

## **Dr. Duke Arm/Shoulder Procedures**

### **Arm/Shoulder Procedures**

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## Bicep Tenodesis

| <u>Postop</u>                                  | <u>Goals</u>   | <u>Precautions</u>  | <u>Exercises</u>  |
|--|--|---|---|
| <b>Weeks 0-4</b><br>PT 1-2x/week<br>HEP daily  | Edema and pain control<br>FF140°, ER 40°<br>IR behind back | Sling when not doing exercises<br>No active elbow flexion               | PROM of elbow, wrist, hand<br>Codman/Pendulum<br>Shoulder P/AA/AROM as tolerated<br>Gentle isometrics (arm at side) at 2 wks<br>Posterior capsule stretch<br>Posture training       |
| <b>Weeks 4-8</b><br>PT 2-3x/week<br>HEP daily  | FF 160°, ER 60°  | No sling<br>No resisted elbow flexion                                   | Advance P/AA/AROM<br>Active elbow flexion (no resistance)<br>Continue isometrics<br>Progress to bands as tolerated<br>Incorporate joint mobilizations<br>Periscapular strengthening |
| <b>Weeks 8-12</b><br>PT 1-2x/week<br>HEP daily | Full ROM<br>Return to activity                             | No sling<br>Strengthening only 3x/week to avoid rotator cuff tendinitis | Continue ROM exercises<br>Advance strengthening as tolerated<br>Begin eccentric resisted motion and closed chain exercises<br>Gentle resisted elbow flexion (8 weeks)               |
| <b>Weeks 12+</b><br>HEP daily                  | Maximal ROM<br>Independent HEP                             | None  | Continue above exercises<br>Advance strengthening as tolerated<br>Elbow flexion strengthening (>12 weeks)<br>HEP for maintenance exercises  |

### MILESTONES TO RETURN TO FULL SPORT, WORK, HOBBIES:

- Clearance from surgeon and therapist
- Minimal to no complaints of pain
- Restoration of sufficient ROM for task completion
- Adequate shoulder girdle endurance for desired activity
- Regular completion of an independent strengthening program at least 3 days per week

## Distal Bicep Tendon Repair

| <u>Postop</u>                                   | <u>Goals</u>   | <u>Precautions</u>   | <u>Exercises</u>   |
|---|--|--|--|
| <b>Weeks 0-2</b><br>HEP daily                   | Edema and pain control<br>Protect surgical repair<br>Wrist, hand, shoulder ROM | Splint 90° flexion at all times<br>No active supination  | Gentle wrist and hand ROM<br>Shoulder pendulum in splint<br>Shoulder PROM exercises  |
| <b>Weeks 2-6</b><br>PT 2-3x/week<br>HEP daily   | Edema and pain control<br>Protect surgical repair<br>ROM 15-130°               | Brace locked at 90°<br>Remove for shower & exercises<br>No active elbow flexion<br>No active supination                              | Gradually increase elbow ROM:<br><b>Week 2:</b> 45-100°<br><b>Week 4:</b> 30-115°<br><b>Week 6:</b> 15-130°<br>Active extension, passive flexion<br>Continue wrist, hand, shoulder ROM<br>Scapular strengthening<br>Gripping exercises<br>Triceps isometrics ( <b>week 5</b> )   |
| <b>Weeks 6-12</b><br>PT 2-3x/week<br>HEP daily  | Full ROM<br>Protect surgical repair  | <b>Weeks 6-9:</b><br>DC brace at 8 weeks<br>No active elbow flexion<br><br><b>Weeks 9-12:</b><br>No brace<br>No lifting objects >1lb | <b>Weeks 6-9:</b><br>Full elbow ROM<br>Active extension, AA/P flexion<br>Continue wrist, hand, shoulder ROM<br>Begin cuff/deltoid isometrics<br><br><b>Weeks 9-12:</b><br>Begin biceps isometrics<br>Active flexion against gravity (week 9)<br>Resistive strengthening cuff/deltoid<br>Upper body ergometry (week 10) |
| <b>Weeks 12-24</b><br>PT 1-2x/week<br>HEP daily | Improve strength   | No brace   | <b>Weeks 12-16:</b><br>ROM and stretching exercises<br>Elbow flexion resistive strengthening<br><br><b>Weeks 16-24:</b><br>Progress strengthening as tolerated<br>Plyometrics and sport specific exercises   |
| <b>Weeks 24+</b><br>HEP daily                   | Return to play<br>Unrestricted activity  | Return to sport (MD directed)  | Maintain ROM and strength  |

## Rotator Cuff Repair

| <u>Postop</u>                                 | <u>Goals</u>  | <u>Precautions</u>   | <u>Exercises</u>  |
|---|---|--|---|
| <b>Weeks 0-4</b><br>PT 1-2x/week<br>HEP daily |   | Wear sling with abduction pillow.<br>Remove for sponge bath and/or<br>Physical therapy | Cryotherapy prn<br>Wrist elbow exercises<br>Grip exercise   |
| <b>Weeks 4-6</b><br>PT 2-3x/week<br>HEP daily |   |  | PROM as tolerated (flexion, abduction, ER,<br>IR) PROM is not stretching<br>Incorporate Joint mobilizations (Grade1-2)<br>with continued PROM<br>Pendulums  |
| <b>Weeks 6-8</b><br>PT 2-3x/week<br>HEP daily |   | No sling<br>Avoid painful ADL's<br>Avoid rotator cuff inflammation                     | Wand activities in all planes with control<br>Begin supine rhythmic stabilization<br>Periscapular strengthening (prone row,<br>serratus punch, prone ext. etc.)<br>Begin pulley routine for active assisted ROM   |
| <b>Weeks 8-12</b><br>PT 1x/week<br>HEP daily  | Full ROM and strength<br>Improve endurance<br>Prevent re-injury | No sling<br>Avoid painful activities<br>No contact/racket/throwing sports              | May improve active ROM in all planes (no<br>weights) Further stretching and joint<br>mobilizations as needed for ROM (Goal is to<br>achieve full ROM by 12 weeks)<br>Incorporate PNF patterns for combined<br>motions   |
| <b>Weeks 12-26</b><br>HEP daily               |   |  | Begin light resistance exercises in all planes<br>(initial focus on endurance, progressing to<br>strength), increasing as tolerated.<br>Add functional activities/ training for return<br>to prior function<br>Begin tubing resistance for IR/ER in neutral,<br>progressing to 90/90 IR/ER Add<br>gym machines as appropriate |

### MILESTONES TO RETURN TO FULL SPORT, WORK, HOBBIES:

- Clearance from surgeon and therapist
- Minimal to no complaints of pain
- Restoration of sufficient ROM for task completion
- Adequate shoulder girdle endurance for desired activity
- Regular completion of an independent strengthening program at least 3 days per week

## Total Shoulder Arthroplasty

| <u>Postop</u>   | <u>Goals</u>  | <u>Precautions</u>  | <u>Exercises</u>  |
|---|---|---|---|
| <p><b>Weeks 0-4</b><br/>PT 1-2x/week<br/>HEP daily</p>  | <p>Edema and pain control<br/>Protect subscap repair<br/>Elevation to 90 degrees</p> <p><b>Week 1:</b> FF 100°, ER 0°<br/><b>Week 2:</b> FF 120°, ER 10°<br/><b>Week 4:</b> FF 150°, ER 20°</p> | <p>Sling when not doing exercises<br/>Limit ER to neutral x2 weeks No ER &gt;20° (<b>weeks 2-6</b>)<br/>No active IR<br/>No backward extension (BE)<br/>No scapular retractions<br/>Limit abduction 75°<br/>No resisted elbow flexion</p> | <p>Elbow, wrist, hand ROM<br/>Codman/Pendulum<br/>PROM by PT/PTA<br/>Scapular mobility and stability (side-lying)<br/>Deltoid isometrics<br/>Posture training<br/>Cryotherapy prn<br/>Grip exercises</p>  |
| <p><b>Weeks 4-8</b><br/>PT 2-3x/week<br/>HEP daily</p>  | <p>Protect subscap repair<br/>FF 160°, ER 45° (<b>week 6</b>)</p>   | <p>DC sling<br/>No resisted IR/BE<br/>No resisted scapular retractions<br/>Avoid painful ADL's</p>  | <p>Advance P/AA/AROM<br/>Cane/pulley<br/>Rhythmic stabilization at 120°<br/>Begin AA → AROM IR/BE<br/>Submaximal isometrics ER/FF/ABD<br/>Closed chain kinetic exercises<br/>Scapular stabilization<br/>Incorporate gentle joint mobilizations<br/>Periscapular strengthening (prone row, serratus punch, prone extensions, etc.)</p>   |
| <p><b>Weeks 8-12</b><br/>PT 1-2x/week<br/>HEP daily</p> | <p>FF 160°, ER 60°, IR T12<br/>Scapulohumeral rhythm<br/>UE strength 4/5</p>  | <p>No sling<br/>Avoid painful ADL's<br/>Avoid activities that encourage scapula hiking or poor mechanics<br/>Limit strengthening to 3x/week to avoid rotator cuff tendinitis</p>  | <p>Progress ROM/flexibility exercises<br/>Advance strengthening as tolerated<br/>Rhythmic humeral head stabilization Begin resisted IR/BE (isometrics → light bands → weights)<br/>Increase end ROM with passive stretch<br/>Begin eccentrics, plyometrics, and closed chain exercises when appropriate<br/>Begin light functional activities Flexion and extension strengthening/ resistance training to begin at week 10 Incorporate PNF patterns for combined motions- (No combined ER and abduction above 80 degrees)</p> |
| <p><b>Weeks 12+</b><br/>HEP daily</p>                   | <p>Maximal ROM<br/>Independent HEP</p>  | <p>None</p>   | <p>Progress strengthening, flexibility, and endurance<br/>Begin light resistance in all planes (initial focus on endurance, progressing to strength)<br/>Increase functional activities/ training for</p>   |

## Reverse Total Shoulder Arthroplasty

| <u>Postop</u>                                  | <u>Goals</u>   | <u>Precautions</u>  | <u>Exercises</u>   |
|--|--|---|--|
| <b>Weeks 0-4</b><br>PT 1-2x/week<br>HEP daily  | Edema and pain control<br>Protect subscap repair<br>Elevation to 90 degrees<br><br><b>Week 1:</b> FF 90°, ER 0°<br><b>Week 2:</b> FF 120°, ER 0°   | Sling when not doing exercises<br>DC sling at <b>4 weeks</b><br>Limit ER to neutral x2 weeks<br>No ER >30°, active IR ( <b>weeks 2-6</b> )<br>No backward extension (BE)<br>No scapular retractions<br>Limit abduction 75°<br>No resisted elbow flexion | Grip exercises<br>Cryotherapy prn<br>Elbow, wrist, hand ROM<br>Codman/Pendulum<br>PROM by therapist<br>Scapular mobility and stability (side-lying)<br>Deltoid isometrics<br>Posture training  |
| <b>Weeks 4-8</b><br>PT 2-3x/week<br>HEP daily  | Protect subscap repair<br>FF 150°, ER 45°<br>PROM: flexion to 140 deg,<br>abduction to 120 degrees,<br>internal rotation to 60<br>degrees<br>Able to actively elevate arm to<br>90 deg in supine | No resisted IR/EXT<br>Avoid EXT/IR/Adduction<br>No resisted scapular retractions<br>Avoid painful ADL's<br>External rotation ROM limited to 20<br>degrees at <b>5-6 weeks</b>   | Advance P/AA/AROM<br>Cane/pulley<br>Passive IR in 60° abduction<br>Rhythmic stabilization at 120°<br>Submaximal isometrics ER/FF/ABD<br>Closed chain kinetic exercises<br>Scapular stabilization<br>Anterior deltoid/teres strengthening<br>Periscapular strengthening   |
| <b>Weeks 8-12</b><br>PT 1-2x/week<br>HEP daily | Full ROM<br>Improve strength<br>Improve endurance  | No sling<br>Avoid painful ADL's   | Begin light functional activities<br>Begin AA → AROM IR/EXT<br>Advance strengthening as tolerated<br>Closed chain scapular rehab<br>Functional strengthening focused<br>on anterior deltoid and teres<br>Maximize scapular stabilization<br>Deltoid strengthening open and closed chain<br>Incorporate PNF patterns for combined<br>motions<br>Begin tubing resistance for IR/ER in neutral<br>Add gym machines as appropriate |
| <b>Weeks 12+</b> HEP<br>daily                  | Maximal ROM<br>Independent HEP   | None  | Progress strengthening, flexibility, and<br>endurance  |

## SLAP Repair

| <u>Postop</u>                                  | <u>Goals</u>   | <u>Precautions</u>  | <u>Exercises</u>  |
|--|--|---|---|
| <b>Weeks 0-4</b><br>PT 1-2x/week<br>HEP daily  | Edema and pain control<br>Protect surgical repair<br>Sling immobilization<br>FF 90°, ER 20°  | Sling except shower & exercises<br>Max FF 90°, ER 20°<br>Support elbow during exercises to limit stress on repair                             | Elbow, wrist, hand ROM, grip<br>AA/PROM FF plane scapula 90°<br>AA/PROM ER 20° arm at side<br>Sidelying scapular stabilization<br>Submaximal deltoid & cuff isometrics<br>Cryotherapy prn<br>Pendulum exercises   |
| <b>Weeks 4-8</b><br>PT 2-3x/week<br>HEP daily  | Protect surgical repair FF 145°, ER 60°<br>Improve IR & ER strength<br>Scapulohumeral rhythm | Sling except shower & exercises<br>DC sling at <b>6 weeks</b><br>No ER >30° until 6 weeks<br>No backward extension<br>Avoid cuff inflammation | AAROM FF and ER<br>Scapular stabilization<br>Begin pulleys<br>Hydrotherapy<br>Scapular strengthening in protected arcs<br>Humeral head stabilization exercises<br>IR & ER isometrics<br>Begin isotonic IR & ER at 6 weeks<br>Posture training<br>Periscapular strengthening (prone row, serratus punch, prone extensions, etc.) |
| <b>Weeks 8-14</b><br>PT 2-3x/week<br>HEP daily | Full ROM<br>Scapulohumeral rhythm<br>Restore strength 5/5                                    | No sling<br>Avoid painful ADL's<br>Avoid rotator cuff inflammation  | A/AA/PROM no limits<br>Rotator cuff/periscapular stabilization<br>Humeral head rhythmic stabilization<br>Scapular stabilization/latissimus strength<br>Upper body ergometry<br>Isokinetic training<br>Advance strengthening as tolerated<br>Eccentric and closed chain exercises <b>12wk</b>                                    |
| <b>Weeks 14-18+</b><br>PT 1x/week<br>HEP daily | Full ROM and strength<br>Improve endurance<br>Prevent re-injury                              | No sling<br>Avoid painful activities<br>OK to cycle/run at 12 weeks<br>Pain free plyometrics<br>No contact/racket/throwing sports             | Advance UE strengthening as tolerated<br>Begin plyometrics<br>Sport specific activities<br>Throwing/racquet program 4-5 months<br>Functional activities/ return to function   |
| <b>Weeks 18+</b>                               | Return to play   | No restrictions<br>Return to sport (MD directed)  | Maintain ROM, strength, and endurance   |

## Bankart Repair/ Anterior Stabilization

| <u>Postop</u>                                  | <u>Goals</u>  | <u>Precautions</u>   | <u>Exercises</u>  |
|--|---|--|---|
| <b>Weeks 0-4</b><br>HEP daily                  | Edema and pain control<br>Protect surgical repair<br>Sling immobilization | Sling at all times including sleep<br>Remove to shower (arm at side)<br>ER to neutral  | Elbow, wrist, hand ROM<br>Gripping exercises  |
| <b>Weeks 4-8</b><br>PT 2-3x/week<br>HEP daily  | Protect surgical repair<br>FF 145°, ER 30°                                | Sling except shower & exercises<br>DC sling at <b>6 weeks</b><br>No ER >30°<br>No backward extension<br>Avoid anterior capsule stretch | AAROM FF and ER<br>Scapular stabilization<br>Submaximal biceps, triceps, deltoid ER, and IR isometrics<br>Gentle gradual ER:<br>0° abduction → max 30°<br>90° abduction → max 50°<br>Posture training |
| <b>Weeks 8-12</b><br>PT 2-3x/week<br>HEP daily | Full ROM<br>Scapulohumeral rhythm<br>Restore strength 5/5                 | No sling<br>Avoid painful ADL's<br>Avoid rotator cuff inflammation<br>Avoid excessive passive stretching                               | AAROM IR<br>Rotator cuff/periscapular stabilization<br>Humeral head rhythmic stabilization<br>Resistive exercise for scapula, biceps, triceps, and rotator cuff below horizontal plane                |
| <b>Weeks 12-18</b><br>PT 1x/week<br>HEP daily  | Full ROM and strength<br>Improve endurance<br>Prevent re-injury           | No sling<br>Avoid painful activities<br>OK to cycle/run at 12 weeks<br>No contact/racket/throwing sports                               | Advance UE strengthening as tolerated<br>ER/IR in 90/90 position<br>Begin upper body ergometer (UBE)<br>Initiate plyometrics<br>Sport specific activities<br>Throwing/racquet program 4-5 months      |
| <b>Weeks 18+</b><br>HEP daily                  | Return to play  | No restrictions<br>Return to sport (MD directed)   | Maintain ROM, strength, and endurance   |



## AC Joint Reconstruction

| <u>Postop</u>                                   | <u>Goals</u>   | <u>Precautions</u>   | <u>Exercises</u>   |
|---|--|--|--|
| <b>Weeks 0-4</b><br>PT 1x/week<br>HEP daily     | Edema and pain control<br>Protect surgical repair<br>Sling immobilization          | Sling at all times including sleep<br>Remove for hygiene & exercises   | Sidelying scapular stabilization<br>Elbow, wrist, hand ROM<br>Gripping exercises   |
| <b>Weeks 4-8</b><br>PT 1-2x/week<br>HEP daily   | Protect surgical repair<br>Restore ROM   | Sling except shower & exercises<br>No ER >45° until 6 weeks<br>No FF >120° until 6 weeks   | Sidelying scapular stabilization<br>Supine deltoid, biceps, triceps, rotator cuff isometrics (gravity eliminated)<br>Supine PROM: FF 120°, ER 45°  |
| <b>Weeks 8-16</b><br>PT 2-3x/week<br>HEP daily  | Full ROM<br>Normalize scapulohumeral rhythm throughout ROM<br>Restore strength 5/5 | DC sling at 8 weeks<br>Avoid painful ADL's<br>Avoid rotator cuff inflammation<br>Avoid excessive passive stretching<br><br>OK to cycle/run at 12 weeks | AROM as tolerated in PRONE position<br>AA/PROM no limits<br>Continue scapular stabilization<br>Begin resistive strengthening for scapula, biceps, triceps, and rotator cuff (supine → vertical position at 12 weeks) Endurance:<br>Begin UBE at 12 weeks |
| <b>Weeks 16-24</b><br>PT 1-2x/week<br>HEP daily | Full ROM and strength<br>Improve endurance<br>Prevent re-injury                    | Avoid painful activities<br><br>No contact/racket/throwing sports<br>Return to sport (MD directed)   | Advance eccentric training<br>Initiate plyometrics<br>Advance endurance training<br>Sport specific activities<br>Throwing/racquet program ~5 months<br>Contact sports 6+ months  |

## Pec Major Repair

| <u>Postop</u>                                   | <u>Goals</u>  | <u>Precautions</u>  | <u>Exercises</u>  |
|---|---|---|---|
| <b>Weeks 0-6</b><br>PT 1-2x/week<br>HEP daily   |   | <b>0-2 weeks:</b> Immobilized at all times day and night<br>Off for hygiene and gentle exercise according to instruction sheets<br><b>2-6 weeks:</b> Worn daytime only<br><b>0-3 weeks:</b> No ROM<br>Limit 90° flexion, 45° ER, 20° extension, 45° abduction | <b>0-2 weeks:</b> Elbow/wrist ROM, grip strengthening at home only<br><b>2-6 weeks:</b> Begin PROM activities Limit 45° ER, 45° abduction<br>Codman's<br>Posterior capsule mobilizations; avoid stretch of anterior capsule                                       |
| <b>Weeks 6-12</b><br>PT 2-3x/week<br>HEP daily  | Begin A/AAROM, passive ROM to tolerance full ER, 135° flexion, 120° abduction | No immobilizer<br>No resisted IR/Adduction  | Continue previous exercise<br>Begin active assisted exercises<br>Deltoid/rotator cuff isometrics at <b>8 weeks</b><br>Begin resistive exercises for scapular stabilizers, biceps, triceps and rotator cuff<br>Initiate closed-chain scapula                       |
| <b>Weeks 12-16</b><br>PT 2-3x/week<br>HEP daily | Gradual return to full AROM   |   | Continue and advance previous exercise<br>Emphasize external rotation and latissimus eccentrics, glenohumeral stabilization<br>Plank/push-ups @ <b>16 wks</b><br>Begin muscle endurance activities (upper body ergometer) Cycling/running okay at <b>12 weeks</b> |
| <b>Months 4-5</b><br>PT 1x/week HEP daily       | Full and pain-free  |   | Aggressive scapular stabilization and eccentric strengthening<br>Begin plyometric and throwing/racquet program, continue with endurance activities<br>Maintain ROM and flexibility  |
| <b>Weeks 18+</b><br>HEP daily                   | Full and pain-free  |   | Progress previous activities<br>Return to full activity as tolerated  |

Utilize exercise arcs that protect the anterior capsule from stress during resistive exercises and keep all strengthening exercises below the horizontal plane in phase II  
 Limited return to sports activities until cleared by MD.