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Overview

Burns are tissue damage from a variety of sources. Examples are hot liquids, the sun, flames, chemicals, electricity and steam. Kitchen-related injuries from hot drinks, soups and microwaved foods are common among children.

Major burns need emergency medical help. Minor burns can usually be treated with first aid.

When to seek emergency help

Call 911 or seek immediate care for major burns, which:

- May be deep, involving all layers of the skin.
- May cause the skin to be dry and leathery.
- May appear charred or have patches of white, brown or black.
- Are larger than 3 inches (about 8 centimeters) in diameter.
- Cover the hands, feet, face, groin, buttocks or a major joint, or encircle an arm or a leg.
- Are accompanied by smoke inhalation.
- Begin swelling very quickly.

Electrical burns, including those caused by lightning, and major chemical burns need emergency medical care. A minor burn might need emergency care if it affects the eyes, mouth, hands or genitals. Babies and older adults might need emergency care for minor burns as well.

Treatment

Major burns

For major burns, apply first aid until emergency help arrives:

- Protect the burned person from further harm. If you can do so safely, make sure the person you're helping is not in contact

with the source of the burn. For electrical burns, make sure the power source is off before you approach the burned person.

- Make certain that burned person is breathing. If needed, begin rescue breathing if you know how.
- Remove jewelry, belts and other tight items, especially from the burned area and the neck. Burned areas swell quickly.
- Cover the burn. Loosely cover the area with gauze or a clean cloth.
- Raise the burned area. Lift the wound above heart level if possible.
- Watch for symptoms of shock. Symptoms include cool, clammy skin, weak pulse and shallow breathing.

Minor burns

For minor burns, follow these first-aid guidelines:

- Cool the burn. Hold the area under cool — not cold — running water for about 10 minutes. If this isn't possible or if the burn is on the face, apply a cool, wet cloth until the pain eases. For a mouth burn from hot food or drink, put a piece of ice in the mouth for a few minutes.
- Remove rings or other tight items. Try to do this quickly and gently, before the burned area swells.
- Apply lotion. After the burn is cooled, apply a lotion, such as one with aloe vera or cocoa butter. This helps prevent drying.
- Bandage the burn. Cover the burn with a clean bandage. Wrap it loosely to avoid putting pressure on burned skin. Bandaging keeps air off the area, reduces pain and protects blistered skin.
- If needed, take a nonprescription pain reliever, such as ibuprofen (Advil, Motrin IB, others) or acetaminophen (Tylenol, others).

What to avoid

- Don't use cold water to cool the burn.
- Don't break blisters. Blisters help protect against infection. If a blister does break, gently clean the area with water and apply an antibiotic ointment.
- Don't try to remove clothing stuck in the burn.

When to call your doctor

If you haven't had a tetanus shot in the past five years and the burn is deep, you may need a booster shot. Try to get this within 48 hours of the injury.

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Diagnosis

If you go to a healthcare professional for burn treatment, the health professional figures out how bad your burn is by examining your skin. You may be transferred to a burn center if your burn covers more than 10% of your total body surface area, is very deep, is on the face, feet or groin, or meets other criteria established by the American Burn Association.

Your healthcare professional also checks for other injuries and might order lab tests, X-rays or other diagnostic tests.

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Treatment

Most minor burns can be treated at home. They usually heal within a couple of weeks.

For major burns, after first aid and after a healthcare professional looks at your burns, treatment may involve one or more of the following: medicines, wound dressings, therapy and surgery. The goals of treatment are to control pain, remove dead tissue, prevent infection, lower scarring risk and restore function.

People with major burns may require treatment at specialized burn centers. They may need skin grafts to cover large wounds. And they may need emotional support and months of follow-up care, such as physical therapy.

First aid for major burns

For major burns, apply first aid until emergency help arrives:

- Protect the burned person from further harm. If you can do so safely, make sure the person you're helping is not in contact with the source of the burn.
- Make certain that the burned person is breathing. If needed, begin rescue breathing if you know how.
- Remove jewelry, belts and other tight items, especially from the burned area and the neck. Burned areas swell quickly.
- Cover the burn. Loosely cover the area with gauze or a clean cloth.
- Raise the burned area. Lift the wound above heart level if possible.
- Watch for symptoms of shock. Symptoms include cool, clammy skin, weak pulse and shallow breathing.

Medical treatment

Medicines and products that may help with healing major burns include:

- **Water-based treatments.** Your care team may use techniques such as whirlpool baths to help remove dead tissue.

- **Fluids to prevent dehydration.** You may need intravenous fluids to prevent dehydration and organ failure. These also are called IV fluids.
- **Pain and anxiety medicines.** Healing burns can be incredibly painful. You may need morphine and anti-anxiety medicine. These also might be needed when your bandages are changed.
- **Burn creams and ointments.** If you aren't transferred to a burn center, your care team may use a variety of topical products for wound healing. Examples are bacitracin and silver sulfadiazine (Silvadene). These help prevent infection and prepare the wound to close.
- **Dressings.** Your care team also may use various specialty wound dressings to prepare the wound to heal. If you're being transferred to a burn center, your wound will likely be covered in dry gauze only.
- **Drugs that fight infection.** If you develop an infection, you may need IV antibiotics.
- **Tetanus shot.** Your healthcare team might tell you to get a tetanus shot after a burn injury.

Physical and occupational therapy

If the burned area is large or covers any joints, you may need to do physical therapy exercises. These can help stretch the skin so that the joints remain flexible. Other types of exercises can improve muscle strength and coordination. And occupational therapy may help if you have difficulty doing your daily activities.

Surgery and other treatments

You may need one or more of the following:

- **Breathing assistance.** If you've been burned on the face or neck, your throat may swell shut. If that appears likely, a doctor may insert a tube down your windpipe, also called the trachea, to keep oxygen supplied to your lungs.

- **Feeding tube.** If you have burns over a large area or are undernourished, you may need nutritional support. A healthcare professional may thread a feeding tube through your nose to your stomach.
- **Easing blood flow around the wound.** If a burn scab, also called eschar, goes completely around a limb, it can tighten and cut off blood flow. An eschar that goes completely around the chest can make it hard to breathe. A healthcare professional may cut the eschar to ease this pressure.
- **Skin grafts.** A skin graft is a surgery that uses sections of your own healthy skin to replace the scar tissue caused by deep burns. Donor skin from deceased donors or pigs can be used for a short time.

Self care

For minor burns, follow these first-aid guidelines:

- **Prevent further harm.** Move away from whatever caused the burn. For sunburn, get out of the sun.
- **Cool the burn.** Hold the area under cool — not cold — running water for 10 to 20 minutes. If this isn't possible or if the burn is on the face, apply a cool, wet cloth until the pain eases. For a mouth burn from hot food or drink, put a piece of ice in the mouth for a few minutes.
- **Remove rings or other tight items.** Try to do this quickly and gently, before the burned area swells.
- **Apply lotion.** After the burn is cooled, apply a lotion, such as one with aloe vera or cocoa butter. This helps prevent drying and provides relief.
- **Bandage the burn.** Cover the burn with a clean bandage. Wrap it loosely to avoid putting pressure on burned skin. Bandaging keeps air off the area, reduces pain and protects blistered skin.

- **If needed, take a pain reliever.** Pain medicine you can buy without a prescription can help lessen pain. Examples include ibuprofen (Advil, Motrin IB, others) and acetaminophen (Tylenol, others).

Whether your burn was minor or serious, use sunscreen and moisturizer regularly once the wound is healed.

What not to do

- Don't use cold water to cool the burn.
- Don't break blisters. Blisters help protect against infection. If a blister does break, gently clean the area with water and, if you wish, liquid soap. Apply an antibiotic ointment. If a rash appears, stop using the ointment.
- Don't use a fluffy cotton bandage.
- Don't apply ointments, grease, butter or pain-killing lotions.
- Don't try to remove clothing stuck in the burn.

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Coping and support

Coping with a serious burn injury can be a challenge, especially if it covers large areas of the body or is in places readily seen by other people, such as the face or hands. Potential scarring, less mobility and possible surgeries add to the burden.

Consider joining a support group of other people who have had serious burns and know what you're going through. You may find comfort in sharing your experience and troubles and meeting people who face similar challenges. Ask your healthcare professional for information on support groups in your area or online.

Preparing for your appointment

Seek emergency medical care for burns that are deep or involve your hands, feet, face, groin, buttocks, a major joint or a large area of your body. Your healthcare team may recommend an exam by a skin specialist, burn specialist, surgeon or other specialist.

For other burns, you may need an appointment with your family healthcare professional. The information below can help you prepare.

List questions you want to ask your healthcare professional, such as:

- Do I need treatment for the burn?
- What are my treatment options and the pros and cons of each?
- What are the alternatives to the primary approach that you're suggesting?
- Can I wait to see if the burn heals on its own?
- Do I need prescription medicine, or can I use nonprescription medicines to treat the burn?
- What results can I expect?
- What skin care routines do you recommend while the burn heals?
- What kind of follow-up, if any, will I need?
- What changes in my skin might I expect to see as it heals?

What to expect from your doctor

Your healthcare professional is likely to ask you a number of questions, such as:

- How did the burn occur?
- Do you have other symptoms?

- Do you have other health conditions, such as diabetes?
- What at-home burn treatments have you used, if any?
- Have you noticed any changes in the appearance of the burn?

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Chemical burns are tissue damage caused by strong acids, drain cleaners, paint thinner, gasoline and many other substances. Usually, you are aware of such a burn and its cause. But sometimes you may not immediately recognize a burn caused by a milder chemical. As with some sunburns, the damage may develop hours after the exposure.

Major chemical burns need emergency medical help. Minor chemical burns can usually be treated with first aid.

When to seek emergency help

Call 911 or seek immediate care for major chemical burns, which:

- May be deep, involving all layers of the skin.
- Are larger than 3 inches (about 8 centimeters) in diameter.
- Cover the hands, feet, face, groin, buttocks, or a major joint or encircles an arm or leg.

If you're unsure that you've been exposed to a toxic chemical, call a poison control center then call 911. In the United States, the Poison Help number is 800-222-1222. If you seek emergency medical help, take the container or the name of the chemical with you.

Treatment

For major chemical burns, apply first aid as follows until emergency help arrives. For minor burns, take the same steps. A minor burn might need emergency care if it affects the eyes, mouth, hands or genital areas. Babies and older adults might need emergency care for minor burns as well.

- Protect the burned person from further harm. Remove dry chemicals. Put on gloves and brush off any remaining material.

- Remove contaminated clothing or jewelry and rinse chemicals off for at least 20 minutes, in a shower if it's available. Protect eyes from the chemicals.
- Cover the burn. Loosely cover the area with gauze or a clean cloth.
- Rinse again if needed. If the area is still painful, rinse for several more minutes.

For major burns, watch for signs of shock. Symptoms include cool, clammy skin, weak pulse and shallow breathing.

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