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# Shoulder special test

Shoulder Examination follows the standard ‘look, feel, move’, in addition to special tests that must be performed during physical examination. Based on the initial shoulder examination and the patient’s history, the examiner will focus on the area of concern and utilize special tests to confirm or rule out a probable or differential diagnosis. For instance, if a patient reports shoulder pain localized to the acromioclavicular joint (AC), the first special test performed would be the Scarf test. The five most common pathologies found during a shoulder physical exam are instability, rotator cuff tear, arthritis, AC joint pathology, and impingement. Additionally, cervical spine problems should be ruled out as a potential source of pain. It’s important to include a thorough assessment of neurology in a complete upper limb examination. It is important to gather information on age, occupation, and dominant hand when assessing the musculoskeletal system. Age can provide valuable insights into the nature of the issue. For instance, individuals in their second and third decades of life may experience instability, while frozen shoulder is commonly observed in diabetics and those in their fourth decade. Inflammatory joint diseases tend to occur in individuals in their fifth decade, while degenerative joint diseases and rotator cuff tears are more commonly seen in those in their sixth and seventh decades. During the medical history, it is important to ask specific questions related to pain, weakness, stiffness, clicking, and instability. Additionally, the onset and duration of symptoms should be determined. To inspect the patient’s shoulder, follow a step-by-step approach: Ask the patient to stand and remove their clothes from the waist up. Women should wear a strapless garment or a drape to cover their breasts. Take note of any difficulty the patient experiences while undressing as this can be related to the severity of the symptoms. Look for scars, sinuses or redness around the shoulder area and document them. Start from the front and check for any joint subluxation, old fractures, or wasting. From the side, check for swelling that might indicate an infection or inflammation. From the back, check for any abnormalities in the scapula and whether it’s positioned correctly. From above, check for any swelling, deformities, or asymmetry of the supraclavicular fossae. Shoulder physical exam should always include palpation, it is important to do it systematically like inspecting. It is helpful to have the patient face a mirror and stand behind them to see their facial expressions while using only one hand to press on one point at a time. Begin by examining the sternoclavicular joint and moving along the clavicle from front to back, noting any point tenderness in the AC joint and long head of biceps. Diffuse tenderness may indicate infection or supraspinatus tendinitis. Palpate the coracoid and surrounding area, with tenderness to the side of the coracoid suggesting inflammatory arthropathy or frozen shoulder. Continue the palpation downwards, with tenderness at the intertubercular sulcus approximately 7 cm distal to the acromion indicating bicipital tendinitis. However, tenderness in a specific area is not specific to any diagnosis and must be considered along with other clinical findings and patient history. Begin by evaluating the patient’s active movement, then their passive movement. For greater efficiency, ask the patient to perform an active movement first and then assess if the range can be extended by passive movement. You can record both active and passive movements at once (such as ‘active abduction to 120° and further passive abduction to 170°’). Check for scapulohumeral rhythm, and if it’s restricted, repeat with the scapula fixed to assess the amount of glenohumeral movement passively. It’s also important to do a quick examination of the cervical spine to make sure that any symptoms in the shoulder area are not referred from the cervical spine. There are many special tests that can be done during shoulder examination depending on the patient symptoms and pain localization, these may include based on the case: See Also: Shoulder Special Tests Cross Body Adduction Test Popeye sign Speed’s test Yergason’s test Anterior Drawer Tests Sulcus Sign Apprehension Test Mercer’s Textbook of Orthopaedics and Trauma, Tenth edition. Varacallo M, El Bitar Y, Mair SD. Comprehensive Shoulder Evaluation Strategies. [Updated 2022 Sep 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: Gismervik SØ, Drogset JO, Granviken F, Rø M, Leivseth G. Physical examination tests of the shoulder: a systematic review and meta-analysis of diagnostic test performance. BMC Musculoskelet Disord. 2017 Jan 25;18(1):41. doi: 10.1186/s12891-017-1400-0. PMID: 28122541; PMCID: PMC5267375. Yang S, Kim TU, Kim DH, Chang MC. Understanding the physical examination of the shoulder: a narrative review. Ann Palliat Med. 2021 Feb;10(2):2293-2303. doi: 10.21037/apm-20-1808. Epub 2021 Feb 2. PMID: 33549026. In examining a patient with a painful shoulder we should start with a general inspection, looking for musculoskeletal abnormalities and any associated functional deficits.  Then, we can carry on some specialized tests that will help us uncover any lesions of the muscular or ligamentous structures of the joint. The physical exam of the shoulder starts by observing the patient removing his or her shirt. This is our first opportunity to notice any functional impairments of the shoulder joint. Once the patient has uncovered the upper trunk and extremities we can move to a general inspection of the front, the side and the back of each shoulder. Our goal is to identify any abnormalities in the muscle bulk or any asymmetrical bony defects. Before proceeding with the examination of the shoulder it is very important to complete a full examination of the cervical spine to make sure that no spinal pathologies are contributing to the presentation. We should at the very least check for cervical spinal tenderness, by palpating the cervical spinous processes, and the range of motion of the neck in flexion, extension and rotation. We should then test the range of motion (ROM) of the shoulder in different directions. If movement in a specific direction is painful or limited, this may signify that pathology is present in a specific structure of the shoulder. For all these maneuvers, have the patient standing in front of you. Forward Flexion Starting with the patient having the forearm fully extended at the elbow with the arm attached to the side of the trunk, ask the patient to flex the arm at the shoulder by moving the upper extremity anteriorly and then superiorly, until it is above the head. Abduction Ask the patient to abduct both arms by elevating them laterally until they are above the head, at 180°. Cross-body Adduction Have the patient flexing the upper extremity forward to 90°. From this position, ask the patient to maximally adduct the shoulder by moving the arm horizontally all the way to the other side. Make sure to test one side at a time. External Rotation Ask the patient to flex the elbow at 90° with the arm attached to the trunk and the palms supinated. Then have the patient externally rotate the shoulder by bringing the forearms laterally. Extension Starting with the patient having the forearm fully extended at the elbow and the palms supinated, ask the patient to extend both arms at the shoulder by moving the upper extremities posteriorly. Internal Rotation First ask the patient to flex the elbows at approximately 45° with the fists clenched and the thumbs up, then ask to position both hands behind the back until the thumb touches the apex of the homolateral shoulder. This maneuver tests for the functional integrity of the internal rotation of the shoulder. Before completing the inspection of the shoulder it is good practice to repeat all the maneuvers that test for range of motion while observing the movement of the scapulae. Any asymmetries in the rhytm of scapular movement would indicate pathology in the anterior aspect of the shoulder. The exam of the shoulder has to be completed by some specialized tests and provocative maneuvers that are specific for different shoulder lesions and pathologies. These tests will help us confirm or exclude the presence of a specific shoulder condition, that we may only suspect after the inspection and the assessment of the full range of motion. Rotator cuff injuries are among the most common causes of shoulder pain. These can manifest as bursitis, tendonitis or tendon tears. The patients usually complain of pain and reduced function of the affected shoulder. In young patients a rotator cuff tear is usually traumatic in etiology and the symptoms show an acute onset. In older patients, instead, a tendon tear is usually caused by a chronic degenerative process related to aging, and the pain is more gradual in onset. When rotator cuff pathology is suspected, we can use some maneuvers to test the integrity of the four tendons that make up the cuff: - Infraspinatus - Supraspinatus - Subscapularis - Teres minor The supraspinatus tendon is the most frequently injured tendon of the rotator cuff. To test for integrity of the supraspinatus we can ask the patient to abduct both arms to 90° and then to bring them anteriorly with a 30° forward flexion. From this position, we will ask the patient to push both arms upwards against our resistance. Any pain or reduced strength, especially if unilateral, will be indicative of a supraspinatus tendon injury. Also, starting from this position we can ask the patient to bring both thumbs down, performing the so called empty can test. Again, we will be pushing downwards against the patient’s resistance, to check for pain and weakness. To check for the integrity of both infraspinatus and teres minor tendons we need to apply resistance to the external rotation of the shoulder. To do this, we will ask the patient to flex the forearms at 90° with the palms supinated. From this position we will have the patient to externally rotate the shoulders by moving the forearms laterally, against our resistance. Any pain and/or weakness will indicate an injury in one of these tendons. To test for the presence of a subscapularis tendon tear, first have the patient to bring the hand on the back at the level of the lumbar region. Then, passively separate the hand from the back until full internal rotation of the shoulder is achieved. At this point ask the patient to actively keep the hand away from the back. If the patient is unable to do so, this is evidence of a subscapularis tendon tear and it is called positive internal rotation lag sign. Gerber’s Lift Off Test Ask the patient to internally rotate the shoulder by bringing the hand behind the back at the lumbar region with the dorsum of the hand facing the lumbar spine. Then, ask the patient to move the hand away from the back against your resistance. If pain or weakness is elicited, the test is considered positive for a subscapularis tendon tear. Even though it is not considered part of the rotator cuff, we can test the strength of this muscle after the exam of the rotator cuff, given its role in stabilizing the scapula and hence the shoulder joint. To assess for a functional deficit of the serratus anterior we can ask the patient to do a standing push-up against the wall. If we observe a winging of a scapula this indicates weakness of this muscle on that side. In the shoulder impingement syndrome, the tendon of the supraspinatus is inflamed as a consequence of repetitive trauma to its subacromial portion. Any processes that reduce the subacromial space together with repetitive overhead motion of the shoulder may contribute to the development of this condition. It usually manifests as shoulder pain, particularly at night, and weakness in the overhead extension of the arms. We can use three tests to check for the presence of shoulder impingement: - Neer’s Test - Empty Can Test - Hawkins-Kennedy Test In Neer’s test, first we ask the patient to fully pronate the forearm, then we passively flex the arm until it is over the patient’s head. This maneuver reduces the subacromial space and reproduces pain if shoulder impingement is present. This is the same test that is used to check for the supraspinatus tendon integrity. It reduces the subacromial space thus eliciting pain if impingement is present. To perform this test both the elbow and the shoulder should be flexed at 90°. The examiner must support the arm of the patient at the level of the elbow so that the upper extremity can be as much relaxed as possible. Then the examiner has to internally rotate the shoulder while at the same time perform a cross-body adduction of the arm. The test is positive if pain is elicited. Associated Findings Patients with shoulder impingement may also have tenderness upon palpation of the anterior joint line. To expose the subacromial and subdeltoid spaces ask the patient to internally rotate the shoulder by placing the hand against the back. Also, scapular movement asymmetries are frequently associated with shoulder impingement. Biceps tendinopathy refers to inflammation or degeneration of the long head of the biceps tendon. It is an important cause of anterior shoulder pain and it is usually seen in association with other shoulder pathologies, such as rotator cuff tears and shoulder impingement. There are two specialized tests to confirm the presence of biceps tendinopathy: - Speed’s test - Yergason’s test In this test the patient is asked to first extend the elbow and fully supinate the forearm. Then the patient is asked to flex the shoulder forward against the resistance of the examiner. At the same time, the examiner should palpate the anterior joint line for any tenderness. Any pain elicited by the maneuver would be indicative of biceps tendinopathy. The patient is asked to first flex the elbow at 90° and to partially pronate the forearm. Then the patient is asked to supinate the forearm against the resistance of the examiner that can be applied by holding the patient’s hand. At the same time the examiner should palpate the origin of the biceps tendon for any tenderness or popping sensation. The test is positive if pain is elicited. In adhesive capsulitis the capsule of the shoulder joint becomes inflamed and stiff making every movement very painful and difficult to execute. The initial stage of the disease is carachterized by pain with movement of the shoulder in any directions. In the later stages the pain tends to subside but the ranges of motion are still severely reduced. It is important to remember that both the passive and the active ranges of movement are affected. The first range of motion to be affected is the external rotation. Also, there is usually an associated asymmetry in scapular movement. Lastly, these patients may show tenderness and spasms of the trapezius muscle. It is thus helpful to palpate the upper portion of the trapezious to elicit pain and evauate the muscle tone. With this term are indicated all the pathologies that may affect the acromioclavicular joint such as, degenerative processes or traumatic injuries. Regardless of the cause, the complaints are almost always the same. The patients will report pain localized over the acromionclavicular joint and pain at night triggered by sleeping on the affected side. When AC joint pathology is suspected we should palpate above the joint to feel for any crepitus or step-off sensation, that may indicate AC separation. Also, tenderness of the joint is usually present in every AC joint disorder. In the scarf test the examiner places the hand of the affected side on the contralateral shoulder. Then it forces the cross body adduction of the arm by pushing at the elbow. At the same time the examiner must palpate the AC joint. Any pain or crepitus are indicative of an AC joint injury.  The patient is instructed to abduct the interested shoulder to 180°. If the patient complains of pain when the arm is between 180° and 150°, the test is considered positive for AC joint injury. Patients with shoulder instability complain of shoulder pain associated with a sensation of the shoulder “giving way,” actually representing the head of the humerus partially or completely leaving the glenoid fossa. This condition can be related to a congenital hyperlaxity of the capsula and ligaments of the joint, or it may be acquired after a traumatic injury to these structures. In this test the examiner applies a downward pressure on the humerus by pulling at the level of the wrist, and at the same time observes the lateral aspect of the deltoid region. If a sulcus appears in this region, the test is considered to be positive for shoulder instability. For this test it's preferable that the patient lies supine on the examination table. Then the examiner flexes the elbow at 90° and abducts the shoulder to 90° as well. At this point the examiner applies a downward pressure with one hand at the level of the wrist, while the other fist is placed behind the shoulder. This maneuver creates a dislocation of the humerus that should cause pain or discomfort if instability is present. Then, we must apply a downward pressure on the anterior aspect of the shoulder that makes both the pain and the apprehension disappear if instability is present. The glenoid labrum is a ring of cartilage that surrounds the margins of the glenoid fossa. It stabilizes the shoulder joint by giving attachment to the ligaments. It is most commonly damaged in its superior portion, that also includes part of the biceps tendon (SLAP lesions). This lesion is usually seen in athletes that do repetitive overhead activities, such as baseball players, or in accidents where the arm is in the overhead position, as a consequence of humeral head dislocation. There are three tests that are used to check for the presence of a labral tear: - O’Brian’s Test - Crank’s Test - Speed’s Test: the same used for biceps tendinopahty, due to the insertion of the biceps tendon on the superior aspect of the glenoid labrum. In the O’Brian’s test the patient is instructed to first flex the shoulder at 90° and then to adduct it of 10°. From this position, we ask the patient to bring the arms upwards against our resistance. The presence of pain suggests a lesion of the labrum. The examiner passively flexes the elbow at 90° and abducts the shoulder at approximately 90°. Then, with one hand on the shoulder and the other on the elbow, the examiner alternates passive internal and external rotation of the patient’s shoulder by acting on the elbow. The test is considered positive if it elicits any pain or metallic sounds in the shoulder. Dr. Mark Genovese is a Professor of Medicine and certified in rheumatology. He is actively involved in house staff training at Stanford University. He is involved in research including clinical trials and interventions in rheumatic diseases such as rheumatoid arthritis, psoriatic arthritis, & osteoarthritis. Clinical Pearl If a careful exam does not elicit significant pain or laxity, imaging studies are extremely unlikely to provide further useful information.