

Appendix 1. Traumatic dislocation protocol

NON-OPERATIVE REHABILITATION

TRAUMATIC DISLOCATION OF THE SHOULDER

The program will vary in length for each individual depending on several factors:

- Severity and onset of symptoms
- Degree of instability symptoms
- Direction of instability
- Concomitant pathologies
- Age and activity level of patient
- Arm dominance
- Desired goals and activities

I. PHASE I - ACUTE MOTION PHASE

Goals:

- Protect healing capsular structures
- Re-establish non-painful range of motion
- Decrease pain, inflammation, and muscular spasms
- Retard muscular atrophy / Establish voluntary muscle activity
- Re-establish dynamic stability
- Improve proprioception

Note: During the early rehabilitation program, caution must be applied in placing the capsule under stress until dynamic joint stability is restored. It is important to refrain from activities in extreme ranges of motion early in the rehabilitation process.

Decrease Pain/Inflammation:

- Sling or ER brace for comfort and depending on age of patient (MD preference)
- Therapeutic modalities (ice, TENS, etc.)
- NSAIDs
- Gentle joint mobilizations (grade I-II) for pain neuromodulation
 - * Do not stretch injured capsule

Range of Motion Exercises:

- Gentle ROM only, no stretching
- Pendulums
- Rope & Pulley
 - Elevation in scapular plane to tolerance
- Active-assisted ROM L-Bar to tolerance
 - Flexion
 - Internal Rotation with arm in scapular plane at 30 degrees abduction
 - External Rotation with arm in scapular plane at 30 degrees abduction
 - Motion is performed in Non-Painful arc of motion only *

★ DO NOT PUSH INTO ER OR HORIZONTAL ABDUCTION with anterior instability

★ Avoid excessive IR or horizontal adduction with posterior instability

Strengthening/Proprioception Exercises:

Isometrics (performed with arm at side)

- Flexion
- Abduction

- Extension
- Biceps
- Internal Rotation (multi-angles)
- External Rotation (multi-angles)
- Electrical muscle stimulation may be used to ER during isometrics
- Scapular retract/protract elevate/depress (seated manual resist.)

Rhythmic Stabilization

- ER/IR in scapular plane (pain-free multi-angles)
- Flex/Ext in scapular plane (pain-free angles, multi-angles)
- Weight Shifts – standing hands on table (CKC Exercises) – (ant. instability only)
- Proprioception training drills - Active joint reproduction proprioceptive drills (ER,IR,Flex)

II. Phase II - Intermediate Phase

Goals:

- Regain and improve muscular strength
- Normalize arthrokinematics
- Enhance proprioception and kinesthesia
- Enhance dynamic stabilization
- Improve neuromuscular control of shoulder complex

Criteria to Progress to Phase II:

- Nearly full to full passive ROM (ER may be still limited)
- Minimal pain or tenderness
- "Good" MMT of IR, ER, flexion, and abduction
- Baseline proprioception and dynamic stability

Progress range of motion activities at 90 degrees abduction to tolerance (painfree)

Initiate isotonic strengthening

Emphasis on external rotation and scapular strengthening

- ER/IR Tubing
- Scaption raises (full can)
- Abduction to 90 degrees
- Sidelying external rotation to 45 degrees
- Standing ER with tubing with manual resistance
- Hand on ball against wall resistance stabilization
- Prone extension to neutral
- Prone horizontal adduction
- Prone rowing
- Lower and middle trapezius
- Sidelying neuromuscular exercise drills
- Push-ups onto table
- Seated manual scapular resistance
- Biceps curls
- Triceps pushdowns
- Electrical muscle stimulation may be used to ER during exercises

Improve Neuromuscular control of Shoulder Complex

- Initiation of proprioceptive neuromuscular facilitation
- Rhythmic stabilization drills
- ER/IR at 90 degrees abduction (limit degree of ER)

Appendix 1 (cont'd). Traumatic dislocation protocol

- Flexion/Extension/Horizontal at 100 degrees flexion, 10 degrees horizontal abduction
- Progress to mid and end range of motion
- Progress OKC program
- PNF
- Manual resistance ER (supine & sidelying &E eccentrics), prone row
- ER/IR tubing with stabilization
- Progress CKC exercises with rhythmic stabilizations
- Wall stabilization on ball
- Hand on wall – wall circles for rotator cuff endurance
- Hand on wall – side to side motion for scapular muscles and deltoid
- Static holds in push-up position on ball
- Push-ups on tilt board
- Core
- Abdominal strengthening
- Trunk strengthening / Low back
- Gluteal strengthening

Continue Use of Modalities (as needed)

- Ice, electrotherapy modalities

III. Phase III - ADVANCED Strengthening Phase

Goals:

- Improve strength/power/endurance
- Improve neuromuscular control
- Enhance dynamic stabilizations
- Prepare patient/athlete for activity

Criteria to Progress to Phase III:

- Full non-painful range of motion
- No palpable tenderness
- Continued progression of resistive exercises
- Good – normal muscle strength, dynamic stability, neuromuscular control

Continue use of modalities (as needed)

Continue isotonic strengthening (progress resistance)

- Continue Thrower's Ten
- Progress to end range stabilization drills
- Progress to full ROM strengthening
- Progress to bench press in restricted ROM (restrict horizontal abduction ROM)
- Progress to flat & incline chest press (weighted) restrict motion
- Program to seated rowing and lat pull down (in front) in restricted ROM

Emphasize PNF

Manual D2 with RS at 45, 90, & 145 degrees

Advanced neuromuscular control drills (for athletes)

- Ball flips on table
- ER tubing at 90 deg abduction with manual resistance & RS at end range

- Push-ups on ball/rocker board with rhythmic stabilizations
- Manual scapular neuromuscular control drills
- Initiate perturbation activities (ER with exercise tubing with end range rhythmic stab)

Endurance training

- Timed bouts of exercises – 30-60 seconds
- Increase number of repetitions (sets of 15/20 reps)
- Multiple bouts throughout day (3x)

Initiate plyometric training

- 2-hand drills:
 - Chest pass throw
 - Side to side throw
 - Overhead soccer throw
- Progress to 1-hand drills:
 - 90/90 baseball throws
 - Wall dribbles
 - 90/90 baseball throws against wall

★ Continue to avoid excessive stress on joint capsule

IV. Phase IV - RETURN TO ACTIVITY PHASE

Goals:

- Maintain optimal level of strength/power/endurance
- Progressively increase activity level to prepare patient/athlete for full functional return to activity/sport

Criteria to Progress to Phase IV:

- Full ROM
- No pain or palpable tenderness
- Satisfactory isokinetic test
- Satisfactory clinical exam

Continue all exercises as in Phase III

Progress isotonic strengthening exercises

Resume normal lifting program (Physician will determine)

Initiate interval sport program (as appropriate)

Continue modalities- ice, e-stim, etc. (as needed)

Consider GH joint stabilizing brace for contact sports

FOLLOW-UP

- Isokinetic test (ER/IR & Abd/Add)
- Progress interval program
- Maintenance of exercise program