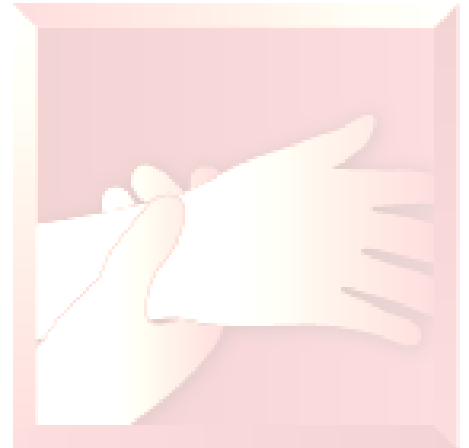


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Specializing in Shoulder, Elbow, Wrist and Hand Therapy

Early Elbow Motion Protocol
Ligament Repair of the elbow

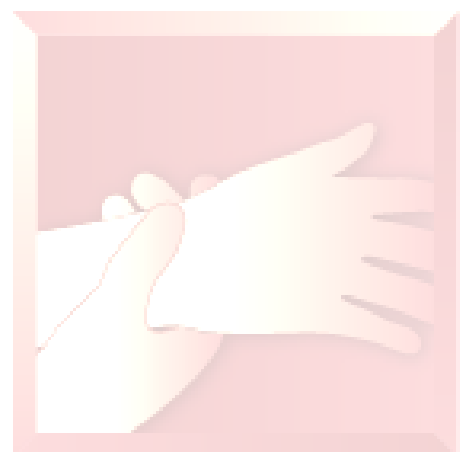
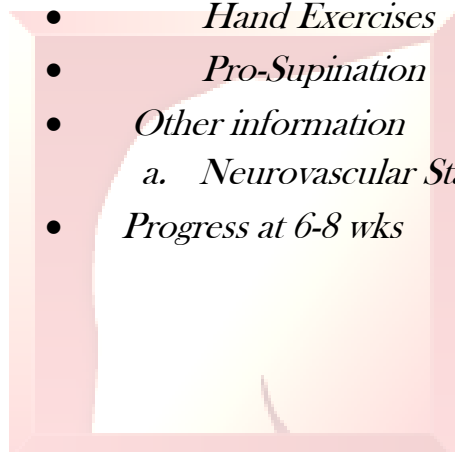
EARLY MOTION PROTOCOL

1-3 DAYS POST OP

LIGAMENT REPAIR OF ELBOW

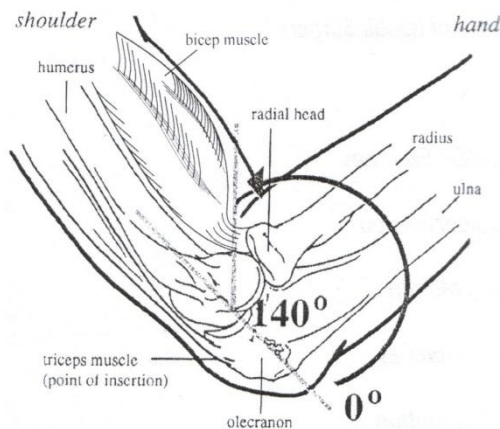
- *Anatomy of the Elbow*
- *Ligament Repair Surgery*
- *Post-Operative Course*
 - a. Splints*
 - b. Exercises*
- *Shoulder Exercise*
- *Elbow Motion*
- *Hand Exercises*
- *Pro-Supination*
- *Other information*
 - a. Neurovascular Status*
- *Progress at 6-8 wks*

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Anatomy of the Elbow

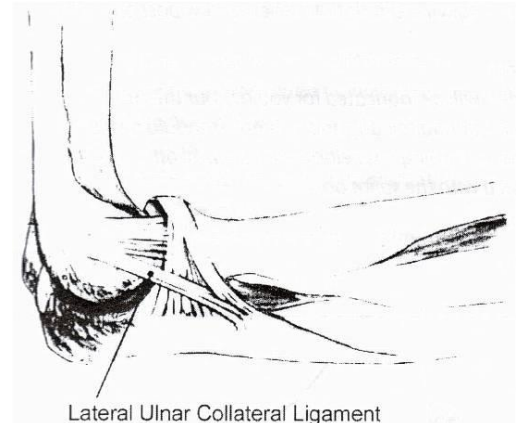
Specializing in Shoulder, Elbow, Wrist and Hand Therapy



The elbow is a hinge type of joint. The joint allows you to flex (bend) and extend (straighten) your arm. The total amount of movement that the elbow can produce is approximately 145 degrees. The functional movement needed for most daily activities is between 30-130 degrees. There are ligaments that surround the elbow joint that add to its stability. Your injury has damaged the ulnar portion of the lateral ligament of the elbow.

Ligament Repair Surgery

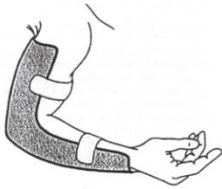
The ligament in your elbow which has been torn is called the lateral ulnar collateral ligament. It is stitched back together by the surgeon. In order to maintain the integrity of the repair, certain precautions are necessary. These precautions will be outlined by your therapist. Occasionally, the torn ligament may need to be replaced and a tendon transfer may be necessary. The surgeon takes a tendon (usually from the forearm) and creates a new replacement ligament from this tendon.



Post-Operative course

The following will be initiated in the first few post operative days.

1. Splints



Your splint will be fabricated for you by your therapist. You will wear different splints during the day and at night. It should only be removed when you are doing your elbow exercises or may be instructed to wear the night splint by your therapist to perform the exercises within the splint. All other exercises can be performed with the splint on.

2. Exercises

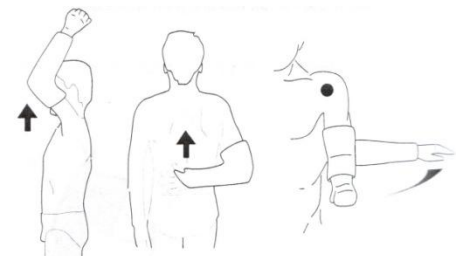
Although you need to wear your splint at all times, not all movements are restricted. Movements of your shoulder, wrist and hand are safe and beneficial for your recovery. Elbow ROM should be performed as instructed.

Exercises help to:

- Maintain the flexibility of your joints and soft tissue
- Reduce pain and swelling
- Minimize muscle weakness and joint stiffness

• Shoulder Motion

Active range of motion (AROM) exercise of the shoulder should be performed with the affected arm. The shoulder should be moved up, down, to the side and behind (if possible) in order to keep it mobile and prevent stiffness.



This exercise is to be performed with the elbow splint on.
Perform exercises _____ times every _____ hrs/ day.

- Elbow Motion

Remove splint in order to do elbow exercises.

- Overhead protocol

This is done by performing your exercise above your head. Most often this is performed when lying on your back with your shoulder bent at 90 degrees in flexion. The exercises you should perform include:

- Active Assisted Flexion:

Bend the elbow towards your ear with your palm facing towards _____. Use your other hand for support only.



- Active Assisted Extension:

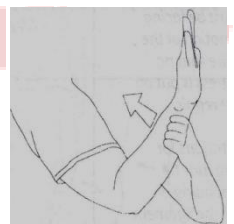
Straighten the elbow _____ degrees from full extension with your palm facing towards _____. Use your other hand for support only. Your therapist may instruct you to wear the night splint to perform the exercises within the splint and then go back to the day splint.

******Palm must be facing a certain way to ensure that no additional stress is put on the ligament repair.***

******Specific limitations for straightening (degrees) may be required depending on the extent of the ligament repair. Your therapist will advise you of any precautions to prevent the healing tissue from re-rupturing.***

- Active Flexion

Active bending of the elbow (may use non-affected arm for support). Bend arm towards ear.



******DO NOT push the forearm with the non-affected arm; simply support the affected arm as it moves on its own.***

- Pronation - Supination

Active turning of the forearm with the palm up (supination) and the palm



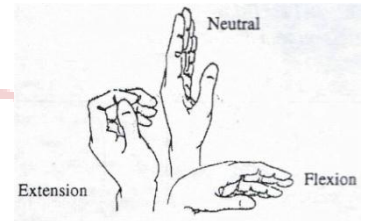
down (Pronation). Keep your elbow tucked to your side.

***Supination is only allowed when the elbow is bent higher than 90 degrees. *This must not be attempted when the elbow is bent below 90 degrees because it puts increased stress on your ligament repair.*

- Wrist Motion

Active wrist motion exercises on the affected arm. Wrist flexion and extension

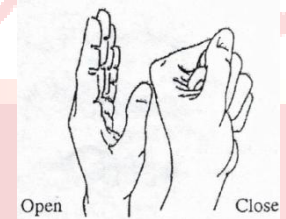
- Starting position neutral
- Bend the wrist forward (flexion)
- Bend wrist backwards (extension)



- Hand Motion

Make a fist (Light). *Do not grip anything*

- Start with the hand open
- Then close the hand



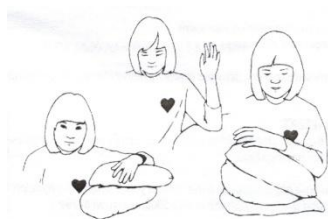
Other Information

Neurovascular Status:

Your hand should be checked periodically to ensure that the nerves and blood supply are not restricted. Ensure that your hand and arm do not change color, (e.g. Blue), that your splint straps are not too tight and that your splints are not causing any pressure areas.

Edema (swelling control)

During ambulation (walking), wear flexion splint (bending). While sitting and lying in bed, elevate the affected arm with a pillow to above the heart level in order to control the swelling. You can also be moving your fingers back and forth (making fists) to help control swelling.



In addition to elevating the arm other methods may be used. These include things such as wrapping the arm with an ace wrap (elastic bandage) from hand to elbow direction, retrograde massage (hand to elbow to push the fluids back to the heart) etc.

***** note that these methods are to be used only with your therapists or physicians instruction to do so.



*You will be seen by a **Certified Hand Therapist** on an outpatient basis in order to increase your range of motion and your function. As well, you will continue to be monitored by your physician.*

At 6 weeks

Depending upon your physicians and therapists recommendations, you may:

Discontinue wearing your splint

Begin light activities

You should avoid any activities involving heavy lifting or forced grasping.

At 8 weeks

Your physicians and therapists will lift most restrictions and begin strengthening exercises.

If you have any questions please contact our Certified Hand Therapist at **408-268-8536**



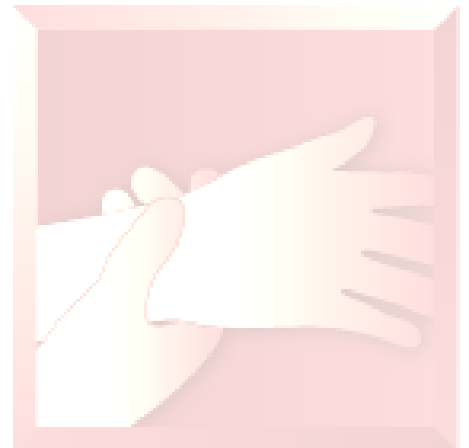
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Early Elbow Motion Protocol
Distal Biceps Repair

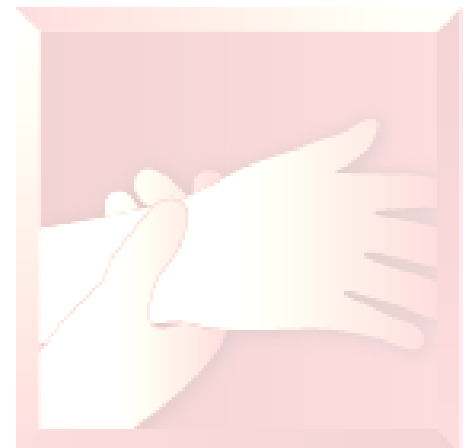
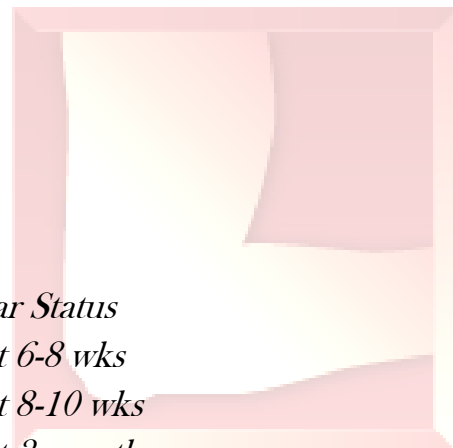
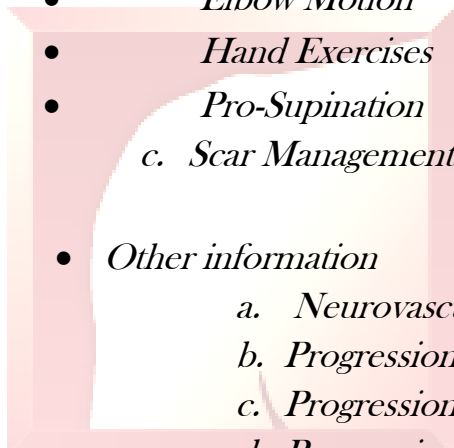
EARLY MOTION PROTOCOL

1-3 DAYS POST OP

DISTAL BICEPS REPAIR

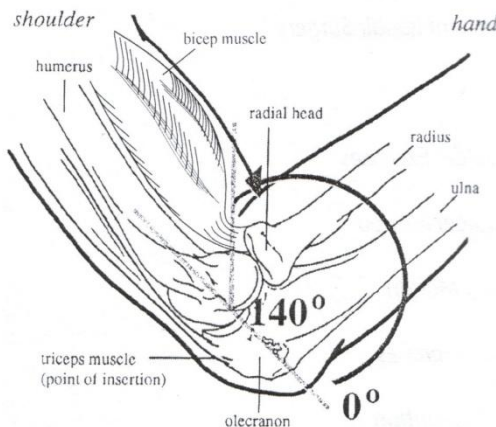
- *Distal Biceps Tendon Anatomy*
- *Distal Biceps Repair Surgery*
- *Precautions*
- *Post-Operative Course*
 - a. Splints*
 - b. Exercises*
- *Shoulder Exercise*
- *Elbow Motion*
- *Hand Exercises*
- *Pro-Supination*
 - c. Scar Management*
- *Other information*
 - a. Neurovascular Status*
 - b. Progression at 6-8 wks*
 - c. Progression at 8-10 wks*
 - d. Progression at 3 months*

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Shoulder, Elbow, Wrist and Hand Therapy

Distal Biceps Tendon Anatomy



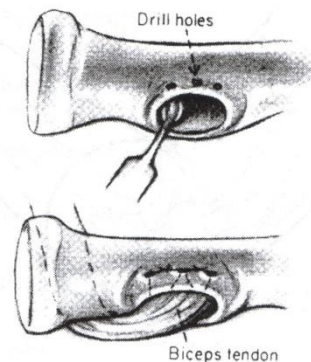
The biceps muscle is a major muscle of your upper extremity involved primarily in elbow motion.

The elbow is a hinge joint allowing you to flex (bend) and extend (straighten) your arm. The biceps muscle flexes the arm at the elbow and rotates (supinates) the forearm so the palm of the hand faces upwards. The biceps muscle attaches

to your scapula (shoulder blade) and your radius bone via tendons. It is the distal biceps tendon attaching to the radius that has separated and pulled away.

Distal Biceps Repair Surgery

You may have one or 2 incisions depending on the technique preferred by your surgeon. The surgery involves the suturing of the distal end of your biceps tendon to the radius bone. This is done by drilling small holes into the radius which allows the biceps tendon to be brought through its previous tract and reinserted into the bone with 2 non absorbable sutures.



Post Surgical Precautions

Do not actively bend your elbow

Do not actively supinate (turn your palm towards the ceiling) your forearm

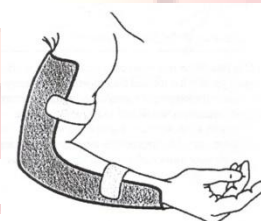


Do not use the injured arm for any activities until your therapist has instructed you to do so.

Post Operative Course (0-6 weeks)

Splinting

You will be wearing a 90° flexion splint, worn at all times except for when you perform your exercises and once daily for skin hygiene.



Exercises

While you will be in your splint for most of the day, it is also important that you perform these exercises.

Elbow

- Passive flexion:

Bending of the elbow, use your uninjured arm, to bend your injured arm towards your ear.

Hold _____ seconds. Repeat _____ times

Do _____ sessions per day.



- Active Assisted Elbow Extension:

With your injured arm actively extend (straighten) your arm to _____ degrees from full extension with your palm facing _____. Use your other hand as a guide only. This is very important - your therapist will guide you on a plan to gradually increase the amount of extension allowed at your elbow. Progression will occur weekly in 10⁰ increments

- Forearm Supination (Passive)

Keep elbow bent at right angle and held firmly at side. Use other hand to turn forearm until palm faces upwards.

Hold _____ seconds. Repeat _____ times.

Do _____ sessions per day.



- Forearm Pronation: (Active or Passive)

Keep elbow bent at right angle and held firmly at side. Use other hand to turn forearm until palm faces downwards.

Hold _____ seconds. Repeat _____ times.

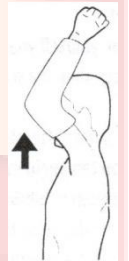
Do _____ sessions per day.



Shoulder

Active shoulder flexion:

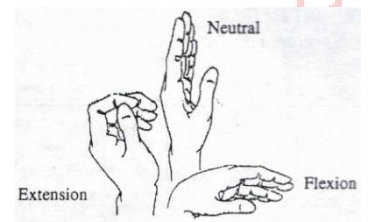
With your uninjured arm and with your splint on, lift your arm actively.



- Wrist Motion

Active wrist motion exercises on the affected arm. Wrist flexion and extension

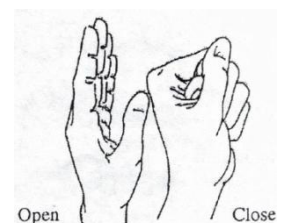
- Starting position neutral
- Bend the wrist forward (flexion)
- Bend wrist backwards (extension)



- Hand Motion

Make a fist (Light). ***Do not grip anything***

- Start with the hand open



- Then close the hand

Perform these exercises _____ x's every _____ hrs/ day

Scar management

When ever you injure yourself or have surgery your body forms scar. To close the gap of the wound/incision, the cells overlap, this layer of overlapped cells is Scar Tissue. You can help to align the scar and make the movement easier.

Approximately 2-3 days after sutures are removed from the elbow (when the wound is closed) you can begin massaging the scar. This rubbing will help align the scar. Use vitamin E cream to lubricate/ massage the scar. Massage the scar with gentle pressure for 3-5 minutes 3-5 times / day. Your therapist will tell you when it is the right time to begin scar massage and will outline the proper technique.

Other Information

Neurovascular Status:

Your hand should be checked periodically to ensure that the nerves and blood supply are not restricted. Ensure that your hand and arm do not change color, (e.g. Blue), that your splint straps are not too tight and that your splints are not causing any pressure areas.

Edema (swelling control)

During ambulation (walking), wear flexion splint (bending). While sitting and lying in bed, elevate the affected arm with a pillow to above the heart level in order to control the swelling. You can also be moving your fingers back and forth (making fists) to help control swelling.



In addition to elevating the arm other methods may be used. These include things such as wrapping the arm with an ace wrap (elastic bandage) from hand to elbow direction, retrograde massage (hand to elbow to push the fluids back to the heart) etc.

***** note that these methods are to be used only with your therapists or physicians instruction to do so.



*You will be seen by a **Certified Hand Therapist** on an outpatient basis in order to increase your range of motion and your function. As well, you will continue to be monitored by your physician.*

At 6-8 weeks

Depending upon your physicians and therapists recommendations, you may:

- Discontinue wearing your splint
- Begin light activities of daily living with your injured arm (brushing teeth, combing hair, eating)

****** But it is very important for you to avoid any activities involving heavy lifting or forced grasping with the injured arm***

At 10 weeks

At 10 weeks you can start gently strengthening your injured arm under the therapist's supervision.

At 3 months

Your physicians and therapists will lift most restrictions and you should be able to return to work and most of your recreational activities including sports.

If you have any questions please contact our Certified Hand Therapist at **408-268-8536**



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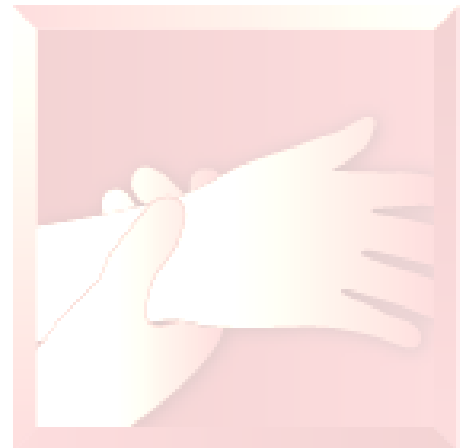
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Early Elbow Motion Protocol
Olecranon Fractures

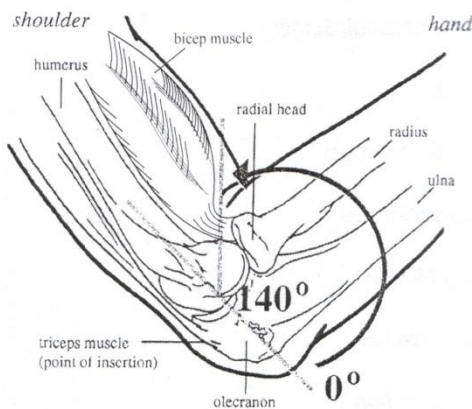
EARLY MOTION PROTOCOL

1-3 DAYS POST OP

OLECRANON FRACTURES

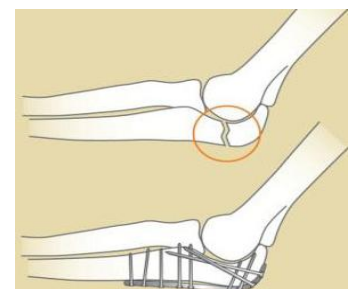
- *Anatomy of the elbow*
- *Open reduction internal fixation*
- *Post-Operative Course*
 - Splints*
 - Exercises*
- *Shoulder Exercise*
- *Elbow Motion*
- *Hand Exercises*
- *Pro-Supination*
- *Other information*
 - *Neurovascular Status*
 - *Progression at 6-8 wks*

Anatomy of the elbow



The elbow is a hinge type of joint. The joint allows you to flex (bend) and extend (straighten) your arm. The total amount of movement that the elbow can produce is approximately 145 degrees. The functional movement needed for most daily activities is between 30-130 degrees. The triceps muscle attaches to the olecranon and tends to cause displacement of the fracture.

Open Reduction Internal Fixation



Your broken bone has been surgically repaired by any one of a number of techniques, most commonly with a plate and screws, or pins and wire. While this treatment usually permits early motions of the elbow, attention to the therapy program is essential to achieve optimal result from your surgery. If only tension band is used the patient may be kept in the cast for 2 weeks to ensure stability and then ROM started.

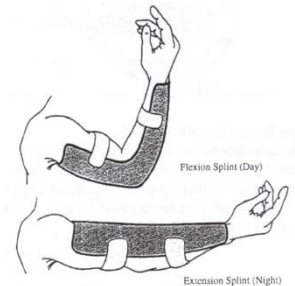
Post-Operative course

The following will be initiated in the first few post operative days.

Splints:

Two splints may be fabricated for you by your therapist.

- Flexion splint (for bending) is to be worn during the day except during exercises.
- Extension splint (for straightening) is to be worn on the front part of the elbow at night time when sleeping.

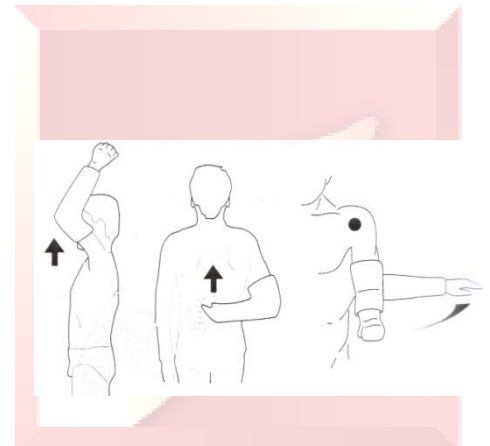


Exercises:

- Shoulder Motion

Active Assisted range of motion (AAROM) exercise of the shoulder should be performed with the affected arm. The shoulder should be moved up, down, to the side and behind (if possible) in order to keep it mobile and prevent stiffness. *This exercise is to be performed with the elbow splint on.*

Perform exercises _____ times every _____ hrs/ day.



- Elbow Motion

Remove splint in order to do elbow exercises.

- Flexion

Active assisted bending of the elbow with un-injured arm helping/supporting you to bend your arm towards ear.



******No passive stretching of the elbow into flexion, i.e. do not push your elbow with your good arm, you only support the affected arm as it moves on its own.***



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- Extension

Passive extension (straightening)- While lying in bed or sitting in a chair, straighten your elbow using the support of your other hand. Place your elbow on a pillow in order to get it fully straight. Or while laying down let gravity pull it down into full straight position.

***No active or resisted extension of the elbow for 6 wks, i.e. **DO NOT** use your own muscle to straighten your arm or any activities that involve carrying, pushing as it will cause re-displacement of your fracture.

Perform exercises _____ times every _____ hrs/ day.

Continue with the above program until otherwise mentioned by your therapist or doctor.

- Pronation / Supination

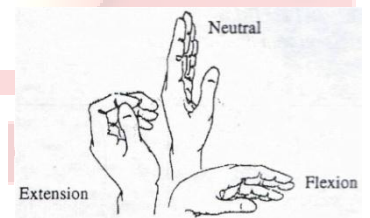
Active assisted turning of the forearm with the palm up (supination) and the palm down (Pronation). Keep your elbow tucked to your side.

Perform exercises _____ times every _____ hrs/ day.

- Wrist Motion

Active wrist motion exercises on the affected arm. Wrist flexion and extension

- Starting position neutral
- Bend the wrist forward (flexion)
- Bend wrist backwards (extension)

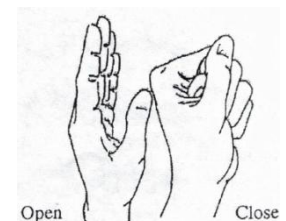


- Hand Motion

Make a fist (Light). **Do not grip anything**

- Start with the hand open
- Then close the hand

Perform exercises _____ times every _____ hrs/ day.



Other Information

Neurovascular Status: Your hand should be checked periodically to ensure that the nerves and blood supply are not restricted. Ensure that your hand and arm do not change color, (e.g. Blue), that your splint straps are not too tight and that your splints are not causing any pressure areas.

Edema (swelling control)

During ambulation (walking), wear flexion splint (bending). While sitting and lying in bed, elevate the affected arm with a pillow to above the heart level in order to control the swelling. You can also be moving your fingers back and forth (making fists) to help control swelling.

In addition to elevating the arm other methods may be used. These include things such as wrapping the arm with an ace wrap (elastic bandage) from hand to elbow direction, retrograde massage (hand to elbow to push the fluids back to the heart) etc.

*****Note that these methods are to be used only with your therapists or physicians instruction to do so.



*You will be seen by a **Certified Hand Therapist** on an outpatient basis in order to increase your range of motion and your function. As well, you will continue to be monitored by your physician.*

At 6-8 weeks

Depending upon your physicians and therapists recommendations, you may:

- Discontinue wearing your splint
- Start active extension (straightening exercise), i.e. with your own muscle power you may begin to straighten your arm..
- **Begin light activities:** At this time light strengthening exercises may be initiated at your therapist's or physician's discretion

You should avoid any activities involving heavy lifting or forced grasping until instructed by your therapist.

If you have any questions please contact our Certified Hand Therapist at
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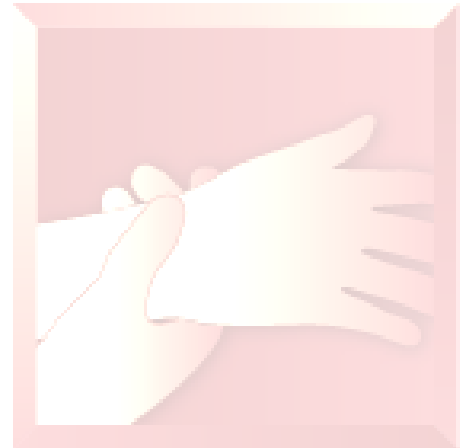
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Early Elbow Motion Protocol
Radial Head Fracture

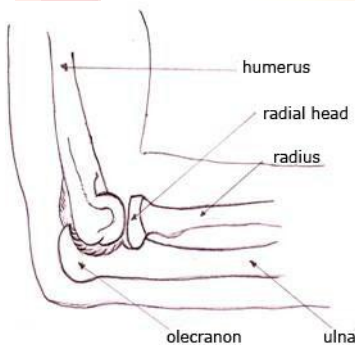
EARLY MOTION PROTOCOL

1-3 DAYS POST OP

RADIAL HEAD FRACTURES

- *Anatomy of the elbow*
- *Operative treatment*
- *Post-Operative Course*
 - a. *Splints*
 - b. *Exercises*
- *Shoulder Exercise*
- *Elbow Motion*
- *Hand Exercises*
- *Pro-Supination*
- *Other information*
 - a. *Neurovascular Status*
 - b. *Progression at 6-8 wks*

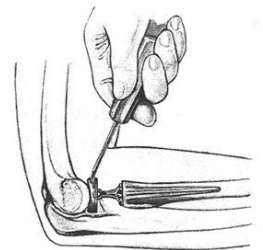
Anatomy of the elbow



The elbow is a hinge type of joint. The joint allows you to flex (bend) and extend (straighten) your arm. The total amount of movement that the elbow can produce is approximately 145 degrees. The functional movement needed for most daily activities is between 30-130 degrees. If the fracture of your radial head has a fragment greater than $\frac{1}{4}$ - $\frac{1}{3}$ of radial head and displacement of more than 2mm requires operative treatment with open reduction internal fixation is done. Displaced fragments greater than one quarter of radial head which is not reconstructible may need excision and replacement of radial head.

Operative Treatment

Your broken bone has been surgically repaired by any one of a number of techniques, most commonly with screws, pins and wire or replacement of the entire radial head (arthroplasty). It is quite likely that your ligaments may also have been repaired.



While this treatment usually permits early motions of the elbow, attention to the therapy program is essential to achieve optimal result from your surgery.



Post Surgical Precautions

Do not perform aggressive passive movement of the elbow to avoid complication of implant loosening or excessive bone formation.

Do not carry any objects or bear weight on your affected hand. Do not extend your elbow and rotate your forearm with hand facing the ceiling unless instructed by your surgeon and the therapist.

Post-Operative course

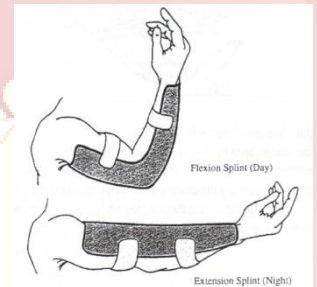
The following will be initiated in the first few post operative days.

Splints:

Depending on the extent of the injury, your therapist will fabricate different splints for you. You will wear different splints during the day and at night. It should only be removed when you are doing your elbow exercises or may be instructed to wear the night splint by your therapist to perform the exercises within the splint. All other exercises can be performed while the splint is on.

The two splints that may be fabricated for you by your therapist are

- 1) 90 degree elbow flexion splint with forearm either in neutral or hand facing the floor (depending on the status of your ligaments) and
- 2) Night time extension splint. As your therapy progresses other types of splints may be necessary to increase motion of the elbow and the forearm.



Exercises:

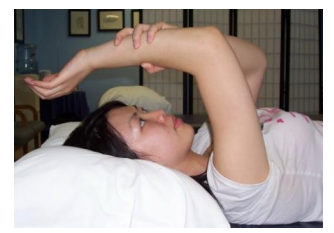
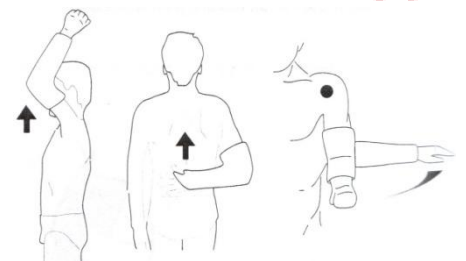
- Shoulder Motion

Active Assisted range of motion (AAROM) exercise of the shoulder should be performed with the affected arm. The shoulder should be moved up, down, to the side and behind (if possible) in order to keep it mobile and prevent stiffness. ***This exercise is to be performed with the elbow splint on.***

Perform exercises _____ times every _____ hrs/ day.

- Elbow Motion

Remove splint in order to do elbow exercises.



- Flexion

Active assisted bending of the elbow with un-injured arm helping/supporting you to bend your arm towards ear.

*****No passive stretching of the elbow into flexion, i.e. do not push your elbow with your good arm, you only support the affected arm as it moves on its own.**

- Extension

Active assisted extension (straightening)- While lying in bed or sitting in a chair, straighten your elbow using the support of your other hand. Place your elbow on a pillow in-order to get it straight or within the limits of the extension splint.

***** No passive or resisted extension of the elbow for 6 wks i.e do not do any activities that involve carrying, pushing as it will cause re-displacement of your fracture or failure of the implant.**

Perform exercises _____ times every _____ hrs/ day.

Continue with the above program until otherwise mentioned by your doctor or therapist.

- Pronation / Supination

Active assisted turning of the forearm with the palm up (supination) and the palm down (Pronation). Keep your elbow tucked to your side with your elbow at 90 degrees of flexion.

Perform exercises _____ times every _____ hrs/ day.

.

- Wrist Motion

Active wrist motion exercises on the affected arm. Wrist flexion and extension

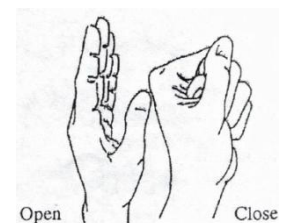
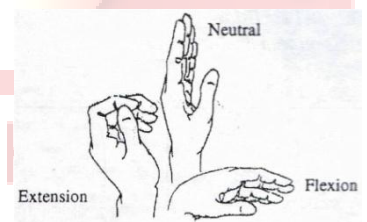
- Starting position neutral
- Bend the wrist forward (flexion)
- Bend wrist backwards (extension)

- Hand Motion

Make a fist (Light). **Do not grip anything**

- Start with the hand open
- Then close the hand

Perform exercises _____ times every _____ hrs/ day.



Other Information

Neurovascular Status:

Your hand should be checked periodically to ensure that the nerves and blood supply are not restricted. Ensure that your hand and arm do not change color, (e.g. Blue), that your splint straps are not too tight and that your splints are not causing any pressure areas.

Edema (swelling control)

During ambulation (walking), wear flexion splint (bending). While sitting and lying in bed, elevate the affected arm with a pillow to above the heart level in order to control the swelling. You can also be moving your fingers back and forth (making fists) to help control swelling.



In addition to elevating the arm other methods may be used. These include things such as wrapping the arm with an ace wrap (elastic bandage) from hand to elbow direction, retrograde massage (hand to elbow to push the fluids back to the heart) etc.

*****Note that these methods are to be used only with your therapists or physicians instruction to do so.

*You will be seen by a **Certified Hand Therapist** on an outpatient basis in order to increase your range of motion and your function. As well, you will continue to be monitored by your physician.*



At 6-8 weeks

Depending upon your physicians and therapists recommendations, you may:

- Discontinue wearing your splint at 6 weeks
- Night extension splint may continue for 12 weeks
- Begin light activities of daily living with your injured arm (brushing teeth, combing hair, eating)

****** But it is very important for you to avoid any activities involving heavy lifting or forced grasping with the injured arm***

At 8-10 weeks

Pt. may return to regular duty and sports related activities.

If you have any questions please contact our Certified Hand Therapist at 408-268-8536

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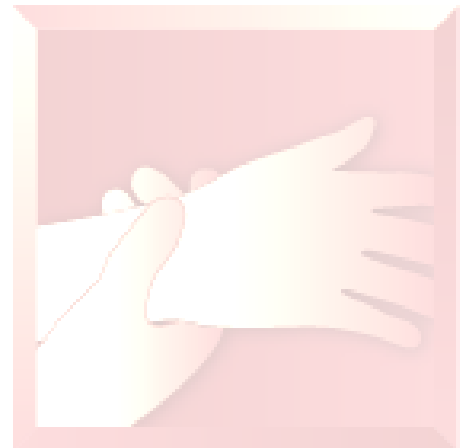
Hands-on-Care

499 Blossom Hill Rd,

San Jose, Ca 95123

Tel: 408-268-8536 Fax: 408-268-8727

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Early Elbow Motion Protocol
Total Elbow Replacement

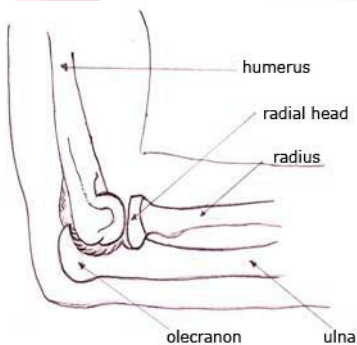
EARLY MOTION PROTOCOL

1-3 DAYS POST OP

Total Elbow Replacement

- *Anatomy of the elbow*
- *Operative treatment*
- *Post-Operative Course*
 - a. *Splints*
 - b. *Exercises*
- *Shoulder Exercise*
- *Elbow Motion*
- *Hand Exercises*
- *Pro-Supination*
- *Other information*
 - a. *Neurovascular Status*
 - b. *Progression at 6-8 wks*

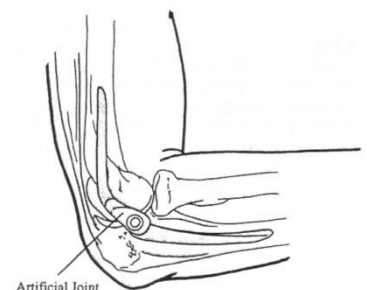
Anatomy of the elbow



The elbow is a hinge type of joint. The joint allows you to flex (bend) and extend (straighten) your arm. The total amount of movement that the elbow can produce is approximately 145 degrees. The functional movement needed for most daily activities is between 30-130 degrees.

Elbow Replacement

In elbow replacement surgery, the painful surfaces of the damaged elbow are replaced with artificial elbow parts. One part fits into the humerus (upper arm), and the other part fits into the ulna (forearm). The two parts are then connected and held together by a pin. Movement is maintained by a hinge which takes the place of your arthritic joint. The resulting



hinge allows the elbow to bend and imitates the anatomical joint in both structure and function. The artificial joint is made of a combination of metal and plastic. Longevity of the prosthetic elbow varies from patient to patient. It depends on many factors, such as a patient's physical condition and activity level, as well as the accuracy of implant placement during surgery. It is useful to keep in mind that prosthetic joints are not as strong or durable as a natural, healthy joint, and there is no guarantee that a prosthetic joint will last the rest of a patient's life.

Post-Operative course

The following will be initiated in the first few post operative days.

Splints:

Two splints may be fabricated for you by your therapist.

- Flexion splint (for bending) is to be worn during the day except during exercises.
- Extension splint (for straightening) is to be worn at night time when sleeping.

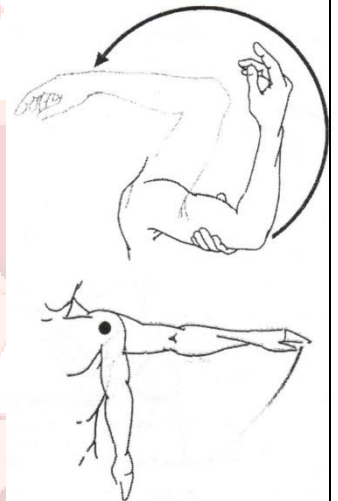


Exercises:

- Shoulder Motion

Active Assisted range of motion (AAROM) exercise of the shoulder should be performed with the affected arm. The shoulder should be moved up, down, to the side and behind (if possible) in order to keep it mobile and prevent stiffness. ***This exercise is to be performed with the elbow splint on.***

Perform exercises _____ times every _____ hrs/ day.



- Elbow Motion

Remove splint in order to do elbow exercises.

- Flexion

Active assisted bending of the elbow with the un-injured arm supporting the affected arm, bend your elbow bringing your thumb to your shoulder.

******No passive stretching of the elbow into flexion, i.e. do not push your elbow with your good arm, you only support the affected arm as it moves on its own.***

- Extension



Passive extension (straightening) While lying in bed or sitting in a chair, straighten your elbow using the support of your other hand. Place your elbow on a pillow in-order to get it fully straight.

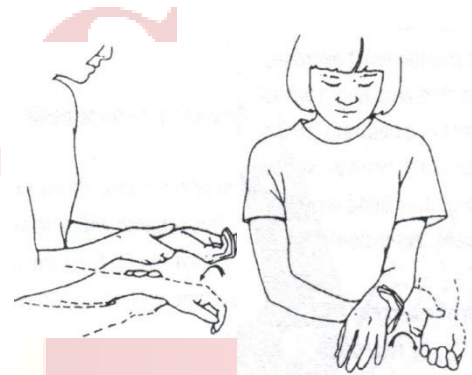
******No active or resisted extension of the elbow for 6 wks, i.e. DO NOT use your own muscle to straighten your arm or any activities that involve carrying, pushing as it will cause re-displacement of your fracture.***

Perform exercises _____ times every _____ hrs/ day.

Continue with the above program until otherwise mentioned by your therapist or doctor.

○ Pronation / Supination

Active or active assisted turning of the forearm with the palm up (supination) and the palm down (Pronation). Keep your elbow tucked to your side.

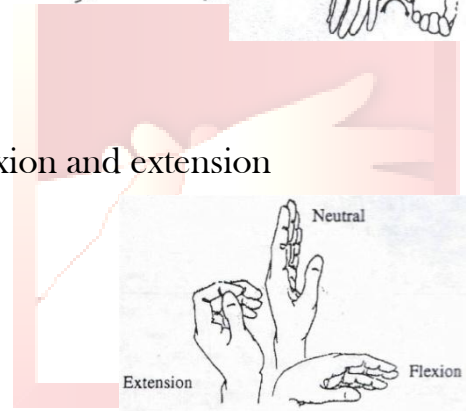


Perform exercises _____ times every _____ hrs/ day.

● Wrist Motion

Active wrist motion exercises on the affected arm. Wrist flexion and extension

- Starting position neutral
- Bend the wrist forward (flexion)
- Bend wrist backwards (extension)

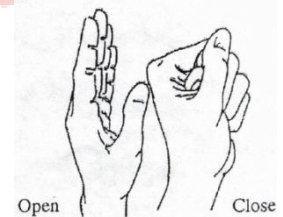


● Hand Motion

Make a fist (Light). ***Do not grip anything***

- Start with the hand open
- Then close the hand

Perform exercises _____ times every _____ hrs/ day.



Other Information

Neurovascular Status:

Your hand should be checked periodically to ensure that the nerves and blood supply are not restricted. Ensure that your hand and arm do not change color, (e.g. Blue), that your splint straps are not too tight and that your splints are not causing any pressure areas.

Edema (swelling control)

During ambulation (walking), wear flexion splint (bending). While sitting and lying in bed, elevate the affected arm with a pillow to above the heart level in order to control the swelling. You can also be moving your fingers back and forth (making fists) to help control swelling.

In addition to elevating the arm other methods may be used. These include things such as wrapping the arm with an ace wrap (elastic bandage) from hand to elbow direction, retrograde massage (hand to elbow to push the fluids back to the heart) etc.



*****Note that these methods are to be used only with your therapists or physicians instruction to do so.



*You will be seen by a **Certified Hand Therapist** on an outpatient basis in order to increase your range of motion and your function. As well, you will continue to be monitored by your physician for upto 24 weeks post operatively.*

At 6-8 weeks

Depending upon your physicians and therapists recommendations, you may:

- Discontinue wearing your splint
- Start active extension (straightening exercise), i.e. with your own muscle power you may begin to straighten your arm.
- Begin light activities: At this time light strengthening exercises may be initiated at your therapist's or physician's discretion
- You should **never** perform any activities involving heavy lifting, pushing or carrying of objects weighing more than **5lbs** or forced grasping following total elbow arthroplasty. Avoid "impact loading" sports such as boxing; consult your surgeon before beginning any new sport or activity, to find out what type and intensity of sport or activity is appropriate for you.

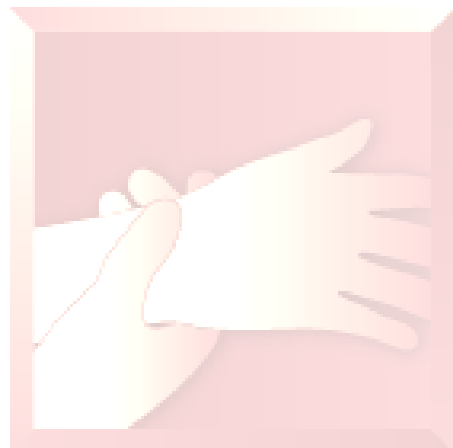
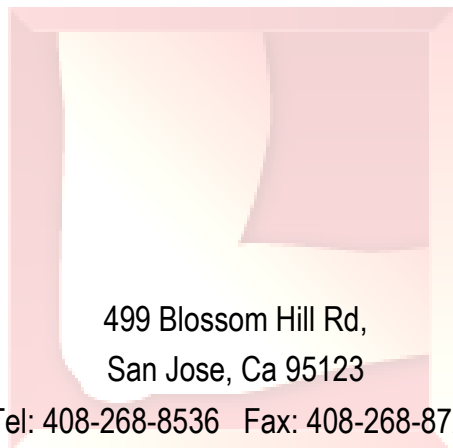
If you have any questions please contact our Certified Hand Therapist at **408-268-8536**

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Specializing in Shoulder, Elbow, Wrist and Hand Therapy

Early Elbow Motion Protocol
Distal Humerus Fracture

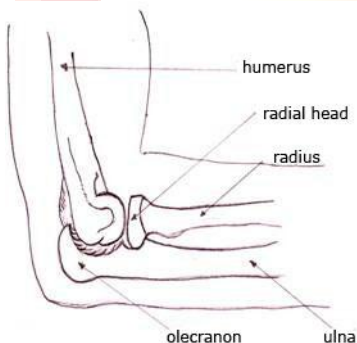
EARLY MOTION PROTOCOL

1-3 DAYS POST OP

Distal Humerus Fracture

- *Anatomy of the elbow*
- *Operative treatment*
- *Post-Operative Course*
 - a. *Splints*
 - b. *Exercises*
- *Shoulder Exercise*
- *Elbow Motion*
- *Hand Exercises*
- *Pro-Supination*
- *Other information*
 - a. *Neurovascular Status*
 - b. *Progression at 6-8 wks*

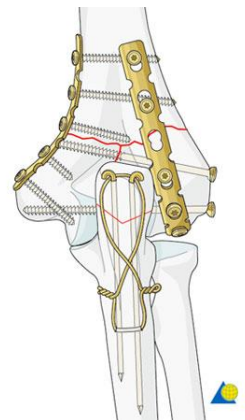
Anatomy of the elbow



The elbow is a hinge type of joint. The joint allows you to flex (bend) and extend (straighten) your arm. The total amount of movement that the elbow can produce is approximately 145° . The functional movement needed for most daily activities is between $30-130^{\circ}$ and supination and pronation of 50° .

Operative Treatment

You may have a simple or complex fracture with or without ligamentous / capsular trauma along with trauma to the nerves around the elbow. Your broken bone has been surgically repaired by any one of a number of techniques, most commonly with plate and screws, pins and wire or tension bands. While this treatment usually permits early motions of the elbow,



attention to the therapy program is essential to achieve optimal result from your surgery.

Post Surgical Precautions

Do not perform aggressive passive movement of the elbow to avoid complication or excessive bone formation.

Do not carry any objects or bear weight on your affected hand.

Post-Operative course

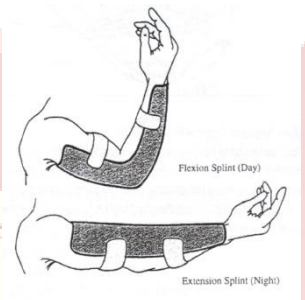
The following will be initiated in the first few post operative days.

Splints:

Depending on the extent of the injury, your therapist will fabricate different splints for you. You will wear different splints during the day and at night. It should only be removed when you are doing your elbow exercises or may be instructed to wear the night splint by your therapist to perform the exercises within the splint. All other exercises can be performed while the splint is on.

The two splints that may be fabricated for you by your therapist are

- 1) 80-90° elbow flexion splint with forearm either in neutral or palm up or down (depending on the status of your ligaments) and
- 2) Night time extension splint. As your therapy progresses other types of splints may be necessary to increase motion of the elbow and the forearm.

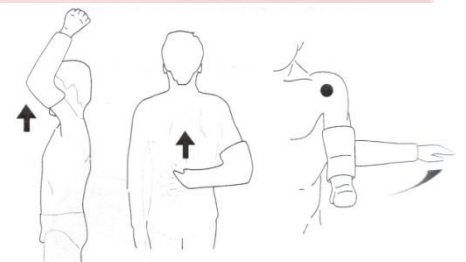


Exercises:

- Shoulder Motion

Active Assisted range of motion (AAROM) exercise of the shoulder should be performed with the affected arm. The shoulder should be moved up, down, to the side and behind (if possible) in order to keep it mobile and prevent stiffness. ***This exercise is to be performed with the elbow splint on.***

Perform exercises _____ times every _____ hrs/ day.



- Elbow Motion

Remove splint in order to do elbow exercises.

- Flexion



Active assisted bending of the elbow with un-injured arm helping/supporting you to bend your arm towards ear.

*****No passive stretching of the elbow into flexion, i.e. do not push your elbow with your good arm, you only support the affected arm as it moves on its own.**

- Extension

Gravity assisted extension (straightening)- While lying in bed or sitting in a chair, straighten your elbow using the support of your other hand. Place your elbow on a pillow in-order to get it straight or within the limits of the extension splint. You can also perform extension while laying down and letting the arm straighten with the help of gravity/ with the help of the other hand

***** No passive or resisted extension of the elbow for 6 wks i.e do not do any activities that involve carrying, pushing as it will cause re-displacement of your fracture.**

Perform exercises _____ times every _____ hrs/ day.

Continue with the above program until otherwise mentioned by your doctor or therapist.

- Pronation / Supination

Active assisted turning of the forearm with the palm up (supination) and the palm down (Pronation). Keep your elbow tucked to your side with your elbow at 90⁰ of flexion.

Perform exercises _____ times every _____ hrs/ day.

.

- Wrist Motion

Active wrist motion exercises on the affected arm. Wrist flexion and extension

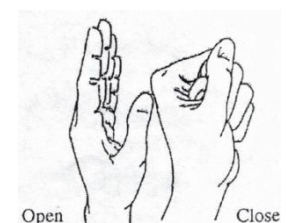
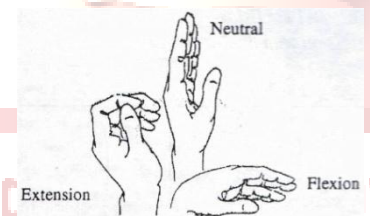
- Starting position neutral
- Bend the wrist forward (flexion)
- Bend wrist backwards (extension)

- Hand Motion

Make a fist (Light). **Do not grip anything**

- Start with the hand open
- Then close the hand

Perform exercises _____ times every _____ hrs/ day.



Other Information

Neurovascular Status: Your hand should be checked periodically to ensure that the nerves and blood supply are not restricted. Ensure that your hand and arm do not change color, (e.g. Blue), that your splint straps are not too tight and that your splints are not causing any pressure areas.



Edema (swelling control)

During ambulation (walking), wear flexion splint (bending). While sitting and lying in bed, elevate the affected arm with a pillow to above the heart level in order to control the swelling. You can also be moving your fingers back and forth (making fists) to help control swelling.

In addition to elevating the arm other methods may be used. Cold packs are initially applied to control the swelling is effective till your sutures are removed. Other methods include things such as wrapping the arm with an ace wrap (elastic bandage) from hand to elbow direction, retrograde massage (hand to elbow to push the fluids back to the heart) etc. Also, before placing the elbow in the night extension splint, wrapping the elbow in hot pack will help relax the muscle/joint to help straighten the elbow to be placed in the extension splint in later stages of healing.

*****Note that these methods are to be used only with your therapists or physicians instruction to do so.

*You will be seen by a **Certified Hand Therapist** on an outpatient basis in order to increase your range of motion and your function. As well, you will continue to be monitored by your physician.*



Development of elbow contractures is profound in the first 3 weeks following trauma to the elbow. Early positional splinting and mobilization are critical factors in preventing elbow contractures. Corrective splinting and timely usage along with muscle strengthening predictably produces functional results.

Key to success is careful treatment planning and communication with the therapists.

At 4-8 weeks

Depending upon your physicians and therapists recommendations, you may:

- Discontinue wearing your flexion splint at 4 weeks. It may be substituted with dynamic splints to increase the range of the elbow
- Night extension splint may continue for 12 weeks with increments in ROM

- Begin light activities of daily living with your injured arm (brushing teeth, combing hair, eating)

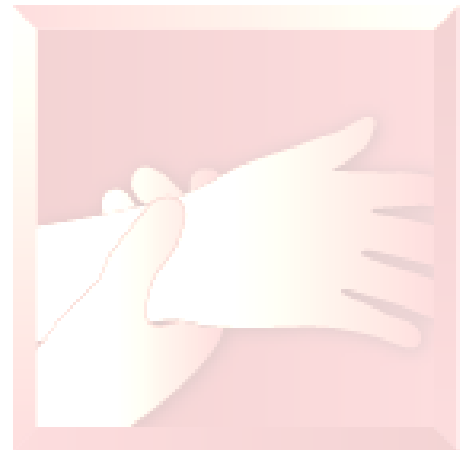
****** But it is very important for you to avoid any activities involving heavy lifting or forced grasping with the injured arm***

At 8-10 weeks

Pt. may return to regular duty and sports related activities.

If you have any questions please contact our Certified Hand Therapist at **408-268-8536**

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Upper Extremity Prescription

Evaluate and Treat

Early Motion Protocol for Elbow Injuries Starting 1-3 Days

<p>Ligament Repair</p>	<input type="checkbox"/> Medial Collateral	Day Splint Night Splint	Supination/ Flexion Limit Extension to : <input type="checkbox"/> -60° <input type="checkbox"/> - 45°	<input type="checkbox"/> Intra-operative ROM: _____
	<input type="checkbox"/> Lateral Collateral	Day Splint Night Splint	Pronation/ Flexion Pronation /Extension splint	<input type="checkbox"/> Intra-operative ROM: _____
	<input type="checkbox"/> Combined Tear	Day Splint Night Splint	Neutral /Flexion Limit Extension to: <input type="checkbox"/> -60° <input type="checkbox"/> - 45°	<input type="checkbox"/> Intra-operative ROM: _____ <input type="checkbox"/> Overhead Protocol
<p>Fractures</p>	Distal Humerus	Day Splint Night Splint	90° Flexion Static Extension splint	
	<input type="checkbox"/> ORIF – Triceps Split <input type="checkbox"/> ORIF – Triceps Spared	Gravity Assisted Extension, AA Flexion		
	<input type="checkbox"/> Radial Head Fracture	<input type="checkbox"/> LUCL Protocol <input type="checkbox"/> MCL Protocol		
	<input type="checkbox"/> Olecranon	ORIF ORIF	<input type="checkbox"/> Triceps Splitting Technique Protocol <input type="checkbox"/> Triceps Spared Technique Protocol	
	<input type="checkbox"/> Coronoid	<input type="checkbox"/> MCL Protocol		
	<p>Dislocation</p>	<input type="checkbox"/> Simple	Day Splint Night Splint	90° Flexion Static Extension splint
<input type="checkbox"/> Complex		Day Splint Night Splint	Supination/ Flexion Limit Extension to : <input type="checkbox"/> -60° <input type="checkbox"/> - 45° <input type="checkbox"/> Sag Sign <input type="checkbox"/> Wedge Sign	<input type="checkbox"/> Intra-operative ROM: _____ <input type="checkbox"/> Overhead Protocol <input type="checkbox"/> Isometric Protocol
<p>Tendon Repair</p>	<input type="checkbox"/> Biceps	Day and Night Splint in 90° Flexion		Passive Flexion Active Extension Passive Supination Active Pronation
<p>Physician Comments/ Suggestions</p>				

Physician Signature

Physician

Date