Unit V – Wellness, Fitness and First Aid

Chapter 10 - First Aid for Emergency and Nonemergency Situations

Section 3 – Burns

What You Will Learn to Do

Determine first aid procedures and apply them as needed

Objectives

1. Give first aid treatment for burns, wounds, bruises and poisoning

Key Terms

Mottled - Marked with irregular spots or splotches of different colors or shades of color

Compresses - Folded cloths or pads applied to press on a body part to stop bleeding or cool a burn

Caustic - Capable of destroying or eating away by chemical action; corrosive

Key Terms

Acids - Chemical compounds with a sour taste that have pH value of less than 7, react with metals to form hydrogen gas, and have the capability to eat away or dissolve metals and other materials

Bases - Chemical compounds with a slippery or soapy feel that react with acids to form salt, have a pH value above 7, and are used as cleaning materials

Key Terms

Alkalis - Any base, such as soda or potash, that is soluble in water, combines with fats to form soap, neutralizes acids, and forms salts with them

Systemic - Affecting the body in general; acting throughout the body after absorption or ingestion

Neutralize - To counteract the activity or effect of; to make chemically neutral

First Aid for Burns

Burns come from sources such as heat, electricity and chemicals. Your first aid knowledge should include how to treat people injured by these sources.

There are several types and degrees of burns, each requiring different treatment. Burns can be very painful and serious, and may result in shock and infection.

Degrees of Burns

For burns caused by heat, there are different degrees (first, second, or third) based on the burn's depth.

The deeper the burn, the more severe, and the higher degree it is.

All electrical burns are third degree.

Degrees of Burns – First Degree

<u>Characteristics</u>

- Least severe
- Injury only to the top layer of skin
- Reddening of the skin
- Mild swelling
- Pain due to irritated nerve endings
- Quick and complete healing if properly treated
- Caused by brief contact with hot objects or hot water or steam, or overexposure to sun or wind

Degrees of Burns – Second Degree

Characteristics

- Involve deeper layers of skin
- Cause skin to turn red and/or mottled
- Appear moist and oozing from loss of fluid
- Produce blisters and swelling
- Usually most painful because nerve endings still intact
- May cause shock due to extensive loss of fluid
- Should heal within two weeks with little/no scarring
- Caused by deep sunburn, prolonged contact with hot objects, scalding, and flash burns

Degrees of Burns – Third Degree

Characteristics

- Deepest and most severe type of burn
- May look white or charred
- Results in deep tissue destruction, reaching all layers of skin and sometimes even structures below
- Often cause little or no pain since nerve endings gone
- Often cause shock
- Will be covered by scar tissue after healed
- Caused by immersion in extremely hot water, prolonged contact with flames or electric shock

Treatment of Heat Burns

Before treating a burn, determine its degree.

Remember that the goals of burn treatment are:

- Relieve victim's pain
- Prevent shock
- Prevent infection

If you aren't sure about the degree of a burn, treat it as a third-degree burn.

Treating First-Degree Burns

1. Loosen tight clothing, and remove jewelry from burned area.
2. Cool the burned area with water or by applying cold wet compresses to it.
3. Gently pat the burned area dry with a clean cloth.
4. Cover the injury with a sterile bandage or clean cloth to keep air off the burn.
5. After the burn has cooled, apply lotion to relieve pain and keep skin from drying out.

Treating Second-Degree Burns

1. Follow same steps 1-4 for treating first-degree burns. If you use running water to cool the injured part, ensure that the water isn't running so forcefully that blisters on the burned skin are broken.
2. Elevate the burned part.
3. Ensure the victim drinks plenty of fluids to avoid dehydration.
4. Seek medical treatment for second-degree burns to the face, hands, feet or genitals, or if the burn is more than 2-3 inches in diameter.

Treating Third-Degree Burns

1. Remove the victim from the source of heat if he/she is still in contact with it.
2. Call for EMS. All third-degree burns require medical treatment regardless of size.
3. If the victim is not breathing, begin rescue breathing.
4. Remove any clothing that is still smoldering. If the victim is wearing jewelry near the burned area, remove it if it comes off easily, and secure it in a safe place.
5. Expose the burned area by cutting and gently lifting away any clothing. If any cloth sticks to the burn, leave it in place.

Treating Third-Degree Burns

6. Cover the burned area loosely with cool moist compresses, sterile bandages, or clean cloth.
7. Elevate the burned part.
8. Treat the victim for shock, paying special attention to the victim's body temperature, which can change rapidly due to burned skin.
9. Monitor breathing of victims with burns to the face and burns resulting from fire accompanied by smoke inhalation. Treat accordingly.

Don’ts When Treating Burns

Do not put butter, oil, or grease on a burn; these ointments can keep heat in the burn, cause more damage, and increase the chance of infection.

Do not use cotton or cottony bandages on burns as they may stick to the injury.

Do not put ice or ice water on a burn; this can result in frostbite and cause more damage to the skin.

Don’ts When Treating Burns

Do not break any blisters that have formed; blisters help protect against infection.

Do not put pressure on a burn.

Do not try to remove stuck clothing, debris, or loosened skin from a burn.

Do not try to clean a wound with soap, alcohol, or any other antiseptic product; only water and only first-and second-degree burns.

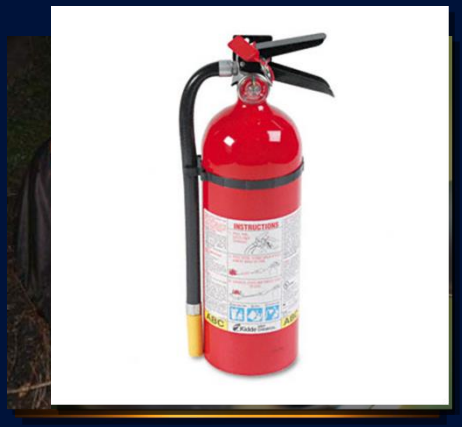
Don’ts When Treating Burns

Do not let a victim walk on burned feet when if he/she tells you it doesn’t hurt. Third degree burns may not be painful but damage is severe - pressure from walking only increases it.

Prevention of Heat Burns

There are many things that can be done to prevent heat burns. Here are some of them:

- Use caution when handling matches and starting fires. If you have young children in your home, store matches out of their reach.
- Use caution around hot liquids, steam, heating and cooking equipment.
- Ensure hot tap water is not scalding before stepping into a tub or shower
- Never use water on an electrical fire; use a chemical fire extinguisher



Prevention of Heat Burns

- Ensure your home has a fire extinguisher, smoke alarms.
- Keep a box of baking soda in the kitchen to smother grease fires.
- Turn pot handles on the stove so that they aren't sticking out and might easily overturn.
- Don't leave flammable items near a fireplace.
- Turn off space heaters before going to sleep or leaving the house.
- Know what actions to take if a fire starts in your home, and practice them with your family members.

Treatment of Electrical Burns

Although an electrical shock will often produce only a minor mark on the skin, the injury can be a serious deep-tissue burn, so treat all electrical burns as third-degree.

Note: About 1,000 people die each year in the United States from electrical shock.

Treatment of Electrical Burns

Electricity passing through a person's body can result in unconsciousness and may slow or stop breathing and/or heartbeat.

Therefore, treat electrical shock as a life-threatening injury.

If you believe a person has been electrocuted, assess the situation before touching him or her. The victim could still be in contact with the electrical current.

Treatment of Electrical Burns

Steps to follow to provide first aid:

1. If the victim is still in contact with the source of electricity, stop the current by unplugging a cord, removing a fuse from the fuse box, or turning off the circuit breaker.

If you cannot turn off the electricity or you are outside and the shock is due to a downed power line, have someone call the power company.

Treatment of Electrical Burns

2. Separate the victim from the source of electrical current using a dry non-conducting material such as wood, plastic, or cardboard.

   If available, stand on a newspaper or rubber mat.

Treatment of Electrical Burns

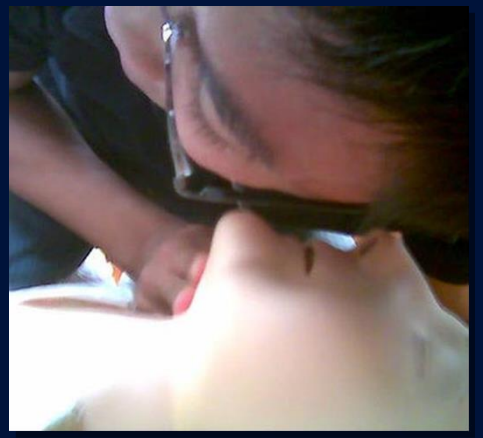
If pushing does not work, use a dry rope or dry clothing to lift or drag the victim away from the source of electricity. This method works best with two people.

Special Precaution: If the ground is wet, do not attempt to move the victim in contact with an electrical current.

Water conducts electricity, and you can become a victim if you touch him or her. In this case, the current must be stopped before you can administer first aid.

Treatment of Electrical Burns

3. Check the victim's breathing and pulse. Be prepared to administer mouth-to-mouth resuscitation or CPR.



4. After you are sure the victim is breathing, take the time to call EMS if you or someone else has not already done so.

Treatment of Electrical Burns

5. Check the victim for two burn sites, one where the electricity entered the body and one where it exited the body.

Then follow steps 4 through 9 for treating third-degree burns, and treat for shock.

Prevention of Electrical Burns

How to prevent electrical burns:

Do not use electrical appliances in the bathtub, while showering, or in or near swimming pools.

Do not use electrical equipment outdoors if it's raining or the ground is wet. Ensure electrical equipment used outdoors has three-way plugs and heavier wiring.

Prevention of Electrical Burns

Ensure outdoor electrical outlets have waterproof covers.

Families with very young children should have child safety plugs in all electrical outlets.

Do not overload an outlet by plugging in several appliances in a “piggyback” fashion.

Prevention of Electrical Burns

Do not use electrical appliances or equipment that have exposed wiring, frayed cords, or that overheat or create sparks.

During electrical storms stay inside; keep away from windows. Don't use appliances or the phone and don't take a shower or bath.

Prevention of Electrical Burns

Do not climb trees that have wires running through or near them.

Look for overhead wires before using long tools like tree trimmers, pool skimmers, or ladders.

Prevention of Electrical Burns

If you are caught outside during an electrical storm, avoid trees, poles, and metal objects.

Find low ground and crouch down.

Prevention of Chemical Burns

Chemical burns occur when the skin or eyes come in contact with liquid or dry chemicals that are caustic or irritating.

Prevention of Chemical Burns

Rust and paint removers, drain and cement cleaners contain acids that eat away certain materials. Bases (also called alkalis) cut through grease.

If used carelessly or improperly, these products can severely burn your skin.

Prevention of Chemical Burns

The seriousness of a chemical burn depends on these factors:

- Length of time the chemical is in contact with skin or eyes
- More concentrated the chemical, the more damaging
- Higher temperature chemicals cause quicker damage

Treating Chemical Burns to the Skin

To treat chemical burns to the skin, follow these steps:

1. When treating the victim, consider wearing gloves and/or safety goggles to protect yourself from chemical injuries.

2. Remove any contaminated jewelry or clothing from the victim, including shoes/socks where chemicals can collect.

Treating Chemical Burns to the Skin

3. Remove chemical from the skin, depending on its form…
   - Liquid chemicals: Flush them from skin with large amounts of cool running water for at least 15 minutes.
   - Dry chemicals: Brush off from skin using a clean, dry cloth, taking care not to brush it into your eyes or your victim's eyes. Then, if you have plenty of water access, flush with water for 15 minutes. If not much water is available, skip the flushing step.

If the victim tells you the burning has intensified after you have flushed the burn, flush the area again for several more minutes or for as long as necessary.

Treating Chemical Burns to the Skin

4. Cover the burned area loosely with dry, clean bandages or cloths.

5. Minor chemical burns generally heal without further treatment, but call EMS for chemical burns…
   - To face, hands, feet, genitals or joints
   - Which are third-degree
   - Which are second-degree over 2-3 inches in diameter
   - Where there is a systemic reaction to the burn or exposure

Treating Chemical Burns to the Skin

Note: For extensive or severe chemical burns, monitor the victim for signs of shock and treat accordingly until he or she receives medical treatment.

Also monitor the victim's breathing if he or she has inhaled the chemical.

Treating Chemical Burns to the Eyes

To treat chemical burns to the eyes, follow these steps:

1. Position the victim's head so that the injured eye is lower than the uninjured eye.

2. For one injured eye, hold the eyelids open and flush with water from the inner corner to outer corner.

If both eyes are injured, flush both at the same time.

Flush for at least 15 minutes.

Treating Chemical Burns to the Eyes

3. Have victim close both eyes, then cover them with cloth pads or gauze taped loosely into place. Because eyes move together, both eyes must be closed and covered to keep the injured eye still.

4. Call EMS or transport the victim to the emergency room.

Don’ts When Treating Chemical Burns

The same “don’ts” should be followed with chemical burns as with regular burns.

In addition, be sure not to put any other substances or chemicals on a chemical burn, attempting to neutralize the burning chemical.

Butter or Grease

Cotton Balls or
Cotton Bandages

Ice

Do NOT use any of these when treating a chemical burn.

Prevention of Chemical Burns

Chemical burns can be prevented by following these guidelines:

- Before using a chemical product, read and follow the directions on the label, including precautions and warnings.
- If you have younger brothers sisters, ensure chemical stored out of their reach.

Prevention of Chemical Burns

- Use chemical products in a well-ventilated area.
- Do not mix different chemical products. For example, mixing bleach and ammonia causes dangerous fumes.
- To avoid confusion and accidental misuse of chemical products, leave them in their original containers with their labels intact.

Questions?