# USING CRYOTHERAPY DURING SOFT TISSUE REPAIR

Understanding the use of cryotherapy during soft tissue repair

# Healing phases or stages

What are the treatment aims for each healing stage?

- The acute, or inflammatory phase
- The sub-acute, or repair phase
- The chronic, or remodelling phase

# Treatment aims

## Acute phase

- Protect against injury
- Reduce pain and swelling
- Reduce bleeding

## Sub-acute stage

- Reduce pain and swelling
- To improve mobility
- To improve blood flow to damaged tissues
- Facilitate optimal scar tissue formation

# Treatment aims

## Chronic phase

- To restore function
- To regain mobility, flexibility, and strength/proprioception
- Facilitate return to sport/activity

# Physiological/neurological effects of using ice

- Decreased local metabolism
- Reduced oxygen requirements
- Vasoconstriction
- Hyperaemia
- Decreased haemorrhage
- Reduced muscle efficiency
- Analgesia
- Relaxation of muscle spasm
- Reduction in nerve conduction velocity
- Stiffening effect on connective tissue

# Methods of applying cryotherapy

- Ice pack
- Ice cups
- Cold compress
- Cryo-cuff
- Cooling creams and gels
- Silica gel packs
- Ice massage
- Wet towel/sponge
- Immersion

# Application

Depends on location, no definitive conclusions largely due to the research evidence presented.

- Every 2 hours
- For 5 to 20 minutes
- 5-10 mins every 30min-1hour for superficial structures

Safety considerations:

- Use a barrier between ice and skin, e.g. towel
- Monitor for any circulation loss
- Stick to planned duration
- Conduct a heat/cold test

# Application and sensation

Four stages of sensations during ICE treatment:

- **A**ppreciation of cold and coolness
- **B**urning
- **A**ching or throbbing
- **N**umbness

Remove ICE when numbness experienced

# Contra-indications to cryotherapy

- Vasospasm i.e. Raynaud's disease
- Acute febrile illness
- Cold urticaria
- Some autoimmune diseases, e.g. rheumatoid arthritis or lupus

# Precautions

- Decreased cold sensitivity and/or hypersensitivity
- Circulatory or sensory impairment
- Hypertension
- Uncovered open wounds
- Cardiac disease
- Adverse psychological factors

# Adverse reactions to cryotherapy

- Ice burns or frostbite
- Increased pain
- Neurological effects
- Hyperaemia
- Allergic reaction
- Chemical burns
- Sudden increases in blood pressure
- Uncontrolled shivering
- Tiredness, fatigue
- Hyper/hypoventilation

# Actions to take in event of adverse reactions

- Remove source of cold
- Gradually allow to come back to normal temperature
- Seek medical care if necessary