How can you start isometrics for LE, and do they work?

Yes, however LE has a lot of different contributions and presentations, so one size of treatment cannot fit all. We need to get better at identifying subgroups of patients that benefit from painfree management vs pushing patients into pain. This is an area where clinical practice drives the research.

Commencing Strengthening for LE

The goal of treatment is to make it painfree. Teach the patient to perform an MWM the same way as performed in the clinic that changed their PFGS eg PA on radial head, or lateral glide of the Ulnar.

Start with light theraband/theratube at approx 50% of their max effort
- Apply an MWM glide that eliminates the patient’s pain before applying resistance
- Start at 90 degrees elbow F in supination, with a loop of theraband going straight down, like performing resisted elbow flexion.
- Move into pronation first, keeping their 3rd metacarpal down the midline of their forearm, in slight wrist extension (10–20 degrees - optimal wrist posture for gripping)
- If painfree, start extending the elbow, with the aim of full elbow extension in pronation, with wrist in optimal posture.
- If they start to feel forearm or elbow pain, back off the elbow extension to a position that is just painfree
- Time this to see how long they can hold for
- 30–60 seconds in this painfree position, up to three times, whatever they can perform without any fatigue pain or their pain
- Test this in the clinic
- Only perform this once/day, or 3x/week if very irritable or high pain levels
- Make sure they are making a light fist, and not holding their fingers in extension

Make sure the person has recovered before they perform their exercises again.
If they have any post-treatment soreness, allow this to settle before they perform the exercises again.

Extensor Digitorum is often used in LE instead of ECRB, and we want to retrain the person to be able to make a fist or grip without extending their fingers.
Mobilisation with Movement (MWM)

After the set, let go of the theraband, keep the MWM in place, then flex and extend their elbow with the MWM before releasing the glide.

The MWM provides a way for the patient to remove/reduce their pain, during their work activities or daily life.

How to perform a PA on the Radial Head

- Find “the knuckle” (lateral epicondyle of the humerus), move distally down the forearm, past the joint line, to where the anconeus borders the common extensor muscles, in the groove.
- Use the pads of 2 fingers - index and middle, not fingertips
- Wrap the hand around the forearm
- Distribute the force across the hand, with the focus on the pads of the fingertips
- Ensure that the glide is comfortable, and produces a change in painfree grip strength
- Change the direction of the glide to find a direction that is more mobile, this will often be the direction that improves pain the most

Next stage of treatment

- Assess for any radial nerve provocation/irritation, and incorporate radial nerve gliders and sliders
- If they are progressing well, progress to global strengthening in their upper limb, including pushups. Start with pushups on the wall and progress gradually to full pushups
- Wrist extension strengthening - resistance can be increased
- Aim for full elbow extension/pronation painfree before adding in gripping with elbow movements.
- MWM’s will continue through their whole program
- Gripping with elbow and shoulder movement is functional, so you can incorporate isometric contraction of the wrist extensors while moving the elbow or shoulder
- Pronation/supination is often painful, and may be due to a cam effect compressing the tissues against the radial head
- Holding a hammer while performing pronation and supination

Painfree Grip Strength (PFGS) is a great outcome measure, as is the PRTEE which is validated and sensitive to change
High level athletes and lateral elbow pain

- Assess high level athletes or people working at the gym for joint pathology or loss of elbow passive restraints eg laxity of the LCL, LUCL, Annular ligament and MCL
- Subtle instability on the medial ligament could create compression of the radiohumeral joint These patients will feel more pain in elbow flexion rather than extension, and supination LE patients will have more pain in elbow extension and pronation.
- Plica in the lateral elbow can also become irritated between the head of the radius and the humerus, and they may get a palpable click, and reproduced with joint compression and mobilisation Hypomobility around the radial head can also cause lateral pain in the active athlete that

Rock climbers are often at risk of overload of the medial forearm/wrist flexors and reactivity of Pronator Teres Median n can get compressed and irritated where it passes through the two heads of Pronator Teres

Diagnosis of LE

Indications that your patient has LE - Area of pain is isolated to the lateral elbow region, and does not radiate up or down the arm, which may indicate neural irritation or provocation

The radial nerve can get compressed where it passes through the radial tunnel, inferior to the elbow
- The radial nerve bifurcates into the superficial radial nerve and the posterior interosseus nerve (PIN)
- PIN is only a motor nerve, and passes deep to the supinator muscle. If the patient reports P&N and Numbness, this is sensory nerve irritation loss of compression, which is either the superficial radial nerve or common radial nerve, not PIN
- PIN entrapment may give you motor loss distal to the area of compression eg weakness of the thumb
- PIN entrapment may be a source of symptoms and pain

- Radial nerve entrapment may give symptoms up or down the arm, into the arm or medial scapula region
- Without P&N or N, but with spreading pain, the radial nerve test may be provocative, and the C/Sp should be assessed
- Treating the C/sp can be a nice way in to treating neural irritation
- A C5/6 nerve root compression or radiculopathy may have involvement/weakness of proximal muscles, will have a different area of symptoms to just a radial nerve irritation
- ROM of the C/sp, PAIVM’s, PPIVM’s and Spurlings test may reproduce the patient’s pain
- Palpation along the radial nerve path may be sensitive in the case of radial nerve irritation
Starting treatment when there is nerve involvement

- Sliders and gliders are used initially
- Deload the tissues using a manual deload, and if successful use diamond taping
- Create a diamond effect over the lateral forearm using your thumb and forefinger of both hands, gently drawing the tissues together to assess for changes in radial nerve tests
- Assess the lower C/sp and perform PAIVM’s or lateral glides, using a glide towards the affected side
- This can be used in combination with the patient performing radial nerve sliders and gliders

Clinical reasoning

Lateral glides, manual deload may change PFGS, neural provocation tests immediately or in the following treatment. It may also decrease symptoms in neurally provocative positions eg picking things up with the arm out from the body.

Predictors of poor prognosis, and are likely to have pain after 12 months

- 50 on the PRTEE, with severe pain may indicate the need for imaging
- Presence of a large intrasubstance tear on US
- Manual workers that are unable to adjust their workload and duties
- Patients with high levels of pain can take a long time to get better

Patients with spreading pain, but no clear nerve compression, very irritable with high levels of pain, medical management may be very helpful eg Lyrica

Cyriax approach to LE

Deep friction massage and exercises +/- US does worse than almost any other treatment group. Deep massage does not work, and can cause nerve irritation

Other treatments

- 904nM Laser may be useful and provide short term benefits on patients that are hypersensitive
- Shockwave therapy DOES NOT work for LE
- Patients that receive corticosteroid injections have a worse long term outcome than patients that do not have an injection
- PRP and autologous blood injections have not been compared to active Physiotherapy treatment