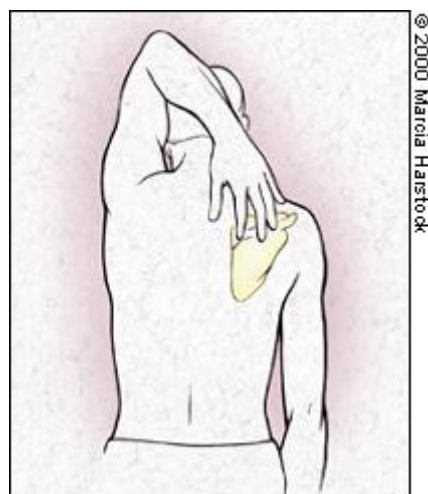
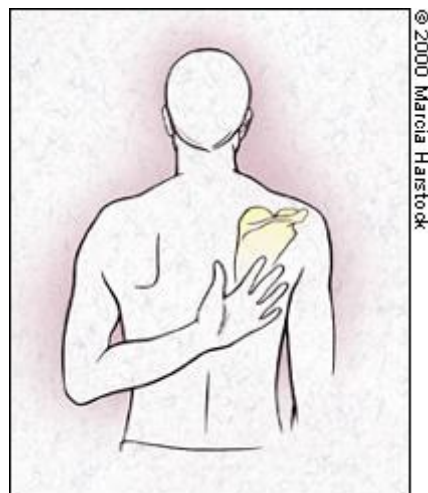


1-Apley scratch test.

The patient attempts to touch the opposite scapula to test range of motion of the shoulder.

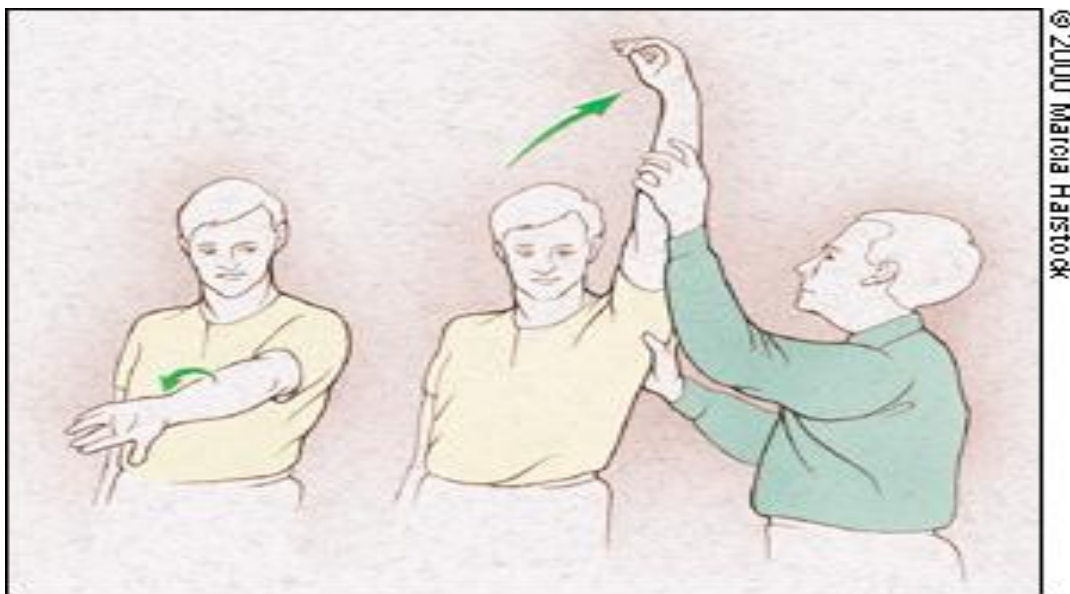
1-Testing abduction and external rotation(+ve sign touch the opposite scapula, -ve sign can not touch the opposite scapula)

2-Testing adduction and internal rotation(+ve sign touch the opposite scapula, -ve sign can not touch the opposite scapula)



2-Neer's Test

Neer's impingement sign is elicited when the patient's rotator cuff tendons are pinched under the coracoacromial arch. The test is performed by placing the arm in forced flexion with the arm fully pronated. The scapula should be stabilized during the maneuver to prevent scapulothoracic motion. Pain with this maneuver is a sign of subacromial impingement.

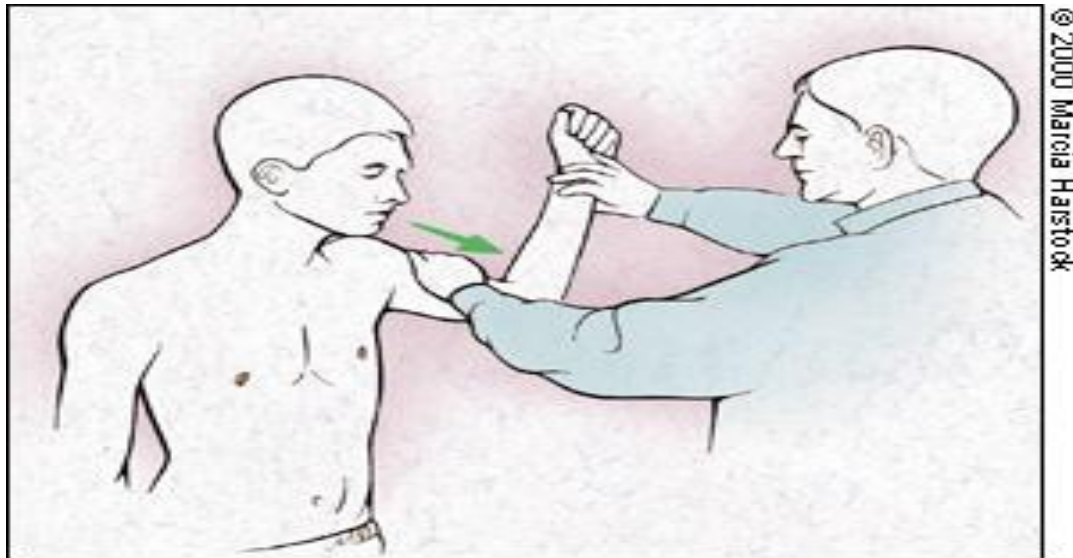


3-Drop-Arm Test

A possible rotator cuff tear can be evaluated with the drop-arm test. This test is performed by passively abducting the patient's shoulder, then observing as the patient slowly lowers the arm to the waist. Often, the arm will drop to the side if the patient has a rotator cuff tear or supraspinatus dysfunction. The patient may be able to lower the arm slowly to 90 degrees (because this is a function mostly of the deltoid muscle) but will be unable to continue the maneuver as far as the waist.

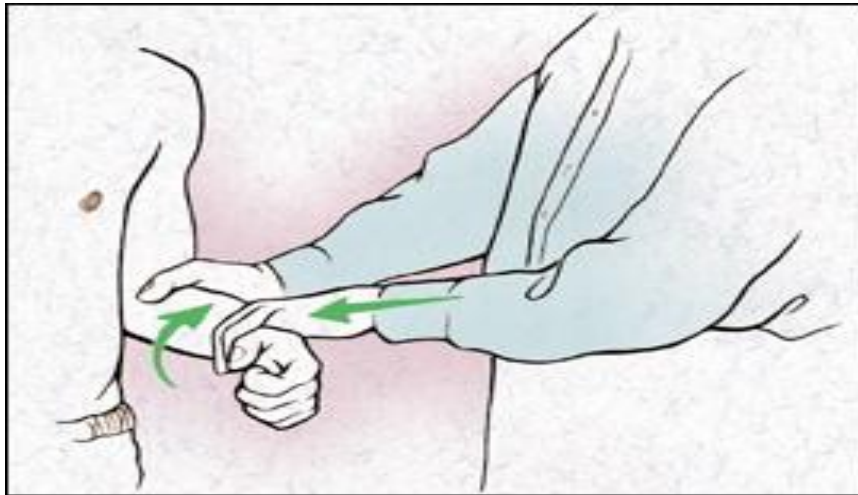
4-Apprehension Test

The anterior apprehension test is performed with the patient supine or seated and the shoulder in a neutral position at 90 degrees of abduction. The examiner applies slight anterior pressure to the humerus (too much force can dislocate the humerus) and externally rotates the arm. Pain or apprehension about the feeling of impending subluxation or dislocation indicates anterior glenohumeral instability.



5-Yergason Test

Patients with rotator cuff tendonitis frequently have concomitant inflammation of the biceps tendon. The Yergason test is used to evaluate the biceps tendon.⁹ In this test, the patient's elbow is flexed to 90 degrees with the thumb up. The examiner grasps the wrist, resisting attempts by the patient to actively supinate the arm and flex the elbow. Pain with this maneuver indicates biceps tendonitis.



© 2000 Marcia Harstock

6-Tennis elbow test

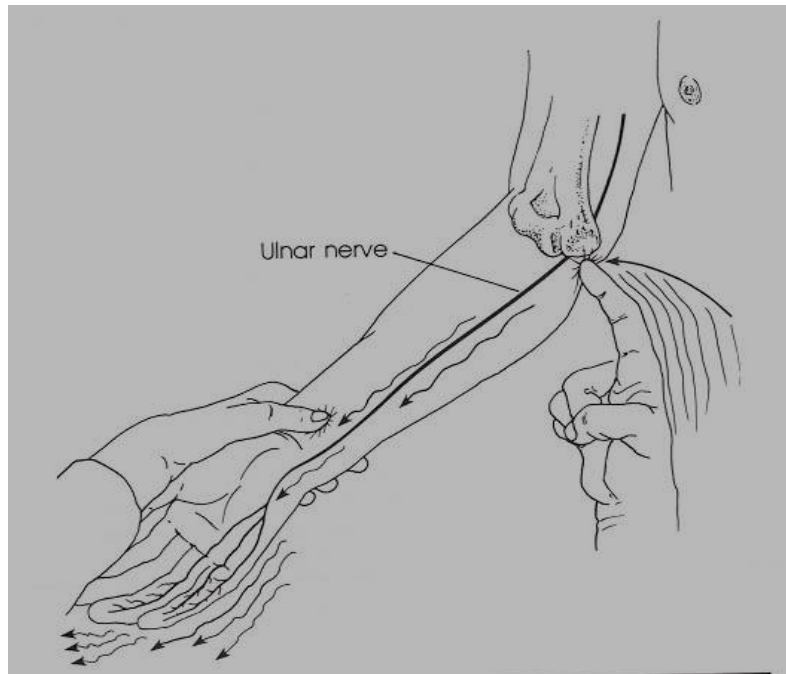
Passive wrist flexion/forearm pronation with elbow extended(+ve sign is pain at the origin of the common flexors of wrist, -ve sign is no pain)

Golfer's elbow test

Passive wrist extension/forearm supination with elbow extended(+ve sign is pain at the origin of the common extensors of wrist, -ve sign is no pain)

7-Tinel's test at medial epicondyle

Compression at medial epicondyle(+ve sign is tingling at the ulnar nerve distributions)



8- Mobilization:

is manual therapy designed to restore joint movement. These are usually small repetitive rhythmical oscillatory, localised accessory, or functional movements performed by the physiotherapist in various amplitudes within the available range, and under the patient's control. These can be done very gently or quite strongly, and are graded according to the part of the available range in which they are performed. The technique may be applied with:

- 1- passive oscillatory motion: oscillation at the beginning the motion, within the range and up to the limit of the motion.
- 2- sustained stretch: With suitable fixation the part is grasped by the physiotherapist and moved in such a way that a sustained stretch can be applied to the contracted structures for a period of time within a functional pattern of movement.

9- Manipulation:

A passive movement using physiological accessory motion, which may be:

- 1- Manipulation under anaesthesia, which is a medical procedure used to restore full ROM by softening of adhesion.
- 2- Thrust sudden movement performed by the physical with a high velocity and small amplitude that the patient can not prevent the motion.

10-ACCESSORY MOVEMENT(joint play)

- These occur as part of any normal joint movement but may be limited or absent in abnormal joint conditions. They consist of gliding or rotational movements which cannot be performed in isolation as a voluntary movement but can be isolated by the physiotherapist.
- In abnormal joint conditions there may be limitation of these movements due to loss of full active range caused by stiffness of joints from contracture of soft tissue, adhesion formation or muscular inefficiency. Accessory movements are performed by the physiotherapist to increase lost range of movement and to maintain joint mobility. Hence they form an important part of the treatment of a patient who is unable to perform normal active movement.

11-Types of Stretching

1- Ballistic stretching.

Is a form of passive stretching or dynamic stretching in a bouncing motion. It involves fast, "jerky" movements where a double bounce is performed at the end range of movement.

2- Dynamic stretching.

Is controlled, swings, and moving gently part of your body to the limits of your range of motion. Dynamic stretching exercises should be performed in sets of 8-12 repetitions.

3- Active stretching.

Is a technique used to increase joint mobility by inhibiting and lengthening elastic muscle tissues or skin.

This type of stretching is only done with normally innervated muscle and under voluntary control.

It can not be used in patient with severe muscle weakness, spasticity, or paralysis from neuromuscular dysfunction.

There are 3 variations of active inhibition technique:

- Hold- relax
- Hold- relax –contract
- Agonist contraction

4- Passive stretching.

An external force applied either manually or mechanically while the patient is relaxed. This type can be classified into:

a- Manual Passive Stretch

- The patient must be relaxed as possible during passive stretching.
- The stretch force is usually applied for at least 30 seconds and repeated 3 times in an exercise session.
- The therapist applies an external force and controls the direction, speed, intensity and duration of stretch to shorten soft tissues. The tissues are elongated beyond their resting length.
- This technique should not be confused with passive range of motion exercises. Passive stretching takes the structures beyond the free range of motion. Passive range of motion is applied only within the unrestricted available range.

b- Prolonged Mechanical Passive Stretch

- A low intensity external force (5-15 lb) is applied over a prolonged period of time with mechanical equipment.

- The stretch force is applied with the patient as relaxed as possible.
- The stretch may be maintained for 15-30 minutes or as long as several days or weeks, depending on the type of apparatus used.
- The stretch can be applied through positioning of the patient, with weighted traction and pulley systems, or with serial splints or casts.

5- Self Stretching

- Self stretching is a type of flexibility exercise that the patient carries out himself. It may involve relaxation of muscle and a passive stretch applied through the weight of the body.
- Self stretching can also be carried out actively by the patient first inhibiting and then lengthening the tight muscle.

12-Motor distribution of lower limb

Nerve Root	Motor Examination
L3	Extend quadriceps
L4	Dorsiflex ankle
L5	Dorsiflex great toe
S1	Stand on toes*

13-Sensory distribution of lower limb

Nerve Root	Pin-Prick Sensation
L3	Lateral thigh and medial femoral condyle
L4	Medial leg and medial ankle
L5	Lateral leg and dorsum of foot
S1	Sole of foot and lateral ankle

14-Physical Therapy Rehabilitation Program of LBP

The treatment program for mechanical LBP must have specific functional goals and can be outlined in the following 6 steps:

1. Control of pain and the inflammatory process: Pain treatment should be initiated early and efficiently to gain control by relative rest may help with controlling the pain and the inflammatory process.
 2. Restoration of joint ROM and soft tissue extensibility: Extension exercises may reduce neural tension. Flexion exercises reduce articular weight-bearing stress to the facet joints and stretch the dorsolumbar fascia.
 3. Improvement of muscular strength and endurance: Exercise training can begin after the patient has passed successfully through the pain control phase.
 4. Coordination retraining: Dynamic exercise in a structured training program maximizes coordinated muscle group activities that lead to postural control and the fusion of muscle control with spine stability.
 5. Maintenance exercise programs: A home program is developed within the tolerance and ability of the patient in order to encourage continued exercise after discharge from physical therapy.
- Physical therapy programs should also include positioning the patient to maximize comfort. Loosening of the hamstrings, glutei, gastrocnemius/soleus group, tensor fascia latae, quadriceps group, and hip flexors also contributes to reduction of LBP and effective conditioning.

15-Grades of spondylolisthesis

The degree of slippage is measured as the percentage of distance the anteriorly translated vertebral body has moved forward relative to the superior end plate of the vertebra below. Classifications use the following grading system:

- Grade 1: 1- 25% slippage
- Grade 2: 26-50% slippage
- Grade 3: 51-75% slippage
- Grade 4: 76-100% slippage