Use of Ice and Heat

Ice and heat are often used in treating injuries.

General comments

- Icing may be used along with compression, elevation, bracing, and/or support when treating acute injuries.
- Nonsteroidal anti-inflammatory drugs (NSAIDs) can produce a similar effect to icing. However, they may delay healing with acute injuries (like sprains, strains, and fractures). If your doctor recommends medicine, make sure you are aware of the right dosage and when to take it, and if there are any side effects.
- The use of ice and heat is just one part of a treatment program. Even if symptoms are relieved, there is usually a need for exercises to restore flexibility and joint motion, strength, general fitness, and sport-specific skills.

Use of ice

- **Effects of ice:** Decreases circulation, metabolic activity, and inflammation and numbs the skin.
- **Benefits of ice:** Decreases pain, swelling, inflammation, and muscle spasm/cramping. Best used after exercise or after pain-producing activity.
- **Risks of ice:** Prolonged use can cause frostbite.
- **Methods for applying cold therapy:** Ice packs, ice bath/ice whirlpool, ice massage. (See "Options for applying ice.")

When *not* to use ice

- Immediately before physical activity
- If area of icing is numb
- When the pain or swelling involves a nerve (such as the ulnar nerve or "funny bone")
- If the athlete has sympathetic dysfunction (an abnormality of nerves that control blood flow and sweat gland activity)
- If the athlete has vascular disease (such as poor circulation due to blood loss, blood vessel injury, compartment syndrome, vasculitis, blood clots, or Raynaud disease)
- If there is skin compromise (such as an open wound; a wound that has not healed; skin that is stretched, blistered, burned, or thin)
- If the athlete has cold hypersensitivity, including cold-induced urticaria (hives from cold)

How long to use ice

- Two to 3 times per day (minimum); up to once per hour.
- Duration varies with technique; usually 20 to 30 minutes per session. (See "Options for applying ice.")
- Ice may continue to be useful in treatment as long as there is pain, swelling, inflammation, or spasm. There is no need to switch to heat after 48 hours or alternate between ice and heat.

Options for applying ice

1. **Ice packs** are best for icing larger areas of pain, swelling, or spasm (like a swollen knee, deep thigh bruise, muscle strain, shoulder tendonitis, or neck or back spasm).

   Materials

   - Small cubes or crushed ice in plastic bag.
   - Bag of frozen vegetables (such as frozen peas).
   - Reusable commercial ice pack or circulating "cryocuff" (made specifically for therapeutic icing). Do not use blue ice packs directly on the skin; they are colder than frozen water and can cause frostbite.

   Method

   Place on the affected area for at least 20 minutes per session. Hold in place with a towel, elastic wrap, or shrink-wrap.

2. **Ice bath/ice whirlpool** is used to reduce swelling in peripheral joints (such as with ankle sprain, wrist sprain, or severe shin splints).

   Materials

   - Bucket or tub with mixture of ice and water

   Method

   Immerse affected area for 20 to 30 minutes per session. Do not use an ice bath if there is an open wound, bleeding, or a skin infection.

3. **Ice massage** is used to reduce superficial, well-localized inflammation (for example, tendonitis of the hand, wrist, or elbow; heel or elbow bursitis; ganglion cyst; apophysitis; or irritation of a growth plate).

Materials

- Ice cube or frozen ice cup (made by freezing water in a paper or Styrofoam cup)

Method

Rub ice in a circular pattern over the affected region for 8 to 10 minutes per session.

Use of heat

- **Effects of heat:** Increases circulation, metabolic activity, and inflammation.
- **Benefits of heat:** Improves compliance of soft tissues; relieves pain and spasm. Heat is most useful in warming up stiff or scarred soft tissues before stretching or exercise; heat may also be useful in relieving pain or spasm associated with neck or back injuries.
- **Risks of heat:** May increase swelling and inflammation; using heat for too long or at temperatures that are too high can cause burns.
- **Methods for applying heat:** Hot packs, hydrocollator; hot bath/whirlpool.

When *not* to use heat

- After physical activity
- If the area is numb
- If there is an open wound or burn
- Immediately after an acute injury
- If body temperature is elevated from fever or heat stress

Notes

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