REHAB PROTOCOL FOR ROTATOR CUFF REPAIR

PHASE I (surgery to 2 weeks after surgery)

Appointments	• Rehabilitation appointments begin 5-8 days after surgery unless instructed otherwise by surgeon
Rehabilitation Goals	• Patient education on pathology, procedure, rehabilitation expectations and expected time frame for return to function, precautions • Normalize scapular positioning and mobility • Reduce pain and swelling in the post-surgical shoulder • Maintain active range of motion (AROM) of the elbow, wrist and neck • Minimize loads placed over healing repair
Precautions	• Standard sling utilization is: 6 weeks continuously (except for rehab and hygiene care), then wean from use. This may be modified from 4-8 weeks depending on the surgical procedure, tissue quality, healing potential and stiffness. The physician and physical therapist will be in communication on these items. • No AROM • No lifting or supporting body weight with hands • Relative rest to reduce inflammation
Suggested Therapeutic Exercise	• Elbow, wrist and neck AROM • Ball squeezes • Passive range of motion (PROM) for forward elevation in the plane of the scapula with exercises demonstrated to have < 15% EMG activity level. • Supine PROM • Forward bow • Towel press-up (progressing hands apart) • Scapular protraction with ball on table • Towel slide

	• PROM for external rotation (ER) in ~20° of abduction with < 15% EMG activity level • Supine active assisted ER with cane
Cardiovascular Exercise	• Walking and/or stationary bike with sling on • No treadmill • Avoid running and jumping due to the repetitive traction forces that can occur at landing
Progression Criteria	• At least 14 days post-operative • Passive forward elevation 60-90° • Passive ER to 20° at 20° of abduction

PHASE II (weeks 2-6, begin when Phase I criteria met)

Appointments	• If PROM deficit is present with pain as primary barrier appointments should be 1 time per week until pain well controlled • If PROM deficit is present with stiffness as primary barrier appointments should be 2 times per week with home exercise program (HEP) performed at least 2-3 times per day
Rehabilitation Goals	• Progression of elevation in scapular plane and ER in 20-30° of abduction • Correct postural dysfunctions
Precautions	• Sling utilization will be determined by communication between physician and physical therapist. Typical sling use ranges from 4-8 weeks depending on surgical procedure, tissue quality, healing potential and stiffness. • No active abduction ROM for 8 weeks to protect repair and no external resistance to abduction and supraspinatus for 12 weeks
Suggested Therapeutic Exercise	• Progress forward elevation and passive ER using only exercise demonstrated to have ≤ 15% EMG activity level. • Supported side lying shoulder flexion • Supine forward elevation with elastic band resistance from 90°

	• Small circle (20 cm) pendulums • Scapular strengthening • Sternal lift • Modified shoulder dump • Grade I and II joint mobilizations for pain relief as needed at all shoulder girdle joints GH, SC, AC, ST • Elbow, wrist, finger AROM and light strengthening • Ensure normal cervical spine, thoracic spine and hip mobility to facilitate kinetic chain upper extremity ROM
Cardiovascular Exercise	• Walking and stationary bike • No treadmill, elliptical or Stairmaster • Avoid running and jumping due to the repetitive traction forces that can occur at landing
Progression Criteria	• At least 8 weeks post-operative • Passive forward elevation 90-120° • Passive ER to 20-30° at 20° of abduction

PHASE III (weeks 6-12, begin when Phase II criteria met)

Appointments	• If AROM deficit is present with lag signs surgeon should be notified re: concerns about repair integrity. Appointments should be 2 times per week until integrity has been determined and AROM goals met. • If AROM deficit present without lag signs appointments should be 1 times per week until AROM goals met
Rehabilitation Goals	• ROM goals for approximately 9 weeks • Passive forward elevation to 130-155° • Passive ER at 20° of abduction to 30-45°. Passive ER at 90° of abduction to 45-60° to full • Controlled progression of active assistive range of motion (AAROM) and AROM. AROM

	initiation based on PROM goals, delayed 9 weeks post-op. • Initiate light muscle performance activities • Correct postural dysfunctions • Active elevation 80-120° without compensation
Precautions	• Wean out of the sling slowly starting post-op weeks 6-8 based on size of tear, integrity of tissue and repair, and surgeon preference • No active abduction ROM for 8 weeks to protect repair and no external resistance to abduction and supraspinatus for 12 weeks
Suggested Therapeutic Exercise	• AAOM for forward elevation and ER with exercises demonstrated to have ≤ 30% EMG activity level. Generally in gravity minimized positions and/or short lever arm. • Cane assisted forward elevation • Wall ball roll • Active assisted forward elevation with fingers interlaced • Wall walks or slide • Aquatic exercise: slow speed elevation in scapular plane • ROM exercises in other planes can be initiated in latter half of this phase if significant ROM limitations are present (caution with passive tension over the repair) • ER at progressing angles of abduction • Internal rotation (IR) • Functional IR behind the back • Horizontal adduction • Progress AROM as demonstrated with good scapulothoracic mechanics and remaining pain free. Generally in upright position progressing from supported to unsupported elevation. • Pulley progression based on PROM and scapular control. Passive progressing to active assisted elevation with active lowering. • Short-lever arm forward elevation • Ipsilateral step-up shoulder flexion with a ball (both hands)

	• Ipsilateral step-up shoulder flexion with no ball • Active shoulder flexion
Cardiovascular Exercise	• Walking and stationary bike • No treadmill, elliptical, Stairmaster or swimming • Avoid running and jumping due to forces that can occur at landing
Progression Criteria	• Passive forward elevation to at least 140° to full • Passive ER at 20° of abduction to at least 30° to full. Passive ER at 90° of abduction to at least 75° to full. • Active elevation to at least 120° without compensation • Appropriate static and dynamic scapular positioning

PHASE IV (when Phase III criteria met, usually post-op months 3-5)

Appointments	• Rehabilitation appointments are 1 time every 2-3 weeks
Rehabilitation Goals	• Full P/AROM • Gradually restore shoulder strength, power, and endurance • Return to ADLs, work, and recreational activities that do not require heavy lifting, powerful movements, or repetitive overhead activities • Advance proprioceptive and dynamic neuromuscular control retraining
Precautions	• Post-rehabilitation soreness should alleviate within 12 hours of the activities • No lifting of objects more than 15-20 pounds with short lever arm • Lifting only light resistance with long lever arm • No sudden lifting, jerking, or pushing movements

Suggested Therapeutic Exercise	• Progression of strengthening with exercises demonstrated to have 30-49% EMG activity level. Generally in upright position with progression of lever arm and resistance. • Multi-plane shoulder AROM with a gradual increase in the velocity of movement while making sure to assess scapular rhythm • ER and IR at various angles of abduction • Prone series: rowing, horizontal abduction, extension • Dynamic stabilization • Open kinetic chain (OKC) proprioception awareness drills • Closed kinetic chain (CKC) progression • Bicep curls, triceps extensions, lat pull downs, wrist and forearm strengthening • Exercises should be progressive in terms of shoulder elevation range • Rythmic shoulder stabilizations, starting with proximal purtabations • Shoulder mobilizations as needed • Core and lower body strengthening • Grade III and IV joint mobilizations as indicated to address capsular restrictions at all shoulder girdle joints GH, SC, AC, ST
Cardiovascular Exercise	• Walking, stationary bike and Stairmaster • No treadmill or swimming • May begin light jogging and running if the patient has normal (rated 5/5) rotator cuff strength in neutral and functional shoulder AROM
Progression Criteria	• Not all patients will progress to Phase V. Individuals that are involved in sports and physical labor will be progressed, those that are not should continue with progressive, low velocity loading. • Full shoulder AROM in all planes and multi-plane movements • MMT of 5/5 in neutral • Pain free during strengthening exercises • Negative impingement signs

COASTAL ORTHOPEDIC Associates

PHASE V (when Phase IV criteria met, usually post-op months 5-6)

Appointments	• Rehabilitation appointments are once every 2-3 weeks
Rehabilitation Goals	• Normalize muscular strength, power and endurance • Return to high demand activities • Complete return to sport training • Develop strength and control for movements required for sport/work • Develop work capacity cardiovascular endurance for sport/work
Precautions	• Post-rehabilitation soreness should alleviate within 12 hours of the activity • Avoid activities that result in substitution patterns • Avoid exercises that generate a large increase in load compared to previous exercises
Suggested Therapeutic Exercise	• Continue shoulder mobilizations, stretching and PROM exercises as needed per impairments • Rotator cuff strengthening in 90° of shoulder abduction as well as in provocative positions and work/sport specific positions, including eccentric strengthening, endurance and velocity specific exercises. Increasing use of >50% EMG activity level exercises. • Progressive return to weight lifting program starting with relatively lightweight and high repetitions (15-25). Increase weight while decreasing reps over 6-12 weeks. • Core and lower body strengthening • Throwing program, swimming program or overhead racquet program as needed after successful period of plyometric training program

	• Transition to upper extremity prevention/maintenance program such as Throwers Ten Program
Cardiovascular Exercise	• Design to use sport/work specific energy systems
Progression Criteria	• The patient may return to sport after receiving clearance from the orthopedic surgeon and the sports rehabilitation provider. Return to sport decisions are based on meeting the goals of this phase.