

## **Dr. John G. Skedros**

### **Rehabilitation Protocol for Nonoperative Impingement Syndrome**

#### **I. Phase 1: Maximal Protection Acute Phase**

##### *Goals*

- Relieve pain and swelling
  - Decrease inflammation
  - Retard muscle atrophy
  - Maintain or increase flexibility
1. Active rest: Eliminate any activity that causes an increase in symptoms
  2. Range-of-motion exercises
    - (a) Pendulum exercises
    - (b) Active-assisted range of motion—limited symptom-free available range
      - Rope-and-pulley exercises in flexion
      - L-bar exercises in flexion and neutral external rotation
  3. Joint mobilizations (grades I and II)
    - (a) Inferior and posterior glides in scapular plane
  4. Modalities: Cryotherapy, transcutaneous electrical nerve stimulation, high-voltage galvanic stimulation
  5. Strengthening exercises
    - (a) Isometrics (submaximal)
      - External rotation
      - Internal rotation
      - Biceps
      - Deltoid (anterior, middle, posterior)
  6. Patient education: Regarding activity, pathology, and avoiding overhead activity, reaching, and lifting

##### *Guidelines for progression*

- Decreases in pain or symptoms
- Range of motion increased
- Painful arc in abduction only
- Muscular function improved

#### **II. Phase II: Motion Phase (Subacute Phase)**

##### *Goals*

- Re-establish nonpainful range of motion
  - Normalize arthrokinematics of shoulder complex
  - Retard muscular atrophy without exacerbation
1. Range-of-motion exercises
    - (a) Rope-and-pulley exercises in flexion and abduction (symptom-free motion)
    - (b) L-bar exercises in flexion, abduction (symptom-free motion)
      - External rotation at 45° abduction, progress to 90° abduction
      - Internal rotation at 45° abduction, progress to 90° abduction
  2. Joint mobilizations (grades II, III, and IV)
    - (a) Inferior, anterior, and posterior glides
    - (b) Combined glides as required
  3. Modalities: Cryotherapy, ultrasound, phonophoresis
  4. Strengthening exercises
    - (a) Continue isometric exercises
    - (b) Initiate scapulothoracic strengthening exercises
  5. Initiate neuromuscular control exercises

*Guidelines for progression*

Begin to incorporate intermediate strengthening exercises as

- Pain or symptoms decrease
- Active-assisted range of motion normalizes
- Muscular strength improves

### **III. Phase III: Intermediate Strengthening Phase**

*Goals*

- Normalized range of motion
  - Perform symptom-free normal activities
  - Improve muscular performance
1. Range-of-motion exercises
    - (a) Aggressive L-bar active-assisted range of motion in all planes
    - (b) Continue self-capsular stretching (anterior-posterior)
  2. Strengthening exercises
    - (a) Initiate isotonic dumbbell program:
      - Side-lying neutral internal and external rotation
      - Prone extension and horizontal abduction
      - Standing flexion to 90° abduction to 90°; supraspinatus exercise
      - Initiate serratus exercises (wall push-ups)
      - Initiate tubing progression in slight abduction for internal and external rotation
  3. Initiate arm ergometer for endurance

*Guidelines for progression*

- Full nonpainful range of motion
- No pain or tenderness
- 70% of contralateral strength

*Goals*

- Increase strength and endurance
  - Increase power
  - Increase neuromuscular control
1. Isokinetic test in internal-external rotation in modified neutral position and abduction-adduction
  2. Initiate Throwers' Ten Exercise Program (Appendix C)
  3. Isokinetics
    - (a) Velocity spectrum exercises from 180° /sec to 300° /sec
    - (b) Progress from modified neutral to 90/90 position as tolerated