

Preparation, Acute Pitchside and Post-Match Injury Management on Match Day Mini Series

Session 3 - Post-Match Injury Management and Player Care

David Fevre MSc MCSP SRP



Drug Testing

- **Medical Team informed at 75 minutes as to the 2 players (plus 1 reserve) who have been selected to be drugs tested**
- **2 selected players escorted into drug testing room immediately they leave the field of play**
- **Only allowed to return to the changing room with drug testing official as chaperone**
- **Urine sample required before player can leave the stadium**
- **Players are chaperoned at all times until sample is produced**



UNRESPONSIVE PLAYER



- *Check for dangers to yourself before attending to the player*
- Danger
- Response
- Airway
- C spine
- Breathing
- Circulation
- Dysfunction
- Exposure

Secondary Survey

Head

Neck

Shoulders

Chest

Abdomen

Spine

Pelvis

Genital/Rectal

Legs

Arms

ATMIST handover

- **A** Age of Player
- **T** Time the incident occurred
- **M** Mechanism of Injury
- **I** Injuries sustained
- **S** Signs and Symptoms
- **T** Treatment provided to date



AFTER
EVERY
INTERVENTION
REMEMBER
TO
REASSESS
A-E

HAS ANYTHING CHANGED?



Delayed Recognition of a Concussion

VISIBLE

- Dazed or vacant look
- None or slow response in rising
- Unbalanced
- Confused
- Seizure
- Emotional
- Irritable

SYMPTOMS

- Headache
- Dizziness
- Reduced mental response
- Visual Disturbance
- Nausea and/or vomiting
- Drowsiness and/or fatigue
- Sensitive to light or noise
- Feeling of 'pressure in head'

Sports Concussion Assessment Tool (SCAT 5)

2017

- Athletes > 13 year old
 - Step 1 RED FLAGS
 - Step 2 Observable Signs
 - Step 3 Maddocks Questions (Webinar 2)
 - Step 4 Glasgow Coma Scale

Glasgow Coma Scale

- | | | |
|------------------------|--------------|-----------|
| • Best Eye Response | 4 Categories | Score 1-4 |
| • Best Verbal Response | 5 Categories | Score 1-5 |
| • Best Motor Response | 6 Categories | Score 1-6 |

Maximum Score 15

Sports Concussion Assessment Tool (SCAT 5)

2017

- Athletes > 13 year old
- Clinical Notes
- Concussion Injury Advice Sheet
- Step 1 RED FLAGS
- Step 2 Observable Signs
- Step 3 Maddocks Questions (Webinar 2)
- Step 4 Glasgow Coma Scale and Cervical Spine Assessment
- Athlete Background
- Symptom Evaluation
- Cognitive Screening
- Neurological Screen
- Delayed Recall

Clinical Test of Sensory Interaction and Balance (CTSIB)

- 3 tests – No cushion
 - a) 2 foot standing, look ahead
 - b) 2 foot standing, eyes closed
 - c) 2 foot standing, turn head L/R
- 3 tests – Cushion (Illustrated)
 - d) 2 foot standing, look ahead
 - e) 2 foot standing, eyes closed
 - f) 2 foot standing, turn head L/R



	Stage 1 Initial rest period	Stage 2 Light exercise	Stage 3 Football-specific exercise	Stage 4 Non-contact training	Stage 5 Full-contact practice	Stage 6 Return to play
ADULT	24 hours minimum rest period after which the player must be symptom-free before progressing	Minimum duration 24 hours	Minimum duration 24 hours	Minimum duration 24 hours	Minimum duration 24 hours	Day 6 Earliest return to play
UNDER 17-19	7 days minimum initial rest period after which the player must be symptom-free before progressing	Minimum duration 24 hours	Minimum duration 24 hours	Minimum duration 24 hours	Minimum duration 24 hours	Day 12 Earliest return to play

Clearance by doctor recommended

Clearance by doctor before stage 5

Clearance by doctor before stage 5

Return to academic studies or work

----- 4 days if symptom-free ----->

----- 4 days if symptom-free ----->

The whole return to play process must be supervised by a suitably qualified doctor within a structured concussion management programme
 It must be emphasised again, that these are minimum return to play times and in players who do not recover fully within these timeframes, return to play times will need to be longer

Wounds in Sport

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A-E

HAS ANYTHING CHANGED?



Fractures and Dislocations in Sport

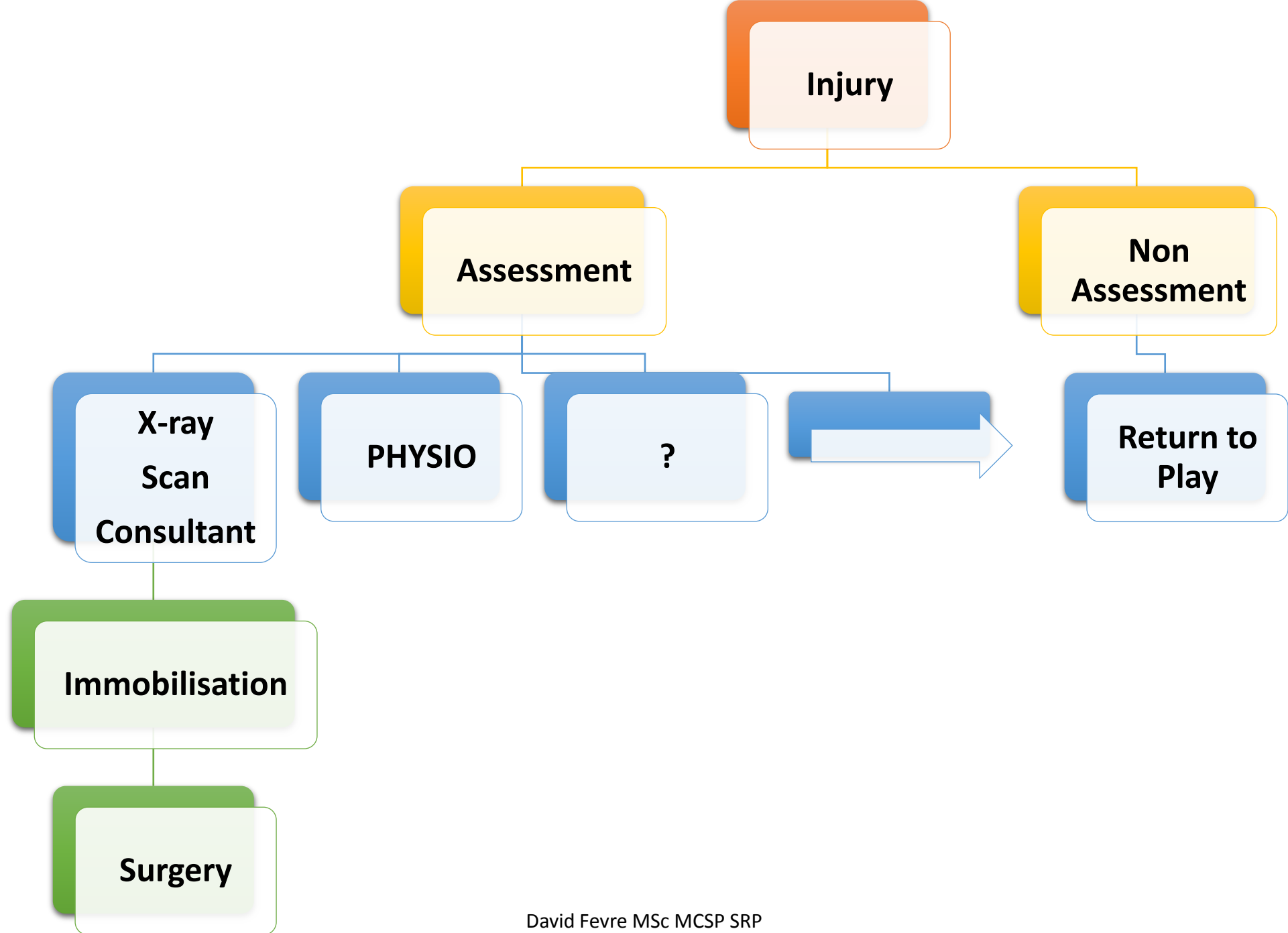
AFTER
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HAS ANYTHING CHANGED?

Fracture Post Match Management

- Splint
- Crutches
- ATMIST
- Onward Referral to Clinical Orthopaedic Specialist
- Maxillofacial Surgeon





Dislocation Post Match Management

- Realign to prevent ischaemia
- Presume # until proven otherwise
- Major joints only reduce if XS pain and easy to perform
- Minor NWB joints, maybe realigned on the touchline but need further examination post match



Soft Tissue Injuries in Sport



MECHANISM OF INJURY

SALTAPS

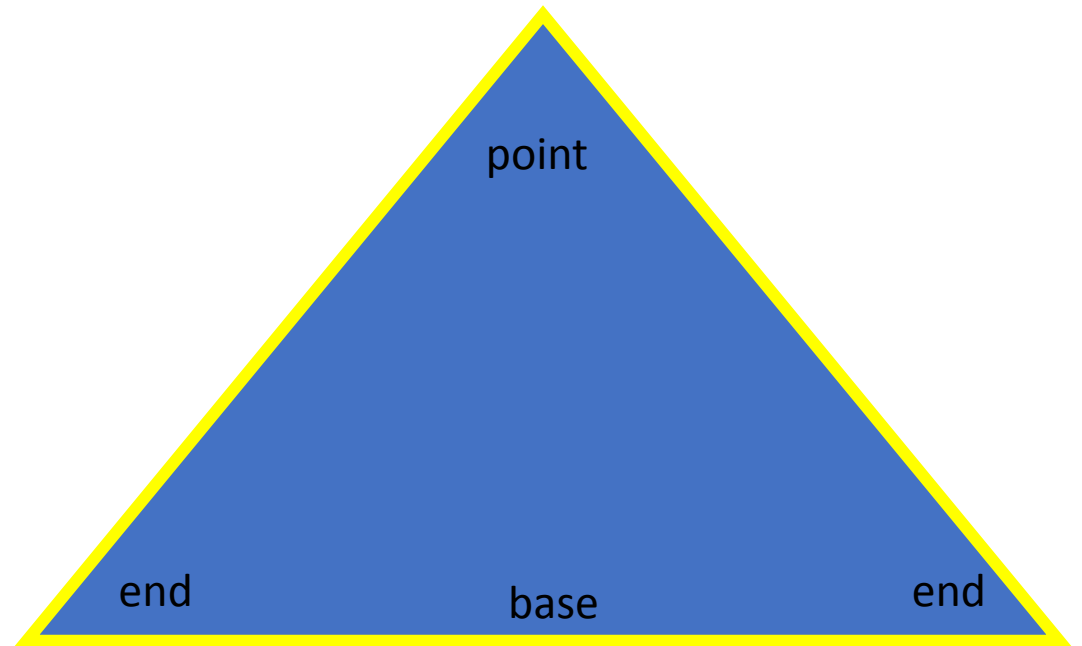
- SEE
- ASK
- LOOK
- TOUCH
- ACTIVE
- PASSIVE
- STRENGTH

Soft tissue ruptures-upper limb

- Description of something 'popping' in chest
- Isometric contraction
- Bruising
- Swelling
- May have been able to carry on



Sling Application



- Broad Slings
Upper limb fractures/dislocations
- Elevation Slings
Hand/fingers/forearm
- Multi use (Pelvis/lower limb)
- Alternatives

Knee Injury



Tests for Swelling

Sweep Test

Aim proximal from medial aspect of knee; opp. hand stroke lateral aspect and observe 'wave' of fluid on medial aspect

Wave Test

'Milk' fluid from supra patella pouch distally; palpate or observe wave at distal pole of patella



Associated Effusion



START WITH THE MOST PAIN FREE MANUAL TEST
MAKE THIS JUDGEMENT FROM INFORMATION
GLEANED UP TO THIS POINT IN THE EXAMINATION
BE FLEXIBLE WITH PATTERN OF TESTING
PROCEDURES...

**NO TWO PATIENTS ARE THE
SAME (EXCEPT TWINS!!)**

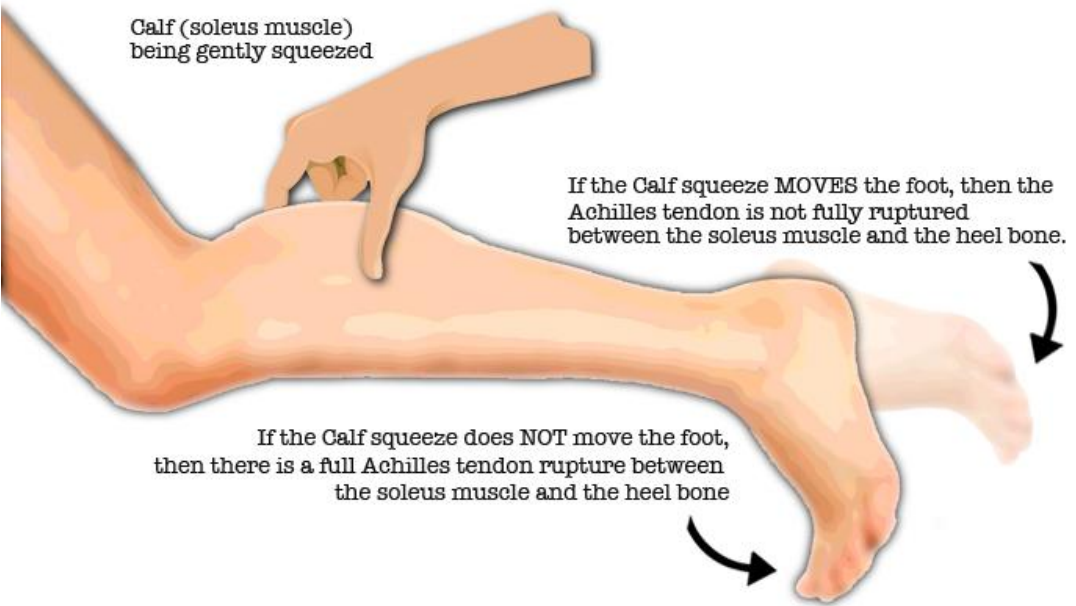


Reverse Lachman (Pr.Ly)

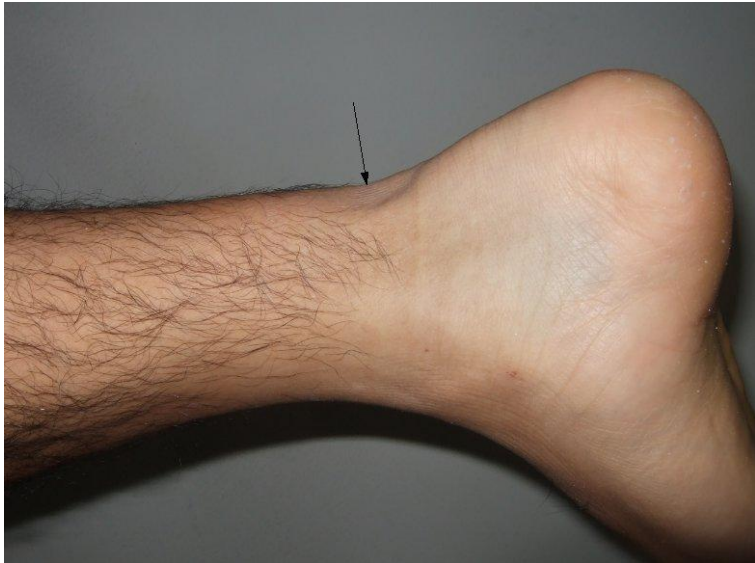


- Patient prone
- Shin supported by exam.thigh
- Thumbs encase lower popliteal fossa
- 2nd/3rd fingertips at tibial tuberosity
- Feel for glide in comparison to opposite side
- ? Is there an end point
- MY FAVOURITE!!

Soft tissue ruptures-lower limb



Calf squeeze test for Achilles tendon rupture

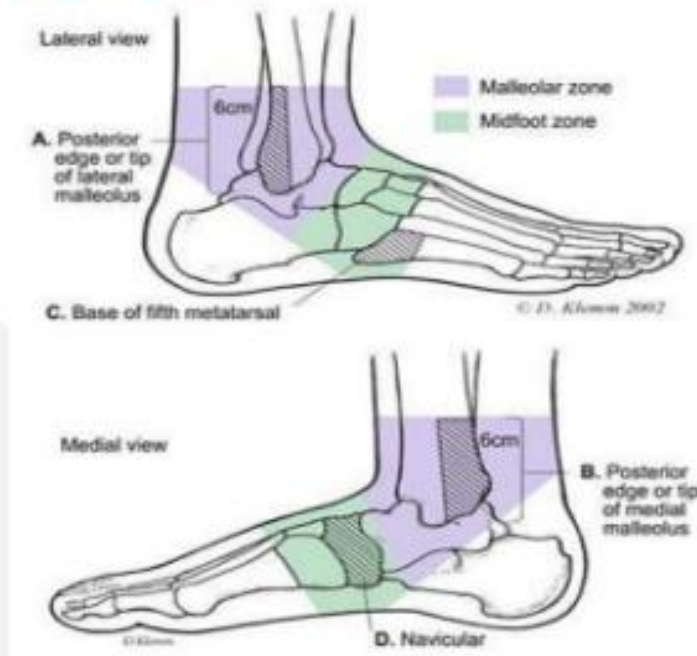


Ankle



Ottawa ankle rules

- The **Ottawa ankle rules** are a set of guidelines for clinicians to help decide if a patient with foot or ankle pain should be offered X-rays to diagnose a possible bone fracture.
- Sensitivity: 98.5%



Bachmann LM, Kolb E, Koller MT, et al. Accuracy of Ottawa ankle rules to exclude fractures of the ankle and mid-foot: systematic review. BMJ 2003; 326:417.

'It can take up to 5 days to make an accurate clinical diagnosis in ankle injuries'

Polzer et al 2012

Investigative Tests

- WB X-ray (Distal and proximal fibula)
- Ultrasound scan
- MRI scan
- CT scan

But consider.....

Acute on chronic injury of the syndesmosis is commonly seen in the setting of high ankle sprains in elite footballers, evidenced by thick low signal scarring of the syndesmotic ligaments with super-added oedema or tears. This is an important observation as it may influence

Grade	Definition
0	No MRI changes with clinical signs Maybe suspicion of neural component which is represented by the addition of N+
1	Presence of fluid but less than 1cm of fibre disruption and no more than 10% into the muscle
2	Fibre disruption of less 5cm. 10-50 % of the X sectional area of the muscle
3	Fibre disruption of > 5cm. Greater than 50% of the X sectional area of the muscle
4	Complete tears of the muscle with a palpable gap
a	Myofascial Injury
b	Musculo-tendinous junction
c	Intra tendinous

? Need to review again (Schmitz, 2017)

Muller Wolfhart

3a hamstring injuries ~ 10/7-14/7

3b hamstring injuries ~ 42/7

V

Dutch HIT Group (2014) using PRP

3b hamstring injuries ~ 10/7-180/7

Standard Hamstring Tests

Isometric in Prone



1

Concentric in Prone



2

Eccentric in Prone



3



4

Passive Flexed Hip Knee Ext



5

Passive SLR



6

Isometric in SLR

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Specific Hamstring Tests

Dynamic SLR (x3) (High level)



7

Isometric One Leg Bridge (Prox. Hams)



9

One Leg Reverse Bridge (Prox. Hams)



10



8

Isometric Flexed Hip/ Knee

Slump (neural)



11

PRICES

- Protection
- Rest
- Ice
- Compression
- Elevation
- Static Exercise



Protection/Immobilisation

- Period of immobilisation progressing to partial immobilisation/graduated WB rehabilitation
- ‘Ski boot’/Aircast faster recovery than compression bandage (Lamb et al, 2009)
- Healing times dependant on factors such as age, rehabilitation, systemic disease and nutrition



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Aims of Cryotherapy

- **Acute Trauma:**

To reduce initial acute inflammatory response and promote recovery following traumatic injury (Paddon-Jones and Quigley, 1997)

- **Recovery**

To accelerate recovery so that athletes can produce successive bout of training or competition without the associated fatigue effects (Cochrane, 2004).



NATURE OF SUBSTANCE APPLIED

COLDEST

Ethyl Chloride Spray

Ice Towels/Bags

Ice Packs

Ice Massage

Immersion

COLD

(McCallister, 1978)

DEPTH OF TREATMENT

- Ice Bag (30 minutes)

Skin temperature-14.5 °C

Subcutaneous tissue-24°C

Muscular tissue (3cm)-26°C

Muscular tissue (5cm)-32.3°C

(Bierman 1940/55)

The lowering of tissue temperature by the withdrawal of heat from the body to achieve a therapeutic objective.

(Chesterton, Foster and Ross, 2002; Howatson and Van Someren, 2003).

- Thickness of adipose tissue

(Myer et al 2001)

ANATOMICAL SITE

Fastest Circulatory Changes

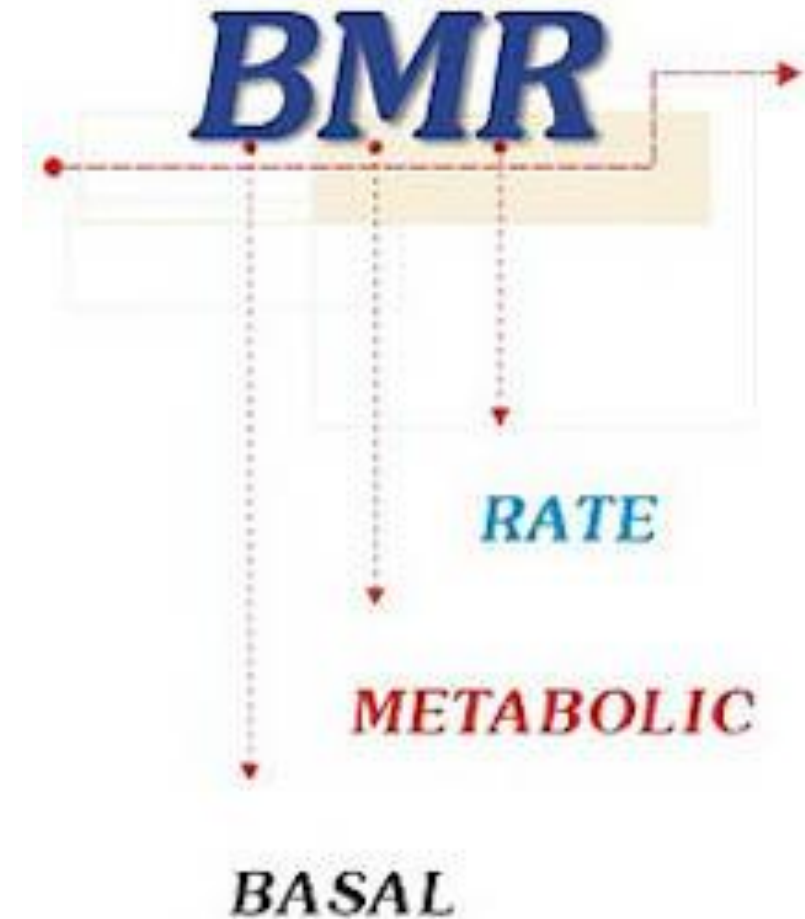
- Fingers/toes
 - Thigh
 - Ankle
- Forearm

Slower Circulatory Changes

(Palmer and Knight, 1996)

Tissue Metabolism

- Decreasing cell metabolism, therefore decreasing secondary hypoxic tissue damage and the effects of post exercise muscle micro-trauma (Bleakley *et al*, 2004)



PHYSIOLOGICAL EFFECTS

Reduced conductivity of nerve fibres

Lower than 10°C produces total anesthesia (Ellis, 1961).

Associated pain relief is often described as the most important benefit (Weston et al, 1994;Belitsky et al, 1987).

CIRCULATORY EFFECTS

- **Constrict capillary blood flow, reduce capillary permeability and reduce blood flow to damaged muscle** (Eston and Peters, 1999)
- **Increase and decrease of blood flow- 'The Hunting Response' (Lewis,1930). Knight (1980) and Sheperd et al (1983) showed this only occurs in the upper digits at a temperature of 20°C.**
- **Knight(1989) suggests that hyperaemia only occurs in the superficial layers of the skin. At greater depth, the increase in blood flow is not as prevalent.**

Dangers

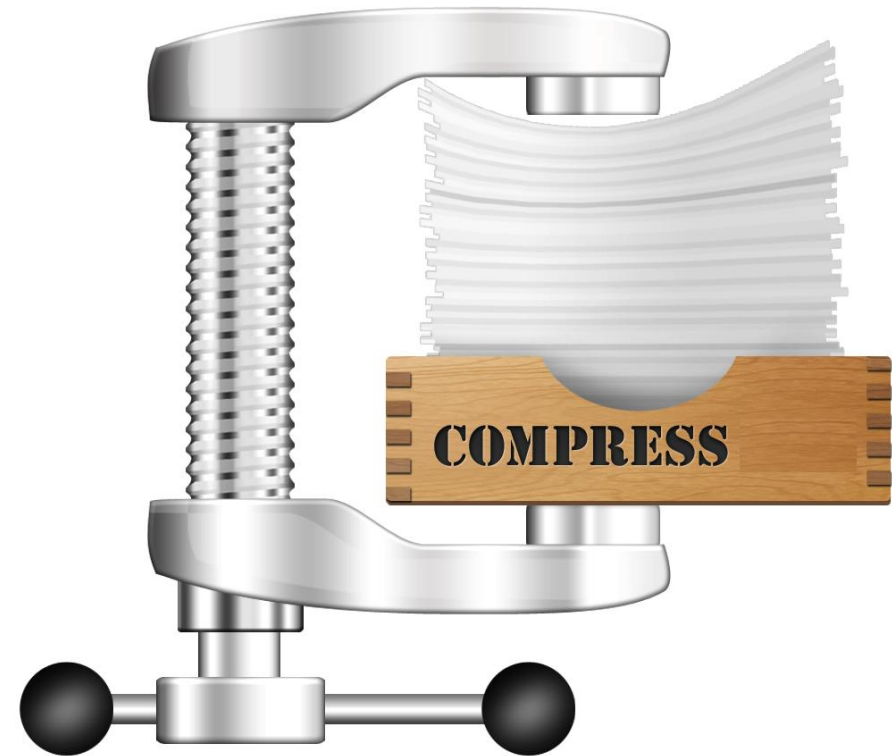
**Peripheral nerve injury following
ice application/compression
(Covington, 1993).**

Ice Burns



PRICES

- Protection
- Rest
- Ice
- Compression
- Elevation
- Static Exercise



COMPRESSION

- **Swelling is reduced as tissue pressure outside the damaged blood vessels is increased (Wilkerson, 1985)**
- **Intermittent, sequential units have been shown to be effective in individual case studies. More detailed research is not as supportive (Rucinski, 1991).**
- **To reduce oedema ASAP assists in reducing the degree of hypoxic injury. ↑ diffusion distance, ↑ hypoxic injury (Abbott, 1994).**

PRICES

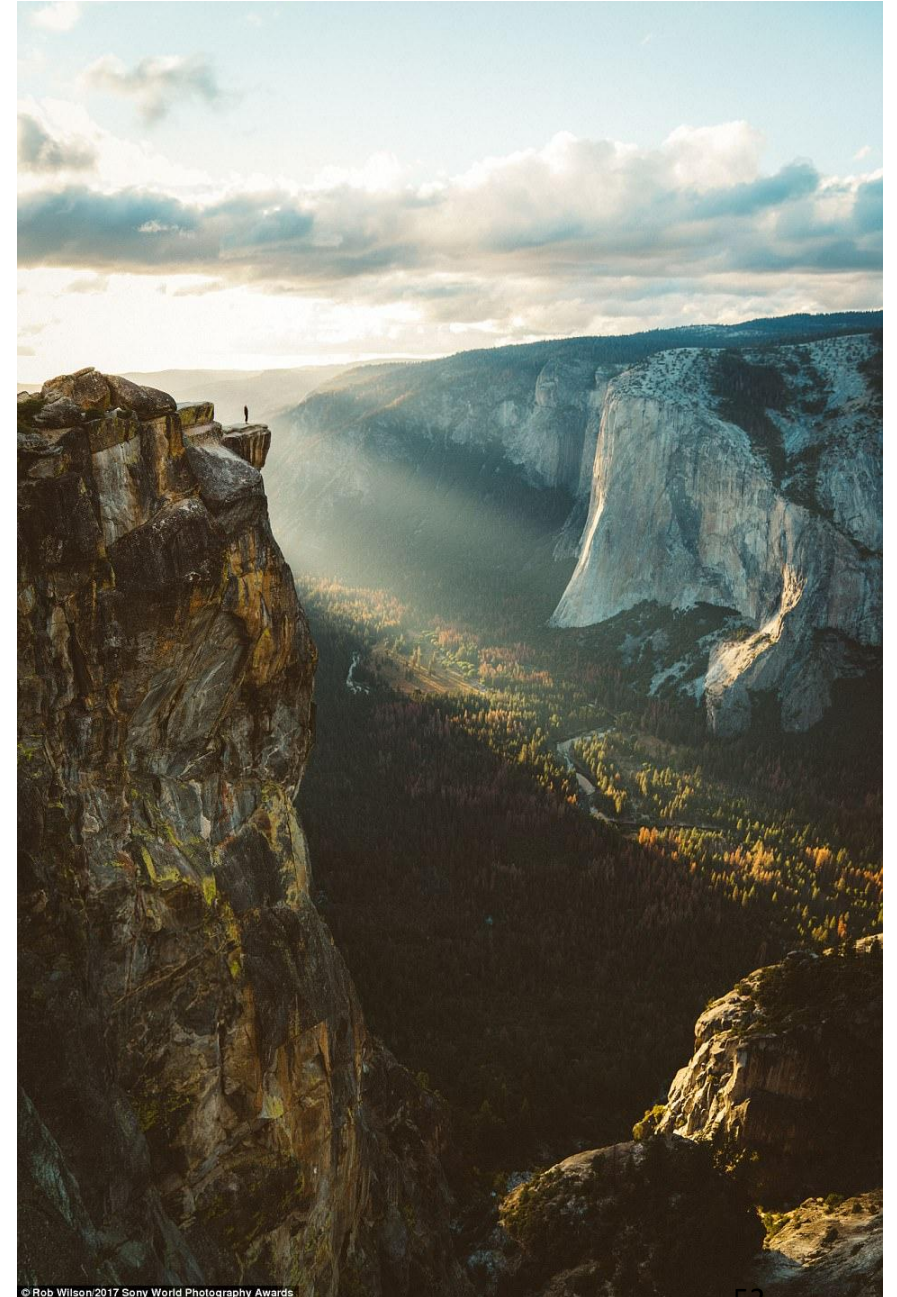
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ELEVATION

Site of injury must be raised above the level of the heart.

This will raise the hydrostatic pressure within the blood vessel and help reduce the swelling.



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- Rest
- Ice
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- Elevation
- Static Exercise

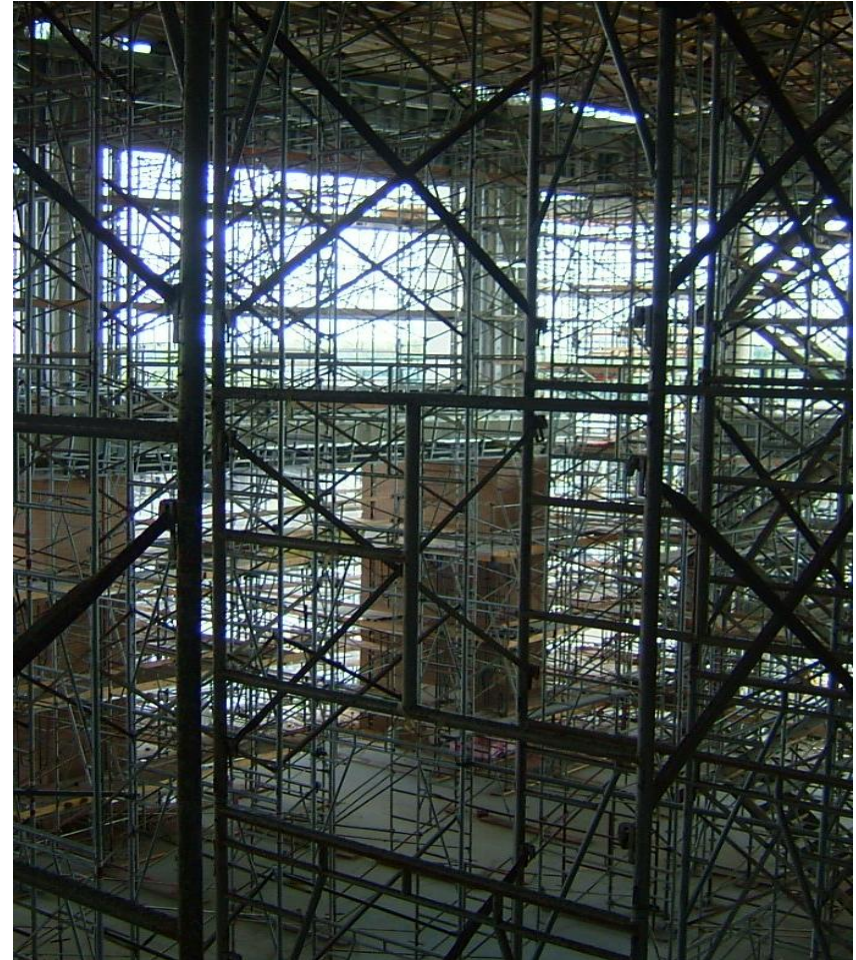
Swelling is reduced by the action of the muscle pump.

Isometric exercise also helps to maintain neuro-muscular pathways and prevent excessive fibre atrophy, common complications following injury.

Articularis Genu
Gastrocnemius

**Without direction,
fibroblasts smear collagen all
over the place and create
fibrosis**

**First job of rehabilitation =
Guide the way the tissue is
healing – DIRECT the fibroblasts
where to lay down collagen**





Physiotherapy Roles

- Post Match Trauma Management
- Injury Assessment
- Acute Soft Tissue Management
- Write up Medical Notes/Accident Report Book
- Check Medical Kit for next game
- Tidy Up



Post-Match Meal

- Within 2 hours of match ending
- Protein shakes
- Pizza
- Chicken/steak sandwiches
- Fruit platter
- Rice Pudding



Post Match Recovery Strategy 3/5



Travel from Away Game- Coach

- Distance to travel
- Food/fluid for journey
- Comfort
- Acute Medical Care
- Emergency Medical Equipment
- Entertainment



Travel from Away Game-Train



- Distance to location
- Food
- Mobilise
- Comfort
- Acute Medical Care
- Emergency Medical Equipment
- Connecting transfers

Travel from Away Game-Aeroplane



- Distance to location
- Food
- Mobilise
- Comfort
- Acute Medical Care
- Emergency Medical Equipment
- Connecting transfers