MULLIGAN’S MWM for soft tissue injuries like tennis elbow:

Its application & the evidence.

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MULLIGAN’S MWM for soft tissue injuries like tennis elbow:

Its application & the evidence.
Wait and see policy:
reassured that they will get better (n 67)

Corticosteroid Injection:
1 ml quantity of 1% lidocaine + 10 mg of triaminolone acetonide in 1 ml (n 65)

Physiotherapy:
MWM & exercise: 8 x 30’ sessions over 6 weeks (n 66)

Advice to all: ergonomics and self management ...


Success = Completely recovered, Much improved

No Success = Improved, Same, Worse, Much worse
Success = Completely recovered, Much improved

No Success = Improved, Same, Worse, Much worse


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<td>1</td>
<td>0</td>
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<tr>
<td>Acupuncture</td>
<td>2</td>
<td>1</td>
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</table>
MWM + exercise are beneficial:

NNT = 3
(RR: 2.44 [95CI: 1.55 to 3.85])
(5 @ 12 wks)

NNT = 2
(RR: 1.88 [95CI: 1.41 to 2.5])
(4 @ 52 wks)

MWM + exercise speeds up recovery
Reduces need for other therapies
Fewer recurrences than steroid injections in long term

Take home points

Caution with steroid injection: slower recovery in long term, higher recurrence rates, weaker grip force BUT a high success rate earlier ...

Physiotherapy better than wait and see and similar to injection at 6 weeks and for grip force (strength) overall - after that no real difference to wait and see

Wait and see - recommended for those who are not keen to actively manage; but they did seek more other treatments ...!
morphological deficits

sensori-motor (bilateral)

strength imbalance

global changes

Motor system impairments

mechanical hyperalgesia

deep tissue sensitivity

central sensitization

local neurotransmitters

Pain system(s) changes

Local tendon pathology

angiofibroblastic hyperplasia

hypercellularity

increased matrix protein

neovascularisation

MULLIGAN’S MWM for soft tissue injuries like tennis elbow:

Its application & the evidence.

- Single case study (ABC: baseline/treatment/post-treatment)
- 39 yr old female otherwise healthy and fit
- **History:**
  - 3/12s (R) LE post heavy manual work
  - Rested 1 month then 6 PT treatments which were painful massage and exercises with some electrotherapy
  - No change overall
- **Outcome measures**
  - Function & pain VAS
  - Function questionnaire
  - Pain free grip strength, pressure pain threshold
(a) Response during application has to be substantial
McLean et al 2002 A pilot study of manual force levels required to produce manipulation induced hypoalgesia. Clin Biom 17: 304-8
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Olecranon (moving)

Lateral glide

Humerus (fixed)
Applied Force (N)

In the Treatment Plane  Out of the Treatment Plane

Glide Orientation / Direction
Applied Force (N)

In the Treatment Plane  
Out of the Treatment Plane

Glide Orientation / Direction

%PFGS

100 66 50 33

Force Levels (% max)
Applied Force (N)

Glide Orientation / Direction

In the Treatment Plane

Out of the Treatment Plane

%PFGS

Force Levels (% max)
Applied Force (N)

- Maximum force applied by practitioner
- Optimal change in outcome (66% of maximum force)
- No change in outcome (50% of maximum force)
- Negative change in outcome (33% of maximum force)

In the Treatment Plane

Out of the Treatment Plane

Glide Orientation / Direction

Force Levels (% max): 100, 66, 50, 33

%PFGS:
- 100
- 66
- 50
- 33
Applied Force (N)

Maximum force applied by practitioner

Optimal change in outcome (66% of maximum force)

No change in outcome (50% of maximum force)

Negative change in outcome (33% of maximum force)

In the Treatment Plane

Glide Orientation / Direction

Out of the Treatment Plane
Applied Force (N)

- **In the Treatment Plane**
  - Glide Orientation / Direction
  - Maximum force applied by practitioner
  - Optimal change in outcome (66% of maximum force)
  - No change in outcome (50% of maximum force)
  - Negative change in outcome (33% of maximum force)

- **Out of the Treatment Plane**

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*The University of Queensland, Australia*
Applied Force (N)

- Maximum force applied by practitioner
- Optimal change in outcome (66% of maximum force)
- No change in outcome (50% of maximum force)
- Negative change in outcome (33% of maximum force)

In the Treatment Plane
Out of the Treatment Plane

Glide Orientation / Direction
Direction of force:


Lateral glide with 0 or 5° posterior inclination

NOT 5° anterior to direct lateral
(a) Response during application has to be substantial
(a) Response during application has to be substantial
(b) Immediately afterwards it should still be substantial:
   *increase repetitions if not improved immediately afterwards*
(a) Response during application has to be substantial
(b) Immediately afterwards it should still be substantial
(c) Effective volume of treatment = when the effect at baseline before a treatment session is significantly improved compared to baseline at the first consultation
Follow up period

Measurement Periods:
- A1, A2, B1-1, B1-2, B1-3, B2-1, B2-2, B2-3, B3-1, B3-2, B3-3, B4-1, B4-2, B4-3, C1, C2

Pain-Free Grip (N):
- 0, 50, 100, 150, 200, 250, 300

Movements:
- (a) Increase
- (b) Increase
- (c) Baseline
r = -0.92 (p < 0.0001)

Slope = -1.1, R^2 = 0.94

Slope = 0.63, R^2 = 0.94
MULLIGAN’S MWM for **soft tissue** injuries like tennis elbow:

- **Its application** & the evidence.
  - Immediate & substantial effects
    - Direction & force
  - Post application (volume)
    - Immediate
    - Longer term = baseline imp.
  - Caution at 1st session

- MWM + exercise speeds up recovery
- Reduces need for other therapies
- Fewer recurrences than steroid injections in long term

usually need exercise therapy as well as MWM