



CLAVICLE OPEN REDUCTION INTERNAL FIXATION

PT Protocol: Dr. Salvatore Frangiamore

**** Please keep in mind, these are guidelines only. Other than specifics regarding slingwear and specific limitations, I trust your expertise to provide the best treatment strategy for my patients** if there are any questions don't hesitate to contact myself or my team**

This protocol provides you with general guidelines for the patient undergoing open reduction-internal fixation of a clavicle fracture or non-union. Specific changes in the program will be made by the physician as appropriate for the individual patient.

Phase 1--Protection Phase (Weeks 0 to 6)

- **Goals**
 - Protect the surgical reconstruction
 - Retard muscle atrophy
 - Decrease pain/inflammation
- **Frequency of in-office visits**→ 1-2 visits between weeks 2-4 postoperatively to education on passive ROM exercises. Additional 1-2 visits over between 4-6 weeks to monitor patient compliance and understanding
- **Shoulder ROM**
 - No UNASSISTED active shoulder flexion or abduction for first 6 weeks
 - No assisted active shoulder flexion or abduction for 4 weeks
 - OK to begin AAROM (flexion and abduction) at 4 weeks
 - OK to begin active IR/ER with arm at side immediately
 - OK to begin PROM (IR/ER/flexion/abduction) at 2 weeks. Limit flexion and abduction to 90° for first 4 weeks. OK to progress as tolerated thereafter
- **Elbow ROM**
 - Passive to active motion, progress as tolerated (0-130o)
 - Pronation to supination as tolerated
 - Support elbow with contralateral hand
- **Shoulder droop with arm hanging unsupported is contraindicated**
 - Strengthening exercises (begin at 10-14 days post-op)
 - Gentle isometrics→ flexion, abduction, extension, IR, ER (scapular plane)
 - Criteria to Progress to Phase 2:
 - Minimal pain and tenderness
 - Satisfactory radiographic follow-up with physician
 - Good (grade 4/5) MMT of ER and IR and abduction

Phase 2--Intermediate Phase (Weeks 6 to 12)

- **Goals**
 - Re-establish full non-painful ROM
 - Retard muscular atrophy
 - Regain and improve muscular strength
 - Normalize arthrokinematics
 - Improve neuromuscular control of shoulder complex
 - Decrease pain/inflammation
 - Ice, modalities PRN
- **ROM Exercises**
 - Rope and pulley flexion
 - Pendulum exercises
 - Self-capsular stretches
 - T-bar AAROM exercises
 - Flexion to tolerance
 - ER/IR (begin at 0° abduction, progress to 45° abduction, then to 90° abduction)
- **Strengthening Exercises**
 - Isometrics
 - ER/IR, abduction, extension, biceps, triceps
 - Progress to isotonic strengthening (light resistance with dumbbells or equivalent)
 - Abduction, extension, ER, IR, biceps, triceps, scapular musculature
 - Initiate neuromuscular control exercises (PNF)
 - Initiate manual resistance
 - Initiate upper extremity endurance exercises
 - Rhythmic stabilization exercise for shoulder flexion-extension
- **No shoulder press or bench press or pectoralis deck or pullovers**
- **Criteria to Progress to Phase 3:**
 - Full non-painful ROM
 - Satisfactory radiographic follow-up with physician
 - No pain or tenderness
 - Strength 70% of contralateral side

Phase 3--Dynamic Strengthening Phase (Weeks 12 to 16)

- Goals
 - Improve strength, power and endurance
 - Improve neuromuscular control and dynamic stability to the AC joint
 - Prepare the athlete for overhead motion
- Strengthening Exercises
 - Continue isotonic strengthening exercises
 - Initiate light bench press, shoulder press (progress weight slowly)
 - Continue with resistance exercises for shoulder abduction, ER, IR, flexion, latissimus dorsi (rowing, pull-downs), biceps and triceps
 - Initiate tubing PNF patterns
 - Initiate ER and IR at 90° abduction
 - Scapular strengthening (four directions)
 - Emphasis on scapular retractors, elevators
 - Neuromuscular control exercises for GH and scapulothoracic joints
 - Rhythmic stabilization
 - Shoulder flexion-extension
 - Shoulder ER-IR (90/90)
 - Shoulder abduction-adduction
 - PNF D2 Patterns
 - Scapular retraction-protraction
 - Scapular elevation-depression
 - Plyometric upper extremity exercises
 - Continue stretching to maintain mobility
- Criteria to Progress to Phase 4:
 - Full non-painful ROM
 - No pain or tenderness
 - Isokinetic test that fulfills criteria (shoulder flexion-extension, abduction-adduction)
 - Satisfactory clinical examination

Phase 4--Return to Activity Phase (Weeks 16+)

- Goal→ progressively increase activities to prepare patient/athlete to full functional return
- Exercises
 - Initiate interval sports program
 - Continue all exercises listed in Phase 3
 - Progress resistance exercise levels and stretching