

# Electrical Burns and Other Injuries

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## Summary

*Electrical shocks are doubly dangerous in that there is not only the chance of electrocution, but also there is the probability that a shock will cause a loss of consciousness that could result in a fall. Electric shocks and burns are very real dangers, and the consequences can be dire.*

## For Discussion

A severe shock can cause considerably more damage to the body than is visible. There may be internal hemorrhages and destruction of tissues, nerves, and muscles. In addition, a shock is often only the beginning in a chain of events. The final injury may be from a fall, cuts, burns, or broken bones.

The most common shock-related injury is a burn. Burns suffered in electrical accidents may be of three types: electrical burns, arc burns, and thermal contact burns.

Electrical burns are the result of the electrical current flowing through tissues or bones. The heat generated by the current flowing through the body causes tissue damage. Electrical burns are one of the most serious injuries you can receive and should be given immediate attention.

Arc flashes or blasts are the result of high temperature in close proximity to the body and are produced by an electric arc or explosion. They can destroy your vision and hearing instantly, and the average cost of a major arc flash incident can top \$25 million after medical bills, equipment replacement, fines, and legal fees.

Finally, thermal contact burns are those normally experienced when the skin comes in contact with hot surfaces or overheated electrical conductors, conduits, or other energized equipment. Sometimes clothing may be ignited in an electrical accident and a thermal burn will result. All three types of burns may be produced simultaneously.

Electric shock can also cause injuries of an indirect or secondary nature. Involuntary muscle reaction from an electric shock can cause bruises, bone fractures, and even death from collisions or falls. In some cases, injuries caused by electric shock can be a contributory cause of delayed fatalities.

In addition to shock and burn hazards, electricity poses other dangers. For example, when a short circuit occurs, hazards are created from the resulting arcs. If high current is involved, these arcs can cause injury or start a fire. Extremely high-energy arcs can damage equipment, causing fragmented metal to fly in all directions. Even low-energy arcs can cause violent explosions in atmospheres that contain explosive gases, vapors, or combustible dusts.

## Preventative Measures:

- Use proper lockout/tagout procedures.
- Verify de-energized condition.
- Wear a face shield and safety glasses.
- Insulate and isolate energized parts using insulated blankets or mats.
- Wear insulated gloves and other protective clothing.

## Questions

1. What are the three types of burns?
2. How can you avoid electric shock?
3. What other types of injuries can electric shock trigger?