وحدة المفاصل الصناعية ومناظير جراحة العظام
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استاذ مساعد جراحة العظام –كلية الطب- جامعة الجوف
استشاري متخصص بعمليات استبدال المفاصل الصناعية والاصابات الرياضية والمناظير.

بروتوكول التاهيل لحالات ترميم الاوتار المدورة للكتف

Rehabilitation Protocol: ROTATOR CUFF REPAIR +/- BICEPS TENODESIS

1. General Guidelines:

- Time lines in this rehabilitation protocol are approximate. If the physiotherapist feels the patient is not ready for progression (due to pain, swelling, inadequate ROM or strength), the time line should be extended to suit the patient.
- Assume 6 – 8 weeks for adequate healing of Rotator Cuff (RTC) repair +/- Biceps Tenodesis, whether **open or arthroscopic**.
- Supervised physiotherapy begins 1-2 weeks post-op and continues for 3 – 4 months, as needed depending on patient's progress, activity level and goals.
- Patients are to be discharged after completion of all appropriate functional progressions and adequate performance on strength and functional tests.
- Patients should be encouraged to exercise independently 3-5 times / week in addition to formal physiotherapy during phase II, III and IV.
- **Functional Milestones:** Common functional activities the patient is expected to perform during each rehabilitation phase.
- **Advancement Criteria:** Objective criteria used to judge whether or not a patient is ready for progression to the next phase of rehabilitation (see Rehabilitation Progression below).

2. General Precautions:

- **Supraspinatus Repair:** Avoid placing Supraspinatus repairs at risk by avoiding early resisted or active **Abduction.**
- **Infraspinatus / Teres Minor Repair:** Avoid placing Infraspinatus / Teres Minor repairs at risk by avoiding early resisted or active **External Rotation**.
- **Subscapularis Repair:** Avoid placing Subscapularis repairs at risk by avoiding early resisted or active **Internal Rotation.**
- **Biceps Tenodesis:** Avoid placing Biceps repairs at risk by avoiding **early strengthening** exercises involving biceps muscle.
- The sling should be worn at all times for at least **4-6 weeks**, except during physiotherapy treatment.

3. Rehabilitation Progression:

- The following is a guideline for progression through the rehabilitation process.
- Progression is based on achieving advancement criteria for the next phase of rehabilitation and should take into account the patient's status and the surgeon's advisement
- If the patient achieves the advancement criteria early, the physiotherapist may choose to advance the patient only AFTER 6 weeks post-op.
- If the patient does NOT meet the advancement criteria, extend the time in the current phase of rehabilitation.
- If there is ANY uncertainty concerning the patient, please contact the surgeon.

4. Surgeon Advisement:

PHASE I	Immediate Post-Op - 3 Weeks Post-Op

1. Objectives:

- Protect the shoulder repair.
- Decrease post-op pain and swelling (can utilize Cryo-cuff for 8-12 hours/day x 2 weeks).
- Reduce the effects of immobilization.
- Educate patient on rehabilitation progression.

2. Sling:

- Worn at all times, except when under the supervision of the physiotherapist and when bathing.
- Patient to be taught proper removal and reapplication of sling.
- May discontinue for sleeping at 3 weeks post-op.

3. Therapeutic Exercises:

- Ice after exercise program x 15 min.
- Week 0 – 2:
  - Pendulum shoulder ROM exercise.
  - Begin shoulder shrugs.
  - Maintain begin wrist / elbow ROM.
- Week 2 – 3:
  - Continue Pendulum shoulder ROM exercises
  - Begin Passive ROM exercises to 90º Forward Elevation, 90º Abduction, 30º External Rotation, and Internal Rotation to S1 (behind back) (**NO Forceful PROM**).
  - Begin Manual Scapular Mobilization.
  - Begin peri-scapular muscle strengthening: postural work, scapular retraction, protraction, elevation and depression.
  - Continue wrist / elbow ROM.

4. Functional Milestone:

- Proper removal and reapplication of sling.
- Sleeping comfortably without sling.
- No pain with pendulum exercises.

5. Advancement Criteria for Phase II:

✓ ROM: 90º Forward Elevation, 90º Abduction and 30º External Rotation.
✓ No active signs of inflammation.
✓ No use of narcotic pain medications.

PHASE II	3 Weeks Post-Op - 6 Weeks Post-Op

1. **Objectives:**
   - Protect the shoulder repair.
   - Increase shoulder ROM with Passive and Active Assisted ROM exercises.
   - Begin general Activities of Daily Living (ADL's) (i.e. feeding, bathing, and dressing).
   - Return to work: light duties (desk duties).

2. **Sling:**
   - May discontinue for general activity and ADL's at 4 weeks post-op
   - Patient should use sling if engaging in a risky or dangerous activity.

3. **Therapeutic Exercises:**
   - Ice after exercise program x 15 min.
   - Week 3 – 4:
     - Continue Pendulum shoulder ROM exercise as needed.
     - Continue Passive ROM exercises to increase ROM (**NO Forceful PROM**).
     - Continue Manual Scapular Mobilization.
     - Begin Manual Glenohumeral Glides.
     - Begin GENTLE Isometric strengthening exercises (with **Repair specific limitations**):
       - Supraspinatus: IR, ER, Flx (**No AB**)
       - Infraspinatus/Teres: IR, Flx, AB (**No ER**)
       - Subscapularis: ER, Flx, AB (**No IR**)
       - Biceps: **No** shoulder **Flx** or resisted elbow flexion
     - Continue scapular stabilization exercises and progress as able.
     - May use stationary bike to maintain general fitness (Arm **MUST** be kept in sling... **NO** weight bearing through arm).
   - Week 4 – 6:
     - Continue Passive ROM exercises to Full ROM (**NO Forceful PROM**).
     - Begin Active Assisted ROM exercises (i.e. pulleys, wall crawls, and cane exercises).
     - Continue Manual Glenohumeral and Scapular Mobilizations.
     - Continue Isometric exercises (with **Repair specific limitations**).
     - May begin low demand aquatic shoulder therapy.
     - Continue to use stationary bike to maintain general fitness (**NO** weight bearing through arm).

4. **Functional Milestone:**
   - Progressive increase in ROM.
   - Full use of shoulder for ADL's (out of sling) without impingement pain.
   - Light (non-manual) occupational duties (i.e.: deskwork).
   - Driving automatic vehicle at 6-8 weeks.

5. **Advancement Criteria for Phase III:**

✓ PROM & AAROM: full Forward Elevation, full Abduction, 45° External Rotation and Internal Rotation to S1 (lower back).

✓ Strength: Grade 3 to 4 / 5 strength (isometric) in all planes.

PHASE III	6 Weeks Post-Op - 12 Weeks Post-Op

1. **Objectives:**
   - Achieve full ROM in all planes.
   - Increase shoulder strength.
   - Begin cross-training to maintain general fitness.
   - Return to work: modified duties (avoid heavy lifting and overhead activity).

2. **Sling:**
   - Already discontinued.

3. **Therapeutic Exercises:**
   - Week 6 – 9:
     - Begin Active ROM and continue Passive ROM exercises in all planes as needed to achieve full ROM.
     - Continue Isometric exercises (No limitations)
     - Begin Theraband strengthening exercises for RTC.
     - Continue aquatic shoulder therapy.
     - Continue to use stationary bike to maintain general fitness (sling no longer required).
     - May begin running to maintain general fitness.
   - Week 9 - 12:
     - Continue ROM exercises as needed to achieve Full ROM.
     - Continue Theraband strengthening exercises for RTC.
     - Progress to resisted PNF strengthening exercises in all planes.
     - May begin outdoor cycling and continue running for general fitness.

4. **Functional Milestone:**
   - Full ROM.
   - Full use of shoulder for all general activity without impingement pain.
   - Light bimanual or modified occupational duties.
   - Driving standard / manual vehicle with involved arm at 8-10 weeks.
   - May begin running at 8 weeks

5. **Advancement Criteria for Phase IV:**

   ✓ ROM: Full.
   ✓ Strength: Grade 4 to 5 / 5 strength (isotonic) in all planes.
   ✓ Perform all ROM and strengthening exercises without impingement pain.

PHASE IV	3 Months Post-Op - 6 Months Post-Op

1. Objectives:

- Increase shoulder strength.
- Progressive return to sport and high-level activity.
- Return to work: for manual and overhead occupations.
- Patient education regarding possible restrictions / limitations.

2. Sling:

3. Therapeutic Exercises:

- Months 3 – 4:
  - Begin strengthening exercises with free weights for all planes. Increase repetitions before increasing weight (↑ endurance > ↑ strength).
  - Begin overhead activity if no impingement pain.
  - Begin sport specific strengthening exercises.
  - Begin swimming to increase shoulder strength at low resistance.
  - Begin putting and chipping for golf.
- Months 4 - 5:
  - Begin low speed throwing / controlled racket sports / non-contact hockey.
  - Progress to ½ swing with irons for golf.
- Months 5 – 6:
  - Begin high speed throwing / full swing racket sports / slap shots.
  - Progress to competitive throwing / racket sports / contact sports.
  - Progress to full swings with all clubs, for golf.

4. Functional Milestone:

- Full ROM.
- Full use of shoulder for sporting activity without impingement pain.
- Return to work: full duties.