Ankle Sprains with Professor Sallie Lamb Part 2

- Tested different ankle casting for severe ankle sprains
- Assumed fancy boot which cost a lot did the most, however 10 day plaster of Paris cast gave most benefit.
  - Does this add up to what we though regarding tissue healing
- How would this affect someone who might become fear avoidant / catastrophise. Can we load?
  - Research doesn’t measure every single outcome e.g. this study didn’t look at this
  - They measure function of the ankle and overall quality of life – this could reflect any problem
- Make sure you discuss treatment options with the patient and allow them to make a decision
- Reviewed at 3 days in the study. If can mobilise at this stage casting / boot not applied. Back slab or tubigrip for those 3 days.
- Severe defined clinically – how well can the patient weight bear through the limb – good proxy on day 3
- Radiological you cannot tell how severe a sprain is
- 9 months very little difference
- 3 months 10 day casting was better – quicker recovery
- Boots not worth the money

This is the paper. Some interesting discussion points. Good one for journal club and article of the week! http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60206-3/abstract

#WHATSNEWFRIDAY – Sets and Reps
The important question to always ask yourself is WHY AM I GIVING THE PATIENT THIS? WHAT ARE WE TRYING TO ACHIEVE? Do not just fall into giving someone 3 sets of 10 repetitions.

Tom Goom helps us out again with this great slide(Right)

Using 70-80% 1RM in practice:
- 3-4 sets of 8-12 reps
- Working to fatigue in those reps
- 2-3 mins rest between set

Not a recipe will vary between individuals

See Appendix 1 for ACSM guidance. Talk to the patient about what trying to achieve whether that be max strength (4-6 reps) or endurance (12-20 reps), work with them in session to find the appropriate weight for the number of reps agreed on and ensure they know what limits to work within and how they can regress and progress. Worse thing for me is when a patient comes back and says the exercises were sore so they stopped….and all of a sudden you have wasted a couple of weeks!

Next What’s New Friday:
Sumo Squat Challenge (using gym ball) – Hack squat position against wall – feet everted putting weight onto lateral aspect of feet, maintain anterior tilt to pelvis throughout movement should be able to do 4x25 reps prior to returning to running. Works the deltoid of the hip – TFL, glute max, glute med.

Strength work - load, reps and sets

Load recommendations often a percentage of 1 Rep Max (1RM)

1 Rep Max (1RM) is the maximum weight you can lift once with correct technique.

Hard to calculate, especially in those with pain so we estimate...

Estimation of % of 1RM:
- 50% - 25RM
- 60% - 17RM
- 70% - 12RM
- 80% - 8RM
- 90% - 5RM
- 100% - 1RM

General consensus appears to be to aim to work between 70-80% of 1RM i.e. 12 to 8RM
#COURSEOFTHEWEEK 1 – Know Pain with Special Guest Pete Moore

Just to wrap up the Know Pain review, we also had a special guest on the Sunday in Pete Moore, creator of the Pain Tool Kit and all round nice guy (Even if he is an Arsenal fan). One point he was very keen to highlight is how we use the Pain Tool Kit with patients. What he wanted to stress was not to just give it to them, whether that be the booklet or the web address but to ask them to go away and come back with which tools they would like to talk about next session. Thanks to Jessica Williams for the reminder and the links below:

Article on how to introduce it to patients, please read this:
You can find the toolkit here:

#COURSEOFTHEWEEK 2 – Running Repairs with Tom Goom

Assessment of runners

**Subjective**

- **HPC** – look for potential causes
  - Increase or change in training
  - Change of foot strike
  - New footwear – especially if big change
  - Return to running after a break
  - **Signs of serious injury** – swelling / bruising / special questions etc.

- **Pain location**
  - Usually well localised
  - Finger point test

- **24 hour pattern**
  - Early morning stiffness – common in tendinopathy and fasciopathy
  - Pain at rest, less common can be sign of more severely reactive tendinopathy

- **Aggs / eases**
  - Determine SIN
  - **Find running tolerance** – how far can you run without pain (baseline)
  - Is it only running that hurts
  - Stiff with rest can occur with PFP and teninopathy

- **Pain behaviour**
  - VAS when running, can they change it
  - Does in warm up with running
  - Response during and 36-48 hours after

- **Loading habits**
  - Work out weekly schedule
  - Determine overall volume
  - Intensity of each work out
  - Running surface
  - Type of training – hills, track, flat
  - Other exercise?
Nielson et al (2012) conducted a systematic review on training errors and running injuries and found that:

- PFP, patella tendinopathy and ITBS are associated with change in training volume
- Achilles tendinopathy, calf injury and plantar fasciopathy are associated with change in training pace
- Rapid increase in weekly training volume (30% or more) may increase injury risk

This great slide (right) from Tom Goom The Running Physio highlights the best way to reduce injury risk

To finish the subjective assessment consideration must be made for patients thoughts and beliefs, what do they think is going on? And what are their goals, what are they trying to achieve, event etc?

**Objective**

- Diagnostic tests
- Lower limb posture
  - Hip ante / retroversion, adduction etc.
  - Knee position, varus / valgus etc.
  - Foot posture
- Strength
  - Calf, hamstring, glute med, glute max, quads, adductors
  - Isometrics
  - Work capacity tests – calf raises, single leg bridges, side lying abduction, drop lunge – 25 reps
  - Strength 10RM. Leg press 1.5x body weight. Hamstring curl. Weighted calf raise.
- Flexibility and ROM
  - Hip flexion / extension
  - Knee extension
  - Ankle dorsiflexion
    - Knee straight 40 deg, knee flexed 45 deg, running 20-25 deg
  - Hamstrings, hip flexors, quads, ITB
  - Consider what is restricting movement
- Control and technique
  - Single leg stand (Standardise ala Alison Grimaldi)
  - Squat
  - Single leg dip (standardise with QASLS from Lee Herrington and colleagues including a previous edition)
  - Step down / step up
  - Lunge
  - Running gait analysis
#COURSEOFTHEWEEK 3 – Hip and Groin with James Moore by Suzanne Godfrey
By all accounts this was an excellent course and I look forward to the podcast done by Suzi and Frankie! I’m sure everyone else will too not having to listen to my voice. Big thanks to Suzi for the review, really excellent write up below and a nice way to consider the area in sections.

A few key points:
- Remember that the pelvis transfers load, closed ring shape and therefore likely to have contralateral problem i.e pubic symphysis/SIJ.
- Hip joint – known to withstand 8x bodyweight when running however this increases to 15x body weight in athlete.
- Think of muscles around hip as the deltoid: TFL, Gluteal med, gluteal max. Must work synergistically to work efficiently.
- Capsular restriction of hip – always taught flexion, abduction and medial rotation, however is this the case? - hip flexion reduces ligament (capsule) tension whereas hip extension capsule increases ligament tension?
- Assess the hip into extension – key force producer, eccentric psoas/adductor longus control with gluteal concentric.
- Adductor longus is the ONLY muscle that is continuously active throughout all of gait and the most important with gait re-ed….however how many of us train the adductors with gait re-ed?
- Posterior tilt likely to increase loading through TFL, anterior tilt increased loading to glute med (Kapandji, 1991)
- Palpation is key with clinical examination – Holmich (2007) found that palpation was the best diagnostic method used in clinical examination in 207 athletes for identifying problematic area (Hip, groin, abdominals)
- The 4 minute Jane Fonda – try it!! WOW by the way!

<table>
<thead>
<tr>
<th>Area of pain – review of 189 cases (Lovell, 1995)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior Thigh</td>
<td>Iliopsoas NOF stress # Hip pathology</td>
</tr>
<tr>
<td>Inguinal Canal</td>
<td>Incipient hernia</td>
</tr>
<tr>
<td>Pubic region</td>
<td>Osteitis Pubis Pubic instability</td>
</tr>
<tr>
<td>Inner thigh</td>
<td>Adductor lesions Obturator Neuropathy</td>
</tr>
</tbody>
</table>
**Adductor related groin pain:** localised and will be able to identify area with one finger pointing.
Adductor tendinopathy, adductor enthesopathy, pubic bone stress reaction, pubic disc degeneration, pubic symphysis, pubic instability, osteitis pubis, pubalgia – All known as ‘Adductor related groin pain’ (Holmich, 2003)

MOI: Gradual, insidious onset, worse with kicking, twisting/turning.

Pain at night – rolling over in bed or when standing up

Exquisite tenderness on palpation

Adductor guarding – Bent knee fall outs.

Reduced FABERS/abduction

Positive Pubic symphysis stress tests (PSST)

Adductor strains: Longus 70%, Magnus 15%, other 15% (Lovell 2001)

Pubic joint injury (Hogan 2002):

- Tenderness ++ over pubic bone
- Adductor muscle guarding – fall out test
- Pain and loss of power – squeeze test
- Positive pubic symphysis stress tests – 4 different levels of testing

*(Hogan, Sports Med journal, P.124)*

Hip joint pain – generally non-specific and patient will find it difficult to pinpoint area ‘deep in joint’. Will describe ‘C’ pattern type of pain

Assess the hip into extension: check IR at same time in prone lying to prevent rotation of pelvis, also then able to see if there is a difference in range bilaterally.

Acetabular labral tears – study of 170 labral tears found 93% were that of the anterior labrum due to the instability to anterior hip (McCarthy 2002) Diagnostic test being FADIR.

**Abdominal related Groin Pain:**

MOI: extension and rotation, repetitive overstretching

Lower abdominals – more susceptible to injury due to anatomy – reduced support from IO/EO

Common injury EO tear caused from overloading eccentric control of abdominals.

‘Sportsmans Groin’ – known as ‘Abdominal related groin pain’

Fascial Strain

Gilmore’s Groin/PAWD

Nerve entrapment

Inguinal ligament neuralgia
Incipient Hernia
Acute EO tear/MTJ disruption
True hernia

Inguinal Hernia’s account for 96% of all groin hernias of normal population (Bax et al, 1999)

More common in younger male athletes due to the immaturity of the musculoskeletal system.

Suspected hernia:
- Patient will describe cough/sneezing painful and dull dragging sensation into lower abdominals
- U/S in sitting – otherwise hernia is able to fall backwards
- Palpate Hesselbach’s triangle (see diagram)

#NEWSOFTHEWEEK by Jessica Williams

First up “Analysis of the load on the knee joint and vertebral column with changes in squatting depth and weight load.”
http://www.ncbi.nlm.nih.gov/m/pubmed/23821469/
This is a review to quote to our knee patients who are worried about being given deep squats as an exercise. ‘Contrary to commonly voiced concern, deep squats do not contribute increased risk of injury to passive tissues.’

Second A blog by Seth O’Neill and Tom Goom- differential diagnosis of Insertional Achilles Tendinopathy. Fits nicely with the Running repairs course review.
Some useful diagrams and possible other causes of heel pain e.g. tibialis posterior tendinopathy, Superficial Calcaneal or retrocalcaneal Bursa, or posterior ankle impingement, as well as advice on management. http://www.running-physio.com/insertional-achilles-2/

Third an interesting, recent paper on diagnosis and detailed management of patellar tendinopathy.
Patellar tendinopathy: clinical diagnosis, load management and advice for challenging case presentations (Malliaras et al, 2015).

and Fourth I wouldn’t be me without adding a bit myself. My news of the week is a paper looking at an awesome shoulder exercise soon to be #EXERCISEOFTHEWEEK. If you not already using this, find out why! Thanks to @AdamMeakins, the sports physio for the picture! http://www.sciencedirect.com/science/article/pii/S1440244015002078

#FROMTHEEDITORS

That’s us for Christmas! Have a great festive period all. Hopefully see everyone at the Christmas party tonight!

#AHPSCLINICALWEEKLY
### Table: Exercise Parameters

<table>
<thead>
<tr>
<th><strong>Parameter</strong></th>
<th><strong>Frequency per week</strong></th>
<th><strong>Sets</strong></th>
<th><strong>Rest period (minutes)</strong></th>
<th><strong>Action</strong></th>
<th><strong>Load</strong></th>
<th><strong>% of 1RM</strong></th>
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<tbody>
<tr>
<td></td>
<td>5-7</td>
<td>3-6</td>
<td>2-3</td>
<td>End of sets</td>
<td>Light load</td>
<td>&gt;90-100%</td>
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<td></td>
<td>Twice daily</td>
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<td></td>
<td></td>
<td>Light load</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Light load</td>
<td>10-20%</td>
</tr>
</tbody>
</table>

### Table: Pre-plyometric Criteria

- Pain free
- No effusion
- No crepitus
- Symmetrical gait and stair climbing
- Hip joint prime mover's power = 45
- Single leg stance 45 sec eye open + closed
- Isometric single leg squat 45 sec eye open + closed
- Isometric single leg half squat 45 sec eye open + closed

### Diagram: Direction Variables

- Straight line
- Lateral
- Rotation
- Rotation + Lateral
- Sport specific

### Table: Exercise Parameters for Motor Control

- Eyes open/closed
- NWB/PWB/PW
- Static/dynamic
- Range of movement
- Direction
- Perturbations
- Sport specific

### Table: Estimation of % of 1RM

- 90% - 5 RM
- 80% - 8 RM
- 70% - 12 RM
- 60% - 17 RM
- 50% - 25 RM

### Table: Rate of Perceived Exertion

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<th>2</th>
<th>3</th>
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<td></td>
<td></td>
<td></td>
<td>Max</td>
</tr>
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</table>

**Note:** The target load in this is estimated.