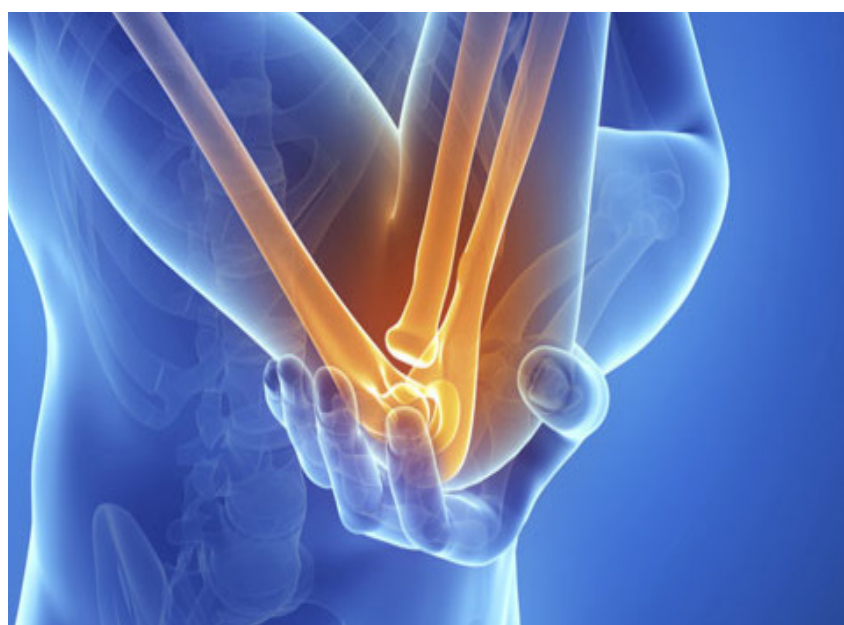


EPICONDYLITIS



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LATERAL EPICONDYLITIS (TENNIS ELBOW) & MEDIAL EPICONDYLITIS (GOLFERS ELBOW)

Tendons are tough bands of tissue that connect muscles to bones. There are several types of tendon problems. Repetitive activities and sudden trauma can injure tendons and lead to inflammation, pain, and difficulty using the joint. This is called tendonitis. As people age, tendons can break down or even tear. This is called tendinosis. Symptoms of tendinosis usually last more than 3 months. Less commonly, tendon problems can be caused by other conditions, including rheumatic diseases. Tendonopathies are common problems. The risk of having a tendinopathy increases with age and is greater in people who routinely perform activities that require repetitive movements that increase stress on susceptible tendons.

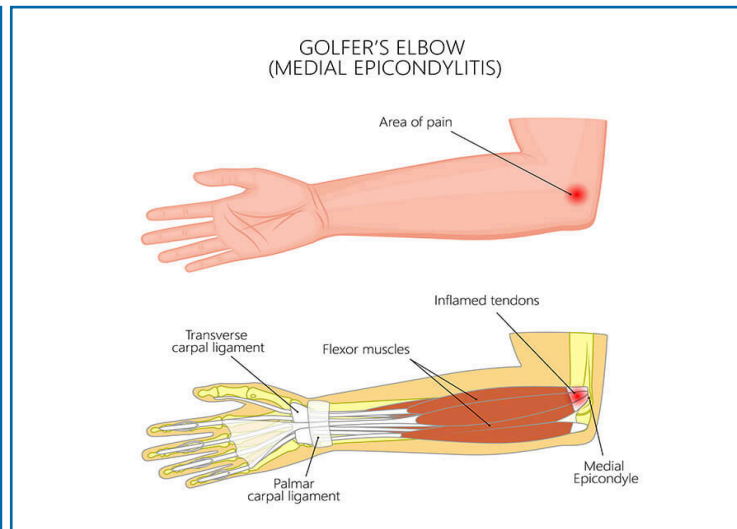
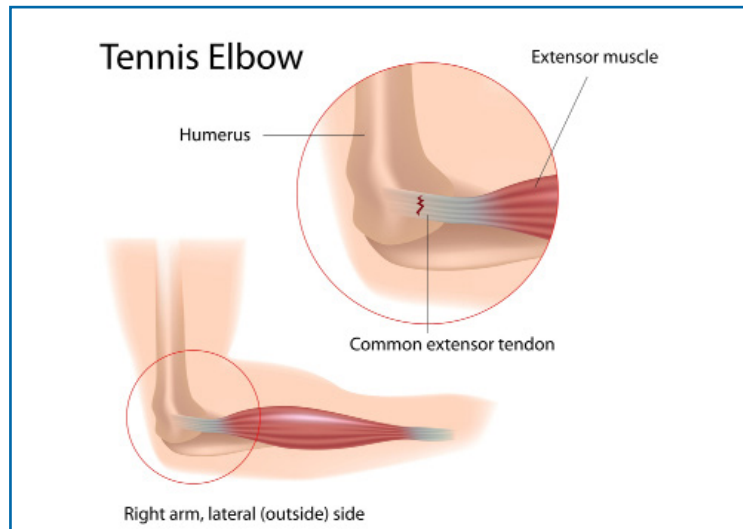
Tendinopathy (tendinitis or tendinosis) is the most common condition affecting the elbow and knee. It is referred to as tennis elbow when it affects the lateral (outside) elbow and golfers elbow when it affects the medial (inside) elbow. It is known as patellar tendonosis (jumpers knee) when it involves the knee. Elbow tendinopathy can be caused by sports such as golf and tennis as well as work-related activities that involve heavy use of the wrist and forearm such as painting.

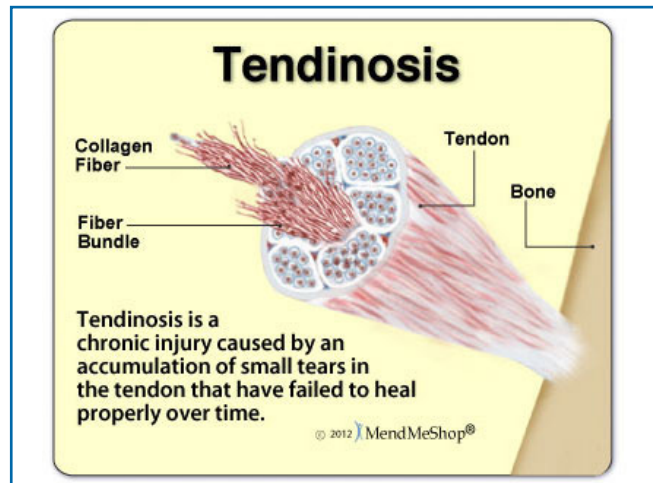
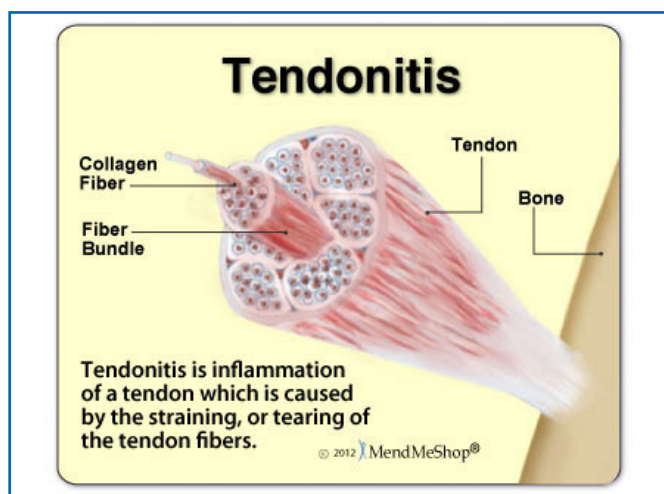
THE ANATOMY & PHYSIOLOGY

The humerus (arm bone) has a medial (inside) and lateral (outside) epicondyle. The lateral epicondyle serves as the common origin for the wrist extensors. The medial epicondyle serves as the bony common origin of the wrist flexors.

Lateral Epicondylitis: Injury to the extensor carpi radialis brevis muscle (ECRB) and occasionally extensor digitorum communis muscle (EDC).

Medial Epicondylitis: Injury to the pronator teres and flexor carpi radialis muscles





SYMPTOMS:

Epicondylitis:

Patients often complain of severe, burning pain on the outside or inside of the elbow. In most cases, the pain starts in a mild and slow fashion. It gradually worsens over weeks or months. The pain can be made worse by pressing on the outside or inside of the elbow or by gripping or lifting objects. Lifting even very light objects (such as a small book or a cup of coffee) can lead to significant discomfort. In more severe cases, pain can occur with simple motion of the elbow joint. Pain can also radiate to the forearm.

TREATMENT OPTIONS: CONSERVATIVE

In most cases, nonoperative treatment should be tried before surgery. Pain relief is the main goal in the first phase of treatment. Dr. Norberg will instruct you to stop or limit any activities that cause symptoms. You may need to apply ice to the outside or inside part of the elbow. You may also take acetaminophen or anti-inflammatory medication (if tolerated) for pain relief.

Bracing can help diminish symptoms of medial and lateral epicondylitis. Dr. Norberg commonly recommends wrist splints or the use of a counterforce strap. These can reduce symptoms by resting the muscles and tendons.



HOW IS TENDINOSIS/TENDONITIS TREATED CONTINUED:

- Activity modification: General activities which make the pain worse should be avoided.
- Ice: Cold therapy can be helpful. The area can be iced daily for 2-3x a day. Ice massage can be done by freezing water in a paper Dixie cup, tearing off the top of the cup, and rubbing the ice over the area while holding the base of the cup. You should ice until the area becomes numb and then ice for 5 more minutes. Ice area after aggravating activity.
- Over The Counter Pain Medication (Ibuprofen, Advil, Aleve, Motrin, Naprosyn, Tylenol): these medications are helpful in reducing acute swelling and pain. They should not be taken if you have a hx of acid reflux or hx of stomach irritation from these medication in the past.
- We also recommend obtaining Tylenol (Acetaminophen) 650mg extended release (8-hour), arthritis strength tablets over-the-counter prior to surgery. Do not exceed more than 4,000mg of Tylenol in a 24-hour period.
- Counter Force Straps: "counterforce straps" can be helpful in patients with tennis elbow, golfers elbow, and patellar tendonitis. They should be worn 2-3 cm below the elbow. They are intended to take the pressure off of the tendon insertion which is the area of dysfunction/damage.
- Braces: Commonly referred to as "cockup wrist splints". They keep the wrist supported and in a small amount of extension to relieve tension on the extensor tendons in lateral epicondylitis. They are used at night while sleeping, or during the day when performing work on a computer.
- Cortisone injections: These have been performed in the past. Studies have shown cortisone injections do not benefit patients and some studies showed negative effects on tendon healing over time and worse outcomes. Dr. Norberg does not recommend this treatment to patients with tendonosis.
- Physical Therapy/Occupational Therapy/Athletic Training: Therapeutic exercise has been shown to be helpful with a focus on intrinsic strengthening, instrument assisted soft tissue mobilization, flexibility, and activity modification.

WHEN TO CONSIDER PROCEDURAL OR SURGICAL TREATMENT

If symptoms are not relieved after at least 3 months of conservative treatment (shown above) it is unlikely the symptoms will improve. At this point, it may be time to consider procedural or surgical treatment.

Procedural: Platelet Rich Plasma (PRP) Injections or TenJet Percutaneous Tenotomy

To schedule PRP injection or TenJet please contact Dr. Norberg's office for further information at this time.

In some cases, further surgical intervention may be indicated. Surgical option, arthroscopic vs. open partial tenotomy vs repair would be performed by Dr. Norberg.

RISKS OF THE SURGICAL PROCEDURE:

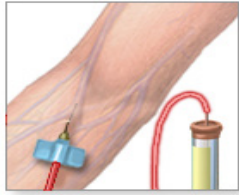
With any surgery/procedure there are potential risks involved. However, the risks with this procedure are substantially lower. These risks include but are not limited to infection, continued pain, damage to blood vessels or nerves, decreased motion, and anesthetic complications. Call (952)-428-5639 if you have any signs of infection: redness, warmth, fever, discolored drainage.

PLATELET RICH PLASMA INJECTION

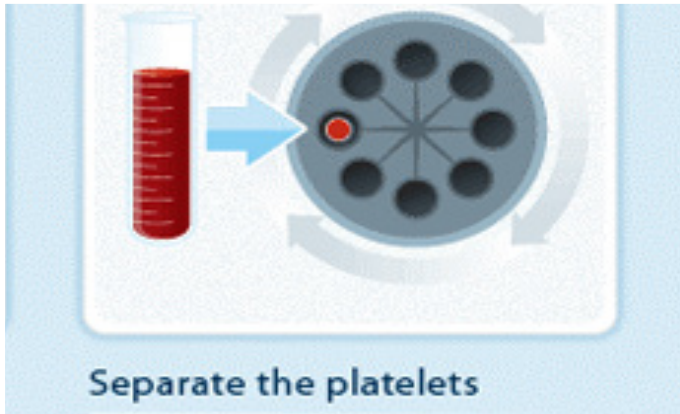
Tourniquet is applied and area is disinfected



Needle is introduced into vein, blood is drawn into vial and analyzed

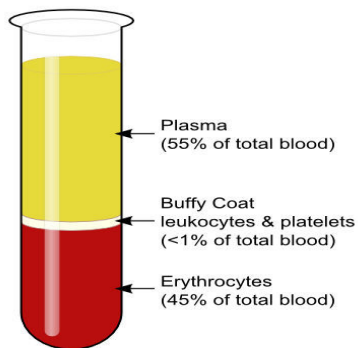


COLLECT BLOOD

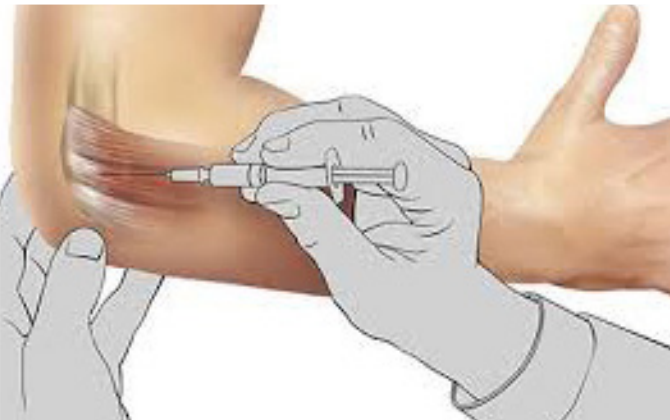


SEPARATE THE PLATELETS

EXTRACT PLATELET RICH PLASMA



INJECT PLATELET RICH PLASMA



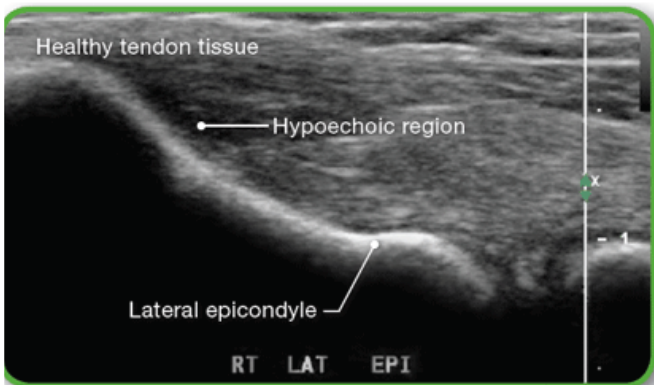
TENJET PERCUTANEOUS TENOTOMY

TenJet is a device that performs a minimally invasive, ultrasound guided removal (tenotomy) of damaged tendon that leads to] chronic tendon pain. This procedure helps by removing poorly structured tendon that is prone to inflammation. The procedure itself creates a secondary form of useful inflammation that leads to development of new tissue. This new tissue undergoes a remodeling phase that strengthens the tendon and prepares it for the forces associated high level activity. Most procedures require a minimum of 6 weeks recovery time before return to full activity.



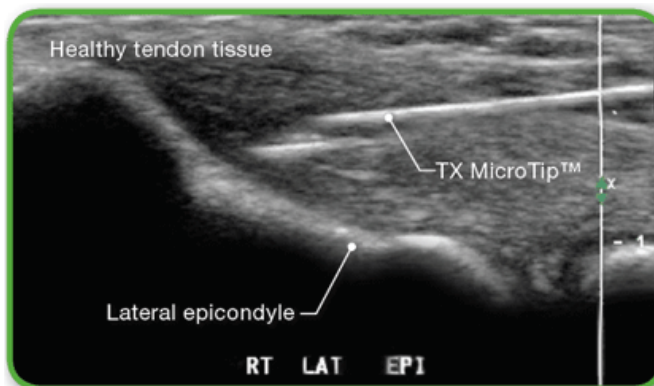
PREPARATION

The area is prepared with sterile draping and disinfectant soap. You will be fully awake for this procedure.



ULTRASOUND IDENTIFICATION

Ultrasound is used to identify the area of tissue damage tendon. Lateral epicondyle of elbow is displayed to the left.



DAMAGED TISSUE REMOVAL

The ultrasonic MicroTip breaks down and extracts the damaged tissue. When the damaged tissue is removed there is increased bloodflow which allows the tendon to heal.

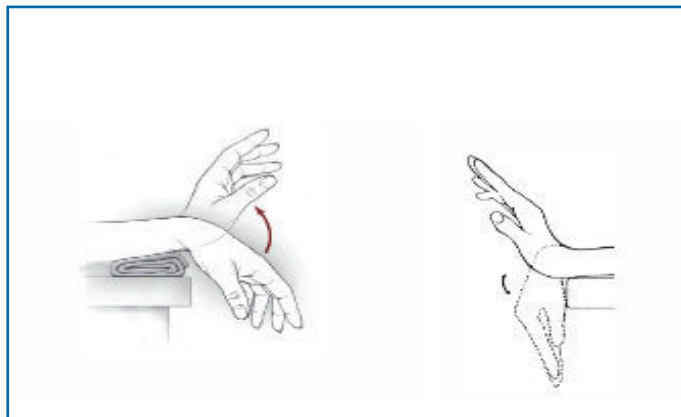
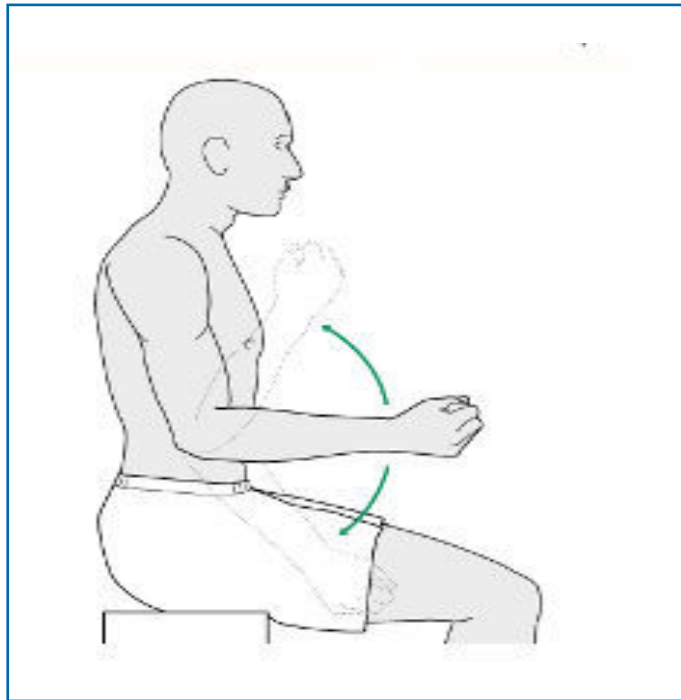
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POST SURGICAL INSTRUCTIONS:

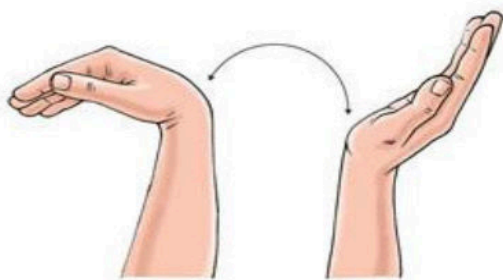
- Lateral/Medial Epicondylitis: wear wrist brace for 2 weeks
- Follow-up after procedure in 1 week
- After 2 weeks in brace work back into activity as tolerated not pushing through pain. No heavy lifting for 6 weeks which includes: heavy grasping, carrying, lifting weights.
- Physical Therapy/Occupational Therapy is optional. If no progress is made referral for formal PT will be made.

IMMEDIATE POST OPERATIVE EXERCISES

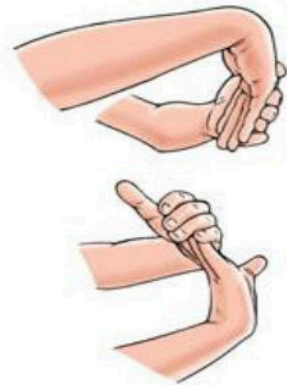
- Wrist range of motion. Bend your wrist forward and backwards as far as your can. Repeat 10 times. Do 3 sets for 2-3 times per day.
- Elbow range of motion. Gently bring your palm up towards your shoulder and bend your elbow as far as you can.



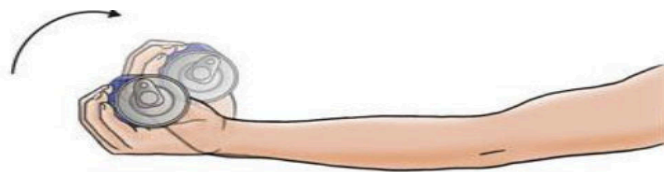
TENNIS AND GOLFERS ELBOW STRETCHES AND STRENGTHENING EXERCISES



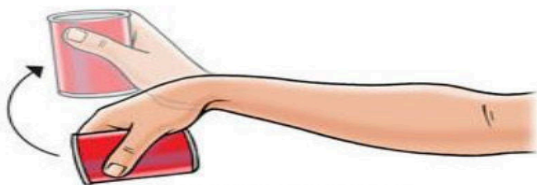
Wrist active range of motion: Flexion and extension



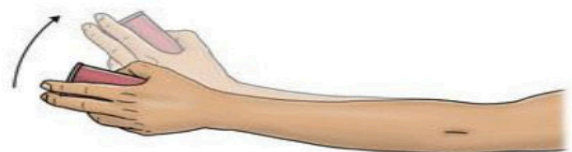
Wrist stretch



Wrist flexion



Wrist extension



Wrist radial deviation strengthening

CURRENT RESEARCH