

# Burn: Partial Thickness (Second Degree)

## What is a partial-thickness burn?

Partial-thickness burns are more serious than superficial (first-degree) burns because a deeper layer of skin is burned. They are more painful, and they can get infected more easily. Also, if the burn affects more than 10% of your body, you may go into shock because you can lose a lot of fluid from the burned area.

Partial-thickness burns affect a deeper layer of skin, but they don't damage muscle or bone. They are also sometimes called second-degree burns.

All partial-thickness burns more than 2 to 3 inches wide should be treated by your healthcare provider. Smaller burns can usually be treated at home.

## What causes a partial-thickness burn?

Partial-thickness burns are usually caused by:

- Overexposure to the sun
- Contact with a hot object, such as an iron or skillet
- Contact with hot liquids or steam
- Exposure to flames
- Burning gasoline or kerosene
- Contact with harsh chemicals
- Contact with electricity

## What are the symptoms?

The skin is bright red and has 1 or more blisters. The blisters usually turn white. The blisters may break open. They may leak fluid, making the skin look wet. The area may also look blotchy, with some areas redder than others. The burn is usually very painful and there may be some swelling. With larger burns, you may have nausea or headache.

## How is it treated?

The goals of treatment for partial-thickness burns are easing the pain and preventing infection.

For burns with **closed blisters**:

- Flush the burn with cool running water or put cold moist cloths on the burn until there is less pain. Don't use ice or ice water, which can cause more damage to the skin.
- Remove jewelry or tight clothing from the burned area right away before the skin begins to swell. If you cannot do this, emergency rooms have special tools for removing jewelry or clothing.
- Try not to break the blisters. If the blisters break, it's easier for the burn to get infected.

For burns with **open blisters**:

- Don't remove clothing if it is stuck to the burn.
- Run cool water over the burn unless the burn is several inches in size. Running water over a large burn might increase the risk of shock.

For **chemical burns**, follow these first-aid steps while making sure to avoid more contact with the chemical:

- Immediately remove any clothing and jewelry on which the chemical has spilled.
- Flush **liquid chemicals** from the skin thoroughly with running water for at least 15 minutes. Be sure to avoid splashing the chemical in your eyes. After flushing, call the Poison Control Center for advice about the specific chemical that burned you, or have someone else call while you are rinsing off the chemical. It helps to have the chemical container with you when you make the call to make sure you give the correct name for the chemical.
- Brush **dry chemicals** off the skin if large amounts of water are not available. Small amounts of water will activate some chemicals, such as lime, and cause more damage, so keep dry chemicals dry unless very large amounts of water are available. Be careful not to get any chemicals in the eyes.
- Don't try to neutralize a chemical. For example, putting an alkali chemical onto skin that has been exposed to an acid will often produce a large amount of heat and may increase the burning.
- Once all of the chemical has been removed, cover the burn with a sterile or clean, loose, dry bandage and get medical care.

For **electrical burns**:

- **All electrical burns must be examined promptly by a healthcare provider.** An electrical burn may seem to have caused just minor damage, but it can go deep into tissues under the skin. The damage may not be obvious for several hours or even until the next day. Delayed treatment can cause more damage.
- Cover the area of the burn with a clean (sterile, if possible), dry bandage, such as a gauze pad. Wrap it loosely. Don't put any ointments or other substances on the burned area.

For **all partial-thickness burns**:

- You don't need to cover the burn or blisters unless clothing or something else is rubbing against them. If you need to cover blisters, put on a clean, dry, loose bandage. Make sure that the tape or adhesive does not touch the burn. Avoid wearing clothes or shoes or doing activities that rub or irritate the blisters until they have healed. Don't wrap tape completely around a hand, arm, foot, or leg. This could interfere with blood flow to the area and cause more swelling after you put the tape on.
- Don't put grease, petroleum jelly, butter, or home remedies on the burn because they can make it hard for the burn to heal properly and may increase the risk of infection. Don't put any ointment on the burn unless you are instructed to do so by your healthcare provider.

- Take aspirin or ibuprofen to relieve pain and inflammation, or take acetaminophen to relieve pain.
  - Check with your healthcare provider before you give any medicine that contains aspirin or salicylates to a child or teen. This includes medicines like baby aspirin, some cold medicines, and Pepto-Bismol. Children and teens who take aspirin are at risk for a serious illness called Reye's syndrome.
  - Nonsteroidal anti-inflammatory medicines (NSAIDs), such as ibuprofen, naproxen, and aspirin, may cause stomach bleeding and other problems. These risks increase with age. Read the label and take as directed. Unless recommended by your healthcare provider, don't take for more than 10 days for any reason.
- Keep burned arms or legs propped up higher than your heart as much as possible for the first day or 2. This will help reduce pain and swelling.

**Call your healthcare provider right away** for burns that are more than 2 to 3 inches wide, especially if they are on the hands, feet, face, groin, buttocks, or a big joint, like your knee or shoulder. Medical care may include:

- Extra fluids to replace the fluid your body is losing through the burned area. Your healthcare provider may give you fluids intravenously (through a tube into your vein).
- Antibiotics because the burned skin can no longer protect your body from infection by bacteria that may get on your skin
- Lightly bandaging the burned area with an antibacterial dressing or leaving it unbandaged, depending on the size of the burn and where it is
- Medicine prescribed to kill the pain
- A tetanus shot to prevent tetanus infection
- Later, a skin graft so there is less scarring

### **How do I keep taking care of a burn?**

- When you clean the burned area, wash it gently with mild soap and warm water. Don't use deodorant soap.
- Check for any changes or signs of infection, like pus, swelling, or increased redness.
- If your provider recommended using an antibiotic ointment, use a clean cotton swab to put a thin layer of the ointment on the burn. Don't touch the tube of antibiotic cream to the burned area. If you need more cream or ointment, use a new cotton swab.
- If you need to cover the burn, cover it with a sterile nonstick bandage.

Also:

- Protect the burn from pressure and friction.
- Don't bump the burned area. Try to use it less than you normally would. This can help it heal.
- Drink enough water or juice to prevent dehydration.

- Avoid exposure to sun and to extreme hot and cold temperatures.

Call your healthcare provider if your burn is not getting better after 2 to 3 days or you have any of the following:

- Fever over 101.5°F (38.6°C)
- Worsening redness of the skin
- A lot more swelling of the burned area
- Pain that is getting worse
- Puslike drainage from the burned area
- A blister filled with greenish or brownish fluid or one that becomes hot again or turns red

### **How long will the effects last?**

Usually, partial-thickness burns heal in 10 days to 2 weeks. Large burns may take 3 to 4 weeks to heal. There may be little or no scarring if the burn was not too extensive and if infection is prevented. Do remember that blistering sunburns can cause skin cancer (melanoma) later in life.

### **How can I help prevent burns?**

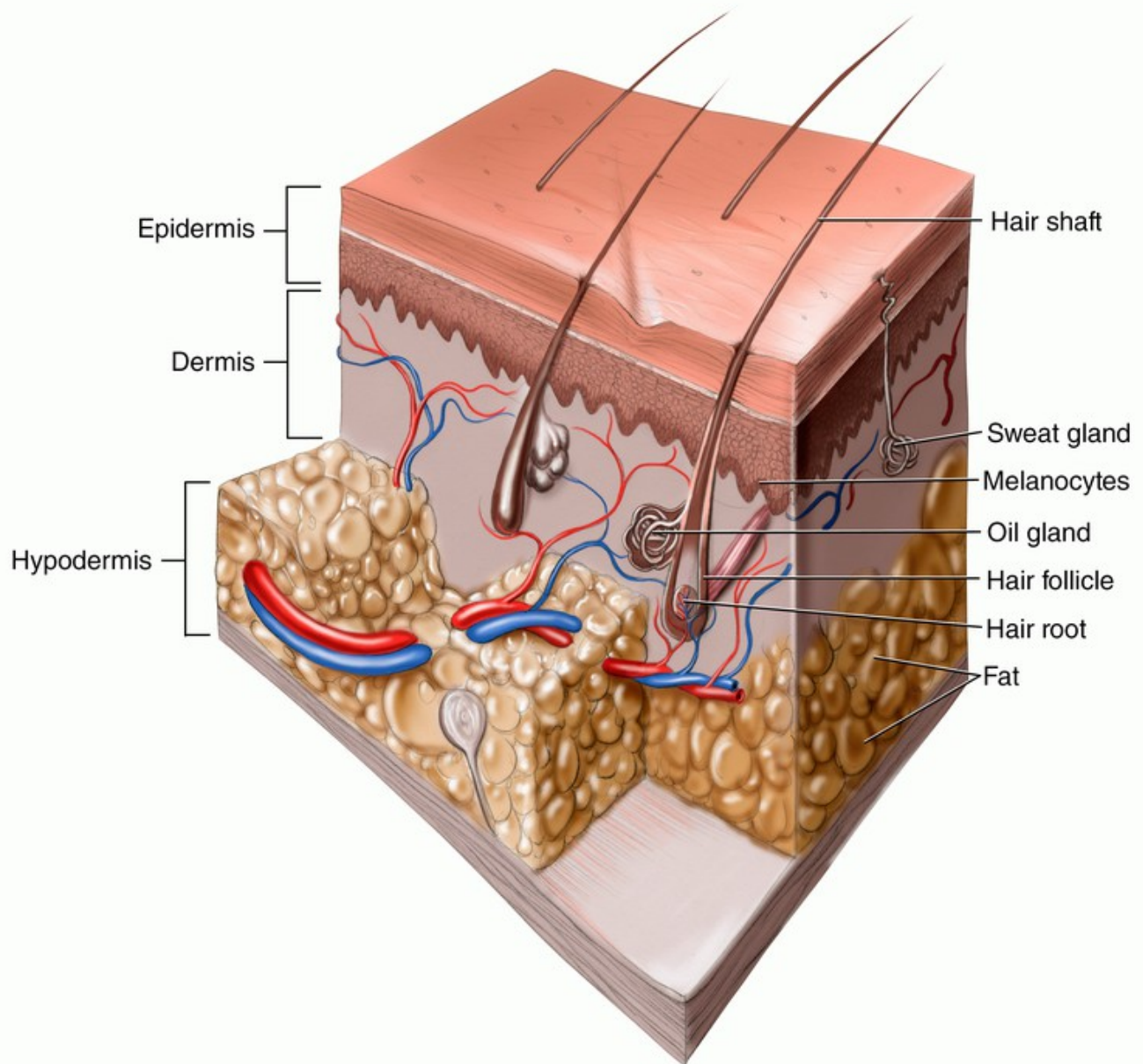
Some examples of things you can do to help prevent burns are:

- Turn your water heater setting down to 120°F (49°C).
- Keep pot handles turned away from the stove front.
- When you are outdoors, always use a sunscreen with an SPF of 15 or greater and wear protective clothing. Use a broad-spectrum sunscreen that protects against both UVA and UVB rays. It's best to put the sunscreen on your skin 30 to 60 minutes before you go out into the sun. Avoid being out in the sun for a long time, especially in the late morning and early afternoon.

Developed by RelayHealth.

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# Skin: Cross Section



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