



*First Aid and Injury Prevention Series*  
**Electrical Safety**  
 Spotting and Avoiding Electrical Hazards

Electricity is everywhere in our modern lives, so much so that it usually fades into the background of people's awareness. But like all power sources, electricity, electrical appliances, and electrical fixtures must be handled with respect and care, or you can risk severe injury or even a house fire.

This month's health tips are the first 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

While electrical hazards can sometimes be unexpected, such as downed power lines, other times, accidents can be prevented with some basic knowledge of electrical safety. Listed below are some common tips on how to avoid creating an electrical hazard:

- Be careful with your electrical cords, to avoid wearing them down:
  - Don't pinch the cords between furniture,
  - Don't place extension cords underneath rug where they can overheat and damage their insulation,
  - Don't nail or staple cords down; this can cause arcing or damage the cord,
  - When pulling a cord out of a socket, pull it out by the plug rather than the cord.
- If you spot damaged electrical cords, make sure to replace them with new ones that have a certification label from an accredited testing company.
- Make sure electrical cords you use are the correct type for the appliance they're attached to, as this can cause cords to overheat.
- Never use indoor appliances/cords outdoors.
- Extension cords are intended to be a temporary feature; they should never be used for appliances, especially ones that generate heat!
- Do not overload your power strips; use power strips for low current devices, such as electronics.
- Do not plug more than one appliance into the same wall socket.
- Install plastic safety covers on unused wall sockets to protect young children from electrical hazards.
- When using light fixtures, make sure the bulbs are of an appropriate wattage for the device; read the safety manual on appliances and devices if you are unsure.
- Always review and keep on hand safety manuals for electronics and appliances.
- Keep electrical cords and appliances away from water.



- Do not perform your own electrical work! If electrical or wiring work must be done, make sure to hire a licensed electrician, and ensure they pull an electrical permit with your local municipality, so that a qualified inspector can verify that they performed their work correctly.
- Consider having a Ground Fault Circuit Interrupter (GFCI) installed on sockets to reduce risk of electrical shock, especially in areas near water (such as restrooms or kitchen) or outdoors.
- Never connect a generator to the electrical system without an approved automatic-interrupt device, to prevent potential for fire and harm to electrical workers.
- Have your electrical system inspected at least once every 10 years by a licensed electrician.
- If an electronic or appliance gets wet, do not restore power to it until it has been completely dried and its been verified as safe by a licensed electrician.
- Do not turn electrical fixtures on or off while standing in water, or use electrical tools; even then, have a licensed electrician verify that the device is safe to use.
- Keep away from downed power lines, especially sparking or jumping cables; maintain at least a 6-foot (2 meter) distance.
- If electrical circuits or equipment become wet, shut off power at the main breaker: do not wade through water to access your electrical panel!



### When Should I Call an Electrician or the Fire Department?

As stated above, only a licensed electrician can perform electrical or wiring work in the state of Massachusetts. However, knowing when to reach out to an electrician is crucial. Here are some red flags to watch out for, as well as circumstances that require the intervention of qualified professionals:

- If access to your electrical panel is cut off by standing water, contact an electrician to shut off the power.
- If you see frayed or sparking wires after turning electricity back on after an emergency, or smell burning with no visible flame, turn the power off at the main breaker and contact an electrician.
- If, when using electrical devices, you hear a sizzling or buzzing sound, an odor akin to something burning, or witness arcs, sparks, or short circuits, contact the fire department immediately!
- If you see frequently blown fuses or tripped circuit breakers, dim or flickering lights, bulbs that wear out too fast, overheating plugs, cords, or switches, shocks or mild tingles (more than static electricity), loose plugs, or unusually warm outlets or switches, contact a licensed electrician.
- If you have additional concerns, or if you are in doubt about the function of a part of your electrical system, contact a licensed electrician for guidance: it's better to be safe than sorry!



## Electrical Hazards – First Aid and Response

While prevention is important, electrical hazards like dangerous shocks can still happen, and when they do, there are some facts to keep in mind. Below are some tips if you find yourself or another person in a situation where they may have suffered an injury from an electrical hazard:

- First, look, but don't touch, to confirm that a person has been injured. It's vitally important not to touch them if you suspect they may still be in contact with the electrical hazard, as they can pass the current on to you.
- If possible, turn off the source of the electrical hazard. Otherwise, try and separate the source of the hazard from the person carefully using a non-conductive material (cardboard, plastic, wood).
- Do not otherwise move a person if you suspect they have suffered an injury from an electrical hazard, unless it is an emergency, and you need to move them to safety to protect them from imminent danger.
- Once you've separated a person from the electrical source, check their pulse and breathing. If either is abnormally shallow or absent, either contact (or have someone else contact) emergency services/911 and begin CPR until help arrives.
- Those who you suspect to have suffered injuries from an electrical hazard should seek medical attention as soon as possible, as the injuries may be internal. If you or someone else experiences the following symptoms after an injury caused by an electrical hazard, they should seek medical help immediately:
  - Confusion, severe burns, difficulty breathing, irregular heart rhythm, cardiac arrest, muscle spasms/contractions or pain, seizures, or loss of consciousness.
  - Even if you do not experience the above symptoms, medical help should still be sought after exposure to an electrical hazard, as the internal burns/damage may not be immediately obvious.
- Don't touch burns or break blisters or remove burnt clothing to avoid disturbing or possibly infecting a burn.
- If a person becomes overly pale or shows signs of shock, make sure to lie them down, elevate their legs, and make sure the trunk of their body is higher than their head.
- For vehicles and power lines, make sure to do the following:
  - Avoiding driving through water in contact with downed power lines,
  - If a power line falls onto your car while driving, continue driving to put distance between yourself and the hazard. If the engine stalls, do not turn off the ignition. Call (or have someone else call) emergency services. Do not leave your vehicle, and instruct others to not approach or touch the vehicle until emergency personnel arrive.



## 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 Webpage on Electrical Hazards Following Disasters** –  
<https://www.cdc.gov/disasters/electrical.html>

**Mayo Clinic First Aid Guidance for Electrical Injuries** –  
<https://www.mayoclinic.org/first-aid/first-aid-electrical-shock/basics/art-20056695>

**Massachusetts Electrical Fire Safety Pamphlet** –  
<https://www.mass.gov/doc/electrical-fire-safety-english/download>