Initial Management of Acute Sports Injuries

By Martin Meyer
Sports Physiotherapist
Director APE
Owned and operated by Perth physios with over 20 years experience

- **Sports Medicine Wholesaler**
  - Strapping tapes
  - First Aid
  - Massage creams
  - Braces
  - Clinical consumables
  - Electrotherapy equipment
  - Rehabilitation Equipment
  - Orthotics

- **Preferred supplier to..**
  - Football West
  - NetballWA
  - RugbyWA- Western Force
  - WAFL clubs;
    - Perth Demons
    - Claremont Tigers
    - West Perth Falcons
    - East Perth Royals
    - Peel Thunder
    - East Fremantle Sharks
What we will cover...

1. Pathology of acute injuries and the healing process

2. Initial Assessment of injuries
   - Spinal Emergency
   - DRABC
   - TOTAPS

3. Immediate First Aid treatment
   - RICER
   - No HARM
   - Blood
Pathology of injury

Initial Injury

- Tissue damage
- Bleeding due to capillary damage
- Increased water drawn to the area
- Bodies own “injury army” attracted to area
- Chemicals released into area
Results in...

1. Swelling
2. Inflammation
3. Heat
4. Bruising
5. Pain
The Healing Process

**Acute Phase of Injury** (24 hrs - 72 hrs)

- Bleeding continues from damaged capillaries
- Dying cells release chemicals/toxins that irritate nerve endings → pain
- Swelling is made up of bodies “injury army” and leakage of fluid from damaged tissues. Increased pressure leads to more tissue damage and cell death.
- Blood vessels dilate → increased blood flow → area becomes pink, warm and swollen
The Healing Process

**Sub-Acute Phase** (3+ days – weeks)

- Removal of debris
  - macrophages and lymphatic system

- Re-Capillarisation
  - Capillaries begin to regrow

- Scar tissue
  - Scar tissue development begins
  - Laying of new damaged tissue begins - collagen
  - Building blocks of new tissue
The Healing Process

Remodelling (weeks to years…)

- The initial collagen matrix layed down is remodelled over time.
- Collagen is initially messy and un-organised. This is re-organised and slowly becomes original tissue again.
- Collagen develops strength through lines of stress
- Collagen that is messy, unorganised and weak is more likely to be re-injured
- Rehabilitation important in this phase to ensure proper healing of collagen
Examples
Assessment of Player Situation

DRABC

- Danger
- Response
- Airway
- Breathing
- Circulation
Spinal Injury Signs

- History of head injury
- History of neck injury
- Pins and needles in limbs
- Numbness in limbs
- Unable to move limbs - hands/feet
- Marked neck/lumbar pain

Wait until trained personnel arrive to help
Initial Assessment of Injuries

Deciding if a player can continue on...

TOTAPS

- Talk
- Observe
- Touch
- Active
- Passive
- Skills
TALK

- What happened?
- What was the mechanism of injury?
- Where does it hurt?
- Did you hear any sounds i.e. cracks, snaps?
The story of how it happened tells you a lot about the injury.
Observe

- Look for obvious deformity
  - If it doesn’t look right....
    It probably isn’t...

- Look for swelling

- Look for discolouration

*Compare the bad side to the good side*
Touch

- **Tenderness** –
  - mild
  - moderate
  - severe

- **Location** –
  - soft tissue
  - bony

- **Heat/ Temperature** –
  - If hot more blood
Active Movement

- Assess how much movement athlete can do by themselves.
- Is it Full Range?
- When does it get painful?
- Where is it painful?
Passive Movement

- How much movement is there passively? *ie movement YOU can make*

- Compare the bad side to the good side

Skills

- If all OK so far.. then need to test the athlete with sport specific skill..
  - Running on the spot
  - Hopping
  - Jumping
  - “Z” running

- Must be something to test the injury..
TOTAPS Flow Chart

Talk

Observe

Touch

Active

Passive

Skills

- Significant deformity
- Significant swelling

- Severe tenderness
- Bony Tenderness

- Painful/ loss of range

- Painful/ loss of range

Pain

Instability

Remove Player
More examples......
Initial Treatment of Injuries

**RICER**

- **Rest**
- **Ice**
- **Compression**
- **Elevation**
- **Referral**

**Aim**
- Reduce further damage to tissue
- Prevent excessive scar formation

*Most important in the first 24-72 hours*
REST

- Remove player from field
- Rest injured area
- Immobilise area

**Why?**
- Reduces further tissue damage
- Reduces blood flow
- Allows for full assessment of injury
ICE

- **Icing**
  - Ice bags- gel packs, frozen peas
  - Instant ice packs
  - Ice water baths
  - 20 mins on/ 2 hours off

- **Why?**
  - Cools the area
    → constricts blood vessels
    → reduces blood flow and fluid leakage
    → less swelling, pressure and pain
COMPRESSION

- Compress injured area
  - Elastic Bandage
  - Cohesive bandage
  - Strapping
  - Move distal to proximal

- Why?
  - External pressure reduces fluid leakage and bleeding into tissues
  - Provides support the area
  - Immobilises the area i.e. REST
ELEVATION

- Elevate area above heart
  - On chair
  - Medical kit

- Why?
  - Reduces bleeding as blood has to flow up hill
  - Gravity helps swelling to move towards lymph nodes
REFERRAL

- Physiotherapist
- Hospital
- Doctor/GP

Why?
- Diagnosis
- Treatment can commence
- The sooner treatment begins, the better the outcome
Summary

- **Reduce**
  - Inflammation
  - Bleeding
  - Scar tissue

- **Improve**
  - Healing time
  - Healing quality
  - Time away from sport
No HARM

NO......

- Heat
- Alcohol
- Running
- Massage

Most important in the first 24-72 hours
No Heat

- **Includes**
  - Hot packs
  - Saunas
  - Spas

- **Why?**
  - Increases blood flow to area therefore increases swelling
No Alcohol

- **Includes**
  - Most things adults enjoy after a game of sport!

- **Why?**
  - Thins blood increases swelling
  - In excess brings on silly behaviour
  - Less pain felt therefore more damage caused
  - Adds to toxins already in injured area
No Running

- **Includes**
  - Running
  - Any exercise that is painful

- **Why?**
  - Increase in tissue damage
  - Overload to other areas as compensation
No Massage

- **Includes**
  - Rub downs
  - Massages
  - Mobilisations

- **Why?**
  - May increase tissue damage
  - Increases blood circulation to the injured area
Bleeding

- Cuts
- Lacerations
- Impact injuries

Universal Precautions must be used at all times
Aims

1. **Stop bleeding**
   - Compression
   - Anusol
   - Alginate stop bleed products
   - Vaseline

2. **Clean wound**
   - NaCl irrigation
   - Betadine/iodine wipes

3. **Close/Dress wound**
   - Steri/Leuko strips
   - Sterile dressing- bandaid/primapore
   - Bandage down to continue play
Key Points

- Understand pathology of injury
- Use DRABC in any situation
- Understand the Emergency Signs for spinal injury
- Use TOTAPS to decide whether a player can continue
- Use RICER and No HARM for initial injury management
- Stem blood flow
Thank You

Questions??