PHYSIOCONNECT

INJURY NAME /STRUCTURE

Lateral elbow tendinopathy commonly known as 'Tennis Elbow'

DESCRIPTION OF THE ANATOMY

Tennis Elbow is a degenerative condition, or overuse injury where the tendons in your forearm that help extend your wrist, at their attachment to the bone become increased in thickness. It is the most common overuse injury in the elbow and is not necessarily related to playing tennis! It often occurs form repetitive activities of the arm such as typing on the keyboard, heavy lifting, repetitive vibration, and in a lot of one-side dominant jobs such as gardening, builders, carpenters, jewellery making etc.

The tendons that are involved include the Extensor carpi radialis brevis most commonly (ECRB), the extensor digitorum, extensor carpi radialis longus, and extensor carpi ulnaris. All of these tendon's come together to form one attachment point into the lateral epicondyle, known as the common extensor tenon. The lateral epicondyle is a bony eminence at the lower end of the humerus bone (upper arm bone) which gives attachment to these tendons.

HOW THE INJURY COULD/USUALLY OCCURS

This injury is classed as an overuse injury that results in wear and tear of the common extensor tendons. Overuse of the muscles

that allow the wrist and hand to bend backwards (extend), as well as repetitive manual tasks will put strain on the strong tendons that they form and then attach into the lateral epicondyle. If the strain becomes too much for the tendon to bear, and occurs over an extended period of time with not enough rest in between for tissue repair, over time the tendon becomes damaged.

Other factors which can predispose you to tendon injury as with many other injuries can include: ageing, poor circulation, smoking, strength deficits of the muscle, poor flexibility and poor muscle quality.

There are different stages and grades of tendon damage and usually associate with time since injury. It is normal for tendons to go through stage one in response to increased load, however further progression can lead to tendon cell death and tears. The four stages include:

1. Reactive tendinopathy

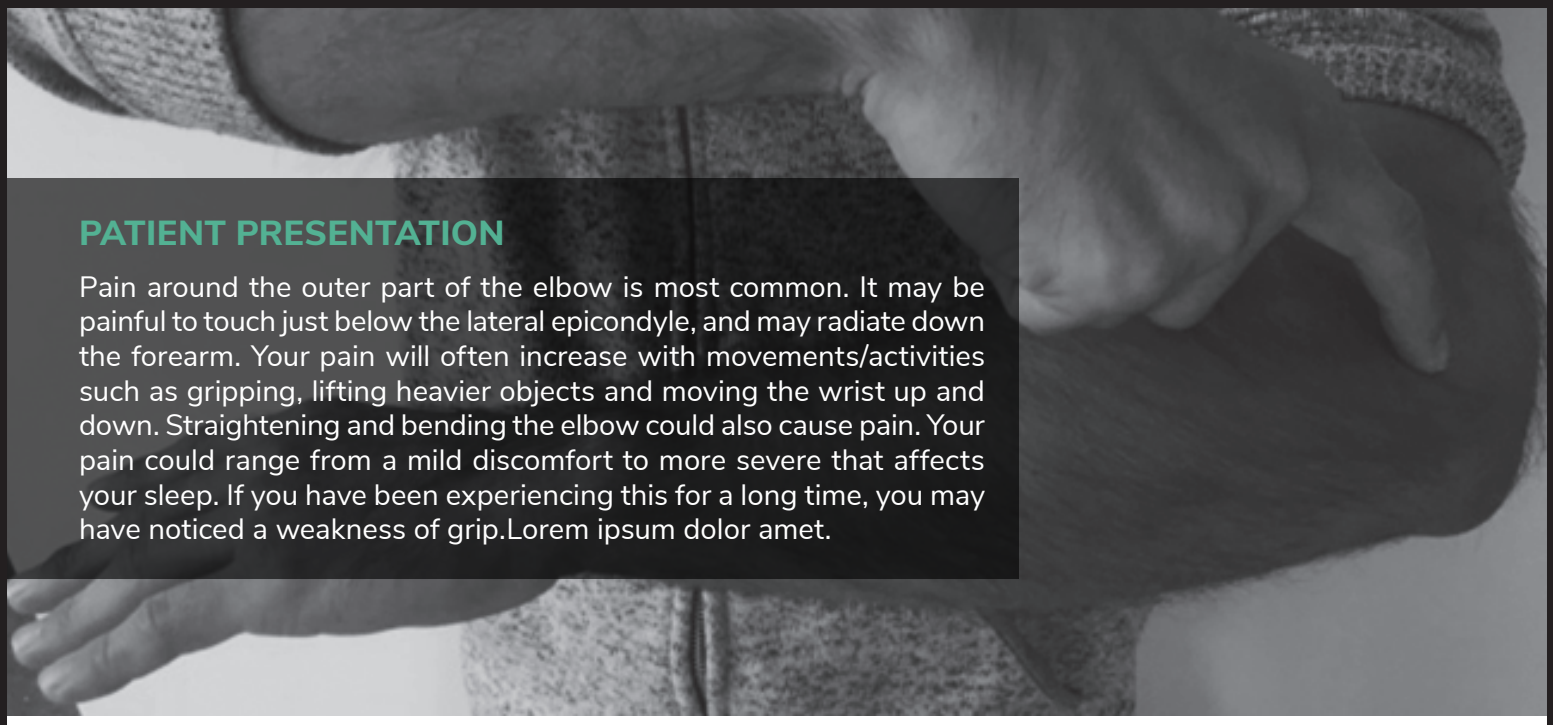
This occurs in the very early stages of the overuse injury and usually in response to sudden increased stress on the tendon. Prognosis is considered excellent in that the tendon can return to normal if appropriate rest occurs.

2. Tendon disrepair

If the load on the tendon exceeds what it can handle and over a prolonged and repetitive period of time, it does not have adequate time to heal. You will start to see breakdown of the tendon tissue. This occurs due to the collagen fibres that make up the tendon becoming disorganised (tangled), the fibers separating due to an increase in proteoglycan content (increased water content), and neovascularisation (formation of new blood vessels) and neural fibre in-growth = increased pain. Prognosis is considered good if adequate rest and de-loading occurs.

3. Degenerative tendon

This is the final stage and considered to have a poor prognosis as the tendon changes are irreversible. Tendon cell death occurs due to ongoing overload and can lead to tendon tears and rupture.



PATIENT PRESENTATION

Pain around the outer part of the elbow is most common. It may be painful to touch just below the lateral epicondyle, and may radiate down the forearm. Your pain will often increase with movements/activities such as gripping, lifting heavier objects and moving the wrist up and down. Straightening and bending the elbow could also cause pain. Your pain could range from a mild discomfort to more severe that affects your sleep. If you have been experiencing this for a long time, you may have noticed a weakness of grip.Lorem ipsum dolor amet.

AT-HOME WAYS TO TEST THE INJURY

1. Cozen's test (Cook, 2007)- Resisted wrist extension.

Is a muscle test considered to be positive if this triggers pain to the lateral epicondyle.

You perform this by sitting with your elbow bent to 90 degrees, and forearm resting on a table or arm rest. Your palm is facing down. Extend your wrist on the injured side upwards, at the same time resist this movement with your good hand.

2. Maudsley test- Resisted middle finger extension.

The set up of this test is the same as above, except you attempt to extend only your middle finger upwards, whilst at the same time resisting this movement with your good hand.

A positive test would trigger pain to the lateral epicondyle.

3. Grip- Pain free grip test.

This is traditionally performed with a device called a dynamometer, however many people with tennis elbow complain of pain with gripping. If you have noticed you get pain whilst gripping, and your pain is located around the lateral epicondyle, this is likely indicative of a positive Tennis Elbow test and is the most common presentation with Tennis Elbow (Vicenzino, 2003).

4. Palpation of the lateral epicondyle region-

Palpation or tenderness with touch of the extensor tendons just below the lateral epicondyle with also be painful (Vicenzino, 2003).

AT-HOME TREATMENT IN THE ACUTE PHASE - 3-10DAYS

1. Ice

Applying Ice to the lateral elbow can be effective in reducing pain in the short-term.

2. Reduce tendon-load and aggravating activities

It is extremely important to stop or reduce those painful repetitive activities and change the way you use your arm during the day. You can reduce the load when lifting, by keeping your elbow bent and using an underhand grip (palm facing upwards).

AT-HOME TREATMENT IN THE SUB-ACUTE PHASE- UP TO 6-WEEKS

1. Stretching- Stretching the forearm flexors as well as the extensors.

Wrist flexor Stretch: *20-30second hold, 2 sets, 3-5x daily, 20seconds rest between sets.*

Wrist extensor Stretch: *20-30second hold, 2sets, 3-5x daily, 20seconds rest between sets.*

WRIST EXTENSOR STRETCH | PRONATION

Preparation:

- Hold arm our straight or slightly bent if its too intense, palm up.

- Bend your wrist down.

Execution:

- Use other hand to pull wrist further down, feeling for a stretch at the top of your elbow.

Stretch forearm

WRIST EXTENSOR STRETCH | SUPINATION

Preparation:

- Hold arm our straight or slightly bent if its too intense, palm up.

- Bend your wrist down.

Execution:

- Use other hand to pull wrist further down, feeling for a stretch at the top of your elbow.

Pull wrist down

2. Isometric Strengthening:

Exercise is considered the key management in all tendinopathies. Low load isometric exercises are the best for those with very painful elbows. Evidence shows Isometric exercises can have a pain modulating effect (pain is reduced after exercise) (Coombes et al, 2016).

Pain during should be below your pain threshold and sitting <3-10VAS. Adjust your pressure to meet this.

5-10seconds holds, 8-12repititions, 2xdaily, 5-7days a week.

WRIST EXTENSION ISOMETRIC

Preparation:

- Hold your affected hand out in front of you with your palm down, with elbow bent to 90 degrees.

- Hold the top of this hand with your other hand.

Execution:

- Push your bottom wrist up into your top hand.

- There should be no movement.

Push wrist into top hand

3. Pain free gripping with exercise putty

8-12reps, 2sets, 5-7days a week

HAND SQUEEZE (PUTTY)

Preparation:

- Hold a ball of putty or a scrunched up towel in the palm of your hand.

Execution:

- Squeeze the putty

-Reshape the putty into a ball

- Repeat

Squeeze putty

AT-HOME TREATMENT IN THE CHRONIC PHASE- >4-6-WEEKS

Once the pain has settled, gradual and progressive loading exercises such as concentric and eccentric exercises can be included. Regular Stretching during this stage is also favorable.

It might also be important for your therapist to look at other factors that may be contributing to the problem such as your neck, postural alignment and ergonomic set up at work and weakness of surrounding muscles. Work-specific tasks and activities should also be incorporated in the exercise program guided by your therapist. (Vicenzino, B. (2003).

1. Concentric exercises

Bent elbow 90degrees supported. 0.5-1kg hand weight- 10reps building up to 30repitions 5days a week. This exercise should be performed in stages. Begin each exercise with no weight, and then increase to 0.5kg, 1kg, 2kg when you are able to perform 30 repetitions with no increase in pain over two consecutive days.

WRIST EXTENSION CONCENTRIC (DUMBELL)

Preparation:

- Hold hand weight.

- Hang wrist over edge of table, palm down.

Execution:

- Bend wrist up toward ceiling. Do not lift forearm off table.

- Relax wrist back down.

Wrist over edge, forearm supported

WRIST FLEXION CONCENTRIC (DUMBELL)

Preparation:

- Hold hand weight.

- Hang wrist over edge of table, palm up.

Execution:

- Curl wrist toward ceiling. Do not lift forearm off table.

- Relax wrist back down.

Wrist over edge, support forearm

Curl wrist toward ceiling

Tip:

- As wrist relaxes, let weight roll towards tips of fingers, feeling for anincreased strectch in your palm.

FOREARM PRONATION + SUPINATION CONCENTRIC (DUMBBELL)

Preparation:

- Sit with good posture.

- Position your forearm on a support surface with palm towards ceiling.

Execution:

- Turn your wrist over so that your palm faces the floor.

- Return to the start position in a controlled manner.

Start Position

Turn your palm to the floor

2. Eccentric exercises

Performed the same as above, except this time you lift the weight with your good hand, and slowly control the weight down with your affected hand. You may experience some low level pain with this which is ok.

8-12 reps, 2sets, 1xdaily, 5times a week.

WRIST FLEXION CONCENTRIC (DUMBELL)

Preparation:

- Hold dumbell, wrist relaxed

- Elbow bent to 90 degrees supported on table/ arm rest.

Execution:

- Use other hand to lift wrist.

- Let wrist fall slowly back down.

Important:

- Do not use your muscles to lift your wrist!

When am I ready to return to return to normal activity?

Re-test your pain using the tests explained above:

1- Cozen's test -Resisted wrist extension.

2- Maudsley test- Resisted middle finger extension.

3- Grip- Pain free grip test.

4- Palpation of the lateral epicondyle region.

If you have minimal to no pain with these, this would indicate you are likely ready to return to your normal activities and sport.

Coombes, B., Wiebusch, M., Heales, L., Stephenson, A., & Vicenzino, B (2016). Isometric exercise above and below an individual's pain threshold influences pain perception in people with lateral epicondylagia. Clinical Journal of pain, 32(12). Doi:10.1097IAJP.0000000000000365

Vi cenzino, B. (2003). Lateral epicondylagia: a musculoskeletal physiotherapy perspective. Manual Therapy, 8(2), 66-79. Doi:10.1016/S1356-689X(02)00157.1