Physiotherapy and lateral elbow pain

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Sources contributing to Lateral Elbow pain

1. Common Extensor Tendon
2. Myofascial
3. Radio-humeral joint
4. Cervical and Neural Involvement
5. Central Sensitization
6. Elbow joint arthritis
7. Ligamentous
Common Extensor Tendon

Tendinosis vs Tendonitis

- No findings of inflammatory cells

**Macroscopically**-
- Tendon is dull, brown and soft

**Microscopically**-
- Findings of disrupted collagen fibers
  - Increased cellularity-myofibroblasts
  - but not inflam. cells
  - Neovascularization
  - Poorly organized collagen
  - Focal necrosis

Normal tendon

Abnormal tendon
Myofascial- Trigger Points

What are they?
- Palpable tight and tender bands within muscle substance
- Are normally found in muscle
- When excessive can cause pain with referral

Why are they??
- Ca channel blockages
- Tetonic muscular contraction
- Avascular portion of muscle
Why they develop?

- **Overuse**
  - Repetitive action ie postural
  - Due to lack of local/deep muscle activity
- **Protective response**
  - Neural system
- **Neural driven**
  - Radiculopathies
- **Psychological**
- **Nutrition**
- **Sleep disturbances**
Evaluation

- Palpation of active trigger points through elbow musculature
- Palpate for active triggers through cervical and scapular musculature
Brachioradialis

Supinator

(Travell and Simons 1983)
Forearm Extensors

(Travell and Simons 1983)
Triceps
Long head\(^{(1)}\) and lateral Medial Head\(^{(2)}\)

Triceps
Lateral Head\(^{(3)}\) and Deep Medial Head\(^{(4)}\)

(Travell and Simons 1983)
Anconeus

(Travell and Simons 1983)
Radio-humeral joint

Radial head
- “subluxes” in pronation
- “reduces” in supination

In sustained pronation postures, head of radius may sublux increasing load on CEO

Due to:
- Lack of supination range
- Poor eccentric control of supinator

(Mack ??)
Evaluate

Joint play

- Especially into supination
  - Lateral Glide
  - Accessory movement (Vincenzino 2003)
- Only 20% of patients may have articular signs
  (Yaxley and Jull, 1993)

Muscular control of supinator

- Deep stabiliser of radiohumeral joint
  (Stroyan and Wilk 1993)
Neural and Cervical Involvement

Most commonly C6-C7 spinal segments

Upper limb neurodynamics altered

- ULTT IIb-radial nerve
Evaluate

Cervical Spine
- PPIVMS- hyper vs hypo
- PAIVMS
- Possible direct referral to elbow

Neural
- ANT for radial nerve- ULTT IIb
- Reactivity and tenderness on radial nerve palpation
Central Processing Defects

Hyperalgesia and allodynia
- Represents disordered neural processing and central sensitisation

Examination of CEO-
- Increased levels of glutamate, mediator in pain
- Reduced levels of prostaglandin P2

(Wright et al 1992)
(Alfredson, 2000)
Changes in sensory-motor system

- Reduction in reaction time, speed of movement and co-ordination
- Changes also evident in unaffected side
  - (Pienimaki 1997a)

Abnormal postures and muscle activation

- Studied in tennis players  (Kelly 1994)
- Clinically seen as poor scapulohumeral stability and poor postural positions
Evaluation

- Palpation
- Postural position
- Scapulohumeral stability and rhythm
  - **S**tatically
    - Resting posture
  - **D**ynamically
    - Open kinetic movement
    - Close kinetic loading tests
    - Functional
    - Scapular slide tests
How does it come together...

- Lateral Epicondylalgia
- Altered Central Processes
- Altered Cervical Function
- Altered Neural Function
- Altered myofascial system
- Altered R/H Function
- Altered cervical and scapular control
- Tendinopathy
Aims of Physiotherapy

- Identify causative systems
- Use manual treatment techniques
- Therapeutic Exercise
- Progress above into functional tasks
Treatment for Tendinosis

- Not a lot of supporting evidence for physical therapy modalities
  - Ultrasound
  - IFT
  - ICE
  - Frictions

- Best physiotherapy intervention
  - Eccentric wrist extensors exercise
  - Curwin and Standish type protocol

- Braces and taping
  - Unload forces in tendon
Tapings

UNLOADING and RADIAL HEAD SUPPORT
MCCONNELL UNLOADING TAPE
Treatment for altered Myofascial System

Release active trigger points
- Soft tissue techniques
- Spray and stretch
- Ice release
- Stretching
- Trigger point injections
- IMS - similar to dry needling, most effective

Correct causative factors

Travell and Simons, 1983
Dry needling

Most effective and least painful

- ECRB
- Brachioradialis
- Supinator
- Lateral head of triceps

Painful

- Anconeus
- Extensor digitorum
Treatment for altered radio-humeral function

Manipulation

Radio-humeral joint mobilisations
- p/a to improve supination

MWM lateral glide of elbow
- Manual treatment
- Home treatment

(Mulligan 1999)
Therapeutic Exercise

- Eccentric Supinator control
  - Hammer
  - Theraband
- Into ranges of elbow flexion
- Progress to functional
Manipulation

- High velocity thrust
- Force in line with joint
- No muscle spasm
MWM elbow

- Sustained lateral glide
- Gripping
- Progress into elbow ext and pronation
- Pain free
MWM self treatment
Altered cervical and neural function and central processing

Cervical manual therapy
- Mobilisation
- Manipulation
- Effects may be more neurological than physiological
  - (Vicenzino 2003, Abbott 2001)

Spinal/Neural manual therapy
- Elvey approach
  - Lateral glides +/- neural tension (Elvey 1986)
- Mulligan approach
  - MWM cervical spine- lateral glide or A/P
Elvey lateral glide

- Lateral glide to segment
- Oscillatory technique
- Progress into ANT
- Sustained a/p glide
- Gripping
- Progress into elbow ext pronation and ANT
- Pain free
A guide for the use of Manual Therapy (Vicenzino 2003)

Sunshine Village, Banff
1. Grip pain >> Palpation
   - MWM elbow and self treatment
   - Elbow manipulation
   - p/a radial mobilisations

2. Palpation >> Grip pain
   - Cervical lateral glide
   - MWM cervical spine - lateral and a/p

3. Grip pain = Palpation
   - Try 1 first…
   - May need to move then to 2

4. Past history of Cx dysfunction
   - Try 2

5. Night pain
   - As long as it is mechanical, use taping
Thank You

Mt Assinaboine, Canadian Rockies