TOOLBOX TALK

Effects of Electric Shock on the Human Body

Purpose

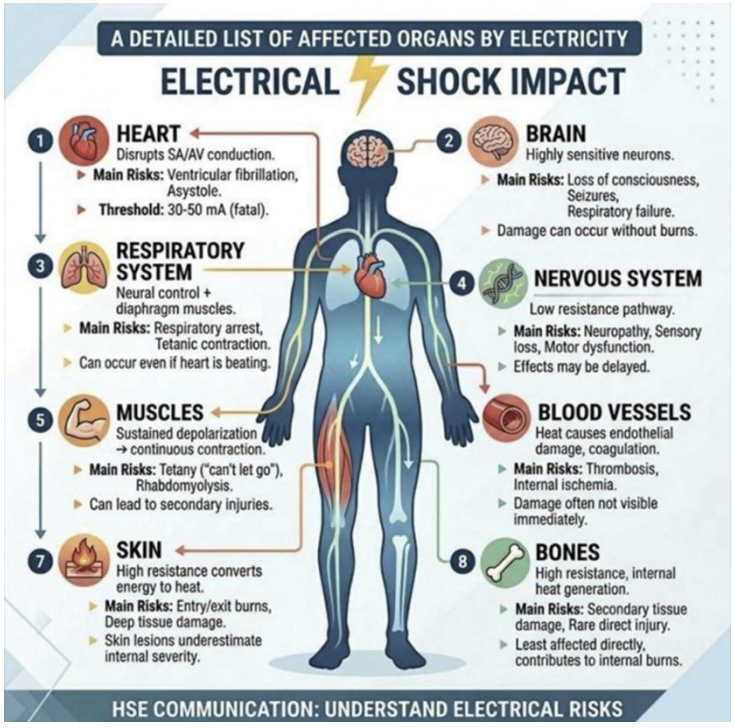
This toolbox talk explains how electric shock can affect the human body and why electrical safety procedures must always be followed. Even low levels of electricity can cause serious injury or death.

Why electric shock is dangerous

The human body conducts electricity. When a person comes into contact with a live electrical source, the current passes through the body and can interfere with vital organs such as the **heart, lungs, muscles and nervous system**.

The severity of injury depends on:

- the voltage and current involved
- the duration of contact
- the path the current takes through the body



Effects on the body

Heart

Electric shock can disrupt the heart's normal rhythm and cause:

- irregular heartbeat (arrhythmia)
- cardiac arrest
- ventricular fibrillation (fatal heart rhythm)

Even small electrical currents can interfere with the electrical signals that control the heart.

Lungs

Electric current can affect breathing muscles and the nervous system controlling respiration, potentially causing:

- breathing difficulties
- respiratory arrest
- lack of oxygen to vital organs

Without rapid treatment, this can quickly become life-threatening.

Nervous system

Electric shock can damage the nervous system and brain function, leading to:

- confusion or memory loss
- seizures
- loss of consciousness
- nerve damage
- long-term neurological issues

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Muscles

Electrical current causes muscles to contract forcefully, which may result in:

- inability to let go of live equipment
- muscle spasms
- fractures or joint injuries
- secondary injuries from falls

Strong muscle contractions can also cause internal injury.

Skin

Electric shock may cause burns where the current enters and exits the body:

- electrical burns can be severe internally
- damage may not always be visible on the surface
- tissue damage can occur beneath the skin

Possible injuries from electric shock

- burns
- cardiac arrest
- breathing failure
- nerve damage
- muscle injury
- internal tissue damage
- falls from height due to shock reaction
- fatal injuries

Safety reminders

- always isolate electrical supplies before starting work
- never assume equipment is safe to touch
- use lock-off procedures where required
- check tools and cables for damage
- keep electrical equipment away from water
- report damaged equipment immediately
- only authorised persons should work on electrical systems
- follow site risk assessments and method statements

What to do in an emergency

- do not touch the casualty if they are still in contact with electricity
- isolate the power source immediately if safe to do so
- call emergency services
- provide first aid if trained to do so
- report the incident in accordance with site procedures

Key message

Electric shock can cause serious internal injury even when there are no obvious external signs. Always treat electricity with caution and follow safe working procedures