RICHARD NICOLAY III, MD
ORTHOPEDIC SURGERY | SHOULDER | ELBOW | HIP | KNEE

0-2 WEEKS: INITIAL HEALING, PHASE I

Goals

- Maintain integrity of joint replacement and protect soft tissue healing
- Increase PROM

for elevation to 120° and ER to 30° (will remain the goal for the first 6 weeks)

- Optimize distal UE circulation and muscle activity (elbow, wrist, and hand)
- Instruct in use of sling for proper fit, ice therapy after HEP, signs and symptoms of infection

Precautions

- Wear sling 24/7 except for hygiene and home exercises (3 to 5 times daily)
- Avoid shoulder extension posterior to the frontal plane of the body
    - o When patients recline, a pillow should be placed behind the upper arm and sling should be on
    - o Patients should be advised to always be able to see their elbow
- Avoid IR, adduction, and extension such as reaching behind their back to avoid dislocation
- No AROM
- No submersion in pool/water for 4 weeks
- No weight bearing through operative arm (i.e. transfers, walker use, etc.)

Exercises

- Active elbow, wrist, and hand
- Passive forward elevation in scapular plane to 90° to 120° max, ER in scapular plane to 30°
- Active scapular retraction with arms resting in neutral position

Criteria to Progress to Phase II

- Low pain (less than 3/10) with shoulder PROM
- Healing of incision without signs of infection
- Clearance by Dr. Nicolay after first postoperative visit

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2-6 WEEKS: RANGE OF MOTION, PHASE II

Goals

- Achieve passive elevation to 120° and ER to 30°
- Low (less than 3/10) to no pain
- Ability to fire all heads of the deltoid

Precautions

- Sling may be removed while at home or in a controlled environment, but should be worn when out in community (without abduction pillow) as a sign of precaution to other people
- May use arm for light activities of daily living (such as feeding, brushing teeth, dressing) with elbow near the side of the body and arm in front of the body
- May submerge in water (tub, pool, jacuzzi, etc.) after 4 weeks
- Continue to avoid weight bearing through the operative arm
- Continue to avoid combined IR, extension, adduction (reaching behind the back) and IR with adduction (reaching across chest) for dislocation precautions

Exercises

- May discontinue elbow, wrist, and hand exercises once the patient is using the arm well for ADLs with sling removed around the home
- Continue passive elevation to 120° and ER to 30° in the scapular plane with arm supported on table top
- Add submaximal isometrics, pain-free effort for all functional heads of deltoid (anterior, middle, posterior)
    - Ensure that with posterior deltoid isometric the shoulder does not move into extension and the arm remains anterior to the frontal plane
- At 4 weeks, begin to place arm in balance position of 90° elevation while supine – when patient can hold this position with ease, may begin reverse pendulums clockwise and counterclockwise

Criteria to Progress to Phase III

- Passive forward elevation in scapular plane to 120°, passive ER in scapular plane to 30°
- Able to fire isometrically all heads of the deltoid muscle with no pain
- Able to place and hold the arm in balanced position (90° elevation while supine) with ease

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6-12 WEEKS: STRENGTHENING, PHASE III

Goals

- Optimize PROM for elevation and ER in scapular plane with realistic expectation that max mobility for elevation is usually around 145° to 160° passively, ER 40° to 50° passively, functional IR to L1
- Recover AROM to approach as close to PROM as much as possible – generally may expect 135° to 150° active elevation, 30° active ER, active functional IR to L1
- Establish dynamic stability of the shoulder with deltoid and periscapular muscle gradual strengthening

Precautions

- Discontinue use of sling
- Avoid forcing end range of motion in any direction to prevent dislocation
- May advance use of the arm actively in ADLs without being restricted to arm by the side of the body, however, avoid any heaving lifting or impact sports
- May initiate functional IR behind the back gently
- No upper body ergometer

Exercises

- Forward elevation in scapular plane active progression – supine to incline to vertical, short to long lever arm
- Balanced position long lever arm AROM
- Active ER/IR with arm at side
- Scapular retraction with light band resistance
- Functional IR with hand slide up back – very gentle and gradual
- Wall walking and/or pulleys
- Supine, inverted pendulums
- No upper body ergometer

Criteria to Progress to Phase IV

- AROM equals/approaches PROM with good mechanics for elevation
- No pain
- Higher level of demand on shoulder than ADL functions

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12+ WEEKS: PHASE IV

Goals

- Optimize functional use of the operative UE to meet the desired demands
- Gradual increase in deltoid, scapular muscle, and rotator cuff strength •
  Pain-free functional activities

Precautions

- No heavy lifting and no overhead sports
- No heavy pushing activity
- Gradually increase strength of deltoid and scapular stabilizers
- No upper body ergometer

Exercises

- Add light hand weights for deltoid up to and not to exceed 3 lbs. for anterior and posterior with long arm lift against gravity, elbow bent to 90° for abduction in the scapular plane
- Theraband progression for extension to hip with scapular depression and retraction
- Theraband progression for serratus anterior punches in supine, but avoid wall, incline, or prone pressups for serratus anterior
- End range stretching gently without forceful overpressure in all planes (elevation in scapular plane, ER in scapular

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