

# Immediate treatment of injuries

## WHY IMMEDIATE TREATMENT IS IMPORTANT

The success of injury healing can be boosted by appropriate, effective and timely action particularly in the early stages of an injury (ie. the first 72 hours).

Any 'soft-tissue' is subject to injury including ligaments (which join bones to bones), tendons (which join muscles to bones) and to muscles themselves. The immediate reaction of the body to injury is similar irrespective of the soft tissue structure and is known as an inflammatory reaction.

Injuries can be caused by over-stretching, bruising or crushing. A strain describes overstretching of a muscle, while a sprain describes overstretching of a ligament or tendon.

## THE INFLAMMATORY REACTION

Tissue injury usually involves damage to small blood vessels that results in bleeding at the site of injury. This bleeding leads to the four main signs of inflammation:

- 1. Heat** – chemicals released from the damaged tissue causes dilation of surrounding blood vessels to bring healing agents to the area. The result is more blood and therefore heat
- 2. Redness** – is due to the increase in blood to the area
- 3. Pain** – is caused by the chemicals released from the injured tissues as well as the increased tissue pressure from the fluid acting on nearby nerve endings
- 4. Swelling** – is the result of this accumulation of extra fluid.

This inflammatory reaction is necessary as it is part of the natural healing process. However the body tends to overreact to sudden traumatic injury and as a result more inflammatory fluid accumulates than is necessary for healing. This fluid contains a protein that turns into replacement 'scar' tissue. If too much is allowed to form it may prevent the structure returning to normal function with reduced flexibility and increased risk of re-injury.

## PRICE PROTOCOL

Anyone experiencing an injury should benefit from the following recommendations which should be carried out immediately and for up



to 3-5 days after injury. These are remembered by the acronym PRICE.

## PROTECT

**Aim:** To protect the injured tissue from undue stress that may disrupt the healing process and/or cause further injury.

**How:** This could include splinting or bandaging by a medical professional or simply rest, slings or crutches. Complete immobilisation isn't usually necessary or desirable. Make sure the method of protection can accommodate swelling.

**When and duration:** Immediately and for 3-5 days depending on injury severity.

## REST

**Aim:** Rest reduces the energy requirements of the area, avoids any unnecessary increase in blood flow, ensures protection of the area and optimises healing.

**How:** Use slings, crutches or static rest (ie. sitting or lying down).

**When and duration:** Immediately after injury and for 3-5 days depending on injury severity. Complete rest isn't desirable but any movement needs to be carefully controlled.

## ICE

**Aim:** Ice is used to limit the body's over-reaction by reducing the temperature of the injured tissue and therefore the energy requirements and subsequent influx of blood.

The ice helps constrict the blood vessels thereby limiting bleeding and reducing the accumulation of unnecessary tissue protein.

**How:** Crushed ice wrapped in a damp towel or cloth is best (ice cubes can be wrapped in the cloth and smashed against a wall to crush them).

Alternatively ice in a plastic bag, a frozen gel pack, or a packet of frozen peas is a cheap and practical substitute. A damp towel must be placed between the ice and the skin to avoid ice burn.

**When and duration:** The sooner ice can be applied the better. Ice should be applied for between 20-30 minutes every 3-4 hours. If the area is very bony such as the elbow, reduce this time to around 10 minutes.

Do not return to activity immediately as the ice will have an analgesic 'numbing' effect.

## COMPRESSION

**Aim:** Compression limits an unnecessary accumulation of inflammatory fluid and ultimately over-production of scar tissue.

**How:** Simple off-the-shelf compression bandages such as Tubigrip™ and adjustable neoprene supports are best for self-application. The area should be compressed a minimum of six inches above and below the site of injury. It should be flexible enough to accommodate initial swelling and continue to apply pressure as this reduces. The application of bandages and strapping is best left to a medical practitioner. Loosen the compression if you feel pins and needles around the compressed area.

**When and duration:** As soon as possible following injury and continue for the first 72 hours.

## ELEVATION

**Aim:** To lower the blood pressure and therefore help limit bleeding and encourage drainage of fluid through the lymphatic system.

**How:** Using pillows, foot stools, slings etc.

**When and duration:** As soon as possible following injury and for the first 72 hours.

When following PRICE is also important to avoid HARM, hence the saying 'Give PRICE and avoid HARM'.

## AVOID

**H** – Heat (eg. hot bath, sauna)

**A** – Alcohol

**R** – Running

**M** – Massage