



Tri-Service Post-Operative Rehabilitation Guidelines

May 2020

Approved by:

B. KYLE POTTER
COL, MC, USA
Army Orthopedics Consultant

GEORGE P. NANOS III
CAPT, MC, USN
Navy Orthopedics Consultant

JOSEPH J. STUART
Lt Col, USAF, MC
Air Force Orthopedics Consultant

JASON L. SILVERNAIL
COL, SP, USA
Army Physical Therapy Consultant

LESLIE C. HAIR
CDR, MSC, USN
Navy Physical Therapy Consultant

JAMES E. SHIELDS
Col, USAF, BSC
Air Force Physical Therapy Consultant

Created with support from:



Uniformed Services University of the
Health Sciences –
F. Edward Hébert School of Medicine



The Geneva Foundation



Military Orthopaedics Tracking
Injuries and Outcomes Network
(MOTION)

This work was supported by the Uniformed Services University, Department of Physical Medicine & Rehabilitation, Musculoskeletal Injury Rehabilitation Research for Operational Readiness (MIRROR) (HU00011920011).



The opinions and assertions expressed herein are those of the author(s) and do not necessarily reflect the official policy or position of the Uniformed Services University or the Department of Defense.

Shoulder Instability Rehabilitation

(Anterior Surgical Procedures)

These guidelines were created as a framework for the post-operative rehabilitation program. They DO NOT substitute for any specific restrictions or requirements that are determined through the necessary shared decision-making and collaboration between the operating surgeon and treating rehabilitation team.

PHASE 1: Generally 0-6 Weeks Post-Op

GOALS:

NOTE: Initial PT eval 1-3 days after surgery

- 1) Control pain and swelling
- 2) Protect the surgical repair
- 3) Achieve UE stages of ROM goals (**DO NOT** exceed)
- 4) Initiate scapular control and motion
- 5) Educate patient about post-operative precautions
 - Monitor patient's use of arm for ADLs and school/work activities that may cause increased pain
 - Hypersensitivity in axillary nerve distribution is common
 - Educate about environmental/fall risks while wearing sling

PRECAUTIONS:

- Sling full-time for 4 weeks, then wean by 6 weeks post-surgery

Week	Forward Flexion	ER / Scaption	IR / Scaption	ABD
Week 1 - 2	< 90°	15° - 20° @ 30°	45° @ 0°	30°
Week 3 - 4	< 90°	30° @ 40°	60° @ 0°	60° - 80°
Week 5 - 6	< 90° (120° with increasing hypomobility)	45° @ 50°	45° @ 0°	≤ 90°

*****NOTE: If posterior surgical procedures performed, refer to included addendum for Phases 1-3*****

WOUND CARE:

- Post-op dressing removed at PT eval
- Shower at post-op day #3
- Submerge in water after wound is fully healed
- Suture removal @ 7-14 days post-op by Ortho

MODALITIES:	<ul style="list-style-type: none"> - Cryotherapy <ul style="list-style-type: none"> • Hourly for 15 minutes for the first 24 hours <u>after</u> sensation is restored from nerve block • Continue use until acute inflammation is controlled • Once controlled, use 3x per day for 15 minutes or longer as tolerated - Soft tissue mobilization and other integrative medicine techniques <ul style="list-style-type: none"> • Soft tissues/trigger point work to the kinetic chain (i.e. cervical spine, scapular, and forearm)
REHABILITATION:	<ul style="list-style-type: none"> - Frequent use of cryotherapy and/or ice - Begin scar massage after incision site has healed and scar is formed - Consider dry needling with avoidance of incision sites (discuss with Ortho) - Consider blood flow restriction (BFR) on <u>uninvolved</u> arm or LE for physiological benefits at 1-2 weeks from surgery - As tolerated, progress rehabilitation exercises as wound healing occurs and the inflammatory response decreases
~Weeks 1-2	<ul style="list-style-type: none"> - ROM exercises: <ul style="list-style-type: none"> • Shoulder PROM/AAROM within above ROM guidelines in non-impingement position (i.e. hammer grip) • Scapular mobilizations • Modified pendulums in sling; progress to full pendulums after 3-5 days - Strengthening: <ul style="list-style-type: none"> • Hand squeezing exercises • Elbow/wrist AROM and grip strengthening with shoulder in neutral position at side • Gentle submaximal (“2-finger”) shoulder isometrics • BFR (elbow FLEX/EXT) on <u>uninvolved</u> arm or LE - Cardiovascular training: <ul style="list-style-type: none"> • Recumbent bike <u>while wearing sling</u> • No running or high-impact activity for aerobic training
~Weeks 4-6	<ul style="list-style-type: none"> - UE strength training: BFR (elbow FLEX/EXT) - Opposite extremity progressive resistance exercises (PREs) - LE progressive resistance training - Cardiovascular training: continue recumbent bike
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 1-2x per week - PT re-eval: ~10-14 days - Ortho re-eval: ~2 weeks and ~6 weeks
CRITERIA FOR PROGRESSION:	<ul style="list-style-type: none"> - Minimal pain 6 weeks from surgery - Pain-free ROM: <ul style="list-style-type: none"> • FLEX 90° • ER: 45° in scaption • ABD: 90°

PHASE 2: Generally 7 to 10-12 Weeks Post-Op

GOALS:	<ol style="list-style-type: none"> 1) D/C sling 2) Achieve staged ROM goals <ul style="list-style-type: none"> • ER at 45° ABD <table border="1" data-bbox="456 422 1466 573"> <thead> <tr> <th>Week</th> <th>Forward Flexion</th> <th>ER</th> <th>IR</th> </tr> </thead> <tbody> <tr> <td>By 12 weeks</td> <td>160° or symmetric</td> <td>60°/90° ABD or symmetric</td> <td>Full at 90° or symmetric</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3) Minimize shoulder pain 4) Begin to increase strength and endurance 5) Increase functional activities 	Week	Forward Flexion	ER	IR	By 12 weeks	160° or symmetric	60°/90° ABD or symmetric	Full at 90° or symmetric
Week	Forward Flexion	ER	IR						
By 12 weeks	160° or symmetric	60°/90° ABD or symmetric	Full at 90° or symmetric						
PRECAUTIONS:	<ul style="list-style-type: none"> - <u>DO NOT</u> perform stretching significantly beyond staged ROM goals during this phase - <u>NO</u> push-ups, bench press, pec flys, throwing, or overhead activities - <u>NO</u> running or high-impact activity for aerobic training 								
REHABILITATION:	<ul style="list-style-type: none"> - ROM exercises - Trunk stabilization (NWB) - Scapular strengthening emphasizing scapular retractors and upward rotators - Shoulder strength and endurance progression <ul style="list-style-type: none"> • Continue base strengthening/isometrics as needed • PREs • Increase functional activities - Modalities PRN - Cardiovascular training: continue recumbent bike; progress to elliptical (no push/pull with surgical arm) and/or treadmill walking - Adjunct treatments to consider: BFR on <u>involved</u> arm for AROM and isometric activities, dry needling, cervicothoracic manual therapy, aquatic walking with water at chest level or below (no UE movement or resistance; no swimming) 								
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 2-3x per week - PT re-eval: ~10-14 days - Ortho re-eval: ~12 weeks post-op 								
CRITERIA FOR PROGRESSION:	<ul style="list-style-type: none"> - Pain-free ROM within stated goals - Achieve ROM goals to normalize AROM/PROM - Normal/near-normal scapular stabilization and coordination 								

PHASE 3: Generally 10-12 Weeks to 4-6 Months Post-Op

GOALS:	<ol style="list-style-type: none"> 1) Normalize AROM/PROM 2) Normalize strength, endurance, neuromuscular control, and power 3) Gradual increase of stress to capsulo-labral tissues 4) Return to sport-specific training/practice 5) Perform functional and kinesiological assessment (i.e. FMS) 6) Perform initial functional testing (i.e. Closed Kinetic Chain Upper Extremity Stability Test [CKCUEST] and Upper Quarter Y-Balance Test)
PRECAUTIONS:	<ul style="list-style-type: none"> - No independent or unsupervised overhead, dynamic, resisted, or repetitive activities - If ROM is severely limited, consideration for surgically assisted release should be addressed at this time
REHABILITATION:	<ul style="list-style-type: none"> - Normalize ROM - Pain management - Trunk stabilization (progress to FWB) - Scapular strengthening emphasizing scapula control in overhead motions - Shoulder strengthening: continue PREs - Begin push-up and pull-up progression; progress as symptoms allow - Cardiovascular training: running progression initiated with pain-free shoulder motion <ul style="list-style-type: none"> • Adjunct treatments to consider: dry needling, cervicothoracic manual therapy, and <u>A/P GH joint mobilizations</u> as indicated (not P/A)
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 2-3x per week - PT re-eval: 1-3 weeks - Ortho re-eval: after completion of Phase 3 goals
TESTING:	<ul style="list-style-type: none"> - Normalized functional assessment - Achieve passing score for push-ups - Consider baseline 90% on Upper Quarter Y-Balance Test and/or 20+ reps on CKCUEST

PHASE 4: Generally 4-6 Months Post-Op

GOALS:	<ol style="list-style-type: none"> 1) Meet occupational requirements at 4-6 months 2) Initiate/continue return to weight training program 3) Begin sport-specific training; include initiation of throwing program for overhead athletes
---------------	---

PRECAUTIONS:	<ul style="list-style-type: none"> - Avoid the following: <ul style="list-style-type: none"> • Wide grip pull downs • Behind the neck shoulder press • Wide grip bench press • Standing lateral deltoid raises • Overhead triceps press - Clearance based upon strength, neuromuscular control/coordination, and functional ROM
REHABILITATION:	<ul style="list-style-type: none"> - Advanced specific, functional, and individualized training to achieve Phase 4 goals (i.e. lift, pull, carry, and climb in unloaded/loaded conditions) <ul style="list-style-type: none"> • Modifications to PREs and base strengthening (manual resistance) as needed • Stretching • Soft tissue work • Interval throwing program (overhead athletes) • Return to weight room and strength training <ul style="list-style-type: none"> ○ Full, pain-free ROM ○ Normal strength in RC and scapular muscles ○ 2-3x per week ○ High repetitions ○ Not to “muscle failure” ○ Gradual increase of stress to capsulo-labral tissues
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 2-3x per week - PT re-eval: 2-4 weeks - Ortho re-eval: Upon completion of Phase 4 goals
TESTING:	<ul style="list-style-type: none"> - Repeat CKQUEST and/or Upper Quarter Y-Balance Test with > 90% Limb Symmetry Index before returning to unrestricted sport activity
MISCELLANEOUS:	<ul style="list-style-type: none"> - Pass Service fitness test at 6-9 months - Progress activities for return to sport/collision sports or aggressive military training (i.e. airborne school) based on the patient’s functional performance and endurance. This time period will be directed by the Ortho Surgeon and the Physical Therapist. This may require between 6-12 months before cleared without restrictions.

Addendum to

Shoulder Instability Rehabilitation

(Posterior Surgical Procedures)

These guidelines were created as a framework for the post-operative rehabilitation program. They DO NOT substitute for any specific restrictions or requirements that are determined through the necessary shared decision-making and collaboration between the operating surgeon and treating rehabilitation team.

PHASE 1: Generally 0-6 Weeks Post-Op																								
GOALS:	<p><u>NOTE:</u> Initial PT eval 1-3 days after surgery</p> <ol style="list-style-type: none"> 1) Control pain and swelling 2) Protect the surgical repair 3) Achieve UE stages of ROM goals (<u>DO NOT</u> exceed) 4) Initiate scapular control and motion 5) Educate patient about post-operative precautions <ul style="list-style-type: none"> • Monitor patient’s use of arm for ADLs and school/work activities that may cause increased pain • Hypersensitivity in axillary nerve distribution is common • Educate about environmental/fall risks while wearing sling 																							
PRECAUTIONS:	<p>- Sling full-time for 4 weeks, then wean by 6 weeks post-surgery</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;">Week</th> <th style="width: 20%;">Forward Flexion</th> <th style="width: 20%;">ER / Scaption</th> <th style="width: 20%;">IR / Scaption</th> <th style="width: 25%;">ABD</th> </tr> </thead> <tbody> <tr> <td>Week 1 - 2</td> <td>< 90°</td> <td>15° - 20° @ 30°</td> <td>0°</td> <td>30°</td> </tr> <tr> <td>Week 3 - 4</td> <td>< 90°</td> <td>30° @ 40°</td> <td>0°</td> <td>60° - 80°</td> </tr> <tr> <td>Week 5 - 6</td> <td>< 90° (120° with increasing hypomobility)</td> <td>45° @ 50°</td> <td>0°</td> <td>≤ 90°</td> </tr> </tbody> </table>				Week	Forward Flexion	ER / Scaption	IR / Scaption	ABD	Week 1 - 2	< 90°	15° - 20° @ 30°	0°	30°	Week 3 - 4	< 90°	30° @ 40°	0°	60° - 80°	Week 5 - 6	< 90° (120° with increasing hypomobility)	45° @ 50°	0°	≤ 90°
Week	Forward Flexion	ER / Scaption	IR / Scaption	ABD																				
Week 1 - 2	< 90°	15° - 20° @ 30°	0°	30°																				
Week 3 - 4	< 90°	30° @ 40°	0°	60° - 80°																				
Week 5 - 6	< 90° (120° with increasing hypomobility)	45° @ 50°	0°	≤ 90°																				
WOUND CARE:	<ul style="list-style-type: none"> - Post-op dressing removed at PT eval - Shower at post-op day #3 - Submerge in water <u>after</u> wound is fully healed - Suture removal @ 7-14 days post-op by Ortho 																							

MODALITIES	<ul style="list-style-type: none"> - Cryotherapy <ul style="list-style-type: none"> • Hourly for 15 minutes for the first 24 hours <u>after</u> sensation is restored from nerve block • Continue use until acute inflammation is controlled • Once controlled, use 3x per day for 15 minutes or longer as tolerated - Soft tissue mobilization and other integrative medicine techniques <ul style="list-style-type: none"> • Soft tissue/trigger point work to the kinetic chain (i.e. cervical spine, scapular, and forearm)
REHABILITATION:	<ul style="list-style-type: none"> - Frequent use of cryotherapy and/or ice - Begin scar massage after incision has healed and scar is formed - Consider dry needling with avoidance of incision sites (discuss with Ortho) - Consider blood flow restriction (BFR) on <u>uninvolved</u> arm or LE for physiological benefits at 1-2 weeks from surgery - As tolerated, progress rehabilitation exercises as wound healing occurs and the inflammatory response decreases
~Weeks 1-2	<ul style="list-style-type: none"> - ROM exercises: <ul style="list-style-type: none"> • Shoulder PROM/AAROM within above ROM guidelines in non-impingement position (i.e. hammer grip) • Scapular mobilizations • Modified pendulums in sling; progress to full pendulums after 3-5 days - Strengthening: <ul style="list-style-type: none"> • Hand squeezing exercises • Elbow/wrist AROM and grip strengthening with shoulder in neutral position at side • Gentle submaximal (“2-finger”) shoulder isometrics - BFR (elbow FLEX/EXT) on <u>uninvolved</u> arm or LE - Cardiovascular training: <ul style="list-style-type: none"> • Recumbent bike <u>while wearing sling</u> • No running or high-impact activity for aerobic training
~Weeks 4-6	<ul style="list-style-type: none"> - UE strength training: BFR (elbow FLEX/EXT) - Opposite extremity progressive resistance exercises (PREs) - LE progressive resistance training - Cardiovascular training: continue recumbent bike
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 1-2x per week - PT re-eval: ~10-14 days - Ortho re-eval: ~2 weeks and ~6 weeks
CRITERIA FOR PROGRESSION:	<ul style="list-style-type: none"> - Minimal pain 6 weeks from surgery - Pain-free ROM: <ul style="list-style-type: none"> • FLEX 90° • ER: 45° in scaption • ABD: 90°

PHASE 2: Generally 7 to 10-12 Weeks Post-Op

GOALS:

- 1) D/C sling
- 2) Achieve staged ROM goals
 - ER at 45° ABD

Week	Forward Flexion	ER	IR
Weeks 7 - 9	135°	45°/90° ABD	30°-45°/45° ABD
By 12 weeks	160° or symmetric	60°/90° ABD or symmetric	60°/90° ABD or symmetric

- 3) Minimize shoulder pain
- 4) Begin to increase strength and endurance
- 5) Increase functional activities

PRECAUTIONS:

- **DO NOT** perform stretching significantly beyond staged ROM goals during this phase
- **NO** push-ups, bench press, pec flys, throwing, or overhead activities
- **NO** running or high-impact activity for aerobic training

REHABILITATION:

- ROM exercises
- Trunk stabilization (NWB)
- Scapular strengthening emphasizing scapular retractors and upward rotators
- Shoulder strength and endurance progression
 - Continue base strengthening/isometrics as needed
 - PREs
 - Increase functional activities
- Modalities PRN
- Cardiovascular training: continue recumbent bike; progress to elliptical (no push/pull with surgical arm) and/or treadmill walking
- Adjunct treatments to consider: BFR on involved arm for AROM and isometric activities, dry needling, cervicothoracic manual therapy, aquatic walking with water at chest level or below (no UE movement or resistance; no swimming)

FOLLOW-UP:

- Supervised rehab: 2-3x per week
- PT re-eval: 10-14 days
- Ortho re-eval: ~12 weeks post-op

CRITERIA FOR PROGRESSION:	<ul style="list-style-type: none"> - Pain-free ROM within stated goals - Achieve ROM goals to normalize AROM/PROM - Normal/near-normal scapular stabilization and coordination
----------------------------------	---

PHASE 3: Generally at 10-12 Weeks to 4-6 Months Post-Op	
SAME AS ABOVE FOR ANTERIOR SURGICAL PROCEDURES:	<p>***NOTE: With the following changes for REHABILITATION***</p> <ul style="list-style-type: none"> - <u>P/A GH joint mobilizations</u> only as indicated (not A/P) - Initiate push-up progression at 16 weeks

References:

- Chmielewski TL, Martin C, Lentz TA, Tillman SM, Moser MW, Farmer KW, Jaric S. Normalization considerations for using the unilateral seated shot put test in rehabilitation. *Journal of Orthopaedic & Sports Physical Therapy*. 2014; 44(7): 518-24.
- Damkjær L, Petersen T, Juul-Kristensen B. Is the American Society of Shoulder and Elbow Therapists' rehabilitation guideline better than standard care when applied to Bankart-operated patients? A controlled study. *Clinical Rehabilitation*. 2015; 29(2): 154-64.
- DeFroda SF, Mehta N, Owens BD. Physical therapy protocols for arthroscopic bankart repair. *Sports Health*. 2018; 10(3): 250-258.
- Gaunt BW, Shaffer MA, Sauers EL, Michener LA, McCluskey III GM, Thigpen CA. The American Society of Shoulder and Elbow Therapists' consensus rehabilitation guideline for arthroscopic anterior capsulolabral repair of the shoulder. *Journal of Orthopaedic & Sports Physical Therapy*. 2010; 40(3): 155-68.
- Gibson J, Keress J, Morgan C, Brownson P. Accelerated rehabilitation after arthroscopic Bankart repair in professional footballers. *Shoulder & Elbow*. 2016; 8(4): 279-286.
- Ismail MM, El Shorbagy KM. Motions and functional performance after supervised physical therapy program versus home-based program after arthroscopic anterior shoulder stabilization: a randomized clinical trial. *Annals of Physical and Rehabilitation Medicine*. 2014; 57(6): 353-72.
- Roush JR, Kitamura J, Waits MC. Reference values for the closed kinetic chain upper extremity stability test (CKQUEST) for collegiate baseball players. *N Am J Sports Phys Ther*. 2007; 2(3): 159-163.
- Shah KM, Baker T, Dingle A, et al. Early development and reliability of the timed functional arm and shoulder test. *Journal of Orthopaedic & Sports Physical Therapy*. 2017; 47(6): 420-431.
- Tucci, HT, Jaqueline M, Sposito G, Camarini MF, Oliveira AS. Closed kinetic chain upper extremity stability test (CKCUES test): a reliability study in persons with and without shoulder impingement syndrome. *BMC Musculoskeletal Disorders*. 2014; 15(1): 1-9.
- Westrick RB, Miller JM, Carow SD, Gerber JP. Exploration of the y-balance test for assessment of upper quarter closed kinetic chain performance. *International Journal of Sports Physical Therapy*. 2012; 7(2): 139-47.