First Aid and Injury Prevention Series

Burns

How to Treat Injuries Caused by Heat and Flame

Fires and heat are everywhere in our daily lives. We use heaters for warmth, stoves for cooking, and even have open flames for campfires or fireplaces. Fire is, of course, also very dangerous, and improper use or accidents involving fire can lead to severe injury. This month's guide is designed to help teach you what to do if you or someone you know is injured in or by a fire and develops a burn, as well as letting you know when to call for emergency medical assistance.

This month's health tips are the second in a series. For this month and the next few months, we will be presenting you with common injuries you might encounter. This series will teach you the basic of how to lower your chances of these injuries, as well as some basic first aid so you can care for someone (or yourself) if you suffer these injuries. Please note that these health tips are for educational purposes only and are no replacement for a formal First Aid course or training. To find a First Aid class in your area so that you can be qualified and prepared to act in an emergency, see our Reference section below.

Prevention

Like all injuries, burns can happen unexpectedly or due to accidents. While it's impossible to guarantee someone won't get burned (and those situations are precisely why these health tips are needed!), it *is* possible to greatly reduce the risk of burns if you follow these tips:

- Keep children away from the kitchen when you are preparing food on a hot stove or oven
- Keep hot cookware out of reach of children
- Be careful around hot surfaces or when working with hot cookware or appliances
- Test the temperature of bathwater with your elbow to make sure it's not too hot before putting a child inside
- Test your smoke alarm once a month and replace the batteries as needed
- Keep a working fire extinguisher in your kitchen, and be trained in its use
- Keep hot drinks out of reach of children
- Be careful when handling candles, hair dryers, space heaters, etc.

Types of Burns

While burns are not always caused by excess heat (chemical, electrical, and radiation burns are also possible), this month we will be focusing on what to do for injuries you get from excess heat or fire. Not all burns are created equal, however, and some are more minor than others. Typically, there are four "degrees" of burns, with 1st degree burns being the most mild and 4th degree being extremely life threatening.

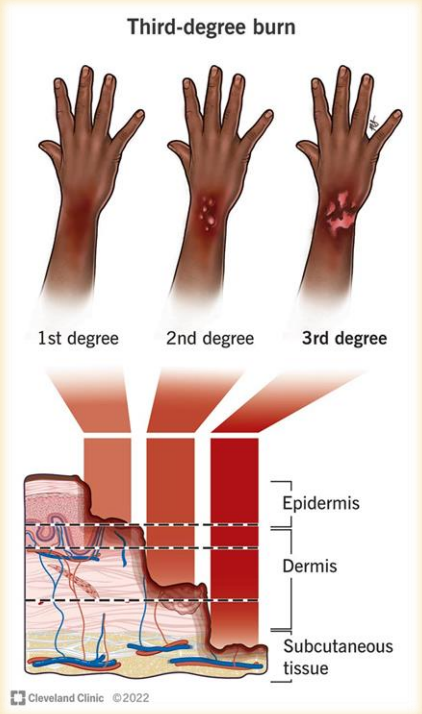
Burn Basics

- For all burns, be sure to remove any and all tight clothing or jewelry from the burn area as soon as possible; burns can cause quick swelling of the area
- Remove any burnt clothing from around the burn, unless the clothing is sticking to the burn. In that case, carefully cut or tear the clothing from around the burn but do not tear it away from the burn itself
- If a person is currently on-fire, have them use "Stop, Drop, and Roll" to smother the flame
- **DO NOT** apply ice to a burn of any kind
- Do not apply any grease or butter to the burn, as this can lead to infection

- There's a bit of a dispute in medical circles about whether or not you should put ointment or aloe gel on burns. Most sources (such as the CDC and the Shriner's Burn Hospital of Boston) state that you **SHOULD NOT** apply any sort of cream, gel, or ointment to a burn. **DO NOT** apply any medication to a burn unless instructed to do so by a physician
- If you suspect an airway burn, don't put a pillow under their heads, as this can obstruct their airways
- Burns of all sorts to the face, hands, feet, joints, or groin region are more serious, and require immediate medical attention

1st Degree Burns

- Also known as mild burns, 1st degree burns only damage the outermost layer of skin (the epidermis)
- The most common cause for 1st degree burns are sunburns, or mild burns from brief contact with a hot object
- Most 1st degree burns fade with time, leave minimal to no scarring, and don't need special medical treatment
- 1st degree burns show up as red skin that's usually painful to the touch, and is usually somewhat inflamed or swollen
- For 1st degree burns, treatment is usually to help reduce pain and swelling
- For 1st degree burns, apply a cool compress or run under cool (not cold) water until the pain subsides
- Cover the burn with sterile, non-adhesive bandage or clean cloth
- You can use over-the-counter pain medication to manage pain and help reduce swelling
- Unless the burn victim's burn covers a large portion of their body, they are an infant, or elderly, a 1st degree burn is usually minor enough not to need medical attention. If the burn victim does have a large burn, is an infant, or elderly, they should seek medical attention

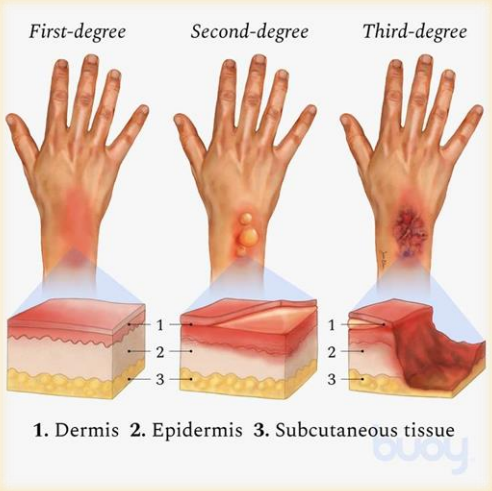


2nd Degree Burns

- These burns affect more than one layer of skin, usually the outermost and middle layer (the epidermis and dermis)
- More severe than 1st degree burns, these tend to be caused by prolonged contact with hot items, hot steam, or other brief exposures to heat

- Some 2nd degree burns can be mild enough to not require treatment, but this is rare. When in doubt, ask a doctor. Remember, better safe than sorry!
- 2nd degree burns are best characterized by blistered skin
- The skin can look a deep red or get a glossy appearance from fluid buildup, be painful, and might involve loss of skin
- **DO NOT** put 2nd degree burns under running water: this can potentially damage the skin further
- Immerse in cool, fresh (standing) water or apply a cool compress. Keep the wound cooled this way for 10 – 15 minutes
- Dry with a clean cloth and apply a sterile bandage
- Do not break blisters, as this can lead to infection
- If the burn is on an arm or leg, elevate them above heart level if possible
- If you can, take steps to prevent the victim going into shock. Have them lie back, with their head below their trunk, and with feet elevated by 12 inches. Cover them in a coat or blanket to keep them warm. **DO NOT** do this if the burn is on the head, neck, back, or legs, or if this position brings discomfort to the victim
- Unless you are a trained medical professional, **DO NOT** attempt to further treat 2nd degree burns; seek medical attention as soon as possible for treatment

3rd Degree Burns



- Often among the most severe types of burns people will encounter
- These burns penetrate all the way to the fat layer below the skin, and can lead to permanent scarring and tissue loss
- 3rd degree burns are characterized by loss of skin, or else skin that feels dry and leathery; they can also make the skin look charred, pale white, brown, or black
- Because these types of burns can damage nerves, they are often painless. However, the 2nd or 1st degree burns around the area can cause pain
- Cover the burn lightly with a sterilize gauze or clean cloth; **DO NOT** use a material that can leave lint in the burn
- As for 2nd degree burns, take steps to prevent shock (elevate legs 12 inches, keep trunk of body above the head)
    - If the burn is on their face, have them sit up
    - Watch for breathing difficulties, as this might mean an airway burn
- 3rd degree burns always require medical attention, the sooner the better. The burn victim should seek medical attention as soon as it is safe and possible to do so
- **DO NOT** attempt to further treat a 3rd degree burn unless you are a trained medical professional

4th Degree Burns

These types of burns are outside the scope of this article, as they can damage tendons and even bone, and are always so severe that they can be life-threatening. Anything more severe than a 3rd degree burn requires immediate emergency medical attention.

References

CPR/First Aid Training

American Heart Association - https://cpr.heart.org/en

American Red Cross – https://www.redcross.org/take-a-class

General Reference

CDC Mass Trauma Burn Care Fact Sheet –
https://www.cdc.gov/masstrauma/factsheets/public/burns.pdf

Mayo Clinic Burn Info –
https://www.mayoclinic.org/diseases-conditions/burns/symptoms-causes/syc-20370539

Shriner's Childrens Burn Hospital, Boston –
https://www.shrinerschildrens.org/en/pediatric-care/burn-care

Massachusetts State Treatment and Prevention of Burns and Scalds Page –
https://www.mass.gov/service-details/preventing-and-treating-burns-and-scalds