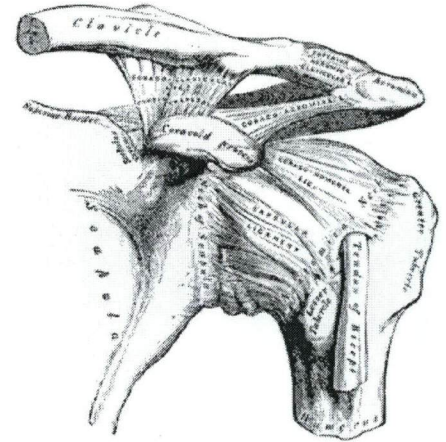


## Shoulder Separation and Acromioclavicular Joint Injury

### Description

A shoulder separation is not truly an injury to the shoulder joint. The injury actually involves the acromioclavicular joint (also called the AC joint). The AC joint is where the collarbone (clavicle) meets the highest point of the shoulder blade (acromion).



### Mechanism of Injury

The most common cause for a separation of the AC joint is from a fall directly onto the shoulder. The fall injures the ligaments that surround and stabilize the AC joint. If the force is severe enough, the ligaments attaching to the underside of the clavicle are torn. This causes the "separation" of the collarbone and shoulder blade. The shoulder blade actually moves downward from the weight of the arm. This creates a "bump" or bulge above the shoulder.

The injury can range from a little change in configuration with mild pain, to quite deforming and very painful. Good pain-free function often returns even with a lot of deformity. The greater the deformity, the longer it takes for pain-free function to return.

- A mild shoulder separation involves a sprain of the AC ligament that does not move the collarbone and looks normal on X-rays.
- A more serious injury tears the AC ligament and sprains or slightly tears the coracoclavicular (CC) ligament, putting the collarbone out of alignment to some extent.
- The most severe shoulder separation completely tears both the AC and CC ligaments and puts the AC joint noticeably out of position.

### Diagnosis

The injury is easy to identify when it causes deformity. When there is less deformity, the location of pain and X-rays help the doctor make the diagnosis. Sometimes having the patient hold a weight in the hand can increase the deformity, which makes the injury more obvious on X-rays.

### **Treatment**

Nonsurgical treatments, such as a sling, cold packs, and medications can often help manage the pain. Sometimes, a doctor may use more complicated supports to help lessen AC joint motion and lessen pain.

Most people return to near full function with this injury, even if there is a persistent, significant deformity. Some people have continued pain in the area of the AC joint, even with only a mild deformity. This may be due to:

- Abnormal contact between the bone ends when the joint is in motion
- Development of arthritis
- Injury to a disk-like piece of cushioning cartilage that is often found between the bone ends of this joint

It is often worthwhile to wait and see if reasonable function returns without surgical treatment

### **Surgical Treatment**

Surgery can be considered if pain persists or the deformity is severe. A surgeon might recommend trimming back the end of the collarbone so that it does not rub against the acromion.

Where there is significant deformity, reconstructing the ligaments that attach to the underside of the collarbone is helpful. This type of surgery works well even if it is done long after the problem started.

Whether treated conservatively or with surgery, the shoulder will require rehabilitation to restore and rebuild motion, strength, and flexibility.

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## ACROMIOCLAVICULAR JOINT RECONSTRUCTION SURGERY

### *PREOPERATIVE INSTRUCTIONS*

Schedule surgery with the secretary in the doctor's office.

Within one month before surgery

- \* Make an appointment for a **preoperative office** visit regarding surgery
- \* A history and physical examination will be done
- \* Receive instructions
- \* Complete blood count (CBC)
- \* Electrocardiogram (EKG) if over the age of 40

Within several days before surgery

- \* Wash the shoulder and area well
- \* Be careful of the skin to avoid sunburn, poison ivy, etc.

The day before surgery

- \* Check with the doctor's office for your time to report to the Surgical Day Care Unit the next day
- \* **NOTHING TO EAT OR DRINK AFTER MIDNIGHT.** If surgery will be done in the afternoon, you can have **clear liquids only** up to **six hours** before surgery but no milk or food.

The day of surgery

- **nothing to eat or drink**

## ACROMIOCLAVICULAR JOINT RECONSTRUCTION SURGERY

### Phase One: the first week after surgery

#### GOALS:

1. Control pain and swelling
2. Protect the AC joint repair
3. Protect wound healing
4. Begin early shoulder motion

#### ACTIVITIES:

##### Immediately After Surgery

1. After surgery you will be taken to the recovery room, where your family can meet you. You will have a **sling** on your operated arm. Rarely, an **abduction pillow** is needed to hold the arm up in the air away from the body.
2. You should get out of bed and move around as much as you can.
3. When lying in bed, elevate the head of your bed and put a small pillow under your arm to hold it away from your body.
4. Apply cold packs to the operated shoulder to reduce pain and swelling.
5. Move your fingers, hand and elbow to increase circulation.
6. The novocaine in your shoulder wears off in about 6 hours. Ask for pain medication as needed.
7. You will receive a prescription for pain medication for when you go home (it will make you constipated if you take it for a long time).

##### The Next Day After Surgery

1. The large dressing can be removed and a small bandage applied.
2. Remove the sling several times a day to gently move the arm in a pendulum motion: lean forward and passively swing the arm.
3. You can be discharged home from the hospital or surgery center as long as there is no problem.



## **At Home**

1. You can remove the bandages but leave the small pieces of tape (steristrips) in place.
2. You may shower and get the incision wet. To wash under the operated arm, bend over at the waist and let the arm passively come away from the body. It is safe to wash under the arm in this position. This is the same position as the pendulum exercise.
3. Apply cold to the shoulder for 20 minutes at a time as needed to reduce pain and swelling.
4. Remove the sling several times a day: move the elbow wrist and hand. Lean over and do pendulum exercises for 3 to 5 minutes every 1 to 2 hours.
5. **DO NOT** lift your arm at the shoulder using your muscles.
6. Because of the need for your comfort and the protection of the repaired AC joint, a sling is usually necessary for 4 to 6 weeks, unless otherwise instructed by your surgeon.

## **.OFFICE VISIT:**

Please arrange to see your surgeon in the office 7-10 days after surgery for suture removal and further instructions. If you have questions or concerns regarding your surgery or the rehabilitation protocol and exercises.

## **Rehabilitation after Acromioclavicular Joint Reconstruction**

### **Phase One: 0 to 6 weeks after surgery**

#### **Goals:**

1. Protect the surgical repair
2. Ensure wound healing
3. Prevent shoulder stiffness
4. Regain range of motion
5. Control pain and swelling

#### **Activities:**

##### 1. Sling

Use your sling most of the time for the first 2 weeks. The doctor will give you additional instructions on the use of the sling at your post-operative office visit. Remove the sling 4 or 5 times a day to do pendulum exercises.

##### 2. Use of the operated arm

Do not let weight of arm pull on fixation device x 6 weeks

Do not elevate surgical arm above 90 degrees in any plane for the first 6 weeks post-op.

Do not lift any objects over 1 or 2 pounds with the surgical arm for the first 6 weeks.

Avoid excessive reaching and external/internal rotation for the first 6 weeks.

##### 3. Showering

You may shower or bath and wash the incision area. To wash under the operated arm, bend over at the waist and let the arm passively come away from the body. It is safe to wash under the arm in this position. This is the same position as the pendulum exercise.

### **Exercise Program**

#### **ICE**

Days per Week: 7                      as necessary                      15- 20 minutes

Times per Day: 4-5

#### **STRETCHING / PASSIVE MOTION**

Days per Week: 7                      Times per day: 4-5

#### **Program:**

Pendulum exercises

Supine External Rotation

Supine assisted arm elevation limit to 90 degrees

Isometric exercises: internal and external rotation at neutral

Elbow and forearm exercises

Ball squeeze exercise

Scapular retraction

## Rehabilitation after Acromioclavicular Joint Reconstruction

### Phase two: 7 to 12 weeks after surgery

#### Goals:

1. Protect the surgical repair
2. Improve range of motion of the shoulder
3. Begin gentle strengthening

#### Activities

##### 1. Sling

Your sling is no longer necessary unless your doctor instructs you to continue using it (use it for comfort only).

##### 2. Use of the operated arm

You can now move your arm for most daily activities, but you need to continue to be careful not to lift objects heavier than 1 or 2 pounds. You should avoid forceful pushing or pulling activities. You should continue to avoid reaching behind you or other positions with the hand behind the head.

##### 3. Bathing and showering

Continue to follow the instructions from phase one and the instructions above.

#### Exercise Program

##### STRETCHING / ACTIVE MOTION

Days per week: 7

Times per day: 1 to 3

Supine External Rotation  
Standing External Rotation  
Supine assisted arm elevation  
Arm Elevation in scapular plane  
Behind the back internal rotation  
(limit beltline)  
Horizontal adduction(active reach only)  
Hands behind-the-head stretch  
ER @ 90° abduction stretch  
Proprioception drills  
Side lying IR @ 90°

##### STRENGTHENING / THERABAND

Internal and External rotation

Biceps curl

Row

Forward punch (Serratus punch)

##### STRENGTHENING / DYNAMIC

Side lying ER

Prone row

Prone extension

Prone 'T's

Prone 'Y's

Standing scaption

Isotonic biceps curl

Rhythmic stabilization

Scapulohumeral Rhythm exercises

## Rehabilitation after Acromioclavicular Joint Reconstruction

### Phase Three: starting 13 to 18 weeks after surgery

#### Goals:

1. Protect the surgical repair
2. Regain full range of motion
3. Continue strengthening progression

#### Activities:

##### Use of the operated arm

You may now safely use the arm for normal daily activities involved with dressing, bathing and self-care. You may raise the arm away from the body; however, you should not raise the arm when carrying objects greater than one pound. Any forceful pushing or pulling activities could still disrupt the healing of your surgical repair. Continue to avoid lifting weighted objects overhead

#### Exercise Program:

##### **STRETCHING / RANGE OF MOTION**

Days per week: 7

Times per day: 1-2

Pendulum exercises

Standing External Rotation / Doorway

Wall slide Stretch

Hands-behind-head stretch

Standing Forward Flexion

Behind the back internal rotation

Supine Cross-Chest Stretch

Sidelying internal rotation (sleeper stretch)

External rotation at 90° Abduction stretch

##### **STRENGTHENING / THERABAND**

Days per week: 7

Times per day: 1

External Rotation

Internal Rotation

Standing Forward Punch

Shoulder Shrug

Dynamic hug

Seated Row

Biceps curl

W's

##### **STRENGTHENING / DYNAMIC**

Days per week: 7 Times per day: 1

Side-lying External Rotation

Prone Horizontal Arm Raises 'T's

Prone row

Prone scaption 'Y's

Prone extension

Standing forward flexion "full-can" scaption

Add progressive resistance 1 to 5 lb

Rhythmic stabilization and proprioceptive training drills with physical therapist

Limited weight training can begin week 16 per surgeon



## **Rehabilitation after Acromioclavicular Joint Reconstruction**

### **Phase Four: starting 19 to 28 weeks after surgery**

#### **Goals:**

1. Progression of functional activities
2. Maintain full range of motion
3. Continue progressive strengthening
4. Advance sports and recreational activity per surgeon

#### **Exercise Program**

##### **STRETCHING / RANGE OF MOTION**

Days per week: 5-7 Times per day: 1

Continue all exercises from phase 3

##### **STRENGTHENING / THERABAND**

Days per week: 3 Times per day: 1

Continue from phase 3

##### **STRENGTHENING / DYNAMIC**

Days per week: 3 Times per day: 1

Continue from phase 3

##### **PLYOMETRIC PROGRAM**

Usually for throwing and overhead athletes

Days per week and times per day per physical therapist

'Rebounder' throws with arm at side

Wall dribbles overhead

Rebounder throwing/weighted ball

Deceleration drills with weighted ball

Wall dribbles at 90°

Wall dribble circles

##### **WEIGHT TRAINING**

See weight training precautions section

##### **INTERVAL SPORT PROGRAMS**

See individual programs for golf, tennis, swimming and throwing.

## Rehabilitation Guidelines after Acromioclavicular Joint Reconstruction

Post-op phase	Sling	Range of Motion	Therapeutic exercises		Precautions
<p><b>Phase 1</b> 0 to 6 weeks after surgery</p> <p><u>Goals:</u> *Allow healing of repaired tissue</p> <p>*Initiate early protected and restricted range of motion.</p> <p>*Minimize muscular atrophy.</p> <p>*Decrease pain/inflammation.</p> <p>* Ice shoulder 3-5 times (15 minutes each time) per day to control swelling and inflammation.</p>	<p>Per MD instructions. An arm sling/support is used for 6 weeks post-op whenever standing</p>	<p>*Flexion to 90 degrees as tolerated</p> <p>*ER @ 0° as tolerated,</p> <p>*IR and ER@ 90° to 45</p> <p>*No IR behind back,</p> <p>*No horizontal adduction</p>	<p>No stretching 0-6 weeks</p> <p>*Pendulum exercises</p> <p>*Supine forward flexion with wand to 90</p> <p>* shoulder abduction limit 90</p> <p>*Supine ER at neutral</p> <p>*Scapular retraction</p>	<p>*Isometrics: ER, IR, FLX, EXT, ABD</p> <p>*Ball squeeze</p> <p>*Elbow and forearm exercises</p> <p><u>*Theraband exercises</u> ER, IR (limit IR to neutral)</p>	<p>-DO NOT let weight of arm pull on fixation device x 6 weeks</p> <p>-DO NOT elevate surgical arm above 90 degrees in any plane for the first 6 weeks post-op.</p> <p>-DO NOT lift any objects over 5 pounds with the surgical arm for the first 6 weeks.</p> <p>-AVOID EXCESSIVE reaching and external/internal rotation for the first 6 weeks.</p>
<p><b>Phase 2</b> 7 to 12 weeks after surgery</p> <p><u>Goals:</u> *Gradually restore range of motion *Increase strength *Improve neuromuscular control *Enhance proprioception and kinesthesia</p>	<p>D/C</p>	<p>*In general, increase ROMs in increments of 15° per week</p> <p>*Shoulder flexion and abduction to tolerance (full by week 12)</p> <p>*Horizontal adduction active only</p> <p>*progressive IR and ER as tolerated</p>	<p>*Gradually improve ROM all planes</p> <p>*Elevation in scapular plane</p> <p>*Wall slide</p> <p>*IR behind back to beltline only</p> <p>*Horizontal adduction active reach only</p> <p>*Hands behind-the-head stretch</p> <p>*ER @ 90° abduction stretch</p> <p>*Side lying IR @ 90°</p> <p>* Standing External Rotation</p>	<p><u>Theraband exercises:</u> Continue phase 1 Biceps curl Row Forward punch (Serratus punch)</p> <p><u>Dynamic exercises:</u></p> <p>*Side lying ER *Prone row *Prone extension * Standing forward flexion to 90° *Prone 'T's *Standing scaption *Isotonic biceps curl *Prone 'Y's</p> <p>*Rhythmic stabilization</p> <p>*Proprioception drills</p> <p>*Scapulohumeral Rhythm exercises</p>	<p>No push-ups or pushing movements</p> <p>No lifting of weighted objects overhead or across the body</p>

Post-op Phase	Therapeutic Exercises		Notes	Precautions
<p><b>Phase 3</b> 13-18 weeks after surgery</p> <p><u>Goals:</u> * Progress to full ROM * Improve: strength/power/endurance * Improve neuromuscular control * Improve dynamic stability * Improve scapular muscular strength</p>	<p>*Progress to full ROM</p> <p>*Horizontal adduction stretch</p> <p>*IR behind back full</p> <p>* External rotation at 90° Abduction stretch</p>	<p>*Continue theraband and dynamic exercises from phase 1 and 2</p> <p><u>Theraband:</u> add 'T's, diagonal up and down, External rotation at 90°, Internal rotation at 90°</p> <p><u>Dynamic:</u> *Continue previous Progressive resistance limit to 5 lb</p> <p>*Initiate push-ups into wall at week 12 (then push-up progression per MD)</p> <p>*Weight training can begin at 16 weeks. *Machine resistance (limited ROM): *Biceps and Triceps *Front pull downs *Seated row *Seated bench press at week 16 *other weight training per surgeon's permission</p>	<p>PRE 1-5 lb as tolerated</p> <p>Gradual return to recreational activities without force on the arm</p>	<p>Continue to avoid forceful pushing pulling and lifting overhead</p>
<p><b>Phase 4</b> 19-28 weeks after surgery onward</p> <p><u>Goals:</u> Progressively increase activities to prepare patient for unrestricted functional return</p>	<p>Full ROM</p>	<p>*May progress CKC program: *Ball on wall *Pushup on unstable surface at 20 weeks</p> <p>Plyometric exercises for throwers: *Rebounder throws arm at side *Wall dribbles overhead *Rebounder throws with weighted ball, *Decelerations, wall dribbles at 90° *Wall dribble circles</p>	<p>Interval sports programs can begin and Strength athletes can gradually resume regular training between 28-32 weeks</p>	<p>Weight training precautions.</p> <p>Shoulder brace sometimes for collision sports.</p>

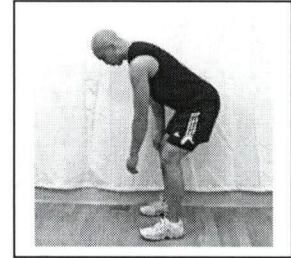


## Shoulder Exercises for Acromioclavicular Joint Reconstruction Rehabilitation Protocol

The exercises illustrated and described in this document should be performed only after instruction by your physical therapist or doctor.

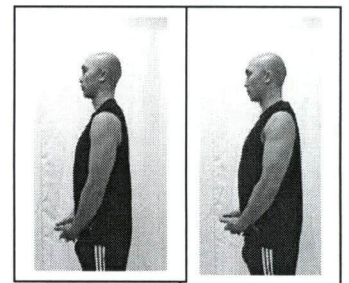
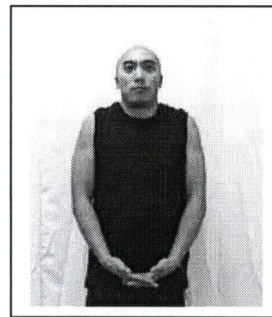
### Pendulum exercise

Bend over at the waist and let the arm hang down. Using your body to initiate movement, swing the arm gently forward and backward and in a circular motion.



### Shoulder shrug

Shrug shoulders upward as illustrated.

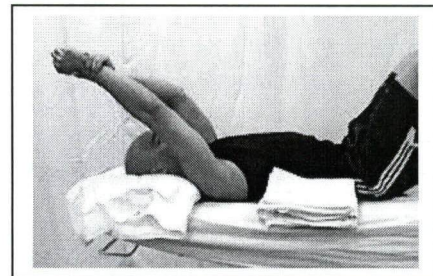
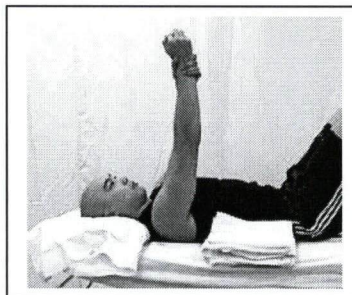
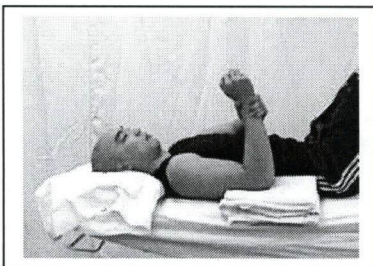


### Shoulder blade pinches

Pinch shoulder blades backward and together, as illustrated.

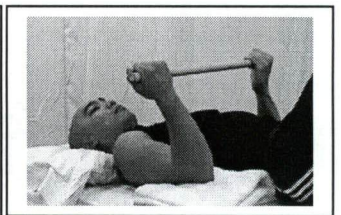
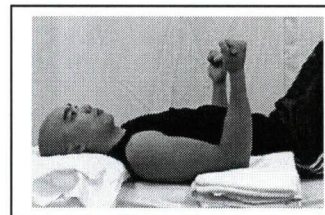
### Supine passive arm elevation

Lie on your back. Hold the affected arm at the wrist with the opposite hand. Using the strength of the opposite arm, lift the affected arm upward, as if to bring the arm overhead, slowly lower the arm back to the bed.



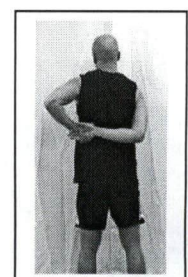
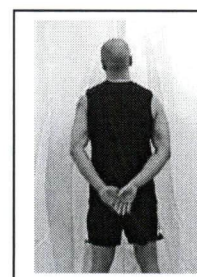
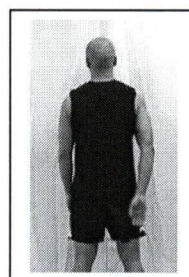
### Supine external rotation

Lie on your back. Keep the elbow of the affected arm against your side with the elbow bent at 90 degrees. Using a cane or long stick in the opposite hand, push against the hand of the affected arm so that the affected arm rotates outward. Hold 10 seconds, relax and repeat.



### Behind-the-back internal rotation

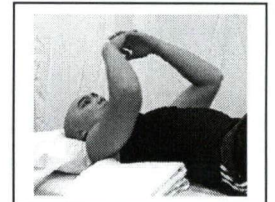
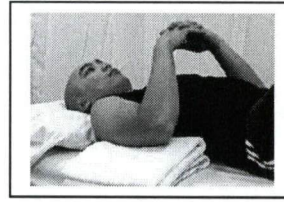
Sitting in a chair or standing, place the hand of the operated arm behind your back at the waistline. Use your opposite hand, as illustrated, to help the other hand higher toward the shoulder blade. Hold 10 seconds, relax and repeat.





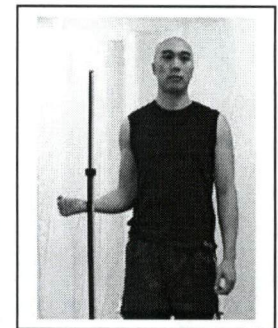
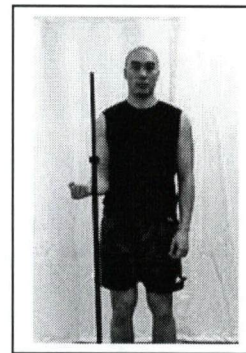
Hand-behind-the-head stretch

Lie on your back. Clasp your hands and place your hands behind your head with the elbows facing forward. Slowly lower the elbows to the side to stretch the shoulder outward. Hold for 10 seconds, and then return to the starting position.



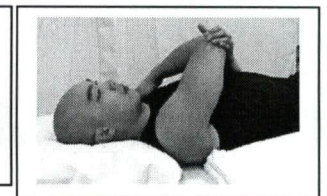
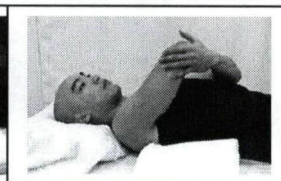
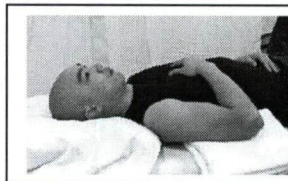
Standing external rotation

Stand in a doorway facing the doorframe or near the edge of a wall. With your hand against the wall or doorframe, keep the affected arm firmly against your side, and the elbow at a right (90 degree) angle. By moving your feet, rotate your body away from the door or wall to produce outward rotation at the shoulder.



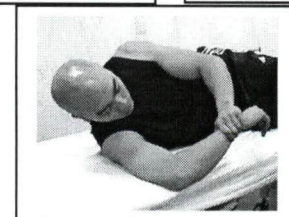
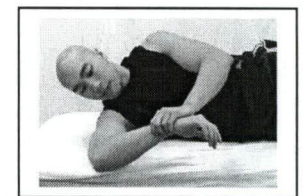
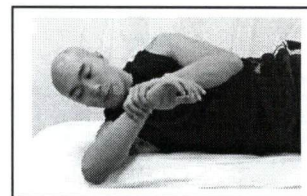
Supine cross-chest stretch

Lying on your back, hold the elbow of the operated arm with the opposite hand. Gently stretch the elbow toward the opposite shoulder. Hold for 10 seconds.



Sidelying internal rotation stretch

Lie on your side with the arm positioned so that the arm is at a right angle to the body and the elbow bent at a 90° angle. Keeping the elbow at a right angle, rotate the arm forward as if to touch the thumb to the table. Apply a gentle stretch with the opposite arm. Hold 10 to 15 seconds.



External rotation at 90° abduction stretch

Lie on your back. Support the upper arm, if needed, with towels or a small pillow. Keep arm at 90 degrees to the body and the elbow bent at 90 degrees. Using a stick and the opposite arm, stretch as if to bring the thumb to the corner of the table adjacent to your ear. Hold for 10 seconds, and then return to the starting position

