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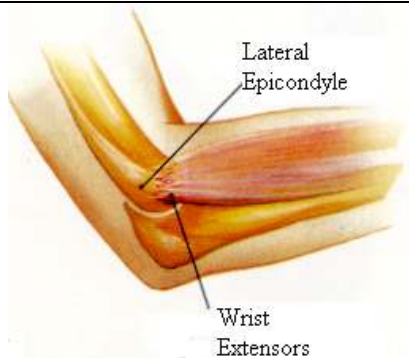
ELBOW PAIN

Elbow tendonitis/tendinosis is an overuse injury resulting from repetitive motion events frequently found in certain sports or work related activities. Statistics show that nearly one half of all tennis players will suffer from this injury at some point; however, this group represents less than 5 percent of all reported cases.

Lateral Elbow Tendinosis (outside of the elbow)

(Commonly referred to as tennis elbow or backhand tennis elbow)

Lateral Elbow tendinosis is an overuse syndrome caused by continued stress on the extensor muscles (extensor carpi radialis brevis/longus, extensor digitorum communis, and sometimes the distal tricep) of the forearm. These muscles originate on or about the lateral epicondyle of the elbow. The onset of pain is usually gradual with pain or tenderness felt on or below the elbow's bony prominence (epicondyle). Heavy use activities, including movements such as gripping, rotation the forearm with the elbow extended, and carrying tend to be troublesome. Lateral tennis elbow is a very persistent disorder that does not easily resolve itself.



Contributing Factors in Tennis

- Poor technique
- Weak shoulder & wrist muscles
- Too much string tension
- Improperly sized grip
- Hitting heavy wet or dead balls
- Hitting "off-center" on the racket

Medial Elbow Tendinosis (inside of the elbow)

Medial tendinosis, or golfer's elbow, is similar to tennis elbow except the onset of pain and tenderness is felt on the inside of the elbow, on or around the bony prominence. The cause of the syndrome is due to repetitive/continual stress on the flexor-pronator muscle group attached to the bony prominence or medial epicondyle. An additional cause may be compression of the ulnar nerve (funny bone) which causes numbness/tingling in ring/pinky finger. This compression is typically seen in pitching a baseball, the trailing arm in golf, and pull-through strokes of swimming. Golfer's elbow commonly occurs in middle-aged people often involved in sports or occupational activities that require a strong handgrip. In sports contributing factors include: over-exertion of the trailing arm in golf, opening up too quickly and dragging the arm behind the body when pitching a baseball.

Symptoms

Usually gradual onset
Difficulty extending or straightening the elbow
Dull ache at rest
Pain related to activities using the wrist – grasping, Etc

Recurring pain May radiate down arm
Pain caused by grasping or lifting
Sharp twinges during or after activity

Treatment -Relief of Pain

- Protection, Rest, Ice, Compression, Elevation, Medications, Modalities (PRICEMM)

Control Abuse

- Modify intensity, duration, and technique of forearm activity
- Use proper size and type of equipment
- Count'R-Force bracing

The first step in treatment is pain relief. We use medication in our clinic as a means to enhance the healing process by controlling pain/symptoms that would otherwise inhibit mobility and the road to recovery. Medication alone does not promote healing, but enables you to get comfortable enough to proceed to the rehabilitation or healing phase of treatment. Many Doctors advocate the use of non-steroidal anti-inflammatory drugs (e.g. Advil, Motrin) and the limited use of cortisone injections in the rare case when the patient's discomfort is so pervasive as to preclude activities of daily living. It is important to note that steroid (cortisone) injections cannot be used long term because of potentially damaging side effects. Research has shown that multiple cortisone injections degrade and weaken the tissues. More than 3 cortisone injections in one area a year are not recommended.

Rest and medication alone are not acceptable forms of curative treatment. Comfort or pain control alone does not specifically improve the injured tendon tissue.

Physical Therapy can be beneficial in the treatment of elbow tendinosis. Tendons, which attach muscles to bones, do not receive the same amount of oxygen and blood that muscles do, so they heal more slowly. Physical Therapy modalities help increase blood supply to the tendon thus facilitating healing and decreasing any swelling or discomfort.

Ice is also a very important element in the healing process and should be used any time signs of irritation or pain are present. It is important to use ice after exercise and after any activity that causes discomfort.

While rest is important to enhance the healing process, it is important to understand that rest is best defined as the absence of abusive activity, not absence of activity. "Absolute rest is rust". All tissues, particularly injured tendons, require tension and motion to maintain health. Total immobilization is obviously contra-indicated as it results in muscle atrophy, weakness, and decreased blood vessel supply. Specifically, immobilization at the elbow results in limited mobility, joint stiffness and can lead to loss of motion and function.

Controlling Abuse with Bracing

It is often difficult for people to completely avoid pain-provoking activities. Our practice recommends bracing to help disperse forces that otherwise would be absorbed at the site of injury. The Count'R-Force braces have proven very helpful in enabling individuals to begin a rehabilitative exercise program sooner, and complete their daily activities with less pain.



Count'R-Force Lateral Elbow Brace

For the prevention and treatment of:

- Common lateral tennis/golf elbow (lateral epicondylitis)
- Computer mouse elbow
- Forearm muscle strains common in many occupations, such as among musicians and construction workers



Count'R-Force Medial Elbow Brace

The only company to offer a brace exclusively for medial tennis & golf elbow pain.

- Medial tennis or golf elbow pain
- Computer mouse elbow on the medial and lateral side

To order braces call 1-800-783-2240 or visit the web site at www.countforce.com

Bracing has proven beneficial in enabling individuals to return to their sport. The principle of the Count'R-Force brace is to give firm yet pliable anatomic support and protection for an expanding muscle and moving tendon, while at the same time allowing freedom of joint movement. The brace decreases internal muscle tension and lends support to injured tendons without pinching blood vessels or nerves or causing excess focal compression. The goal of rehabilitation exercises is to promote optimal healing of the injured tissue. Absolute rest and pain relief by injection or medications offers no stimulation to the injured tissue. Injured tendons must be nourished by increased blood supply. Rehabilitation exercises are the key to the curative process because they promote strength, flexibility, and endurance to the injured area.

A major goal of rehabilitating the elbow is **total arm strength and endurance which includes the shoulder.**

Incidence of injury increases as the body fatigues; therefore; exercise of the elbow and shoulder muscle groups are an important aspect to avoiding injury. You should get in shape to play your sport, not play a sport to get in shape.

Why Rehabilitation Exercises?

High school athletes not performing a strength-training program had an injury rate of 72.4% compared to only a 26.2% injury rate for athletes on a strength training program. Furthermore, the time required for rehabilitation from an injury was twice as long as those individuals not on a strength-training program.

It is important to continue the strengthening program when the pain has resolved. Since regular activities of daily living do not maintain conditioned muscles and may actually be detrimental to some muscle (including sports activities), it is critical to continue a strength training program to maintain joint health.

Surgery

Surgery is warranted when patients fail a quality rehabilitative program. Failure to receive a quality program, maintain a rehab exercise routine, or months of rest without rehabilitative exercise does not justify surgical intervention. In addition, if muscles are not strengthened prior to surgery it will prolong the post surgical rehab time. A conditioned arm will recover much quicker after surgery. Surgical intervention focuses on excision of the degenerative tissue and stimulation of healing factors not the obsolete concept of tendon release. Post operatively the patient can expect to be treated in a sling for 3 to 5 days before following a structured therapy protocol.

ELBOW REHABILITATION PROGRAM

A gradual progression of the exercises is extremely important. Although they may seem easy at first you must follow the enclosed steps closely to prevent an increase or re-aggravation of your symptoms. Before beginning the strengthening exercises you should warm-up your body to a light sweat. Try 3 to 5 minutes of brisk walking, cycling, jogging etc. **Do exercises only once a day:** more is not better and can re-aggravate your symptoms. Wear the Count'R-Force® brace if advised by your therapist or if you experience pain while performing the exercises. Do each exercise at its own rate. You will achieve higher weights faster on some exercises than others. **Do each exercise properly and slowly do not work through peavierain**

Stage # 1 Exercises

Keep your **elbow bent to 90 degrees**. If this is painful lean forward and bend your elbow even more. Your forearm should be well supported on your thigh or a table.

1. Begin with **no weight**, doing 10 to 15 repetitions for each exercise.
2. Slowly progress the repetitions in sets of 10, every few days as your elbow allows until you are comfortably doing 3 sets of 10 repetitions for 2 consecutive days without increasing your symptoms.
3. Increase to a one-pound weight (a small can of soup works well). Go back to 10 to 15 repetitions for each exercise.
4. Slowly work up to 3 sets of 10 repetitions again.
5. Increase to a two-pound weight and again cut back to 10 to 15 repetitions.
6. Slowly progress to 3 sets of 10 repetitions.
7. Continue this gradual progression until you are using a three-pound weight for 3 sets of 10 repetitions without increasing your symptoms.
8. Progress to next stage as able.

RUBBER BAND AND BALL SQUEEZE EXERCISES

Begin with your elbow bent at your side and progress by performing the exercises with your arm straight out in front of you as able. **You should do these two exercises several times a day, every day.** It is a good idea to have a ball and rubber band in convenient places like in your car, at your desk, or by the television. Be careful not to overdo these exercises as they can increase your pain.

Ice after exercises We recommend gel packs or even a bag of frozen peas or corn, as they will mold to the shape of your arm. Do not put ice directly on your skin. Use a thin towel between the ice and your skin. The recommended time to ice the elbow is between 10 to 15 minutes. Keeping the ice on longer is not beneficial and may cause a burn, or injury to the nerve. If possible, try to ice the area several times a day to help control your pain. It is especially important to ice after a strenuous day of work or exercise.

We have been using this tennis/golf program for over 30 years, and have found it to be very effective if properly performed. A slow, steady progression is critical to the healing process. Unfortunately, results will not occur overnight and it may be 2- 6 months before your symptoms are no longer present. You may experience significant decreases in your symptoms prior to that time, but it is important to continue the exercises. Remember, even if you are performing your exercises correctly, you must still avoid daily activities that you know causes your pain.

DO NOT CAUSE PAIN

If an exercise causes Phase 3 pain (see pain phases below) or more, modify by:

- a. Decreasing the amount of weight you are lifting and/or
- b. Decreasing the number of repetitions you are performing and/or
- c. Moving through a lesser range of motion (“pain free” range of motion).

If still painful check with your therapist or doctor.

PAIN PHASES

Phase 0: No pain or soreness.

Phase 1: Soreness after activity, usually gone in twenty-four hours

Phase 2: Mild stiffness and soreness before activity which disappears with warm-up. **No pain during activity**, but mild soreness after activity that disappears within 24 hours.

****Phase 3:** Mild/moderate stiffness and soreness plus **mild pain during activity** which does not alter activity.

****Phase 4:** Pain during activity which alters activity.

****Phase 5:** Constant pain even at rest.

****These pain phases should be avoided. It is not beneficial to work through this type of pain.**

Tennis Elbow Exercises Stage # 1



Wrist Flexion (palm up)

- Sit in a chair with your forearm resting on your leg or the tabletop, elbow bent to 90°. Your wrist and hand should extend past the edge of your leg with your palm facing up as shown in the photo.
- Lift your hand/wrist as high as possible. Hold for 2 seconds and slowly return.



Wrist Extension (palm down)

- Sit in a chair with your forearm resting on your leg or the tabletop, elbow bent to 90°. Your wrist and hand should extend past the edge of your leg with your palm facing down as shown in the photo.
- Lift your hand/wrist as high as possible. Hold for 2 seconds and slowly return.



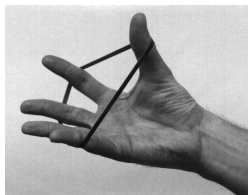
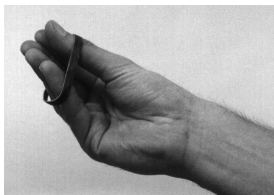
Forearm Rotation - Pronation / Supination

- Sit in a chair with your forearm resting on your leg or the tabletop, elbow bent to 90°. Your wrist and hand should extend past the edge of your leg.
- Hold the hammer at one end rather than in the middle, with your palm facing up.
- Slowly roll your forearm so that your palm faces down. Hold for 2 seconds and rotate back to the palm up position.



Radial Deviation/Ulnar Deviation

- Sit in a chair with your forearm resting on your leg or the tabletop, elbow bent to 90°. Your wrist and hand should extend past the edge of your leg.
- With thumb up, bend wrist up and slowly lower as if hammering.



Finger Extension

- Place a thick rubber band or bands around your thumb and fingers as shown in the photo.
- Open your hand/fingers as wide as possible.
- Hold for 2 seconds and slowly close your fingers.
- Repeat until fatigue occurs.



Hand Squeeze

- Hold ball or sponge in the palm of your hand.
- Squeeze firmly. Hold for 2 seconds and relax.
- Repeat 2-3 sets of 10 reps.

Tennis Elbow Exercise Stage # 2

Advancing the Program:

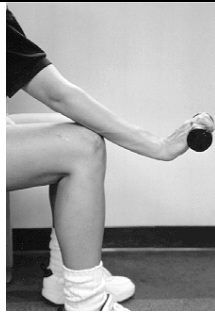
Once you are able to do the exercises in stage 1 using a 3-pound weight and doing a total of 30 repetitions (3 sets of 10), you should stop stage one and begin stage # 2. You should continue to do rubber band and squeezing exercises.

1. Begin **gradually straightening** your elbow with your arm still supported on your thigh. You may need to drop the weight back 1 or 2 pounds and progress back up depending on your symptoms.
2. Continue to progress the weights until you are back to using 3 pounds for 3 sets of 10 repetitions.



Wrist Flexion - Progression # 1 (palm up)

- Sit in a chair with your forearm resting on your leg or a table top, elbow straight but not locked. Your wrist and hand should extend past the edge of your leg, with your palm facing **up**.
- Lift your hand/wrist as high as possible. Hold for 2 seconds and slowly return.



Wrist Extension - Progression # 1 (palm down)

- Sit in a chair with your forearm resting on your leg or a table top, elbow straight but not locked. Your wrist and hand should extend past the edge of your leg, with your palm facing **down**.
- Lift your hand/wrist as high as possible. Hold for 2 seconds and slowly return.



Forearm Rotation - Progression # 1

- Sit in a chair with your elbow straight but resting on your leg or table top. Your wrist and hand should extend past the edge of your leg.
- Hold the Hammer at one end rather than in the middle, with your palm facing **up**.
- Slowly roll your forearm so that your palm faces **down**. Hold for 2 seconds and rotate back to the palm up position.



Radial Deviation/Ulnar Deviation

- Sit in a chair with your elbow straight but resting on your leg or the tabletop. Your wrist and hand should extend past the edge of your leg.
- With thumb up, bend wrist up and slowly lower as if hammering.

Each individual will find a point where they no longer need to progress the weights and can continue with a maintenance program 2 to 3 times a week. It is important to continue on a strengthening program or you run the risk of re-injuring your elbow or having your symptoms return.

- ❖ To reduce the risk of injury consult your healthcare professional before beginning any exercise program. This is general information and is not intended to diagnose or replace your current health care professional. The Nirschl Orthopaedic Center is not liable for any injury or pain you may experience as a result of this exercise program. As with any exercise program, if you begin to feel faint, dizzy, or have physical discomfort you should stop immediately and consult your health care professional.