

POST-OPERATIVE HEALING SUPPORT

PHASE ONE

PASSIVE RANGE OF MOTION (PROM)

Performed during the period of 0 to 6 weeks after surgery or at the discretion of your Physician and Rehabilitation Professional (Physical Therapist, Occupational Therapist, Athletic Trainer, or Chiropractor)

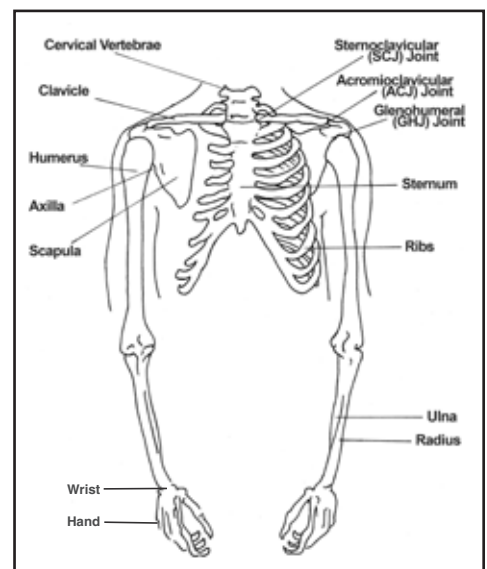
The influences imparted and successes achieved in the first phase of your rehabilitation establishes the foundation from which all further gains will be determined. By definition PROM means that your involved upper extremity (UE) is being supported and solely moved by the combination of the UE Ranger and your non-injured upper extremity (and its supportive kinetic chain). The involved arm in this phase is not actively participating in the production of movement it is **ONLY ALONG FOR THE RIDE**. The goals of this phase of rehabilitation are as follows.

Phase One Goals

1. Preserve the integrity of the surgical repair
2. Resolution of pain and swelling
3. Resolution of a balanced Autonomic Nervous System, absent of the sustained fight or flight influences
4. Restoration of proper resting tone of the full shoulder girdle's musculature
5. Restoration of primary or diaphragm produced respiration absent of neck and shoulder bracing
6. Preserve and enhance the integrity of the circulatory system's role in healing
7. Reduce the need of medications, eliminating their side effects, thus supporting restorative sleep
8. Prevent adhesions
9. Resolve and prevent further compensations
10. Restoration of patient supported Range of Motion to between approximately 90 and 110 degrees of elevation, with proportional rotations and with the awareness and understanding of proper biomechanics to this point

Production of Movement Initiation and Progression of Forward Reaching and Elevations

The Upper Extremity as a functional system includes the foundational Spine and Torso, Shoulder Girdle (Humerus, Scapula, and Clavicle) Elbow, Forearm, Wrist, and Hand. (**Illustration A**). *While the primary emphasis of your rehabilitation is targeted to the shoulder, this entire system contributes to all aspects of your recovery. It is strongly encouraged for you, from the beginning to experience the therapeutic influences of mobility/ healing through each component within this system.



▲ ILLUSTRATION A

With the patient in a standing position, adjust the length of the UE Ranger to the height of their elbow to duplicate the supported and resting position of their arm in its sling (**figure 1**). If a person is unable to stand simply duplicate this measurement and all further instructions/applications from a seated position (**figure 2**).



▲ FIGURE 1



▲ FIGURE 2

Place their involved hand in the molded support and comfortably secure it with the overlying strap (**figure 3**).



▲ FIGURE 3



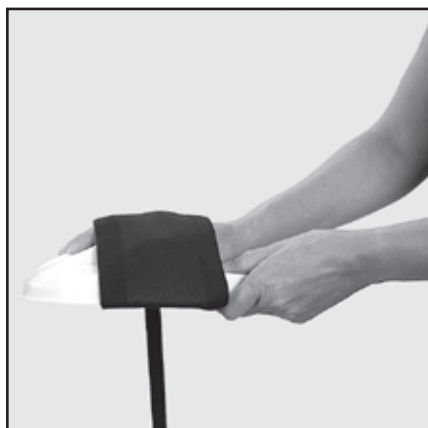
▲ FIGURE 4

Their arm should now be able to resume a sensation of security and relaxation, similar to that of your sling (**figure 4**).

Place the non-involved hand in either position option **A** (**figure 5**) or **B** (**figure 6**).



▲ FIGURE 5 (A)

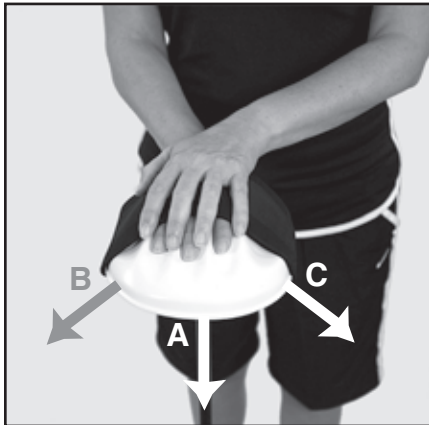


▲ FIGURE 6 (B)

Position **A** is recommended in the beginning because it offers the most support; as you progress in comfort and confidence you may progress to Position **B** which offers more freedom of movement.

All production of movement should be from the non-injured arm. * It is of the utmost importance prior to and within all movements here forward to allow the UE Ranger to support the entire weight of your involved upper extremity.

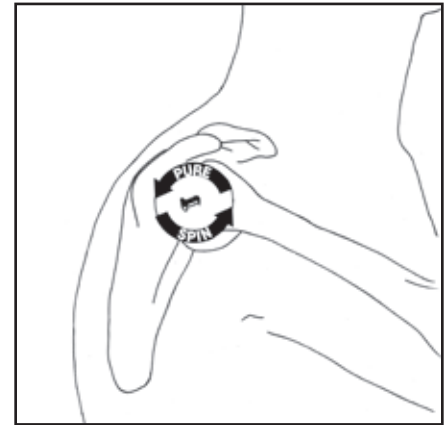
You will want to begin with a straight ahead motion as shown in **(figure 7)** and labeled by arrow **(A)** As you become more comfortable and under the guidance of your rehabilitation professional, you may vary your planes of motion to correspond with label arrows **B** and **C**.



▲ FIGURE 7



▲ FIGURE 8



▲ ILLUSTRATION A

It is important in this stage of motion recovery that the involved humeral head moves independently in its joint (made up of the arm and the shoulder blade) with “**Pure Spin**”. This means that your arm and shoulder blade move freely of one another **(figure 8 and supported by illustration B)**. This capacity is necessary to reduce pain, excessive muscle tension, and swelling. To succeed in producing pure spin motion you will need to both allow the UE Ranger to support the full weight of your arm, and to move yourself **slow enough to perceive or feel this articulation or dissociation occurring**. To optimize the unweighting of your arm, recall as instructed by your therapist to first slightly press down on the heel of your hand, stopping at the very point of feeling the central supportive pressure under your palm **(figure 8)**. * If you feel strain or compression you are likely failing to move freely.

Always begin with a warm up using the base on or near the ground **(figure 9)**. All warm-ups and any progressions in height should begin with **partial movements and gradually progress to fuller movements**. Partial movements mean that your forward motions are progressive and pain free. **At this level, avoid fully straightening your elbow as this can place an excessive force through your shoulder. Your rehabilitation professional will train you in how to straighten your elbow without potential strain to your shoulder. (Remember this phase requires the shoulder to be relaxed.) Also in this first phase of recovery, avoid moving the shoulder into extension (or the elbow behind or past your side) upon the return of forward motion since this can potentially stress the front portion of certain surgical procedures.**



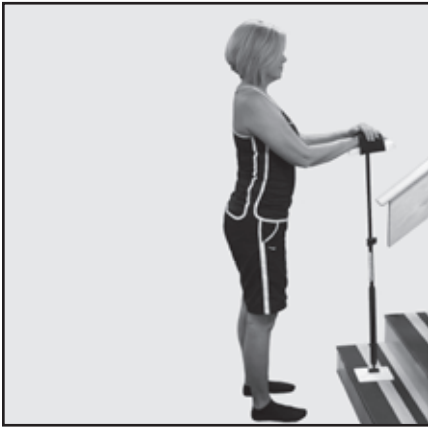
▲ FIGURE 9

*****CAUTION*** NEVER CONTINUE MOTION IF YOU ARE EXPERIENCING ANY PROGRESSION OF PAIN. ANY PAIN STEMMING FROM USE OF THE UE RANGER COULD BE RELATED TO THE FOLLOWING REASONS:**

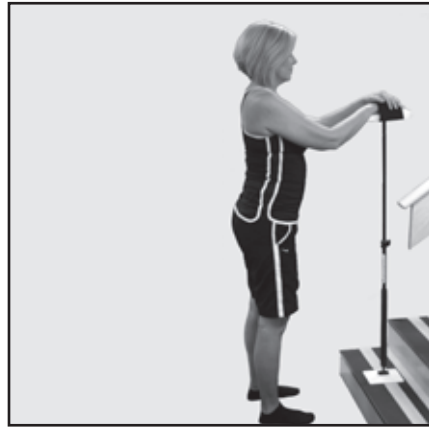
Reasons for Pain:

- Not fully trusting your arm’s weight to the support of the UE Ranger
- Not supporting a Pure Spin Motion
- Going too fast
- Failure to support other correct biomechanics (foundation and quality of your movement production)
- Over extending your current physical capacities

Within your capacity to produce healthy biomechanics, increase your elevation heights by placing the base on progressively increasing platform heights. Perform up to 6-10 total movements per height progression. In the early stages only execute 1 to 3 height intervals (**figures 10-12**).



▲ **FIGURE 10**



▲ **FIGURE 11**



▲ **FIGURE 12**

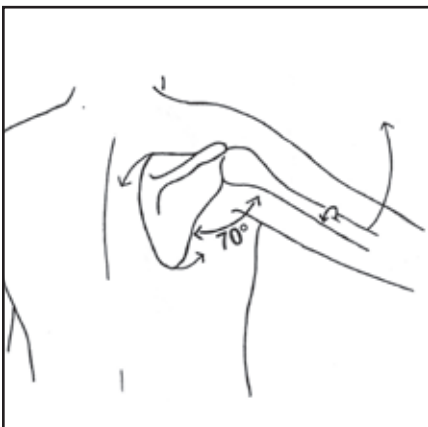
Clinical Note: Within the home, the first couple of standard stairs will support an appropriate progression of height intervals. However, progressing to the 3rd stair typically produces a compromise in biomechanics due to the distance away from your body. Therefore between the available adjustments in height within the UE Ranger and the necessity to improvise possibly with a foot stool or appropriate chair height will most appropriately serve your supportive requirements.



▲ **FIGURE 13**



▲ **FIGURE 14**



▲ **ILLUSTRATION C**



▲ **FIGURE 15**

As you progress in post-operative time and endurance, you will reach up to 3 to 5 height interval increases from your beginning height and working towards the goal of approximately 90 to 110 degrees of elevation (**figure 13 and 14**).

For progressions in elevation above 70 degrees it is supportive of healthy movement to rotate your involved arm and shoulder blade outward as shown in **Illustration C**. To produce this correctly your thumb will ultimately point toward the ceiling. Observe how Position **B** of your non-involved hand can support this effort (**figure 15**). Further your therapist will spend extensive time in training you to effectively produce this integral portion of achieving full elevations. **Always finish with a cool down**, by working back down each of your height interval progressions until reaching your beginning level.

During your cool down you can reduce your repetitions to 3 - 8 as well as shorten your movements. **Maintain pure spin motions by allowing the UE Ranger to support the full weight of your arm and by moving at a slow speed.**

FREQUENCY AND VOLUME OF USE

FOR PAIN RELIEF: Perform as needed very gradual partial forward movements and proceed to fuller movements for 1 to 3 sets at 6 -10 repetitions per set. For pain relief you will generally keep your working height at the initial level. If you are able to establish a relaxed shoulder and establish free spin motion, resume progressions from one to three intervals at a non challenging final height.

FOR MAINTENANCE OF CURRENT MOTION: Up to 3 times per day utilizing 1 to 5 height intervals with 6-10 repetitions per height interval.

FOR PROGRESSION OF MOTION CAPACITIES: In addition to your daily maintenance, your therapist may authorize you to challenge your current available motion. If given the authorization by your therapist, it is recommended to challenge yourself after a warm-up within your current motion limit and then carefully work into a challenge. At your challenge height, perform 4 to 8 very light repetitions and then proceed to work down your intervals for an appropriate cool down. This should be done no greater than one to two times per week with at least two days in between to allow your body to integrate the effort.

*****CAUTION*** NEVER CONTINUE MOTION IF YOU ARE EXPERIENCING ANY PROGRESSION OF PAIN. ANY PAIN STEMMING FROM USE OF THE UE RANGER COULD BE RELATED TO THE FOLLOWING REASONS:**

Reasons for Pain:

- Not fully trusting your arm's weight to the support of the UE Ranger
- Going too fast
- Not supporting a Pure Spin Motion
- Failure to support other correct biomechanics (foundation and quality of your movement production)
- Over extending your current physical capacities

Production of Movement Initiation and Progression of External Rotation and Combined Elevations

*****CAUTION*** BEFORE PROCEEDING, BE SURE TO CLEAR THIS NEW INTRODUCTION OF MOTION WITH YOUR REHABILITATION PROFESSIONAL.**

For this application remove the articulating base from the UE Ranger as demonstrated in (figure 16).



▲ FIGURE 16

Set up adjustments

Depending on whether your patient has been advised to use a standard sling or one with a pillowed bolster you can have the patient rest their arm against their side or utilize the bolstered pillow without securing the sling to accommodate either situation as shown in (figures 17 and 18). At this point as in the previous section, prior to the execution of movement allow

sufficient time for their full upper extremity, shoulder girdle and neck to establish a sensation of security and relaxation.



▲ FIGURE 17



▲ FIGURE 18

All production of movement should be with the combined efforts of the following criteria:

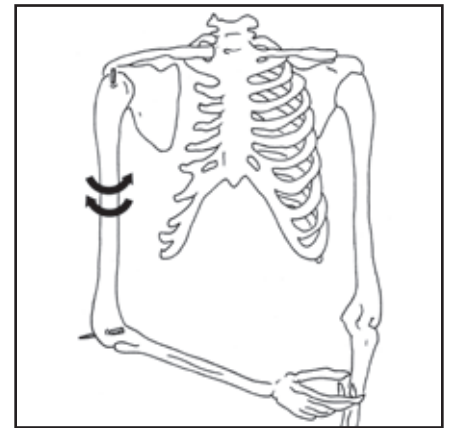
- Following an adequate warm up as described previously in the forward reaching section or that which is instructed to you by your rehabilitation professional
- The available pain free range of motion
- With the correct biomechanics, including pure spin, but with a different axis of rotation (figures 19 and 20 supported by Illustration D)



▲ FIGURE 19



▲ FIGURE 20



▲ ILLUSTRATION D

- Attention and concentration is advised to insure you are producing actual shoulder rotations without mistaking either elbow or forearm substitutions
- The range of motion limit advised by your rehabilitation professional

You will want to perform up to 6 to 10 partial to full strokes. If advised by your rehabilitation professional you can perform 1 to 2 sets of this exercise per session. It is advised to end each session of external rotation motion support with a similar cool down as described in the previous section.

USE OF ICE, REST, POSTURAL AWARENESS, AND RESPIRATION



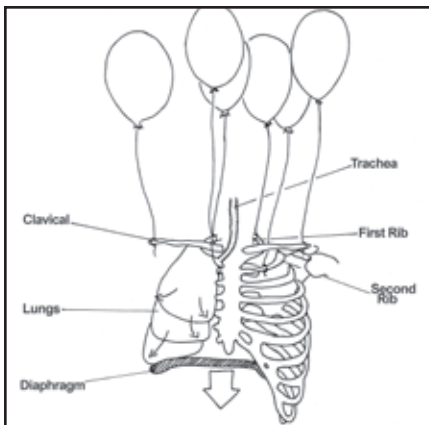
▲ FIGURE 21

Following each Phase One exercise session with the UE Ranger, it is imperative to rest and generally indicated to ice your shoulder for 15 to 25 minutes. For optimal circulatory and motor relaxation support, position your upper extremity as shown in (figure 21).

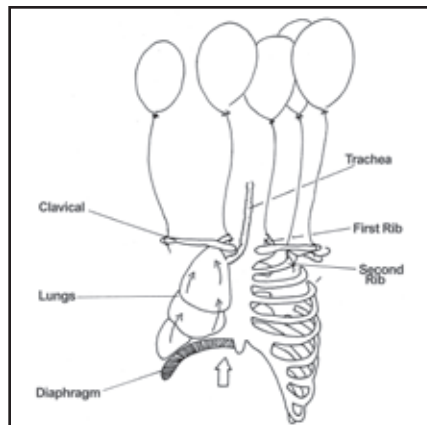
HOME ICE RECIPE: Place two parts water to one part rubbing alcohol in a large Ziploc freezer bag. Put this mixture in the freezer, which will produce a flexible slush instead of a solid. This flexibility allows the most contact area onto your body. Use two bags, one over the shoulder, and one in the axilla (arm pit). It is advised for safety and comfort to use some form of a barrier such as a pillow case or t-shirt between your skin and the ice.

While icing, and at rest separate from your icing times, support your upper extremity by positioning pillows under the elbow and forearm as shown in (figure 21). In this situation your sling should be off and efforts made to gradually move your elbow, forearm, and hand without moving your shoulder. This will be reviewed by your rehabilitation professional as a means of supporting circulation, preventing stiffening of these supportive joints, and alleviating some forms of pain related to reduced activity.

Respiration focused on using your diaphragm muscle, as demonstrated by (Illustration E) showing inhalation and (Illustration F) showing exhalation, will support healthy mobility of your torso, which also influences shoulder function. Restricted mobility of your clavicle, your upper ribs and their respective muscles can both compromise your full respiration as well as upper extremity function. Your brain perceives compression due to poor posture or muscle guarding due to pain or for protection as a perceived threat and will respond with compensatory respiration. Imagine the drawing up effect of holding a helium balloon in your hand. These helium balloons provide you with a visualization cue that is designed to relax the traditionally over active muscles and restore both, the capacity to achieve relaxed comfortable postures and the support of full respiration cycles.



▲ ILLUSTRATION E



▲ ILLUSTRATION F