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CONSERVATIVE IMPINGEMENT REHABILITATION PROTOCOL

Impingement is a chronic inflammatory process produced as the rotator cuff muscles (supraspinatus, infraspinatus, teres major, and subscapularis) and the subdeltoid bursa are "pinched" against the coracoacromial ligament and the anterior acromion when the arm is raised above 80 degrees. The supraspinatus/infraspinatus portion of the rotator cuff is the most common area of impingement. This syndrome is commonly seen in throwing sports, racquet sports, and in swimmers; but can be present in anyone who uses their arm repetitively in a position over 90 degrees of elevation.

This 5-phased program can be utilized for conservative impingement clients. The protocol serves as a guide to attain maximal function in a minimal time period. This systematic approach allows specific goals and criteria to be met and ensures the safe progression of the rehabilitation process. Client compliance is critical.

I. MAXIMAL PROTECTION - ACUTE PHASE

A. Goals
1. Relieve pain and swelling
2. Decrease inflammation
3. Retard muscle atrophy
4. Maintain/increase flexibility

B. Active rest - the elimination of any activity that causes an increase in symptoms.

C. Range of Motion
1. Pendulum exercises
2. AAROM - limited symptom free available range
    - rope and pulley
        - flexion
    - L-Bar
        - flexion
        - neutral external rotation

D. Joint Mobilizations
1. Grade I/II
2. Inferior and posterior glides in scapular plane

I. MAXIMAL PROTECTION - ACUTE PHASE (cont'd)

E. Modalities
1. Cryotherapy
2. TENS, HVGS

F. Strengthening Exercises
1. Isometrics- submaximal
- ER/IR
- Biceps
- Deltoid (anterior, middle, posterior)

G. Patient Education
1. Regarding activity, pathology, and avoidance of overhead activity, reaching, and lifting activity

H. Guideline for Progression
1. Decreased pain and/or symptoms
2. Range of motion increased
3. Painful arc in abduction only
4. Muscular function improved

II. MOTION PHASE - SUBACUTE PHASE

A. Goals
1. Re-establish nonpainful range of motion
2. Normalize arthrokinematics of shoulder complex
3. Retard muscular atrophy without exasperation

B. Range of Motion
1. Rope and pulley
- flexion
- abduction (symptom free motion)
2. L-Bar
- flexion
- abduction (symptom free motion)
- ER in 45° of abduction, progress to 90° of abduction
- IR in 45° of abduction, progress to 90° of abduction
3. Initiate anterior and posterior capsular stretching

C. Joint Mobilizations
1. Grade II/III/IV
2. Inferior, anterior, and posterior glides
3. Combined glides as required

II. MOTION PHASE - SUBACUTE PHASE (cont'd)

D. Modalities
1. Cryotherapy
2. Ultrasound/phonophoresis

E. Strengthening Exercises
1. Continue isometric exercises
2. Initiate scapulothoracic strengthening exercises

F. Initiate neuromuscular control exercises

G. Guideline for Progress
1. Begin to incorporate intermediate strengthening exercises as
    - pain/symptoms decrease
    - AAROM normalizes
    - muscular strength improves

III. INTERMEDIATE STRENGTHENING PHASE

A. Goals
1. Normalized range of motion
2. Symptom free normal activities
3. Improved muscular performance

B. Range of Motion
1. Aggressive L-Bar AAROM all planes
2. Continue self capsular stretching (anterior/posterior)

C. Strengthening exercises
1. Initiate isotonic dumbbell program
    - side lying neutral
        - internal rotation
        - external rotation
    - prone
        - extension
        - horizontal abduction
    - standing
        - flexion to 90°
        - abduction to 90°

- supraspinatus

2. Initiate serratus exercises
   - wall push-ups
3. Initiate tubing progression in slight abduction for IR/ER

III. INTERMEDIATE STRENGTHENING PHASE (cont'd)

D. Initiate Arm Ergometer for Endurance

E. Guideline for Progression
1. Full nonpainful range of motion
2. No pain/tenderness
3. 70% contralateral strength

IV. DYNAMIC ADVANCED STRENGTHENING PHASE

A. Goals
1. Increase strength and endurance
2. Increase power
3. Increase neuromuscular control

B. Isokinetic Test
1. IR/ER modified neutral
2. Abduction/adduction

C. Initiate Thrower's Ten Exercise Program

D. Isokinetic
1. Velocity spectrum 180/s to 300/s
2. Progress from modified neutral to 90/90 position as tolerated

E. Initiate Plyometric 5 Exercises (late in phase)

F. Goals for Progression
1. Full nonpainful range of motion
2. No pain or tenderness
3. Isokinetic test fulfills criteria
4. Satisfactory clinical examination

IV. RETURN TO ACTIVITY PHASE

A. Goals
1. Unrestricted symptom free activity

B. Isokinetic Test
1. 90/90 IR/ER, 180, 300°/sec
2. Abduction/adduction, 180, 300°/sec

IV. RETURN TO ACTIVITY PHASE (cont'd)

C. Initiate Interval Program
1. Throwing, Tennis, Golf

D. Maintenance Exercise Program
1. Flexibility exercises
    - L-Bar
        - flexion
        - external rotation
        - self-capsular stretches
2. Isotonic exercises
    - supraspinatus
    - prone extension
    - prone horizontal abduction
3. Thera-tubing exercises
    - IR/ER
    - neutral or 90/90 position
    - D2 PNF pattern
4. Serratus push-ups
5. Interval throwing phase II for pitchers