Dynamic Chiropractic

REHAB / RECOVERY / PHYSIOTHERAPY

Shoulder Rehabilitation -- Part I

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Rehabilitation according to Dorland's Medical Dictionary is defined as the restoration of normal form and function after injury or illness.[1] This succinct definition leaves much to be desired. Rehabilitation really begins from the initial contact of the practitioner with the patient to the day of dismissal. A case history and functional examination leading to a specific anatomic diagnosis is necessary to determine what has to be rehabilitated. In many practices a sheet of exercises given to the patient at the end of treatment constitutes the "rehabilitation phase."

The end-result of shoulder rehabilitation should be the establishment of normal joint mobility and normal balance between the force couples of the shoulder. A force couple represents two equal but oppositely directed forces not acting along the same line. Arm elevation requires a balance between the scapulothoracic force couples (upper trapezius, lower trapezius, levator scapulae, and serratus anterior) which rotates and elevates the scapula upward and the force couple between the deltoid and rotator cuff muscles. Weakness or contracture of any of the above upsets the normal balance of arm function and leaves the door open for microstress and inflammation. Balance is also important between the shoulder flexors and extensors, and especially the internal and external rotators. "Swimmers often overdevelop their pectoral and anterior cervical muscles, resulting in slumping posture and weak scapular retractors and adductors (rhomboids, middle trapezius, and upper fibers of latissimus dorsi) and lateral rotators."[2] Weak scapular muscles may prevent the humeral head from clearing the acromion completely, resulting in subacromial impingement. Especially in the swimmer, the overdevelopment of internal shoulder rotators compared to external rotators is a possible cause of tendinitis (swimmer's shoulder).[2]

The strategy of rehabilitation depends upon the diagnosis. Adhesive capsulitis (hypomobility), instability (hypermobility), torn tendons and tendinitis all require a separate approach.

Some pertinent generalities regarding shoulder rehabilitation are:

1. In the early stages of injury or inflammation, in order to allow scar formation to occur in the normal lines of stress, only painless active and passive ranges of motion should be allowed.

2. In the early stages only pendulum, painless isometric and active assisted exercises are recommended.

3. Advanced strengthening exercises should not be used until a full painless range of motion and accessory joint play motion is attained.

4. Eccentric muscular contraction provides more force than concentric muscular contraction within an equal amount of resistance, and more problems of the shoulder occur with eccentric activities. Therefore early stretching, especially if painful, may aggravate the problem since stretching involves eccentric muscle activity.

5. After passive treatment involving friction massage, stretching or contract/relax procedures, the patient should attempt as much painless active motion in all directions as possible.

6. Athletes who participate in sports that require flexibility should do stress-endurance types of exercises such as low load and high repetitions, rather than weight lifting which emphasizes bulk. Loss of flexibility predisposes an athlete to microtearing and inflammation.

7. In rebuilding the cuff muscles, since the cuff is considered an endurance muscle, if weights over five pounds are used, larger muscle groups will substitute for the rotator cuff muscles which will interfere with cuff strengthening.[3] Begin cuff exercises with one pound and painlessly progress to five pounds.

8. The speed of exercise may be more important than the amount of work. Low speed, high load exercise produces greater increases in muscular force only at slow speeds, while high speed, low load exercise produces increases in muscular force at all speeds of contraction, at and below the training speed.[4]

Shoulder Rehabilitation Part II will appear next month and emphasize rehabilitation of specific conditions.

References

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3. Carson, W.G. "Rehabilitation of the Throwing Shoulder." Clin in Sports Med. 1989; 8:657-689.
4. Moffroid, M.T.; Whipple, R.H. Specificity of Speed of Exercise. J. of Orth and Sports Phys Ther. 1990; 12: pp72-078.

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