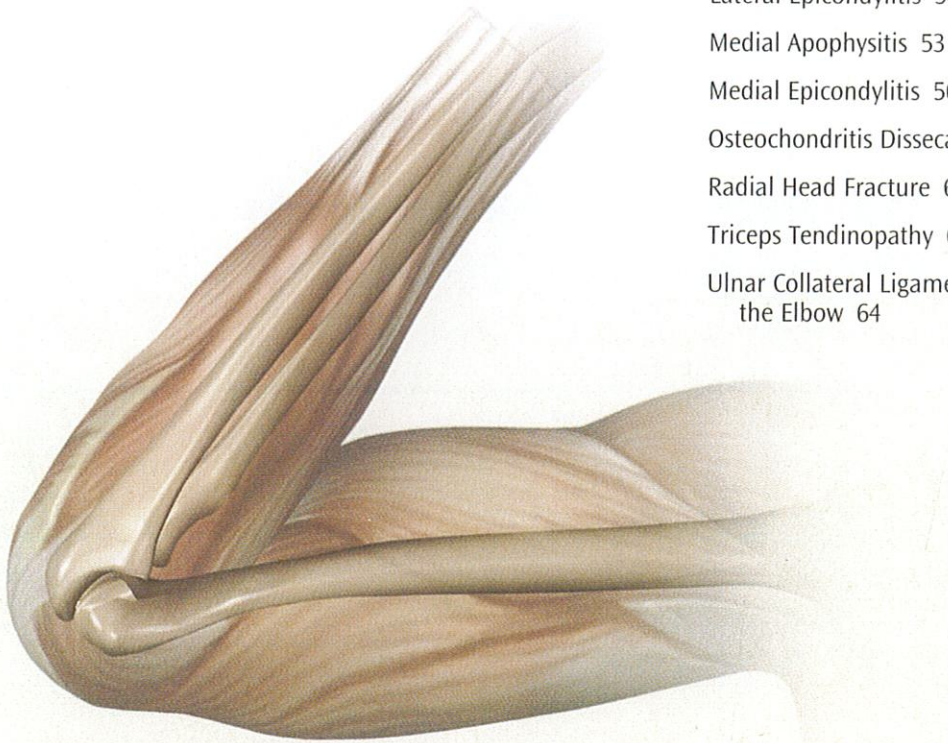


# *The Elbow and Arm*

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# ELBOW (OLECRANON) BURSITIS

## What is elbow (olecranon) bursitis?

A bursa is a fluid-filled sac that acts as a cushion between tendons, bones, and skin. Irritation or inflammation of a bursa is called bursitis. Olecranon bursitis causes pain or swelling at the point of the elbow.

## How does it occur?

Repeated injury, such as falling onto the elbow or rubbing the elbow against a hard surface, causes irritation to the bursa.

## What are the symptoms?

The bursa at the point of the elbow is swollen. This swelling may or may not be painful. It may hurt to bend and straighten your elbow. There may be warmth and redness. Sometimes the fluid inside the bursa can become infected.

## How is it diagnosed?

Your healthcare provider will review your symptoms and examine your elbow.

## How is it treated?

Treatment may include:

- putting ice packs on your elbow for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain and swelling go away
- wrapping an elastic bandage around your elbow to keep the bursa from swelling more
- removal of some of the bursa fluid by your healthcare provider with a needle and syringe
- taking anti-inflammatory medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- protecting your elbow with a pad

In some cases, problems with longstanding (chronic) olecranon bursitis may require surgical removal of the bursa.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport will be determined by how soon your elbow recov-

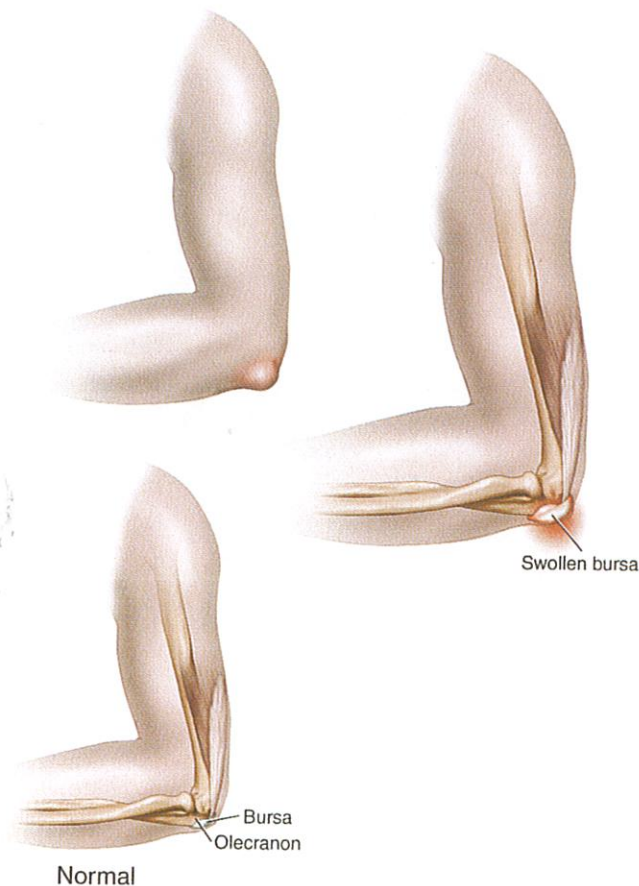
ers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your sport or activity when you are able to forcefully grip your tennis racquet, bat, or golf club, or do activities such as working at a keyboard without pain at your elbow. In sports such as gymnastics, you should be able to bear weight on your elbow painlessly. You should have no swelling around your injured elbow and it should have regained its normal strength compared to your uninjured elbow. You must have full range of motion of your elbow.

## How can I prevent olecranon bursitis?

Olecranon bursitis can be best prevented by avoiding direct contact to the point of your elbow. It is important not to irritate the bursa by leaning your elbow onto a surface such as a table or a desk.

## ELBOW (OLECRANON) BURSITIS



# ELBOW SPRAIN

## What is an elbow sprain?

An elbow sprain is an injury that causes a stretch or tear of one or more of the ligaments in the elbow joint. Ligaments are strong bands of tissue that connect bones at the joint.

Sprains may be graded 1, 2, or 3 depending on their severity:

- grade 1 sprain: pain with minimal damage to the ligaments
- grade 2 sprain: mild ligament damage and mild looseness of the joint
- grade 3 sprain: complete tearing of the ligament, and the joint is very loose or unstable

Sometimes sprains are just classified as mild moderate or severe, depending on the amount of ligament damage.

## How does it occur?

An elbow sprain can occur from a fall onto your elbow or onto your outstretched arm. It may also happen if your arm and elbow is twisted or hyperextended.

## What are the symptoms?

You will have pain, swelling and difficulty bending and straightening your elbow and rotating your forearm. Your elbow will be tender to touch.

## How is it diagnosed?

Your provider will review your symptoms, ask you how the injury occurred and examine your elbow. He or she may order an X-ray.

## How is it treated?

An elbow sprain is treated with a sling to keep the elbow from moving while it is painful and swollen. Sometimes a splint is used. You should apply ice packs to your elbow for 20 to 30 minutes 3-4 times day for 2 to 3 days or until the pain and swelling goes away. You can put the ice packs in the sling. You should sleep with your elbow elevated on a pillow. You can take an anti-inflammatory medicine, such as ibuprofen, or another medication prescribed by your provider. You will be given rehabilitation exercises by your

provider. If severe ligament damage has occurred, surgery may be needed.

## How long will the effects last?

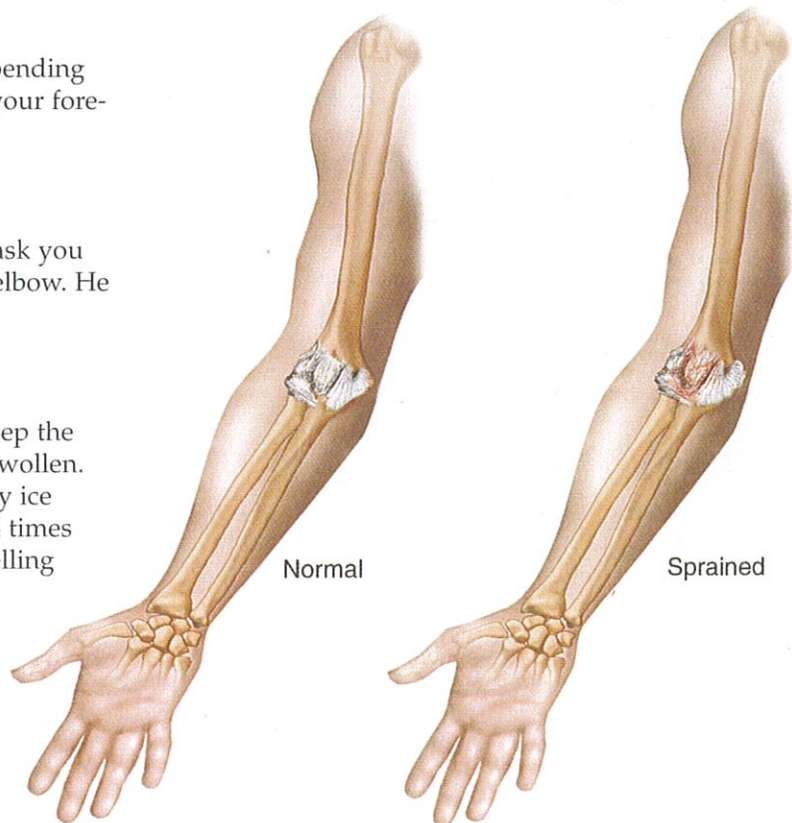
The effects of an elbow sprain usually last 3 to 6 weeks.

## When can I return to my normal activities?

Everyone recovers from an injury at a different rate. Return to your activities will be determined by how soon your elbow recovers, not by how many days or weeks it has been since your injury has occurred. The goal of rehabilitation is to return you to your normal activities as soon as is safely possible. If you return too soon you may worsen your injury.

You may return to your activities when your elbow has full range of motion without pain and has the same strength as the uninjured side.

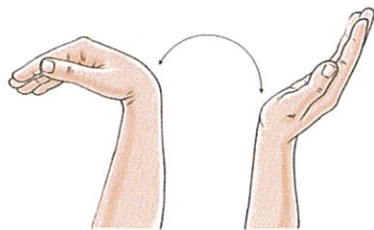
## ELBOW SPRAIN



# ELBOW SPRAIN REHABILITATION EXERCISES

You may do the stretching exercises right away. You may do the strengthening exercises when stretching is nearly painless.

## Stretching exercises



WRIST ACTIVE RANGE OF MOTION

**1. WRIST ACTIVE RANGE OF MOTION:** Flexion and extension: Bend your wrist forward and backward as far as you can. Do 3 sets of 10.

**2. FOREARM PRONATION AND SUPINATION:** With your elbow bent 90°, turn your palm upward and hold for 5 seconds. Slowly turn your palm downward and hold for 5 seconds. Make sure you keep your elbow at your side and bent 90° throughout this exercise. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION



**3. ACTIVE ELBOW FLEXION AND EXTENSION:** Gently bring your palm up toward your shoulder and bend your elbow as far as you can. Then straighten your elbow as far as you can 10 times. Do 3 sets of 10.

ACTIVE ELBOW FLEXION AND EXTENSION

## Strengthening exercises

**4. WRIST FLEXION:** Hold a can or hammer handle in your hand with your palm facing up. Bend your wrist upward. Slowly lower the weight and return to the starting position. Do 3 sets of 10. Gradually increase the weight of the can or weight you are holding.



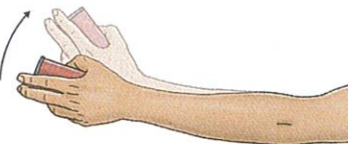
WRIST FLEXION

**5. WRIST EXTENSION:** Hold a soup can or hammer handle in your hand with your palm facing down. Slowly bend your wrist upward. Slowly lower the weight down into the starting position. Do 3 sets of 10. Gradually increase the weight of the object you are holding.



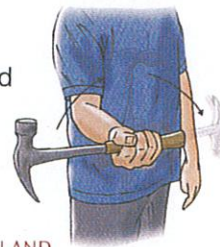
WRIST EXTENSION

**6. WRIST RADIAL DEVIATION STRENGTHENING:** Put your wrist in the sideways position with your thumb up. Hold a can of soup or a hammer handle and gently bend your wrist up, with the thumb reaching toward the ceiling. Slowly lower to the starting position. Do not move your forearm throughout this exercise. Do 3 sets of 10.

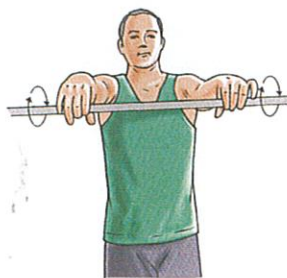


WRIST RADIAL DEVIATION STRENGTHENING

**7. FOREARM PRONATION AND SUPINATION STRENGTHENING:** Hold a soup can or hammer handle in your hand and bend your elbow 90°. Slowly rotate your hand with your palm upward and then palm down. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION STRENGTHENING



WRIST EXTENSION (WITH BROOM HANDLE)

**8. WRIST EXTENSION (WITH BROOM HANDLE):** Stand up and hold a broom handle in both hands. With your arms at shoulder level, elbows straight and palms down, roll the broom handle backward in your hand. Do 3 sets of 10.

# FOREARM FRACTURE

## What is a forearm fracture?

A fracture is a break in a bone. There are two bones in your forearm:

- the radius (on the thumb side of your arm)
- the ulna (on the little-finger side of your arm)

## How does it occur?

A forearm fracture usually occurs from:

- a fall onto an outstretched arm or hand
- a direct blow to the arm

## What are the symptoms?

The symptoms are pain, swelling, and tenderness at the site of injury. You may not be able to move your arm normally.

## How is it diagnosed?

Your healthcare provider will examine your forearm and look for tenderness. An X-ray of your arm will show the fracture.

## How is it treated?

If the broken bone is crooked, your healthcare provider will straighten it. You will be given some medicine first so the straightening is not too painful. Some fractures that cannot be straightened, or that are broken into many pieces, may need to have surgery.

You may be given a splint for your arm for a few days until the swelling begins to go down. Then your arm will be put in a cast for 4 to 8 weeks.

Your healthcare provider may prescribe anti-inflammatory medicines or other pain medicines (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).

You should elevate your arm on a pillow or the back of a chair as often as possible for the first 2 to 3 days. This will help control pain and swelling.

You may place ice packs over the cast for 20 to 30 minutes every 3 to 4 hours for the first 2 to 3 days. Take care not to get your cast wet if it is a plaster cast.

## When should I call my healthcare provider?

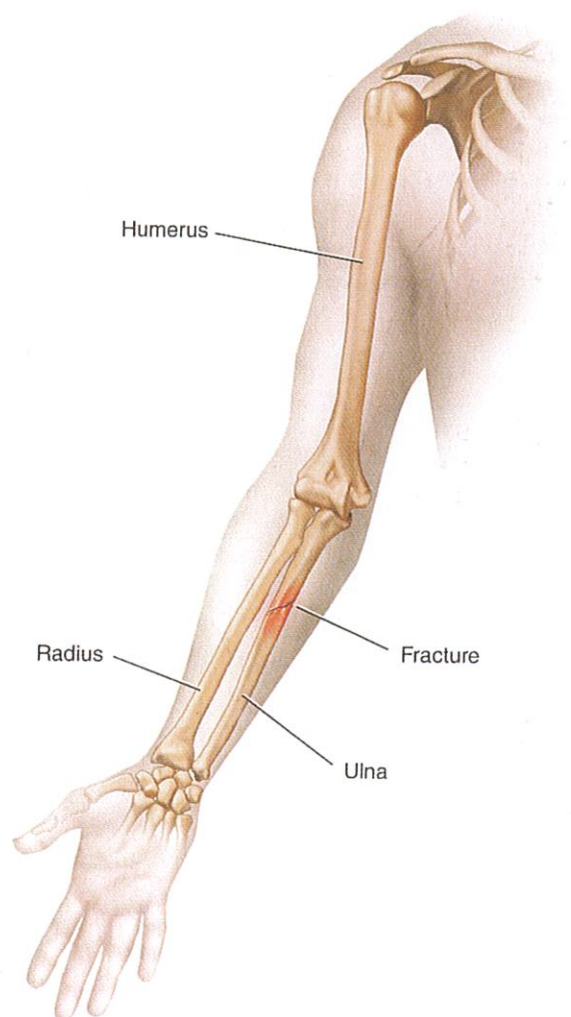
Call your healthcare provider if:

- your pain is getting worse instead of better
- you feel that your cast is too tight and you have swelling that doesn't get better when you elevate your injury

## How can I prevent a forearm fracture?

Most forearm fractures are caused by accidents that you cannot easily prevent.

## FOREARM FRACTURE



# LATERAL EPICONDYLITIS (TENNIS ELBOW)

## What is lateral epicondylitis (tennis elbow)?

Lateral epicondylitis (tennis elbow) is the name for a condition in which the bony bump at the outer side of the elbow is painful and tender.

The elbow joint is made up of the bone in the upper arm (humerus) and one of the bones in the lower arm (ulna). The bony bumps at the bottom of the humerus are called epicondyles. The bump on the outer side of the elbow, to which certain forearm muscles are attached by tendons, is called the lateral epicondyle.

Lateral epicondylitis is also referred to as wrist extensor tendinopathy.

## How does it occur?

Tennis elbow results from overusing the muscles in your forearm that straighten and raise your hand and wrist. When these muscles are overused, the tendons are repeatedly tugged at the point of attachment (the lateral epicondyle). As a result, the tendons become inflamed. Repeated, tiny tears in the tendon tissue cause pain. Among the activities that can cause tennis elbow are tennis and other racket sports, carpentry, machine work, typing, and knitting.

## What are the symptoms?

The symptoms of tennis elbow are:

- pain or tenderness on the outer side of the elbow
- pain when you straighten or raise your wrist and hand
- pain made worse by lifting a heavy object
- pain when you make a fist, grip an object, shake hands, or turn door handles
- pain that shoots from the elbow down into the forearm or up into the upper arm

## How is it diagnosed?

Your healthcare provider will ask you about your daily and recreational activities. He or she will examine your elbow and arm and will have you do movements that may cause pain in the outer part of your elbow. You may have X-rays of the elbow.

## How is it treated?

Treatment includes the following:

- Put an ice pack on your elbow for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away.

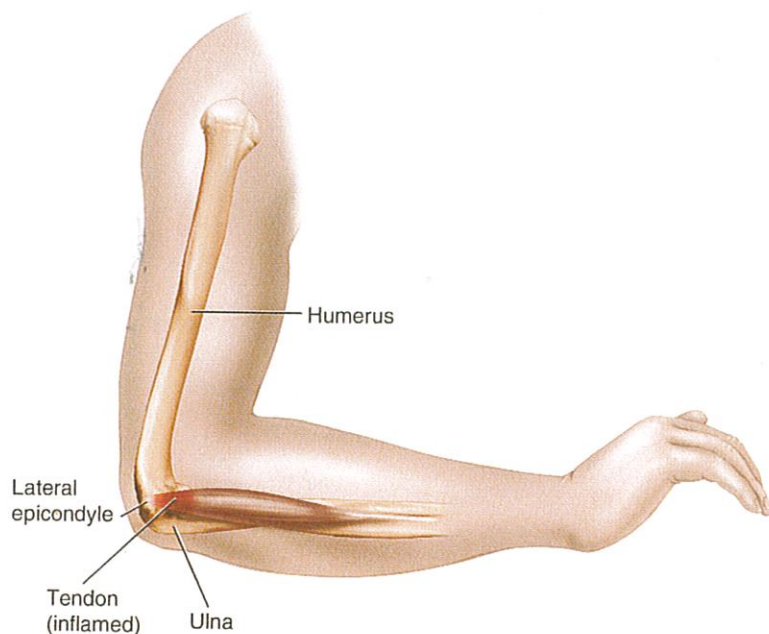
- You can also do ice massage. Massage your elbow with ice by freezing water in a Styrofoam cup. Peel the top of the cup away to expose the ice and hold onto the bottom of the cup while you rub the ice over your elbow for 5 to 10 minutes.
- Wear a tennis elbow strap. This strap wraps around the forearm below the elbow, acting as a new attachment site for the forearm muscles and keeping them from pulling on the painful epicondyle.
- Take anti-inflammatory medicine.
- Do the exercises recommended by your healthcare provider. Your provider may also recommend physical therapy.

Your provider may recommend an injection of a corticosteroid medicine around the lateral epicondyle to reduce the inflammation.

In severe cases, surgery may be recommended.

While you are recovering from your injury you will need to avoid repetitive motion of the elbow and to change your sport or activity to one that does not make your condition worse. For example, you may need to run instead of play tennis. If you play tennis, your healthcare provider may advise you to use a tennis racket with a larger grip. Your provider may suggest improvements in the way you hold or swing your racket. Try to lift objects with your palm facing up to keep from overusing your lateral epicondyle.

## LATERAL EPICONDYLITIS (TENNIS ELBOW)



## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your elbow recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your sport or activity when you are able to forcefully grip your tennis racket, bat, or golf club, or do activities such as working at a keyboard without pain in your elbow. In sports such as gymnastics, it is important that you are able to bear weight on your elbow painlessly. It is important that there is no swelling around your injured elbow and that it has regained its normal strength compared to

your uninjured elbow. You must have full range of motion of your elbow.

## How can I prevent tennis elbow?

To prevent tennis elbow:

- Use proper form during your activities, whether they are sports or job-related. For instance, be sure your tennis stroke is correct and that your tennis racket has the proper grip size.
- Warm up before playing tennis or doing other activities that involve your elbow or arm muscles. Gently stretch your elbow and arm muscles before and after exercise.
- Ice your elbow after exercise or work.

In job-related activities, be sure your posture is correct and that the position of your arms during your work doesn't cause overuse of your elbow or arm muscles.

# LATERAL EPICONDYLITIS (TENNIS ELBOW) REHABILITATION EXERCISES

You may do the stretching exercises right away. You may do the strengthening exercises when stretching is nearly painless.

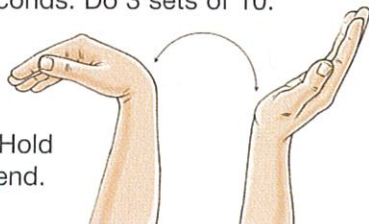
## Stretching exercises

### 1. WRIST RANGE OF MOTION

**A. Flexion:** Gently bend your wrist forward. Hold for 5 seconds. Do 3 sets of 10.

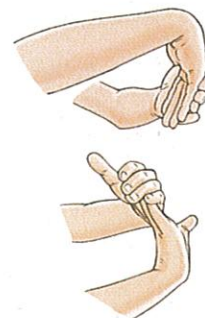
**B. Extension:** Gently bend your wrist backward. Hold this position 5 seconds. Do 3 sets of 10.

**C. Side to side:** Gently move your wrist from side to side (a handshake motion). Hold for 5 seconds at each end. Do 3 sets of 10.



WRIST ACTIVE RANGE OF MOTION

**2. WRIST STRETCH:** With one hand, help to bend the opposite wrist down by pressing the back of your hand and holding it down for 15 to 30 seconds. Next, stretch the hand back by pressing the fingers in a backward direction and holding it for 15 to 30 seconds. Keep your elbow straight during this exercise. Do 3 sets on each hand.



WRIST STRETCH

**3. WRIST EXTENSION STRETCH:** Stand at a table with your palms down, fingers flat, and elbows straight. Lean your body weight forward. Hold this position for 15 seconds. Repeat 3 times.



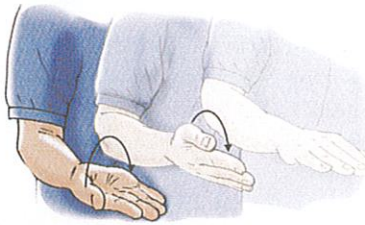
WRIST EXTENSION STRETCH



WRIST FLEXION STRETCH

**4. WRIST FLEXION STRETCH:** Stand with the back of your hands on a table, palms facing up, fingers pointing toward your body, and elbows straight. Lean away from the table. Hold this position for 15 to 30 seconds. Repeat 3 times. During this stretch you may do ice massage over the area of pain.

**5. FOREARM PRONATION AND SUPINATION:** With your elbow bent 90°, turn your palm upward and hold for 5 seconds. Slowly turn your palm downward and hold for 5 seconds. Make sure you keep your elbow at your side and bent 90° throughout this exercise. Do 3 sets of 10.

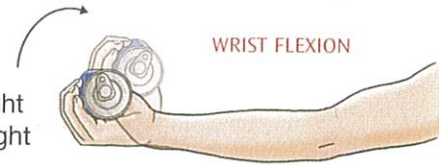


FOREARM PRONATION AND SUPINATION

When this exercise becomes pain free, do it with some weight in your hand such as a soup can or hammer handle.

## Strengthening exercises

**6. WRIST FLEXION:** Hold a can or hammer handle in your hand with your palm facing up. Bend your wrist upward. Slowly lower the weight and return to the starting position. Do 3 sets of 10. Gradually increase the weight of the can or weight you are holding.



**7. WRIST EXTENSION:** Hold a soup can or hammer handle in your hand with your palm facing down. Slowly bend your wrist upward. Slowly lower the weight down into the starting position. Do 3 sets of 10. Gradually increase the weight of the object you are holding.



**8. GRIP STRENGTHENING:** Squeeze a rubber ball and hold for 5 seconds. Do 3 sets of 10.



GRIP STRENGTHENING

# MEDIAL APOPHYSITIS (LITTLE LEAGUER'S ELBOW)

## What is medial apophysitis (Little Leaguer's elbow)?

Little Leaguer's elbow is pain on the side of the elbow that is closest to the body.

The elbow joint is made up of the bone in the upper arm (humerus) and one of the bones in the lower arm (ulna). The bony bumps at the end of the humerus are called epicondyles. The bump closest to the body is called the medial epicondyle, and the bump on the outer side of the elbow is called the lateral epicondyle.

The muscles that work to bend the wrist attach at the medial epicondyle, and the muscles that work to straighten the wrist attach at the lateral epicondyle. Too much bending of the wrist will irritate the muscles that attach to the medial epicondyle.

In a child, the bones grow from areas called growth plates. There is a growth plate at the medial epicondyle called the medial apophysis. In Little Leaguer's elbow this growth plate is irritated or inflamed.

## How does it occur?

Little Leaguer's elbow is caused by too much throwing. Too much throwing puts stress on the muscles that bend the wrist where they attach to the inner side of the elbow. The growth plate becomes inflamed. In severe cases, the growth plate may actually break away from the upper arm.

## What are the symptoms?

Little Leaguer's elbow causes pain at the inner side of the elbow. There may be swelling and tenderness.

## How is it diagnosed?

Your healthcare provider will examine your child's arm and elbow. There will be tenderness along the medial epicondyle. Your child will feel pain when he or she throws a ball for the provider. X-rays may show irritation or a break in the growth plate.

## How is it treated?

The most important treatment for Little Leaguer's elbow is to not throw if the growth plate is inflamed. Ice packs should be placed on the elbow for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away. An elastic elbow wrap may be placed on the inflamed elbow to give it more support. The healthcare provider may give your child an anti-inflammatory medicine. Your child will be given

rehabilitation exercises. In severe cases of Little Leaguer's elbow where there is a break in the bone, surgery may be needed.

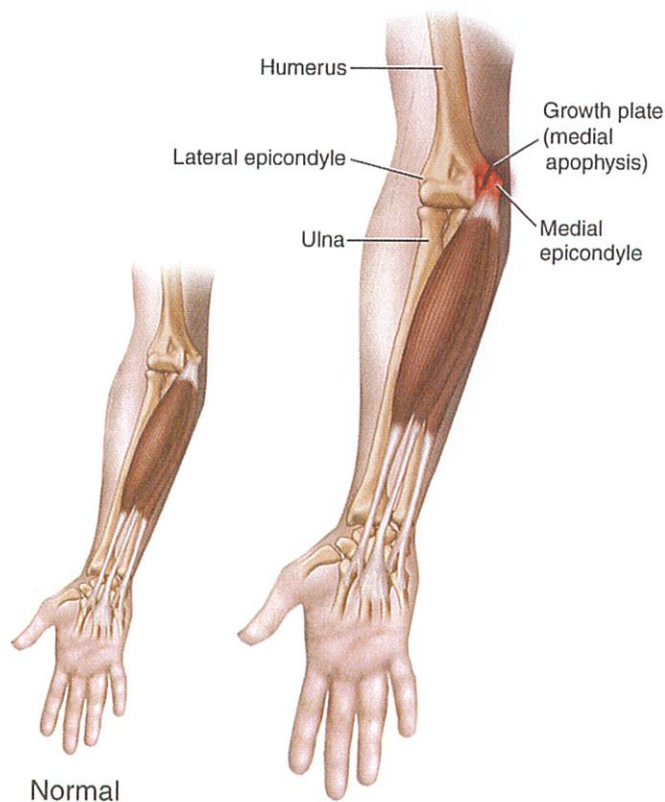
## When can my child return to his or her sport or activity?

The goal of rehabilitation is to return your child to his or her sport or activity as soon as is safely possible. If your child returns too soon the injury may be worsened, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your child's sport or activity will be determined by how soon the elbow recovers, not by how many days or weeks it has been since your child's injury occurred. In general, the longer your child has symptoms before starting treatment, the longer it takes to get better.

Your child may begin throwing when there is no swelling around the injured elbow and it has regained its normal strength compared to the uninjured elbow. Your child must have full range of

ELBOW/ARM

## MEDIAL APOPHYSITIS (LITTLE LEAGUER'S ELBOW)



motion of the elbow. Throwing should be gradually increased but stopped if the elbow becomes painful.

### How can Little Leaguer's elbow be prevented?

The best way to prevent Little Leaguer's elbow is to limit the amount of throwing a child does. Since this

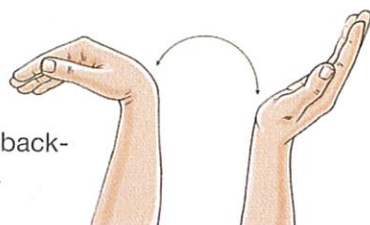
problem occurs most often in pitchers, there are guidelines for how many pitches or innings a child can throw in a week. In general, a child aged 9 through 12 years old should pitch no more than 6 innings a week (and no more than 250 pitches). A youngster aged 13 through 15 should pitch no more than 9 innings a week (and no more than 350 pitches).

## MEDIAL APOPHYSITIS (LITTLE LEAGUER'S ELBOW) REHABILITATION EXERCISES

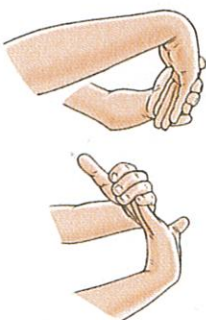
You may do the stretching exercises right away. You may do the strengthening exercises when stretching is nearly painless.

### Stretching exercises

**1. WRIST ACTIVE RANGE OF MOTION:** Flexion and extension: Bend your wrist forward and backward as far as you can. Do 3 sets of 10.



WRIST ACTIVE RANGE OF MOTION



WRIST STRETCH

**2. WRIST STRETCH:** With one hand, help to bend the opposite wrist down by pressing the back of your hand and holding it down for 15 to 30 seconds. Next, stretch the hand back by pressing the fingers in a backward direction and holding it for 15 to 30 seconds. Keep your elbow straight during this exercise. Do 3 sets on each hand.

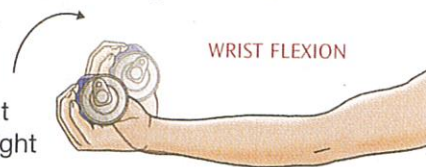
**3. FOREARM PRONATION AND SUPINATION:** With your elbow bent 90°, turn your palm upward and hold for 5 seconds. Slowly turn your palm downward and hold for 5 seconds. Make sure you keep your elbow at your side and bent 90° throughout this exercise. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION

### Strengthening exercises

**4. WRIST FLEXION:** Hold a can or hammer handle in your hand with your palm facing up. Bend your wrist upward. Slowly lower the weight and return to the starting position. Do 3 sets of 10. Gradually increase the weight of the can or weight you are holding.



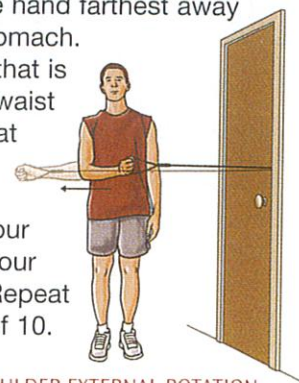
WRIST FLEXION

**5. WRIST EXTENSION:** Hold a soup can or hammer handle in your hand with your palm facing down. Slowly bend your wrist upward. Slowly lower the weight down into the starting position. Do 3 sets of 10. Gradually increase the weight of the object you are holding.



WRIST EXTENSION

**6. RESISTED SHOULDER EXTERNAL ROTATION:** Stand sideways next to a door. Rest the hand farthest away from the door across your stomach. With that hand grasp tubing that is connected to a doorknob at waist level. Keeping your elbow in at your side, rotate your arm outward and away from your waist. Make sure you keep your elbow bent 90 degrees and your forearm parallel to the floor. Repeat 10 times. Build up to 3 sets of 10.



RESISTED SHOULDER EXTERNAL ROTATION

**7. FOREARM PRONATION AND SUPINATION STRENGTHENING:**

Hold a soup can or hammer handle in your hand and bend your elbow 90°. Slowly rotate your hand with your palm upward and then palm down. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION STRENGTHENING

**8. RESISTED ELBOW FLEXION AND EXTENSION:**

Hold a can of soup with your palm face up. Slowly bend your elbow so that your hand is approaching your shoulder. Then lower it slowly so your elbow is completely straight. Do 3 sets of 10. Slowly increase the weight you are using.



RESISTED ELBOW FLEXION AND EXTENSION

# MEDIAL EPICONDYLITIS (GOLFER'S ELBOW)

## What is medial epicondylitis (golfer's elbow)?

Medial epicondylitis (golfer's elbow) is a painful inflammation of the bony bump on the inner side of the elbow.

The elbow joint is made up of the bone in the upper arm (humerus) and one of the bones in the lower arm (ulna). The bony bumps at the bottom of the humerus are called the epicondyles. The bump on the side closest to the body is called the medial epicondyle, and the bump on the outer side of the elbow is called the lateral epicondyle.

The tendons of the muscles that work to bend your wrist attach at the medial epicondyle. Medial epicondylitis is also referred to as wrist flexor tendinopathy.

## How does it occur?

Golfer's elbow occurs from overuse of the muscles that enable you to bend your fingers and wrist. When these muscles are overused, the tendons are repeatedly tugged at their point of attachment (the medial epicondyle). As a result, the tendons become inflamed (tendinopathy), and repeated, tiny tears in the tendon tissue cause pain. This commonly happens in sports such as golf, in throwing sports, and in racquet sports. It also may happen in work activities like carpentry or typing.

## What are the symptoms?

Golfer's elbow causes pain in the elbow at the side closest to the body. You may also have pain along the entire inner side of the forearm when the wrist is bent. You may have pain when you make a fist.

## How is it diagnosed?

Your healthcare provider will examine your elbow and find tenderness at the medial epicondyle.

## How is it treated?

You should apply ice packs to your elbow for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away.

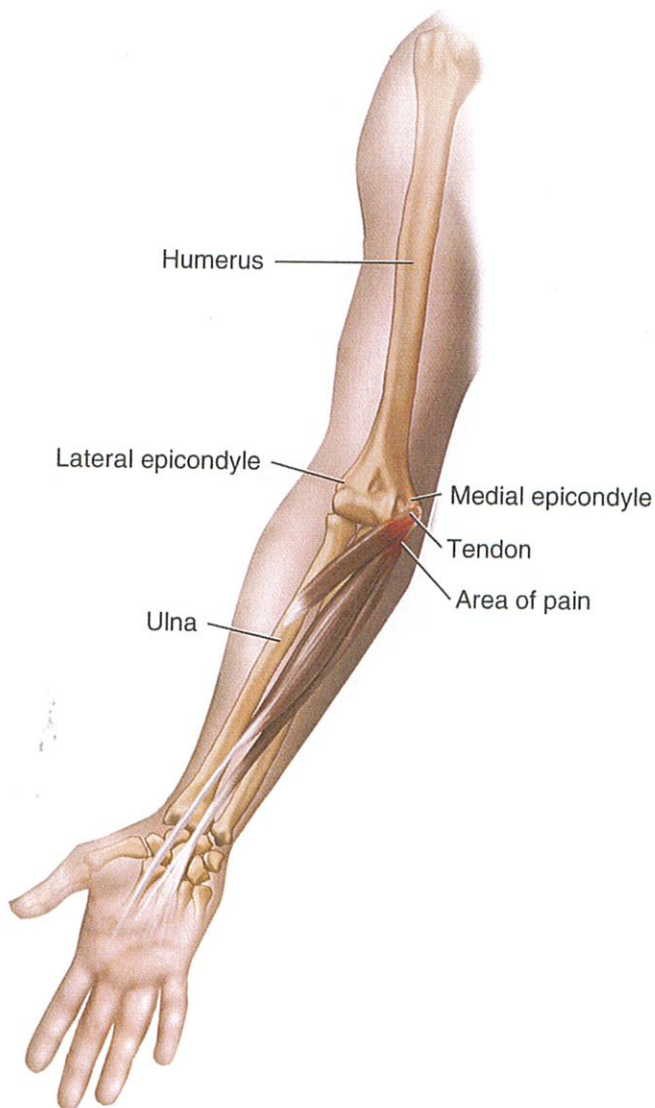
If your elbow is swollen, you should elevate it by placing a pillow underneath it when you are lying down and by elevating it on the back of a chair or couch while sitting. You may be given an elastic bandage to wrap around your elbow to keep it from swelling.

While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example,

instead of playing golf you should walk, or write things out by hand instead of typing.

Your healthcare provider may prescribe a tennis elbow strap for you to wear just below the tender spot on your elbow. This will allow the forearm muscles to pull against the strap instead of against the painful epicondyle. Your provider may prescribe an anti-inflammatory medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). He or she may give you an shot of a corticosteroid medicine around the medial epicondyle to reduce the inflammation. You

## MEDIAL EPICONDYLITIS (GOLFER'S ELBOW)



will be given elbow exercises. In severe cases of medial epicondylitis you may need surgery.

### When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your elbow recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return when you are able to forcefully grip your tennis racquet, bat, or golf club, or do activities such as working at a keyboard without pain in

your elbow. In sports such as gymnastics, it is important that you are able to bear weight on your elbow painlessly. It is important that there is no swelling around your injured elbow and that it has regained its normal strength compared to the uninjured elbow. You must have full range of motion of your elbow.

### How can it be prevented?

Since medial epicondylitis occurs because of overuse to the muscles that bend your wrist, it is important that you do not allow this overactivity to occur. At the earliest signs of pain on the inner side of your elbow, you should slow your activity down and seek treatment. Wearing a tennis elbow strap and doing elbow stretching exercises will help prevent medial epicondylitis.

ELBOW/ARM

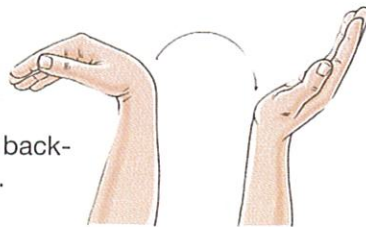
## MEDIAL EPICONDYLITIS (GOLFER'S ELBOW) REHABILITATION EXERCISES

You may do the stretching exercises right away. You may do the strengthening exercises when stretching is nearly painless.

### Stretching exercises

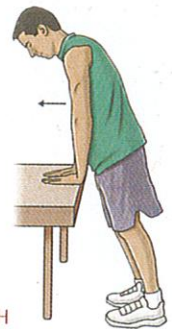
#### 1. WRIST ACTIVE RANGE

**OF MOTION:** Flexion and extension: Bend your wrist forward and backward as far as you can. Do 3 sets of 10.

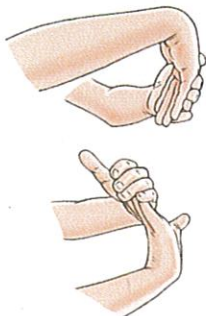


WRIST ACTIVE RANGE OF MOTION

**3. WRIST EXTENSION STRETCH:** Stand at a table with your palms down, fingers flat, and elbows straight. Lean your body weight forward. Hold this position for 15 seconds. Repeat 3 times. During this stretch you may do ice massage over the area of pain.



WRIST EXTENSION STRETCH



WRIST STRETCH

**2. WRIST STRETCH:** With one hand, help to bend the opposite wrist down by pressing the back of your hand and holding it down for 15 to 30 seconds. Next, stretch the hand back by pressing the fingers in a backward direction and holding it for 15 to 30 seconds. Keep your elbow straight during this exercise. Do 3 sets on each hand.



WRIST FLEXION STRETCH

**4. WRIST FLEXION STRETCH:** Stand with the back of your hands on a table, palms facing up, fingers pointing toward your body, and elbows straight. Lean away from the table. Hold this position for 15 to 30 seconds. Repeat 3 times.

**5. FOREARM PRONATION AND SUPINATION:** With your elbow bent 90°, turn your palm upward and hold for 5 seconds. Slowly turn your palm downward and hold for 5 seconds. Make sure you keep your elbow at your side and bent 90° throughout this exercise. Do 3 sets of 10.

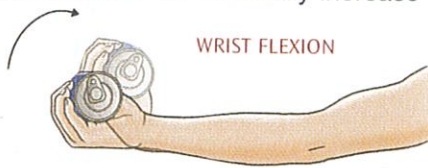


FOREARM PRONATION AND SUPINATION

When this exercise becomes pain free, do it with some weight in your hand such as a soup can or hammer handle.

### Strengthening exercises

**6. WRIST FLEXION:** Hold a can or hammer handle in your hand with your palm facing up. Bend your wrist upward. Slowly lower the weight and return to the starting position. Do 3 sets of 10. Gradually increase the weight of the can or weight you are holding.



**7. WRIST EXTENSION:** Hold a soup can or hammer handle in your hand with your palm facing down. Slowly bend your wrist upward. Slowly lower the weight down into the starting position. Do 3 sets of 10. Gradually increase the weight of the object you are holding.



**8. GRIP STRENGTHENING:** Squeeze a rubber ball and hold for 5 seconds. Do 3 sets of 10.



GRIP STRENGTHENING

# OSTEOCHONDRITIS DISSECANS (BONE CHIPS) OF THE ELBOW

## What is osteochondritis dissecans of the elbow?

Osteochondritis dissecans of the elbow is a disorder in which fragments of bone or cartilage come loose and float around in the elbow joint. Cartilage is tough, smooth tissue that lines and cushions the surface of the joints. These chips usually come from the upper arm bone (humerus).

## How does it occur?

The chips usually result from a forceful injury to the elbow joint or from a lack of blood supply to the bone. It is also seen in the elbows of throwing athletes and gymnasts.

## What are the symptoms?

It hurts when you move your elbow. Your elbow may click or lock or you may feel a bone chip inside the joint. Your elbow may be swollen and you may not be able to completely straighten your arm.

## How is it diagnosed?

Your healthcare provider will review your symptoms and examine your elbow. He or she may do an X-ray, which may show a bone chip or an abnormal joint surface. Your provider may order an MRI.

## How is it treated?

The initial treatment is to rest your elbow until the symptoms are gone. This may take up to a few weeks. You should apply ice to the elbow for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain and swelling go away. Your healthcare provider may prescribe an anti-inflammatory medicine or other pain medicine. Small bone chips or cartilage fragments that do not affect elbow motion and do not cause further pain do not need to be removed. Surgery may be needed to remove larger fragments and to repair the injured joint surface.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how

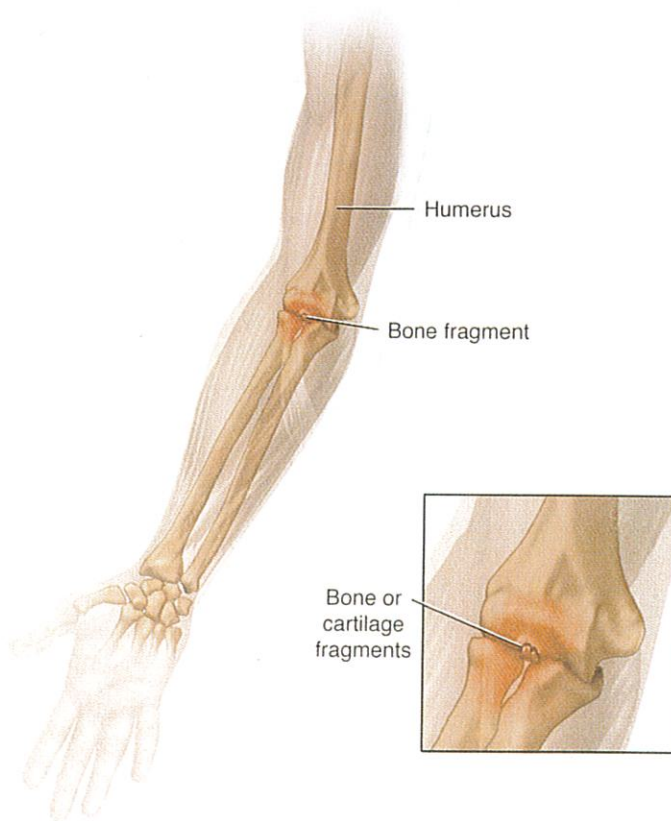
soon your elbow recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your sport or activity when you are able to forcefully grip your tennis racquet, bat, or golf club, or do activities such as working at a keyboard without pain at your elbow. In sports such as gymnastics, you should be able to bear weight on your elbow painlessly. There should be no swelling around your injured elbow and it should have regained its normal strength compared to your uninjured elbow. You must have full range of motion of your elbow.

## How can I prevent osteochondritis dissecans of the elbow?

Osteochondritis dissecans is usually caused by trauma to the elbow and is not preventable.

## OSTEOCHONDRITIS DISSECANS OF THE ELBOW



# RADIAL HEAD FRACTURE OF THE ELBOW

## What is a radial head fracture of the elbow?

Three arm bones come together at your elbow. They are the:

- Humerus (the upper arm bone)
- Ulna (the larger forearm bone on the little finger side). The end (or head) of the ulna is the “point” of your elbow.
- Radius (the smaller forearm bone on the thumb side). The end of the radius is called the radial head. The radial head is the part of the elbow joint.

A fracture is a break in a bone. A radial head fracture may be in the elbow joint or just outside the elbow joint. The break may be:

- straight (also called nondisplaced or type I)
- crooked (called displaced or type II)
- broken in many pieces (comminuted or type III)

## How does it occur?

A radial head fracture usually occurs from a fall on an outstretched arm. It can also occur from a direct blow to the elbow.

## What are the symptoms?

Symptoms include:

- pain on the thumb side of the elbow
- swelling
- trouble bending or straightening the elbow
- trouble rotating your forearm (turning your palm up and down)

## How is it diagnosed?

Your healthcare provider will examine your elbow to check where it is tender. You will have an X-ray taken. Sometimes a small break in the radius does not show up on the first X-ray.

## How is it treated?

A type I (straight) radial head fracture may be treated with a sling or a splint for a few days until there is no pain. You can then begin doing the rehabilitation exercises given to you by your provider.

If you have a large type I fracture or a type II or III fracture, you will have to keep your arm from moving for a longer time. You may need to have your arm in a cast, splint, or sling. Sometimes surgery is needed.

In some cases, even after the fracture heals, your elbow may feel stiff and you may not be able to fully straighten your elbow. Exercises will help you gain

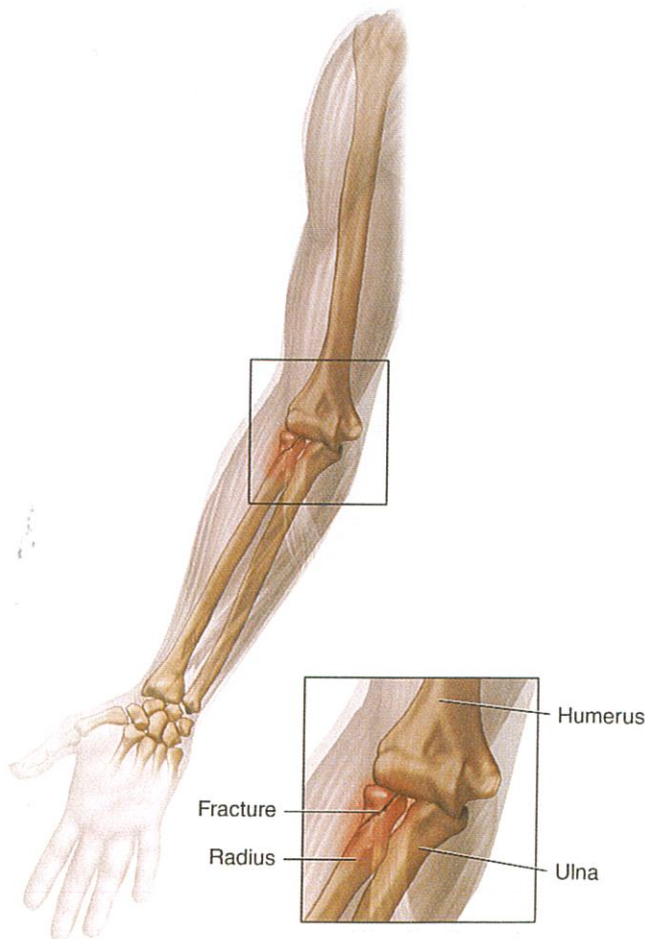
back as much range of motion and strength as possible. Your provider will tell you when you can begin elbow exercises.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your elbow recovers not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your sport or activity when your elbow has full range of motion without pain and has the same strength as the uninjured side.

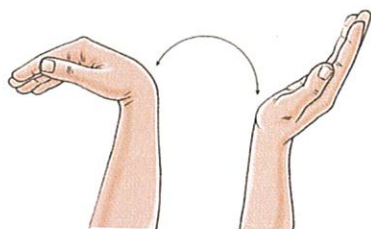
## RADIAL HEAD FRACTURE OF THE ELBOW



# RADIAL HEAD FRACTURE OF THE ELBOW REHABILITATION EXERCISES

You may do the stretching exercises right away. You may do the strengthening exercises when stretching is nearly painless.

## Stretching exercises



WRIST ACTIVE RANGE OF MOTION

**1. WRIST ACTIVE RANGE OF MOTION:** Flexion and extension: Bend your wrist forward and backward as far as you can. Do 3 sets of 10.

**2. FOREARM PRONATION AND SUPINATION:** With your elbow bent 90°, turn your palm upward and hold for 5 seconds. Slowly turn your palm downward and hold for 5 seconds. Make sure you keep your elbow at your side and bent 90° throughout this exercise. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION



**3. ACTIVE ELBOW FLEXION AND EXTENSION:** Gently bring your palm up toward your shoulder and bend your elbow as far as you can. Then straighten your elbow as far as you can 10 times. Do 3 sets of 10.

ACTIVE ELBOW FLEXION AND EXTENSION

## Strengthening exercises

**4. WRIST FLEXION:** Hold a can or hammer handle in your hand with your palm facing up. Bend your wrist upward. Slowly lower the weight and return to the starting position. Do 3 sets of 10. Gradually increase the weight of the can or weight you are holding.



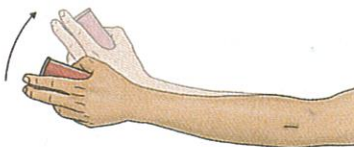
WRIST FLEXION

**5. WRIST EXTENSION:** Hold a soup can or hammer handle in your hand with your palm facing down. Slowly bend your wrist upward. Slowly lower the weight down into the starting position. Do 3 sets of 10. Gradually increase the weight of the object you are holding.



WRIST EXTENSION

**6. WRIST RADIAL DEVIATION STRENGTHENING:** Put your wrist in the sideways position with your thumb up. Hold a can of soup or a hammer handle and gently bend your wrist up, with the thumb reaching toward the ceiling. Slowly lower to the starting position. Do not move your forearm throughout this exercise. Do 3 sets of 10.

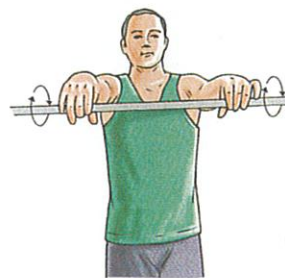


WRIST RADIAL DEVIATION STRENGTHENING

**7. FOREARM PRONATION AND SUPINATION STRENGTHENING:** Hold a soup can or hammer handle in your hand and bend your elbow 90°. Slowly rotate your hand with your palm upward and then palm down. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION STRENGTHENING



WRIST EXTENSION  
(WITH BROOM HANDLE)

**8. WRIST EXTENSION (WITH BROOM HANDLE):** Stand up and hold a broom handle in both hands. With your arms at shoulder level, elbows straight and palms down, roll the broom handle backward in your hand. Do 3 sets of 10.

# TRICEPS TENDINOPATHY AND STRAIN

## What is triceps tendinopathy and strain?

Tendons are strong bands of connective tissue that attach muscle to bone. When a tendon is acutely injured it is called a strain. Tendonitis is when a tendon is inflamed. When there are micro-tears in a tendon from repeated injury it is called tendinosis. The term tendinopathy refers to both inflammation and micro-tears.

Your triceps muscle, which acts to straighten your arm, is attached to the bony bump at the back of your elbow by a large tendon. Triceps tendinopathy causes pain in the back part of the upper arm near the point of your elbow.

## How does it occur?

Triceps tendinopathy occurs from overuse of the upper arm and elbow, especially in activities like throwing and hammering. It may also be caused by a direct blow to the triceps muscle or tendon. A triceps strain can occur with a forceful straightening of your arm or elbow.

## What are the symptoms?

Symptoms may include:

- pain when you straighten your elbow or fully bend your elbow
- tenderness at the triceps muscle and tendon
- swelling near the point of the elbow

## How is it diagnosed?

Your healthcare provider will review your history and examine your arm and elbow. If your provider thinks there may be a chip off the bone at the point of your elbow, he or she may order an X-ray.

## How is it treated?

Use ice packs on the painful area for 20 to 30 minutes 3 to 4 times a day until the pain goes away. You can also do ice massage: Freeze water in a cup and tear back the top of the cup. Rub the injured area with the ice for 5 to 10 minutes, 3 times a day. Be careful when icing your elbow. An important nerve runs just under the skin and can be damaged if you ice more than is recommended.

Your healthcare provider may recommend an anti-inflammatory medicine such as ibuprofen (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).

You may be given a strap to wear around the lower part of your triceps during activities that cause discomfort.

Your healthcare provider will give you rehabilitation exercises to help in your recovery.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your activity will be determined by how soon your arm recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

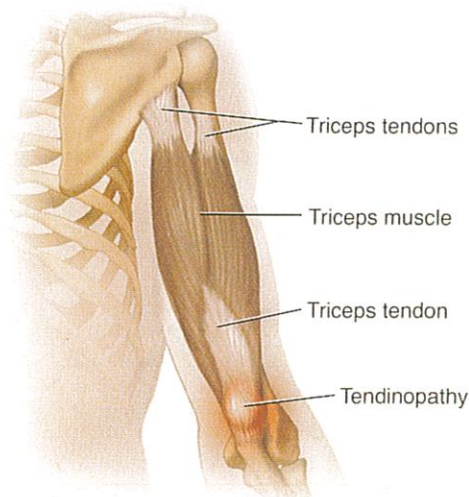
You may return to your sport or activity when:

- you no longer have tenderness or swelling at your triceps muscle or tendon
- you have regained strength in your injured arm so that it is similar to the strength of your uninjured arm
- you have full range of motion in your injured arm compared to your uninjured arm

## How is triceps tendinopathy and strain prevented?

The best way to prevent triceps tendinopathy is to avoid overuse and forceful movements of your upper arm and elbow. It is important to recognize early symptoms so you do not make your injury worse by overactivity.

## TRICEPS TENDINOPATHY AND STRAIN



# TRICEPS TENDINOPATHY REHABILITATION EXERCISES

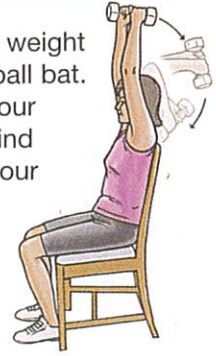
You may do all of these exercises right away.

**1. FRENCH STRETCH:** Stand with your fingers clasped together and your hands high above your head. Stretch by reaching down behind your head and trying to touch your upper back while keeping your hands clasped. Keep your elbows as close to your ears as possible. Hold this position for 15 to 20 seconds. Repeat 3 to 6 times.



FRENCH STRETCH

**4. FRENCH PRESS:** Sit grasping a small weight with both hands as if it were a baseball bat. Reach toward the ceiling. Bending your elbows, slowly lower the weight behind your head until the weight touches your upper back. Lift the weight up over your head and reach toward the ceiling again. Repeat 10 to 20 times.



FRENCH PRESS



TRICEPS TOWEL STRETCH

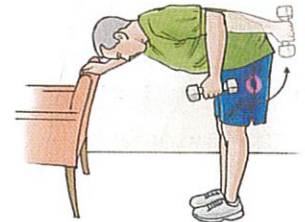
**2. TRICEPS TOWEL STRETCH:** Stand with one arm over your head holding the end of a towel. Put your other arm behind your back and grab the towel. Stretch your top arm behind your head by pulling the towel down toward the floor with hand of your bottom arm. Keep the elbow of your top arm as close to your ear as possible. Hold for 15 to 20 seconds. Repeat 3 to 6 times.

**5. MODIFIED PUSH-UP:** Get onto your hands and knees, with your hands directly underneath your shoulders. Slowly lower yourself toward the floor, being careful to keep your spine straight. When you can do 2 sets of 15 easily, do this with your heels in the air. Gradually progress to doing this with your legs out straight.



MODIFIED PUSH-UP

**6. TRICEPS KICK BACK:** Lean forward with the hand of one arm resting on a table or chair for support. Hold a weight in the hand of your other arm. Keep the elbow of that arm against your side. Your arm should be bent at a 90-degree angle with your upper arm parallel to the floor. Move the forearm of your arm backward until it is straight. Repeat 10 to 20 times.



TRICEPS KICK BACK

**3. TOWEL RESISTANCE EXERCISE:** Stand with one arm over your head holding the end of a towel. Put your other arm behind your back and grab the towel. Lift the top hand toward the ceiling while creating resistance by pulling down on the towel with your other hand. Keep the elbow of your top arm as close to your ear as possible. Hold for 10 seconds. Repeat 10 times.



TOWEL RESISTANCE EXERCISE

# ULNAR COLLATERAL LIGAMENT INJURY OF THE ELBOW

## What is an ulnar collateral ligament injury of the elbow?

The elbow joint is made up of the bone in the upper arm (humerus) and bones of the forearm (ulna and radius). The ulna is on the inner or pinky side of the elbow. The ulnar collateral ligament attaches the humerus to the ulna. Ligaments are strong bands of connective tissue that connect one bone to another. An injury to your ulnar collateral ligament causes pain on the inner side of your elbow.

## How does it occur?

The ulnar collateral ligament can be injured from overuse or from an acute injury. The most common way this ligament is injured is from repeated throwing. This is a common injury in baseball, especially for pitchers. Quarterbacks in football can also get this injury. The act of throwing puts stresses on your inner elbow and over time the ulnar collateral ligament can develop micro-tears which eventually can worsen.

Sometimes this ligament can be acutely injured from a fall onto the elbow or on the outstretched hand. It can also be injured if another person lands on your elbow. These types of injuries are acute sprains. Sprains may be graded 1, 2, or 3 depending on their severity:

- grade 1 sprain: pain with minimal damage to the ligaments
- grade 2 sprain: more ligament damage and mild looseness of the joint
- grade 3 sprain: complete tearing of the ligament and the joint is very loose or unstable

Sometimes sprains are just classified as mild or severe, depending on the amount of ligament damage.

## What are the symptoms?

Symptoms can include:

- pain on the inner side of the elbow, both with activity or with rest
- swelling
- weakness
- loss of power with throwing

## How is it diagnosed?

Your healthcare provider will take your history and examine you. Your provider will test for looseness or laxity in the elbow. You may have an x-ray to see if

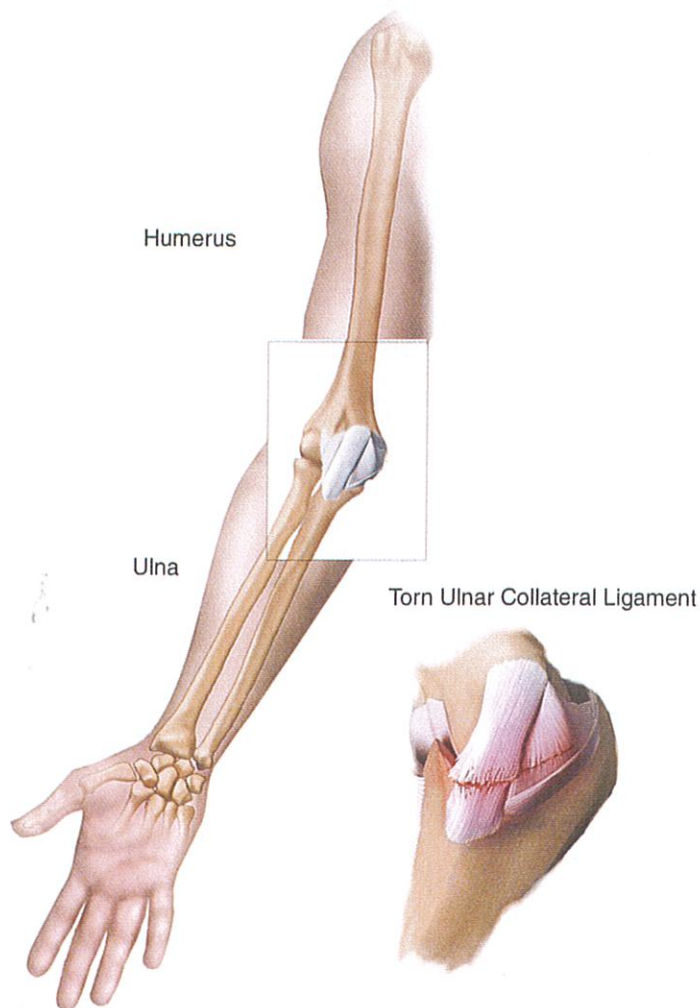
there are any bony injuries to the elbow. An MRI, MRI arthrogram (dye is injected into the elbow joint before the MRI), or ultrasound may be done to see if the ligament is torn. The ligament may be partially or completely torn.

## What is the treatment?

The initial treatment for this injury is ice and rest. You should ice your elbow for 20 to 30 minutes 3 to 4 times a day for the first 2 to 3 days or until the pain goes away. After that, ice your elbow at least once a day until all your symptoms are gone. Your provider will recommend or prescribe medicine to reduce pain and inflammation.

If you have an overuse injury, rest from throwing is extremely important. If the problem is diagnosed

## ULNAR COLLATERAL LIGAMENT INJURY OF THE ELBOW



early and you have a partial tear, rest for 3 to 6 weeks may be effective. Sometimes the rest period needs to be longer. Your provider will give you rehabilitation exercises. You may be referred to physical therapy. After that rest period a gradual return to throwing may need to be supervised by your healthcare provider, physical therapist or athletic trainer. If the ligament is completely torn, you may need surgery to repair it. You may also need surgery if you have a partial tear that does not improve after rest and rehabilitation.

If your injury is from a fall and not from repeated overuse your recovery time will be faster.

### How long will the effects of an ulnar collateral ligament injury of the elbow last?

An acute sprain may recover within a few weeks if the injury was not severe.

The recovery time for an overuse injury can take weeks to months.

### When can I return to my sport or activity?

The goal of rehabilitation is to return to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your elbow recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to throwing when you have no pain at rest or with your rehabilitation exercises. You must start throwing softly, for short distances, and for only a few minutes at a time. You will slowly and gradually increase the amount of throwing that you do. Always stop if you develop pain.

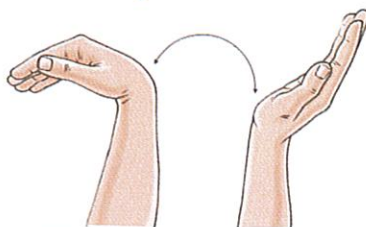
### What can I do to prevent an ulnar collateral ligament injury of the elbow?

Proper throwing mechanics can help prevent ulnar collateral injuries. Not throwing too much and stopping if your elbow hurts are most important.

## ULNAR COLLATERAL LIGAMENT INJURY OF THE ELBOW REHABILITATION EXERCISES

You may do the stretching exercises right away. You may do the strengthening exercises when stretching is nearly painless.

### Stretching exercises



WRIST ACTIVE RANGE OF MOTION

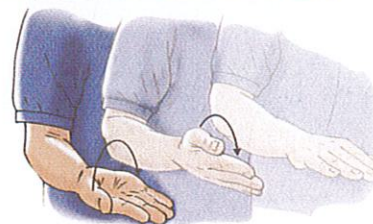
**1. WRIST ACTIVE RANGE OF MOTION:** Flexion and extension: Bend your wrist forward and backward as far as you can. Do 3 sets of 10.

**2. WRIST STRETCH:** With one hand, press the back of your other hand to help bend your wrist. Hold for 15 to 30 seconds. Next, stretch the hand back by pressing the fingers in a backward direction. Hold for 15 to 30 seconds. Keep your arm straight during this exercise. Do 3 sets on each hand.



WRIST STRETCH

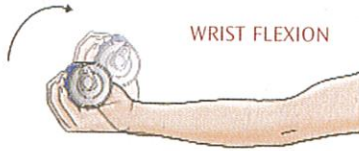
**3. FOREARM PRONATION AND SUPINATION:** With your elbow bent 90°, turn your palm upward and hold for 5 seconds. Slowly turn your palm downward and hold for 5 seconds. Make sure you keep your elbow at your side and bent 90° throughout this exercise. Do 3 sets of 10.



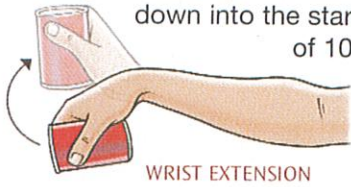
FOREARM PRONATION AND SUPINATION

### Strengthening exercises

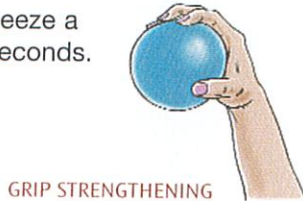
**4. WRIST FLEXION:** Hold a can or hammer handle in your hand with your palm facing up. Bend your wrist upward. Slowly lower the weight and return to the starting position. Do 3 sets of 10. Gradually increase the weight of the can or weight you are holding.



**5. WRIST EXTENSION:** Hold a soup can or hammer handle in your hand with your palm facing down. Slowly bend your wrist upward. Slowly lower the weight down into the starting position. Do 3 sets of 10. Gradually increase the weight of the object you are holding.



**6. GRIP STRENGTHENING:** Squeeze a rubber ball and hold for 5 seconds. Do 3 sets of 10.



**7. FOREARM PRONATION AND SUPINATION STRENGTHENING:** Hold a soup can or hammer handle in your hand and bend your elbow 90°. Slowly rotate your hand with your palm upward and then palm down. Do 3 sets of 10.



FOREARM PRONATION AND SUPINATION STRENGTHENING

**8. RESISTED ELBOW FLEXION:** Hold a can of soup with your palm face up. Slowly bend your elbow so that your hand is approaching your shoulder. Then lower it slowly so your elbow is completely straight. Do 3 sets of 10. Slowly increase the weight you are using.



RESISTED ELBOW FLEXION