.
 - They are painful to deep pressure only.
 - Healing takes 3 weeks or more. Surgical treatment with a skin graft may be recommended to increase healing. Scarring is common and may be severe.
- ❖ **Full-thickness burns (or 3rd degree)** involve all 3 skin layers, including the subcutaneous fat.
 - These burns are white, brown, grey, or black and do not blanch with pressure. The skin is dry, and waxy or leathery in texture. Blisters are not present.
 - These wounds are not painful to the touch because the injured skin cannot feel anything except deep pressure.
 - Surgical treatment with a skin graft is required for healing. Scarring is usually severe.
- ❖ **Fourth degree burns** destroy all skin layers and extend into muscle, tendon, or bone.

Most skin burns are minor and can be managed at home. However, moderate to severe burns can result in serious complications. **It is important to seek urgent medical treatment if you have any of the following:**

- A burn on your face, neck, hands, feet, or genitals.
 - A burn on or near a major joint (knee, shoulder, hip).
 - A burn that encircles a body part (chest, arm, finger, leg, foot).
 - A large burn (greater than 3 inches).
 - A deep burn (deep 2nd degree or 3rd degree).
 - A burn associated with another injury, such as a broken bone.
 - An electrical burn (due to the risk of internal organ damage).
 - Signs of a skin infection (worsening pain, redness, fever, pus-like drainage).
- (over)

BURN TREATMENT

❖ What To Do At Home For a Minor Burn

Minor burns (like a small 1st degree or superficial 2nd degree burn) can often be treated at home.

- Remove any clothing from the burned area. If clothing sticks to the skin, leave it alone and seek medical care.
- Place the burned area under lukewarm or cool tap water for up to 5 minutes. Do not use ice or ice water, which can increase burn depth and pain.
- Clean the site gently using mild soap and tap water. Chlorhexidine wash (without alcohol) may also be used.
- Avoid scrubbing or using harsh soaps or cleansers, like alcohol or iodine.
- Do not open or pop any blisters on your own.
- Cover raw skin or open blisters with an antimicrobial cream (like Polysporin or Bacitracin) and a dry gauze bandage.
- Take acetaminophen (Tylenol), ibuprofen (Advil or Motrin), or naproxen (Aleve) as needed for pain. Ibuprofen or naproxen should be taken with food to avoid an upset stomach. Applying gauze or a towel soaked in cool water to the wound for up to 30 minutes can also decrease pain.

❖ Care of Blisters

Due to the risk of infection, do not open or pop any blisters on your own. It's best for most blisters to open and drain on their own.

- Small blisters (less than 2cm) should be left intact. They are sometimes called "nature's bandaids" because they may act as a barrier against infection.
- Large blisters and blisters that cross a joint or prevent joint movement should be opened and debrided by a medical professional.

❖ Antimicrobial Creams

- 1st degree burns and superficial 2nd degree burns with intact skin rarely become infected and therefore do not require treatment with antimicrobial agents. They can be effectively treated with a fragrance-free moisturizing cream, plain petroleum jelly (Vaseline), or aloe vera.
- 2nd degree burns with non-intact skin should be treated with an antimicrobial agent to prevent infection. Common examples include Polysporin, Bacitracin, and Silvadene (silver sulfadiazine).
 - Polysporin and Bacitracin are available over-the-counter and are safe on the face & genitals.
 - Silvadene is available by prescription only. It should not be used near the eyes. Avoid Silvadene if you are allergic to sulfa medications, have a G6PD deficiency, or are pregnant/breastfeeding. Silvadene should not be used in infants less than 2 months old.

❖ Bandages

To promote healing, burn wounds should be kept moist but not wet. Covering the wound with a dry bandage helps to maintain moisture and protect against infection and further injury.

- For minor burns with intact skin, a bandage is optional.
- Open blisters and raw skin need to be covered with a clean bandage until the wound is healing and no longer leaking fluid. We recommend using a non-stick bandage for the first layer, fluffed dry gauze for the second layer, and a gauze roll for the outer layer.
- Change the bandage 1-2 times a day and whenever it is wet or dirty.
 - You may want to take pain medication prior to the dressing change to decrease discomfort.
 - Wash the area gently with mild soap and water daily. You can moisten the bandage with water if it is sticking to the burn.
 - Reapply the antibiotic cream (be sure the old cream has been removed).
 - Once new skin has formed, stop the antibiotic cream and switch to a fragrance-free moisturizing cream (eg. Vaseline Intensive Care, Eucerin, Nivea, mineral oil, cocoa butter). Avoid lotions containing lanolin (eg. Aquaphor Healing Ointment), as well as thick ointments, since they may be irritating to the skin. It is especially important to stop Silvadene when new skin begins to appear as it may impede new skin formation.

❖ Other Self-Care

- If it has been more than 5 years since your last tetanus vaccination, a booster is recommended if you have more than a 1st degree burn.
- If itching is bothersome as the burn heals, use an over-the-counter antihistamine like cetirizine (Zyrtec), loratadine (Claritin), or diphenhydramine (Benadryl). Moisturizers can also help.
- Watch for signs of infection. A small degree of redness at the edge of the wound or some clear yellowish drainage is normal. Notify your medical provider immediately if there is increased redness (> 2cm beyond the burn edge), warmth, swelling, pain, pus-like drainage, or fever.
- Use sunscreen regularly once the skin has healed to prevent sunburn and increased skin pigmentation.
- A scar reduction ointment, like over-the-counter Mederma, may be used once the burn has fully healed. Studies have not proven the effectiveness of this product.