Physiotherapy and lateral elbow pain

Martin Meyer
Sports Physiotherapist

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

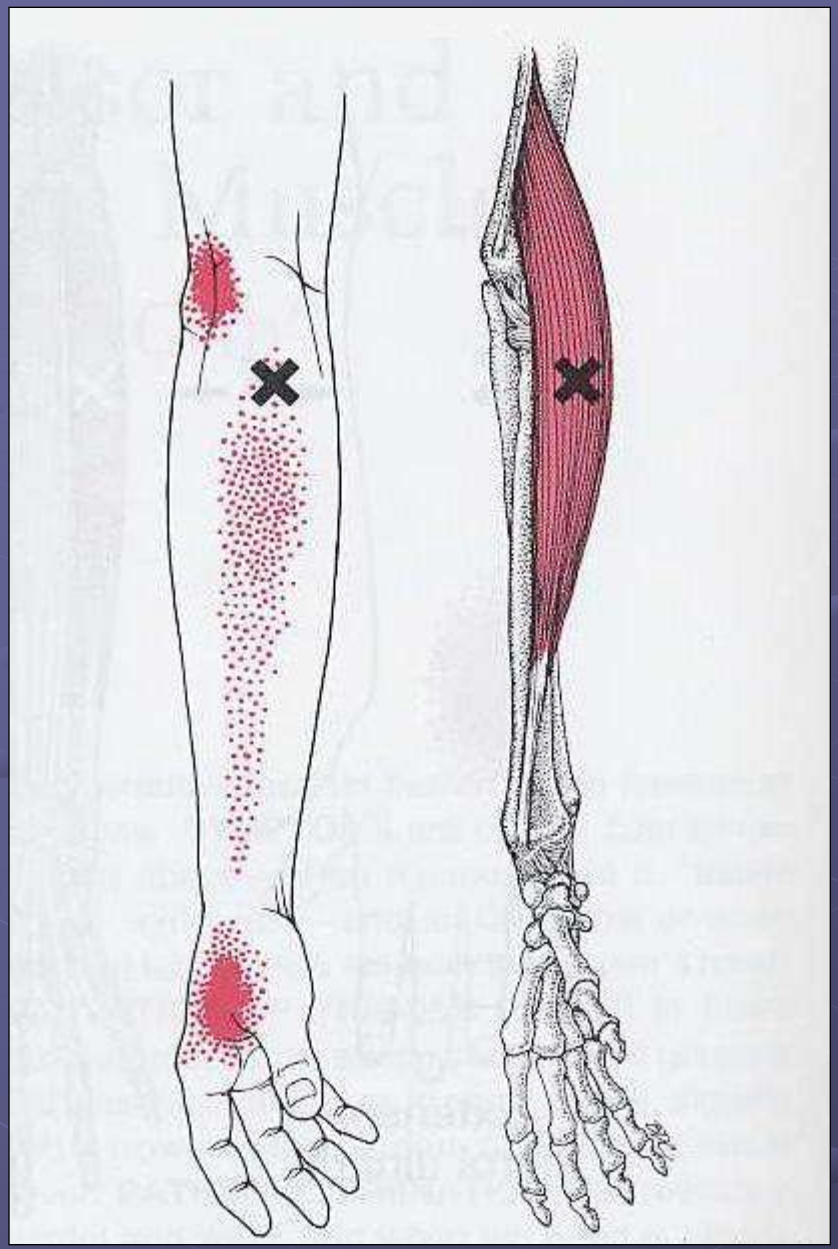
- What are they?
  - Palpable tight and tender bands within muscle substance
  - Are normally found in muscle
  - When excessive can cause pain with referral
- Why are they??
  - Ca channel blockages
  - Tetonic muscular contraction
  - Avascular portion of muscle

Why they develop?

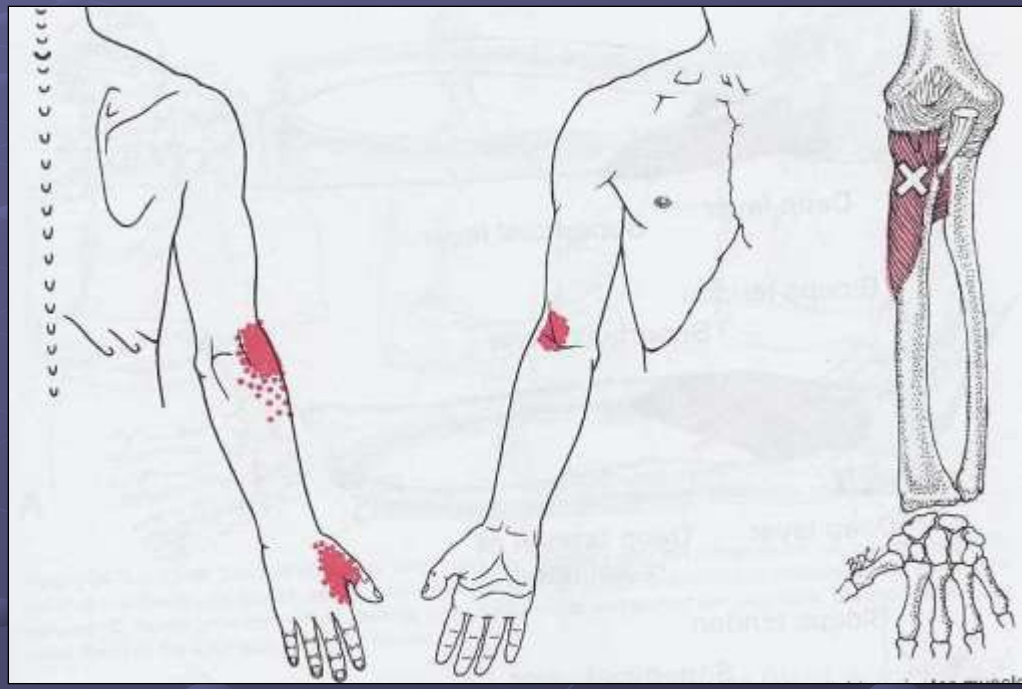
- Overuse
  - Repetitive action ie postural
  - Due to lack of local/deep muscle activity
- Protective response
  - neural system
- Neural driven
  - Radiculopathies
- Psychological
- Nutrition
- Sleep disturbances

Evaluation

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

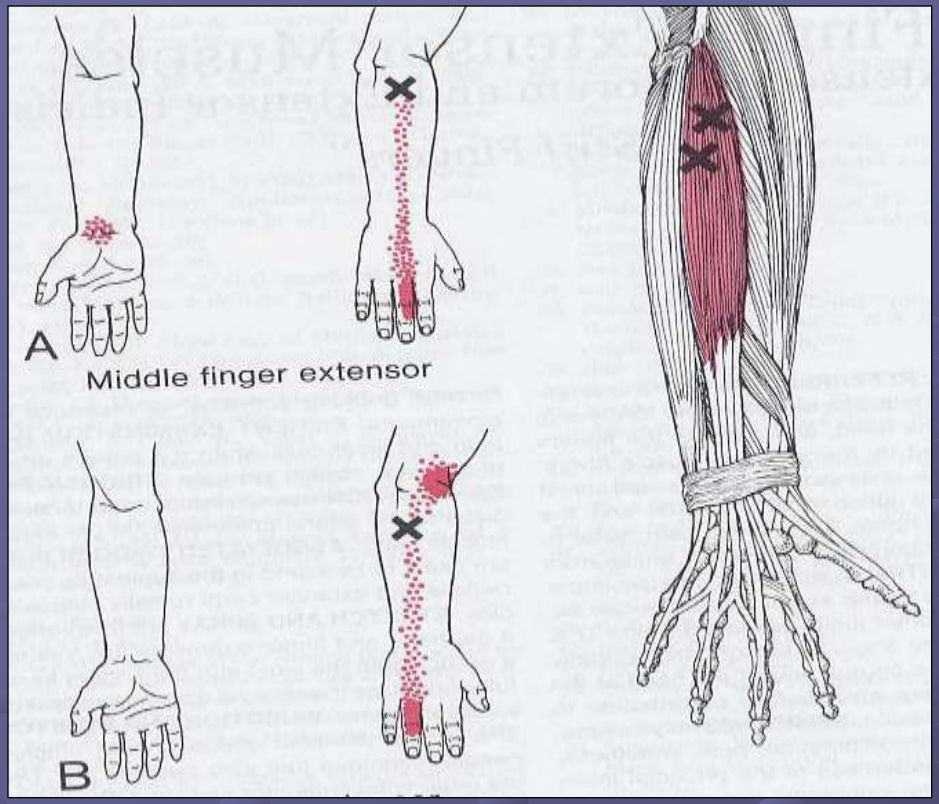


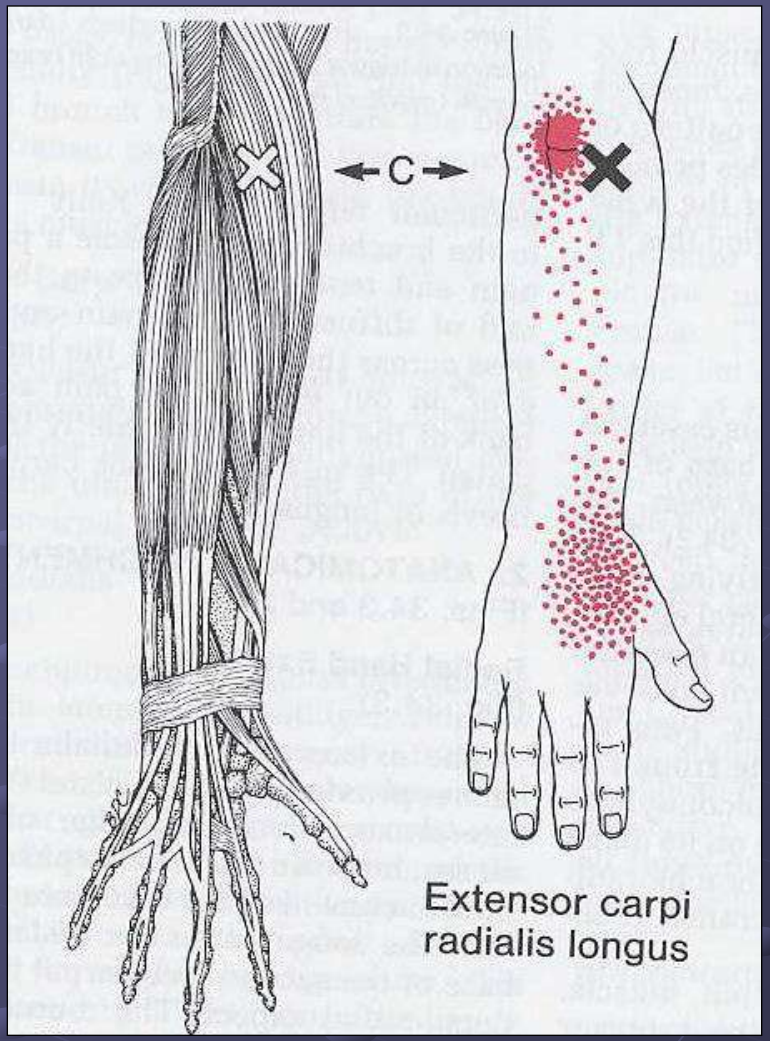
Brachioradialis

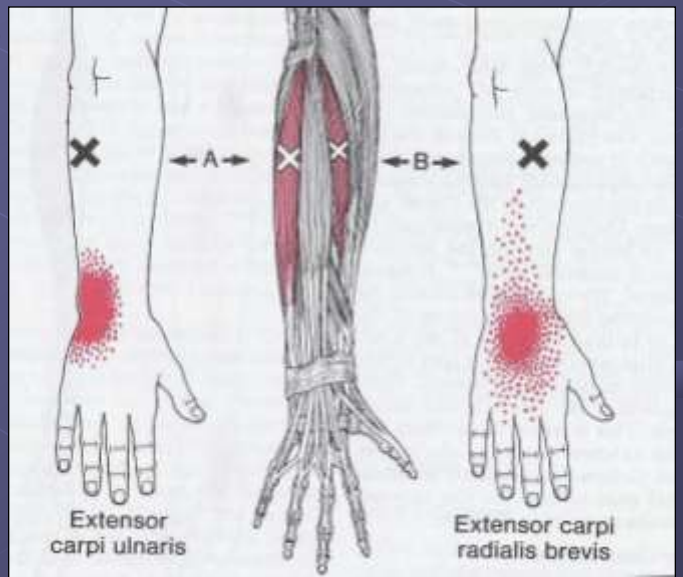


Supinator

(Travell and Simons 1983)



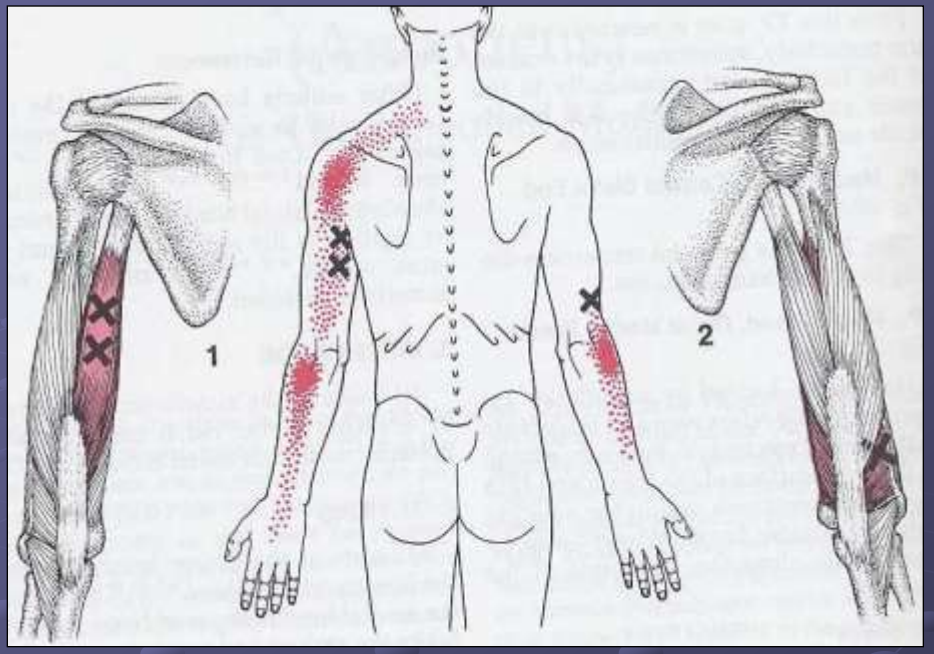




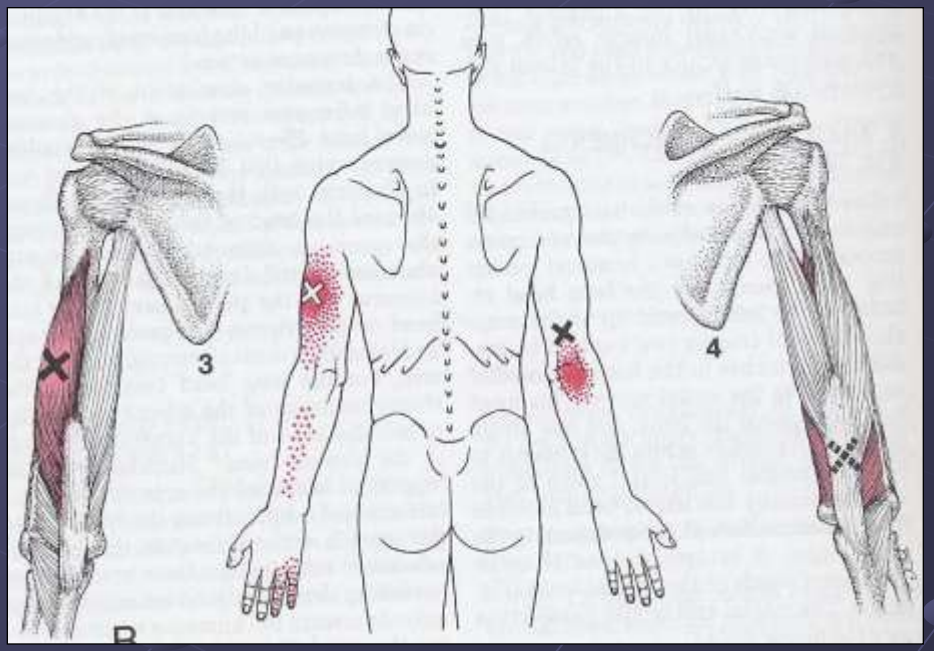
Forearm Extensors

(Travell and Simons 1983)

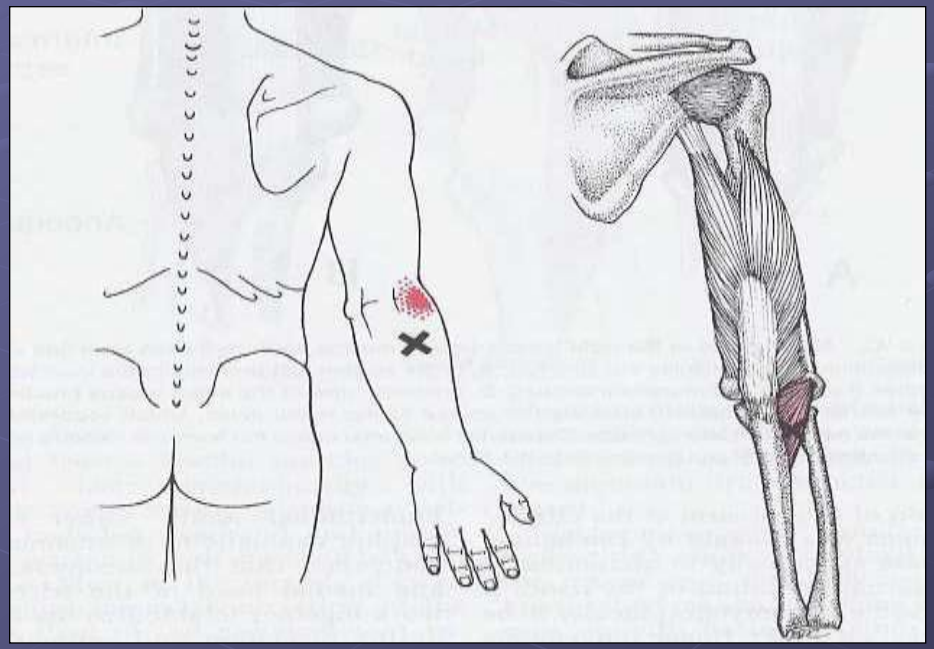
Triceps
Long head(1) and lateral Medial Head(2)



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

(Mack ??)

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

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

•(Wright et al 1992)

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

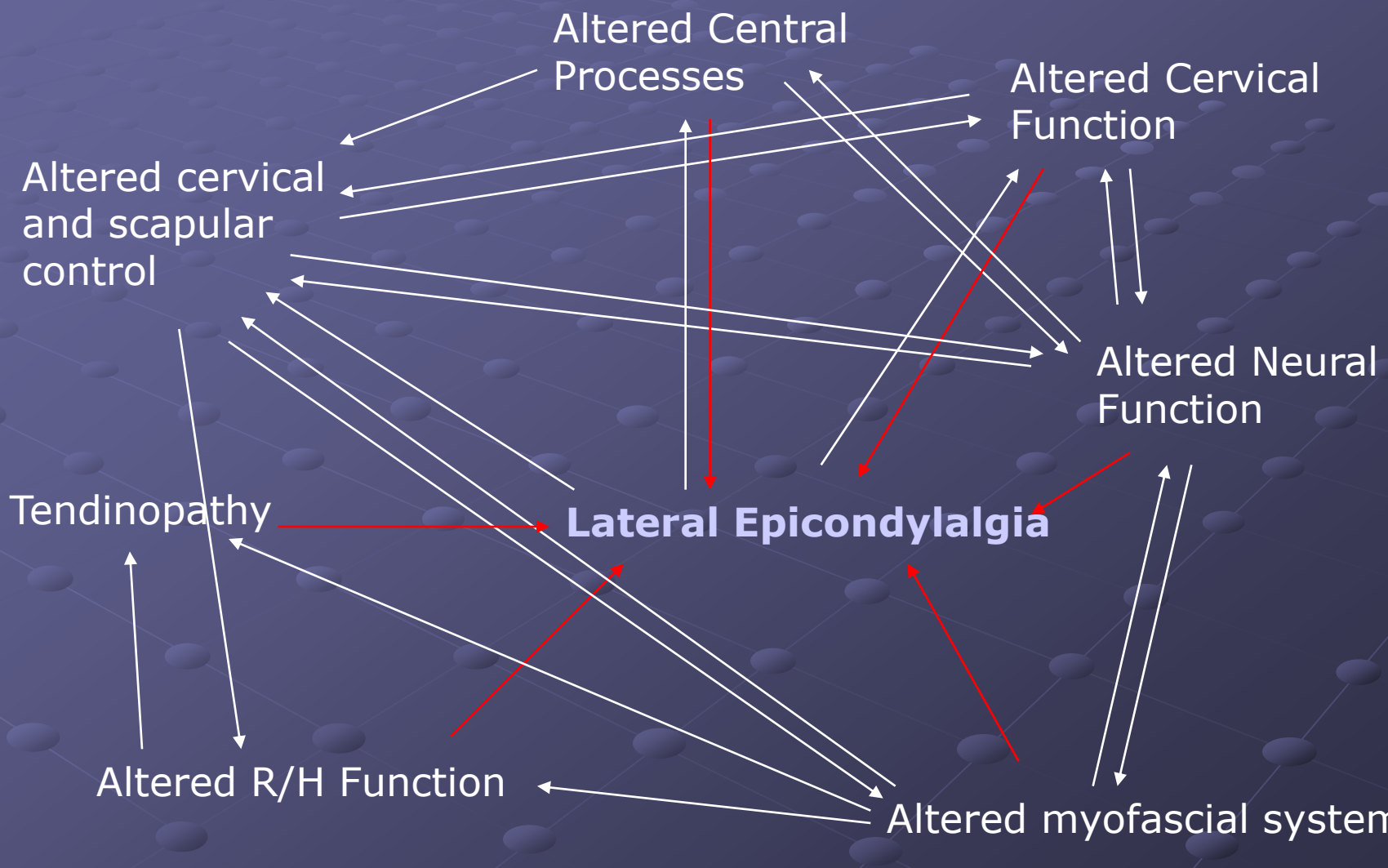
•(Alfredson, 2000)

- 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 stabilty and rhythm
  - Statically
    - Resting posture
  - Dynamically
    - Open kinetic movement
    - Close kinetic loading tests
    - Functional
    - Scapular slide tests

How does it come together..



Aims of Physiotherapy

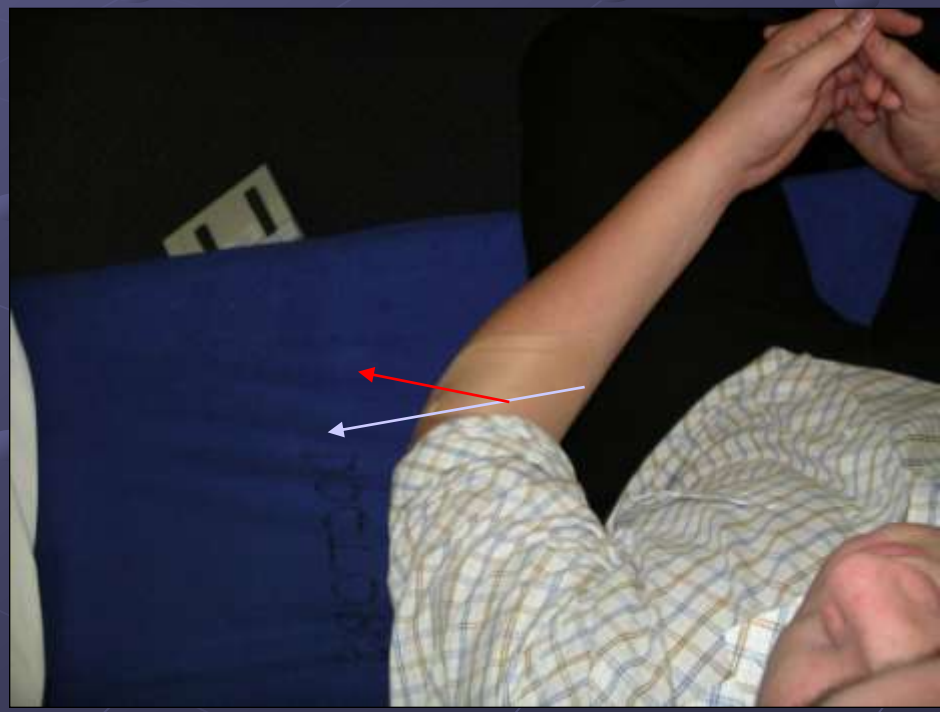
- Identify causative systems
- Use manual treatment techniques
- Therapeutic Exercise
- Progress above into functional tasks

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

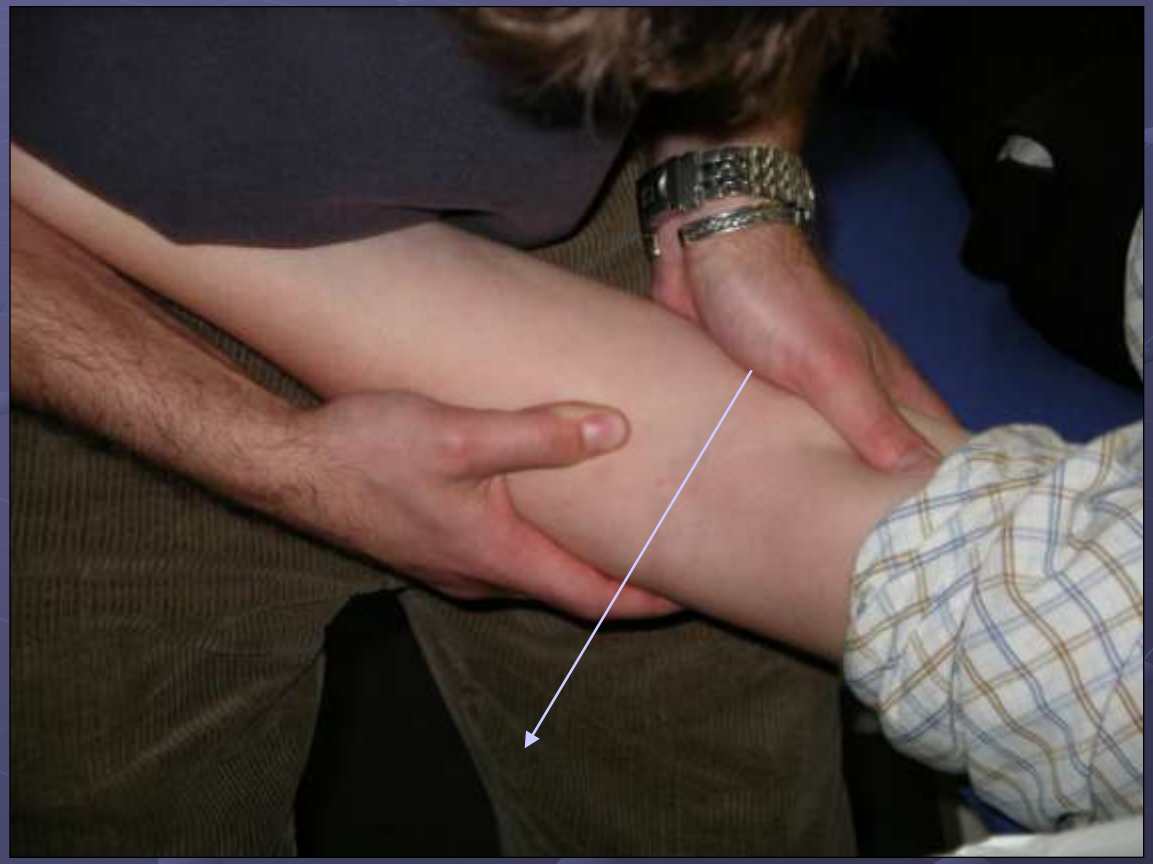
- Manipulation
- Radio-humeral joint mobilisations
  - p/a to improve supination
- MWM lateral glide of elbow
  - Manual treatment
  - Home treatment

(Mulligan 1999)

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

Manipulation

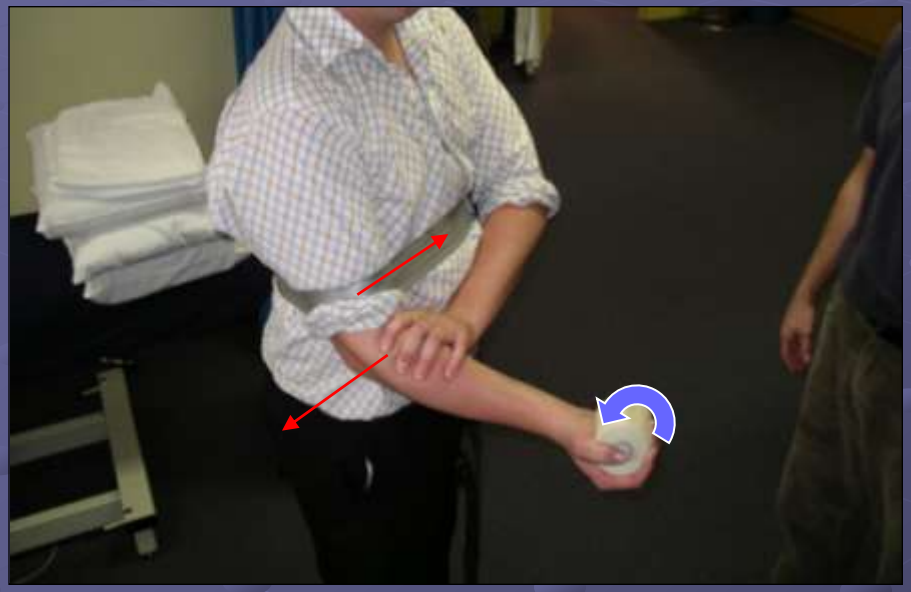
- High velocity thrust
- Force in line with joint
- No muscle spasm



MWM elbow

- Sustained lateral glide
- Gripping
- Progress into elbow ext and pronation
- Pain free

MWM self treatment



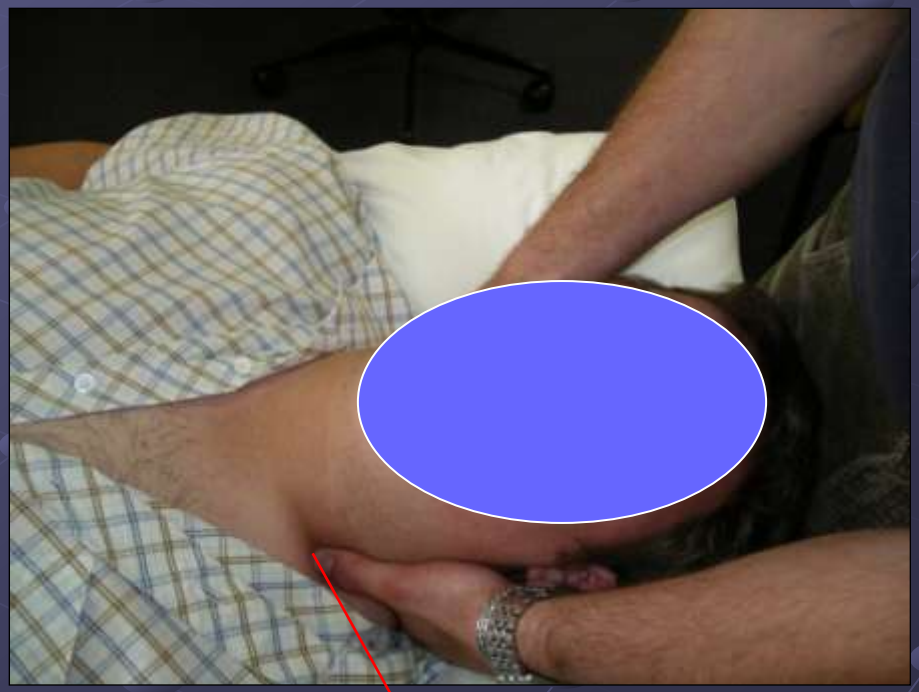
Altered cervical and neural function and central processing

- 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

MWM with a/p glide



- 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