




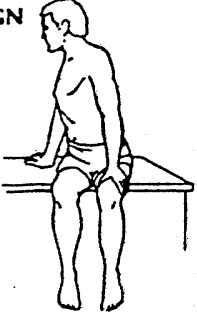
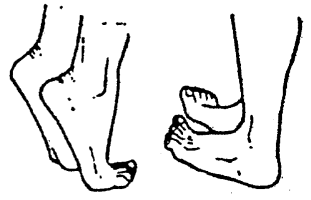
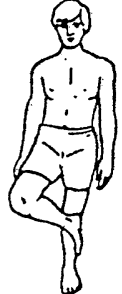

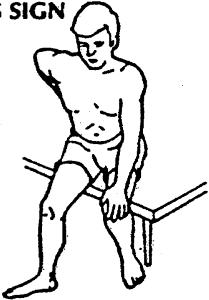



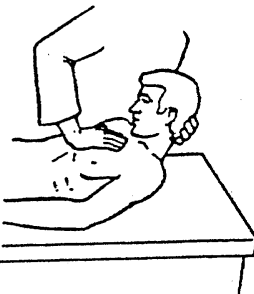
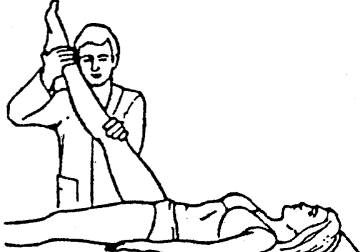
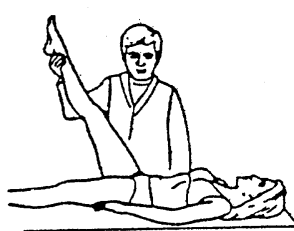


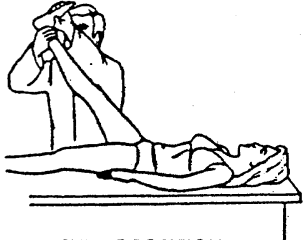
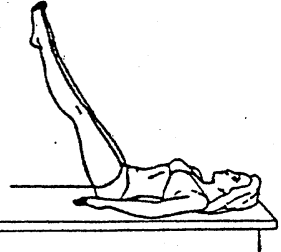
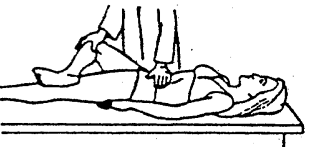
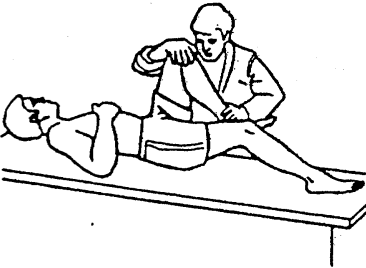
ORTHOPEDIC TESTS

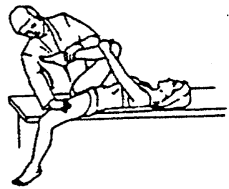
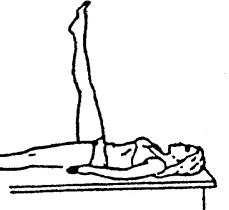
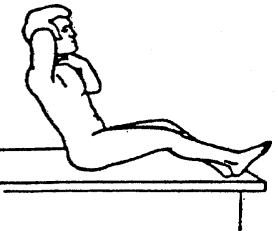
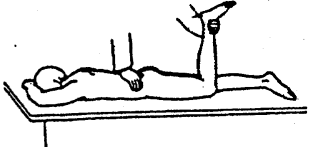
| TEST | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|--|--|---|--|
| <p>ADAM'S POSITION</p>  <p>STANDING POSITION</p> | <p>If the examiner notes an "S" or a "C" scoliosis, the patient is asked to flex forward and touch his toes slowly. If the scoliosis straightens, the test is normal and the patient is considered to have a functional scoliosis. If the scoliosis stays the same, the test is positive and indicates a pathological scoliosis.</p> | <p>Altered morphology, pathology, trauma, subluxation.</p> | <p>Soto-Hall, Kemp's.</p> |
| <p>LEWIN'S SIGN</p>  <p>STANDING POSITION</p> | <p>The examiner palpates all areas of the patient's spine for fixations as the patient attempts to touch his fingers to his toes. The examiner then measures the distance from the patient's fingers to the floor.</p> | <p>Areas of fixation, restricted motion.</p> | <p>Further examination would be based upon fixation.</p> |
| <p>LEWIN'S TEST</p>  <p>STANDING POSITION</p> | <p>Have the patient straighten his knees one at a time. This test is positive if pain occurs or the knee snaps back into a relaxed position.</p> | <p>Disc lesion, lumbo-sacral or sacroiliac lesion, gluteal disturbance.</p> | <p>Trendelenburg's, Lasègue's, Kemp's, Braggard's, Fabere-Patrick's.</p> |
| <p>TOE-TO-MOUTH TEST</p>  <p>STANDING POSITION</p> | <p>The patient is standing and raises one leg (with the use of his hands) and touches his toe to his mouth. This is then repeated on the opposite side. This test is positive if pain is produced in the sacroiliac or iliolumbar spine on the same side as the leg being raised.</p> | <p>Sacroiliac lesion, iliolumbar lesion, restricted range of motion.</p> | <p>Trendelenburg's, Nachlas'.</p> |

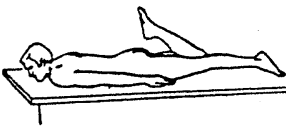
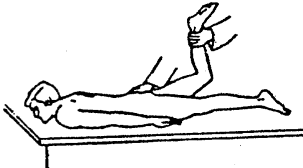
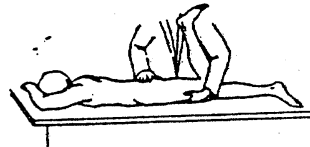
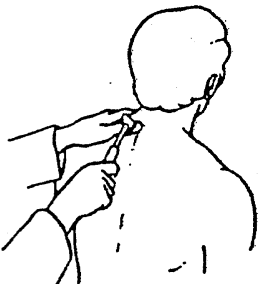
| TEST | TEST PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|---|---|--|---|
| <p>TRENDELENBURG'S TEST</p>  <p>STANDING POSITION</p> | <p>Have the patient flex the leg at the knee and raise the knee to the level of the hip. If the right hip is suspected, the patient would flex the left knee, and if the left iliac crest raises, the test is normal. However, if the iliac crest lowers, the test would be positive.</p> | <p>Subluxation, coxa vara, epiphyseal separation, Legg-Calve-Perthes disease, congenital dislocation, muscular dystrophy, fracture, polio.</p> | <p>Lasègue's, Braggard's, Bilateral Leg Lowering, Gaenslen's, Hibb's, Fabere-Patrick's.</p> |
| <p>KEMP'S SIGN OR TEST</p>  <p>STANDING OR SEATED POSITION</p> | <p>Have the patient bend obliquely backward. If pain radiates down the side which the patient is bending, the test is positive.</p> | <p>Subluxation, sciatica, disc involvement, exostoses, tumors, degenerative joint disease.</p> | <p>Lasègue's, Braggard's, Fajersztajn's, Naffziger's.</p> |
| <p>HEEL-AND-TOE STANDING TEST</p>  <p>STANDING POSITION</p> | <p>The patient is instructed to stand on his heels and take several steps forward, turn around and return on his toes. This test is positive if the patient is unable to perform this test unilaterally or bilaterally.</p> | <p>Subluxation, sciatica, femoral nerve involvement, popliteal nerve injury, anterior horn spinal cord disorders and/or tumors, leg muscle weakness.</p> | <p>Lasègue's, Kemp's, Braggard's, Fajersztajn's.</p> |
| <p>STANDING SIGN-OF-FOUR</p>  <p>STANDING POSITION</p> | <p>The patient is asked to place the heel of one foot to the shin of the opposite leg. This test is positive if the patient is unable to perform this function.</p> | <p>Cerebellar lesion, vertebral subluxation, sacroiliac lesion.</p> | <p>Finger-to-Nose, Finger-to-Finger, Bechterew's.</p> |


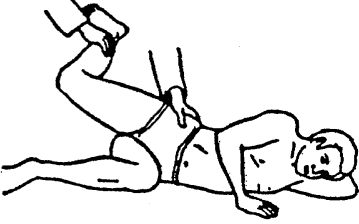
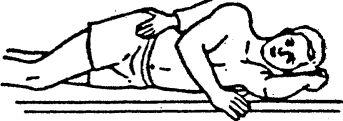
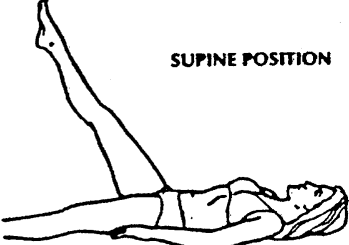
| TESTS | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|---|--|--|--|
| <p>CHEST EXPANSION</p>  <p>SEATED POSITION</p> | <p>Chest measurements are taken after the patient inhales and again after exhalation. A positive test would be less than 1" differential.</p> | <p>Spinal ankylosis.</p> | <p>Orthopedic Range of Motion, Spirometer.</p> |
| <p>MINOR'S SIGN</p>  <p>SEATED POSITION</p> | <p>Minor's sign is often observed in patients with low back conditions. The patient supports his weight on the uninvolved side by placing one hand on the healthy leg and one hand on his back as he rises from a seated position.</p> | <p>Sciatica, sacroiliac lesions, lumbo-sacral lesions, disc syndromes.</p> | <p>Naffziger's, Lasègue's, Goldthwait's, Braggard's, Spinous Percussion.</p> |
| <p>GOWERS' SIGN</p>  <p>SEATED POSITION</p> | <p>The patient uses hands on the thighs to push his trunk to an erect position when arising from a seated position.</p> | <p>Lumbo-sacral lesion, sacroiliac lesion, fracture, disc syndrome.</p> | <p>Naffziger's, Lasègue's, Goldthwait's, Braggard's, Spinous Percussion.</p> |
| <p>STRAIGHT LEG SITTING OR BECHTEREW'S TEST</p>  <p>SEATED POSITION</p> | <p>The patient is asked to extend one leg at a time and then both legs. This test is positive if pain occurs or increases in the lumbo-sacral area.</p> | <p>Sciatica, disc lesion, exostosis, adhesions, spasm, subluxation.</p> | <p>Lasègue's, Goldthwait's, Gaenslen's, Fabere-Patrick's.</p> |

| TEST | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|--|--|--|--|
| <p>MILL'S TEST</p>  <p>SEATED OR STANDING POSITION</p> | <p>The patient is instructed to flex the forearm, making a complete fist and flexing the wrist. Then, the patient is asked to pronate the forearm and extend the forearm. The test is positive if elbow pain is increased.</p> | <p>Radiohumeral epicondylitis (tennis elbow).</p> | <p>Carpal Tunnel Test, Kinesiological Exam.</p> |
| <p>SOTO-HALL TEST</p>  <p>SUPINE POSITION</p> | <p>The examiner places his superior hand under the patient's occiput and the opposite hand on the patient's sternum. Then, the examiner lifts the patient's head to the patient's sternum while pressing down on the sternum. This puts a progressive pull on the posterior spinous ligaments. When the spinous process of the injured vertebra is reached, the patient should experience an acute pain over the injured area.</p> | <p>Subluxation, exostosis, disc lesion, lumbar sprain/strain, vertebral fracture.</p> | <p>Because of the multiplicity of areas in which a positive finding may be noted, it is impossible to recommend any specific confirmatory tests. The examiner should perform confirmatory tests based upon the area of positive finding.</p> |
| <p>LASÈGUE'S TEST</p>  <p>SUPINE POSITION</p> | <p>The examiner places his hand under the patient's heel and the other hand is placed on the patient's knee with the limb extended. The examiner then slowly brings the leg toward the abdomen. This test may be considered positive if the maneuver is markedly limited due to pain.</p> | <p>Sciatica from lumbo-sacral or sacroiliac lesions, subluxation syndrome, disc lesions, intervertebral foramen occlusions, adhesions.</p> | <p>Braggard's, Fajersztajn's.</p> |
| <p>GOLDTHWAIT'S TEST</p>  <p>SUPINE POSITION</p> | <p>The examiner places one hand under the patient's lower lumbar spine. The patient then raises the leg on the involved side toward the abdomen without allowing the knee to flex. This test is positive if pain occurs before the spine begins to move.</p> | <p>Lumbo-sacral lesion, sacroiliac lesion, disc involvement, arthritis, subluxation.</p> | <p>Lasègue's, Braggard's, Bilateral Leg Lowering.</p> |




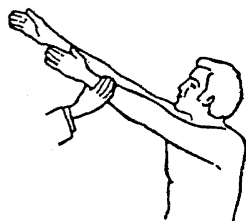
| TESTS | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|--|--|---|--|
| <p>BRAGGARD'S TEST OR FAJERSZTAJN'S TEST</p>  <p>SUPINE POSITION</p> | <p>This test is a continuation of Lasègue's Test. After pain is produced, the examiner lowers the affected leg to a point that will ease the pain and then dorsiflexes the affected foot. The test is positive if pain returns.</p> | <p>Sciatica, spinal nerve root irritation, cord tumors, disc herniations or disc lesions.</p> | <p>Lasègue's, Fajersztajn's, Goldthwait's, Bilateral Leg Lowering.</p> |
| <p>BILATERAL LEG LOWERING</p>  <p>SUPINE POSITION</p> | <p>The patient lowers straight legs from a 90 degree angle to a 45 degree angle. This test is positive if the legs drop or pain is produced.</p> | <p>Lumbo-sacral involvement, disc lesion, exostosis.</p> | <p>Goldthwait's, Lasègue's, Braggard's.</p> |
| <p>FABERE-PATRICK'S TEST</p>  <p>SUPINE POSITION</p> | <p>The examiner grasps the ankle and bends the knee. He then flexes the thigh, abducts and externally rotates the thigh (placing the external malleolus over the opposite knee) and presses downward on the superior knee. The examiner then removes the external malleolus and extends the leg. This test is positive if the patient is unable to perform these motions or pain occurs.</p> | <p>Hip joint lesion, sacroiliac lesion, coxa pathology.</p> | <p>Trendelenburg's, Standing Sign-of-Four, Nachlas', Range of Motion examination performed on the area of orthopedic limitation.</p> |
| <p>THOMAS' SIGN</p>  <p>SUPINE POSITION</p> | <p>The thigh is flexed and bent upon the abdomen. The patient's lumbar spine should normally flatten. However, if it maintains its normal lordotic curve, the test is positive.</p> | <p>Hip contracture, shortened iliopsoas.</p> | <p>Trendelenburg's, Fabere-Patrick's.</p> |

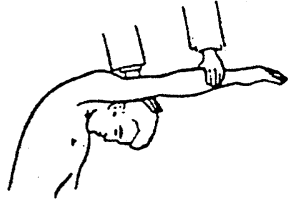
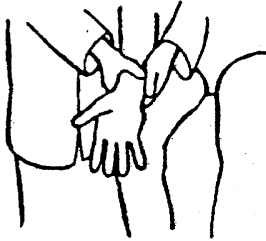

| TEST | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|---|--|---|---|
| <p>GAENSLER'S TEST</p>  <p>SUPINE POSITION</p> | <p>The patient is placed well to the side of the table with one leg flexed upon the abdomen. The opposite leg is laying partially off the table. The examiner then places pressure upon the flexed leg and slowly hyperextends the opposite thigh. Repeat on opposite side. This test is positive if pain occurs in the sacroiliac area.</p> | <p>Sacroiliac lesion.</p> | <p>Lasègue's, Goldthwait's, Toe-to-Mouth, Nachlas'.</p> |
| <p>KERNIG'S SIGN</p>  <p>SUPINE POSITION</p> | <p>The patient elevates the leg to a 90 degree angle. If the patient cannot completely extend his leg, the test is positive.</p> | <p>Meningitis, dural adhesions disc lesion, restricted range of motion.</p> | <p>Lasègue's, Braggard's, Fajersztajn's.</p> |
| <p>RUST'S SYNDROME</p>  <p>SUPINE POSITION</p> | <p>The patient grasps the head with both hands when lying down or arising from a recumbent position as a result of a stiff neck.</p> | <p>Severe whiplash, rheumatism arthritis, fracture, cervical subluxation.</p> | <p>Foramina Compression, Adson's.</p> |
| <p>NACHLAS' TEST</p>  <p>PRONE POSITION</p> | <p>The examiner flexes the knee on the side of the involvement. This test is positive if pain radiates to either the lumbo-sacral or sacroiliac area.</p> | <p>Lumbo-sacral or sacroiliac lesion.</p> | <p>Fabere-Patrick's, Goldthwait's, Braggard's, Lasègue's.</p> |

| TESTS | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|---|---|--|---|
| <p>ELY'S TEST (Heel to Buttocks)</p>  <p>PRONE POSITION</p> | <p>The examiner flexes each leg separately, touching the heel to the buttocks. This test is positive if the patient is unable to complete flexion or if the hip raises off the table on the side being tested.</p> | <p>Lumbo-sacral spine lesion, hip lesion.</p> | <p>Fabere-Patrick's, Goldthwait's, Bilateral Leg Lowering, Lasègue's.</p> |
| <p>YEOMAN'S TEST</p>  <p>PRONE POSITION</p> | <p>With one hand, the examiner stabilizes the suspected sacroiliac joint. With the other hand, the examiner lifts the patient's leg on the affected side to the limit and then hyperextends the thigh. This test is positive if pain occurs in the sacroiliac area.</p> | <p>Sacroiliac lesion.</p> | <p>Lasègue's, Goldthwait's, Toe-to-Mouth, Nachlas'.</p> |
| <p>HIBB'S TEST</p>  <p>PRONE POSITION</p> | <p>The examiner extends the patient's thigh on the affected side and rotates the hip joint internally by rotating the leg outward. Increased pain is considered a positive sign.</p> | <p>Sacroiliac lesion.</p> | <p>Lasègue's, Goldthwait's, Nachlas'.</p> |
| <p>SPINOUS PERCUSSION TEST</p>  <p>PRONE OR SEATED POSITION</p> | <p>The examiner uses a reflex hammer with his thumb over the spinous process in question and percusses it. A tuning fork (128-C) may also be used. A positive finding would result in pain or aggravation of the symptoms.</p> | <p>Fracture, osseous pathology, intervertebral disc syndrome, acute subluxation.</p> | <p>Segmental neurological diagnosis, kinesiological examination, Naffziger's, Foramina Compression, Bilateral Leg Lowering.</p> |

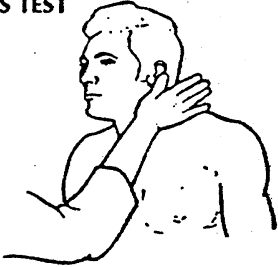
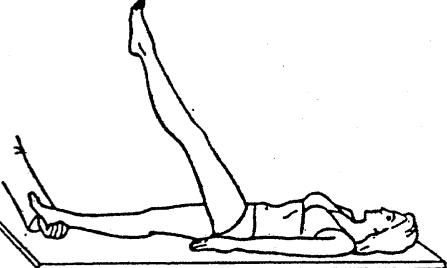
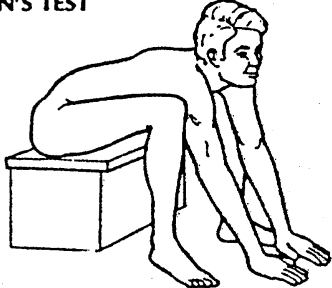
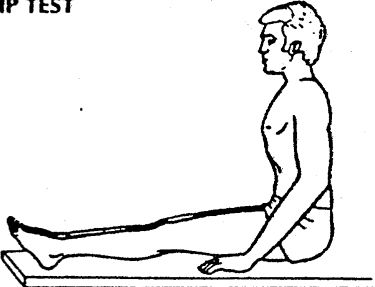
| TESTS | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|---|--|--|---|
| <p>MENNELL'S SIGN</p>  <p>PRONE POSITION</p> | <p>The examiner places his thumbs over the posterior superior spine of the sacrum and exerts pressure. He then slides his thumbs outward and then inward. If tenderness is increased, this test is positive. Tenderness when sliding outward is significant because it probably indicates calcium deposits. If tenderness is noted on inward movement, it is probably due to strain of the sacroiliac ligaments.</p> | <p>Deposits in the structure or adjacent structure, sacroiliac joint involvement, ligamentous strain/sprain.</p> | <p>Bilateral Leg Lowering, Goldthwait's, Lasègue's.</p> |
| <p>OBER'S TEST</p>  <p>SIDE POSITION</p> | <p>The patient is placed with the unaffected side next to the table. The examiner places one hand on the pelvis and grasps the patient's ankle lightly with the other hand, holding the knee flexed at a right angle. The thigh is abducted and extended laterally. This test is positive if the leg remains abducted.</p> | <p>Contracted tensor fascia lata.</p> | <p>Trendelenburg's, Fabere-Patrick's, Tensor Fascia Lata Muscle Test.</p> |
| <p>COMPRESSION PELVIC TEST</p>  <p>SIDE POSITION</p> | <p>The patient lies on his side with the affected side up. The examiner places his forearm over the iliac crest and presses downward for approximately 30 seconds. This test is positive if pain occurs.</p> | <p>Sacroiliac strain/sprain or inflammation.</p> | <p>Lasègue's, Goldthwait's Toe-to-Mouth, Nachlas'.</p> |
| <p>WELL-LEG-RAISING TEST</p>  <p>SUPINE POSITION</p> | <p>The patient is in a supine position. The test is performed by elevating and extending the unaffected leg. The test is positive if there is a reproduction of pain in the affected leg.</p> | <p>Sciatica, nerve root lesions, disc herniations or disc lesions.</p> | <p>Lasègue's, Braggard's, Kernig's, Kemp's.</p> |

ORTHOPEDIC TEST NEUROVASCULAR SECTION

| TESTS | PROCEDURE | POSITIVE INDICATES | RELATED TEST |
|---|---|---|---|
| <p>FORAMINA COMPRESSION TEST</p>  <p>SEATED POSITION</p> | <p>The examiner forcibly presses downward and laterally on the patient's head. The test is positive if it initiates or increases radiating pain in the arm.</p> | <p>Cervical subluxation, disc involvement, exostosis, cervical rib.</p> | <p>Adson's, hyperabduction, costoclavicular, neurological evaluation, lab tests.</p> |
| <p>JACKSON'S MANEUVER</p>  <p>SEATED POSITION</p> | <p>Have the patient sit erect and bend the head obliquely backward, slightly toward the involved side. The examiner then applies a downward pressure on the vertex of the skull. A positive sign occurs if pain radiates down the arm.</p> | <p>Subluxation, neurovascular compression syndrome, disc involvement, exostosis, possible cervical rib.</p> | <p>Adson's, hyperabduction, costoclavicular, Allen's, Wright's, shoulder depression.</p> |
| <p>ADSON'S MANEUVER (Scalenus Anticus Syndrome)</p>  <p>SEATED POSITION</p> | <p>The examiner palpates the radial pulse and directs the patient to rotate the head toward the affected side and bend the head backward and obliquely. The patient is then asked to take a deep breath and hold it for 20 seconds. The test is positive if marked weakening, loss of pulse, or an increased paresthesia takes place.</p> | <p>Cervical subluxation, scalenus anticus syndrome, spasm of the scalenus muscles, cervical rib, compression of the brachial plexus, subclavian artery compression.</p> | <p>Deep and superficial reflexes, shoulder depression, measurement of upper extremities, hyperabduction, costoclavicular.</p> |
| <p>HYPERABDUCTION TEST</p>  <p>SEATED POSITION</p> | <p>This test may be performed in conjunction with the Adson's Maneuver. Have the patient raise his arms to a 45 degree angle and then take the pulse. The test is positive if the pulse becomes weak or diminishes.</p> | <p>Subluxation, neurovascular compression syndrome, hyperabduction syndrome.</p> | <p>Costoclavicular, Allen's, Wright's, shoulder depression, Adson's.</p> |

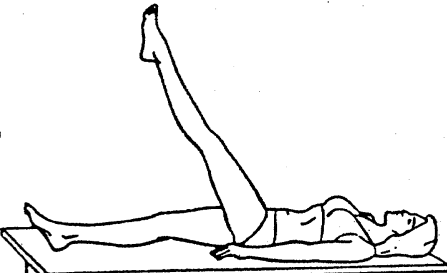
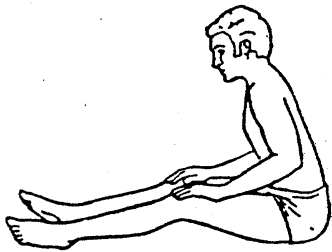
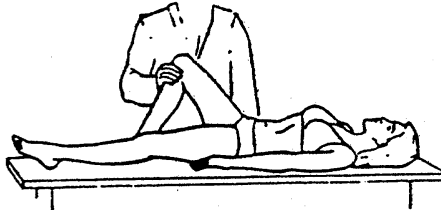
| TEST | PROCEDURE | POSITIVE INDICATES | RELATED TESTS |
|---|--|---|--|
| <p>COSTOCLAVICULAR TEST</p>  <p>SEATED OR STANDING POSITION</p> | <p>This test may be performed in conjunction with the hyperabduction test. Have the patient bend his head forward and hold his chin as close as he can to his chest, placing tension on the neck muscles. The arms should be extended above the head. Then, check both extremities to see if the pulse has been altered. The test is positive if there is a weakening, alteration or stopping of the pulse.</p> | <p>Cervical subluxation, scalenus anticus syndrome, compression of the brachial plexus, clavicular subluxation.</p> | <p>Hyperabduction, shoulder depression, Allen's, Wright's.</p> |
| <p>ALLEN'S TEST</p>  <p>SEATED OR STANDING POSITION</p> | <p>The patient elevates the arm and clenches his fist to shunt blood from the palm, after which the doctor occludes the radial and ulnar arteries. Then, the doctor lowers the arm and instructs the patient to open his hand. The doctor then releases the pressure off the arteries. Normally, the skin of the palm should flush within three seconds. This test is positive if the skin does not flush entirely or partially within the given period of time.</p> | <p>Subluxation, vascular occlusion of the ulnar or radial arteries.</p> | <p>Wright's, shoulder depression, Adson's.</p> |
| <p>WRIGHT'S TEST</p>  <p>SEATED OR STANDING POSITION</p> | <p>The doctor palpates the radial pulse beginning from a downward position and moving the arm through the normal range of motion of the shoulder (180 degree arc). This test is positive if the pulse diminishes or disappears, if there is a marked accentuation of pain, or if paresthesia occurs anytime during the range of motion.</p> | <p>Hyperabduction syndrome, subluxation, neurovascular compression syndrome.</p> | <p>Allen's, shoulder depression, Adson's.</p> |

ORTHOPEDIC TESTS MALINGERING TESTS

| TEST | PROCEDURE |
|---|--|
| <p>LIBMAN'S TEST</p>  <p>SEATED POSITION</p> | <p>The examiner presses superior to the inferior tip of the mastoid. This determines the patient's pain threshold. If the patient is unable to tolerate this pressure (which should be gradually increased), the examiner is then able to determine the pain threshold of the patient.</p> |
| <p>HOOVER'S SIGN</p>  <p>SUPINE POSITION</p> | <p>Before performing the Hoover's Sign, ask the patient to lift the unaffected leg or hip while the examiner places his hand under the heel on the affected side. This will establish in the examiner's mind the amount of pressure the patient normally unconsciously exerts against the examining table. The patient is then asked to lift the affected leg or hip while the examiner places his hand under the heel on the unaffected side. In malingering, the pressure the heel exerts upon the examining table will be the same or less than that felt by the examiner on the unaffected side.</p> |
| <p>BURN'S TEST</p>  <p>SEATED POSITION</p> | <p>The patient is asked to sit on a low chair or a low stool and to bend forward and touch the floor with the palms of his hands. If the patient says he cannot do this because of low back pain, you may suspect malingering, as flexion in this particular case would not affect the low back specifically. The motion comes primarily from the acetabular cavities.</p> |
| <p>FLIP TEST</p>  <p>SEATED POSITION</p> | <p>Have the patient sit on the examination table with his back straight and his legs extended on the table. If the patient is suffering from a sciatic nerve involvement, he cannot do this. The patient will have to lift the leg and bend the back to take the pressure off the sciatic nerve. If the patient can perform this task but complains of sciatic pain, then suspect malingering.</p> |

TESTS

PROCEDURE

| | |
|--|---|
| <p>PLANTAR FLEXION TEST</p>  <p>SUPINE POSITION</p> | <p>The patient is asked to raise his legs one at a time to the point where pain is initiated. The doctor notes the degree where pain is supposedly incurred. The patient is then asked to lower the leg. The doctor places one hand under the patient's knee, one hand at the bottom of the patient's foot and raises the leg approximately one-half of the distance to where the original pain was felt. Then, the doctor dorsiflexes the foot. If the patient says it causes pain, suspect malingering.</p> |
| <p>SEATED FORWARD BEND TEST</p>  <p>SEATED POSITION</p> | <p>This test is primarily for patients who complain of a stiff lower back. The patient is asked to sit on the examination table with his legs spread apart, and his hands just above his knees. He is then asked to lower himself forward. If the patient says he cannot perform this test because of pain, suspect malingering.</p> |
| <p>FLEXED HIP TEST</p>  <p>SUPINE POSITION</p> | <p>The doctor places one hand under the patient's lumbar spine and raises the patient's knee toward the abdomen but not enough to cause lumbar movement. If the patient complains of pain before lumbar movement is felt by the examiner, suspect malingering.</p> |