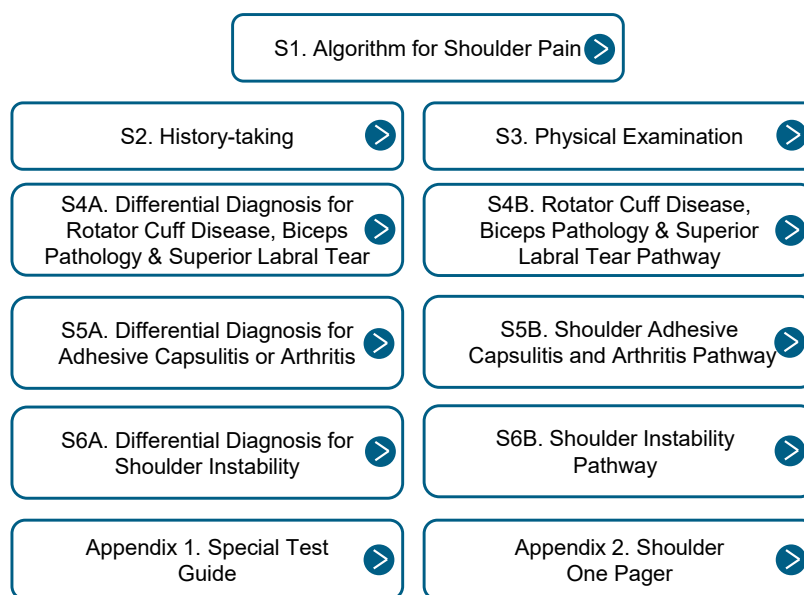


Shoulder Assessment Clinical Pathways

Release Date: May 2022

Version 4 – Revised July 2023

Quick
links:



These pathways will help guide clinicians with appropriate procedures for patient management, investigations, and referrals.

The purpose of these pathways is to:

- initiate early, non-operative management for suitable patients;
- reduce unnecessary diagnostic imaging;
- increase the appropriateness of surgical referrals; and,
- reduce waiting lists for surgical consult.

SECTION 1. CLINICAL PATHWAY ALGORITHM FOR SHOULDER PAIN

STEP 1: Primary Care Assessment

Perform HISTORY-TAKING

See Section 2: [History-taking](#)

Perform PHYSICAL EXAMINATION

See Section 3: [Physical examination](#)

STEP 2: Triage

Q 1. Were **RED FLAGS** identified in **STEP 1**?

NO

Proceed to **STEP 3**.

YES

REFER FOR URGENT CARE

See Section 2: **RED FLAGS**

STEP 3: Confirm Shoulder Problem

Q 2. Were pain and neurological symptoms reproduced with neck movement?
(See Section 3: [Physical examination](#))

NO

This is likely a shoulder problem. Proceed to **STEP 4**.

YES

This is likely not a shoulder problem.

- If a **neck** problem is suspected, **ALTERNATIVE PATHWAY IS REQUIRED**.

STEP 4: Generate a Differential Diagnosis

Do you feel confident diagnosing shoulder conditions?

NO

Refer to [Provincial Orthopaedic Referral Pathway](#) for **FAST** referral info and required investigations

YES

Q 3. Is the chief complaint pain, stiffness, or instability?

- Rotator Cuff Disease/Biceps Pathology/ Labral Pathology Pathway ([See Section 4A/B](#))
- Adhesive Capsulitis/ Shoulder Arthritis Pathway ([See Section 5A/B](#))
- Shoulder Instability Pathway ([See Section 6A/B](#))

These pathways will help guide appropriate procedures for patient management, investigations, and referrals. The purpose of this guideline is to initiate early, non-operative management for suitable patients, reduce unnecessary diagnostic imaging, increase appropriateness of surgical referrals, and reduce waiting lists for surgical consult.



SECTION 2. HISTORY-TAKING

PATIENT PROFILE			
Age:	Sex:	Occupation:	Dominant Hand:

Q 1. When did you first notice you had a problem with your shoulder?

Q 2. Is your shoulder problem the result of a specific injury?

If **YES**, describe how you injured your shoulder in as much detail as possible.

If **NO**, describe the activity that provokes pain.

Q 3. Do you have pain in your shoulder?

If **YES**, proceed to **Question 4.**

If **NO**, proceed to **Question 5.**

Q 4. Can you characterize your pain?

- Where in your shoulder do you feel the most pain?
- How long have you been symptomatic (i.e. date)?
- What is your pain severity?
- Is there pain during specific activity?
- Is there presence of night pain?
- Is there pain at rest?
- Does anything aggravate the pain? If yes, specify.
- Does anything help to relieve the pain? If yes, specify.

Q 5. Does your shoulder feel stiff?

Q 6. Does your shoulder feel unstable?

Q 7. Does your shoulder dislocate or come out of place?

Q 8. Has your shoulder dislocated in the past?

Q 9. Do you hear or feel unusual sensations such as catching, locking, or grinding in your shoulder?

Q 10. Do you have painful clicking, grinding, or clunking in your shoulder?

Q 11. Does your shoulder feel weak?

Q 12. Do you have numbness, tingling, or burning in your shoulder or down your arm?

Q 13. Have you had any treatment(s) for your shoulder problem? If so, please describe.

RED FLAGS
Red flags identified during primary care assessment require urgent secondary care referral.

INDICATION	REFERRAL
Unreduced dislocation	Obvious deformity; constant or progressive pain Same day emergency referral to ED via phone call
Fracture	Obvious deformity; constant or progressive pain Same day emergency referral to ED via phone call
Infection or septic arthritis	Systemically unwell; fever; unexplained swelling; pain unrelated to activity; pain not relieved with rest Same day emergency referral to ED via phone call
Tumour	History of cancer; night sweats; unremitting night pain; unexplained, unintentional, sudden weight loss; unexplained deformity or mass; acute onset with no identifiable cause; pain unrelated to activity; pain not relieved with rest Urgent referral to orthopaedic oncology surgeon within 1 week via phone call
Large /massive acute, traumatic rotator cuff tear	Unable to lift arm (forward flexion) to 90 degrees Urgent referral to orthopaedic surgeon within 1 week via phone call

*ED: emergency department

ADDITIONAL CONSIDERATIONS
If any of the following are identified during the primary care assessment, the patient may benefit from referral to alternative pathway measures.

INDICATION	REFERRAL
Receiving active treatment for a neurological or neuromuscular condition (e.g. stroke, multiple sclerosis)	MSK Specialist (Physiatrist or Neurologist)
Unexplained neurological disturbance or deficit (e.g. altered power or sensation, numbness, tingling, burning)	MSK Specialist (Physiatrist or Neurologist)
Shoulder injury is a part of an active medicolegal or third-party claim	Psychosocial support and/or Social Worker
Inflammatory arthropathy (e.g. rheumatoid arthritis, gout, psoriatic arthropathy)	Rheumatologist

SECTION 3. PHYSICAL EXAMINATION

STEP 1. Inspect for atrophy, abnormalities, defects, posture, and scapular positioning.

STEP 2. Rule out cervical spine pathology.

To rule out cervical neck pathology resulting in shoulder pain, perform dermatomes, myotomes, reflexes, AND active range-of-motion (ROM) of the cervical neck.

Flexion	Extension	Left Side-Flexion	Right Side-Flexion	Left Rotation	Right Rotation
Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited

If pain is **NOT** reproduced during neck movement, proceed with **STEP 3**.

If pain is reproduced during neck movement, **ALTERNATIVE PATHWAY IS REQUIRED.**

STEP 3. Perform active ROM and strength testing of the shoulder bilaterally.

		Forward Flexion	Scaption ¹	Abduction	External Rotation (Neutral)	Internal Rotation (Neutral)	Internal Rotation at spinal level ²
ROM	LEFT	Full OR Limited		Full OR Limited	Full OR Limited		Full OR Limited
	RIGHT	Full OR Limited		Full OR Limited	Full OR Limited		Full OR Limited
STRENGTH	LEFT	Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited	
	RIGHT	Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited	Full OR Limited	

¹ forward flexion in the scapular plane (halfway in between the frontal and sagittal planes)

² highest vertebral level reached with thumb extended

STEP 4. Perform passive ROM if active ROM was limited.

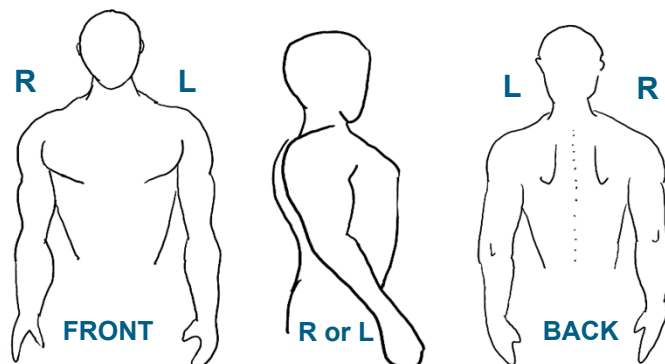
STEP 5. Assess isolated glenohumeral joint ROM if both active and passive ROM are limited.

STEP 6. Assess abduction and forward flexion for painful arc. (From anterior viewpoint).

STEP 7. Assess scapulohumeral rhythm for scapular dyskinesis (STEP 6 but from posterior viewpoint).

STEP 8. Perform special tests according to SECTION 4A, 5A, & 6A: Differential Diagnosis.

STEP 9. Perform palpation. Indicate on diagram point(s) of maximum tenderness with "X".



SECTION 4A. DIFFERENTIAL DIAGNOSIS FOR ROTATOR CUFF DISEASE, BICEPS PATHOLOGY & SUPERIOR LABRAL TEAR

If you suspect rotator cuff disease, proximal biceps pathology, or labral tear, follow [PATHWAY 4B](#).

DIAGNOSIS	HISTORY	PHYSICAL EXAMINATION
ROTATOR CUFF DISEASE		
Rotator cuff tear (partial, full), bursitis, impingement	<ul style="list-style-type: none"> • Age > 40 • Traumatic onset or insidious • Possible catching sensation with overhead activity • Pain with overhead activity • Pain at night, often when lying on the affected side; difficulty finding a comfortable position 	<ul style="list-style-type: none"> • Possible atrophy in supraspinatus and infraspinatus fossae • Possible presence of scapular dyskinesia • Active ROM limited - unable to lift arm overhead or off the torso • Positive painful arc sign • Full passive ROM • Weakness related to pain <p><u>SPECIAL TESTS FOR THE ROTATOR CUFF</u></p> <ul style="list-style-type: none"> • Supraspinatus: positive Empty Can test • Infraspinatus: weakness with infraspinatus manual muscle test OR presence of a positive External Rotation Lag Sign • Subscapularis: positive Lift-off test • Subscapularis: positive Belly Press test <p><u>SPECIAL TESTS FOR BURSITIS/IMPINGEMENT</u></p> <ul style="list-style-type: none"> • Positive Neer's impingement sign • Positive Hawkin's-Kennedy test
BICEPS PATHOLOGY		
Biceps tendinopathy	<ul style="list-style-type: none"> • Deep anterior shoulder pain with potential to refer into biceps muscle belly • History of overuse or repetitive overhead activity • Pain increases with activity • Pain with overhead activities, pulling, or lifting • Pain is at night, especially if lying on affected shoulder • Audible or palpable click at the site of pain 	<ul style="list-style-type: none"> • Pain with internal and external rotation • Potential clicking felt at the site of pain, especially during throwing movements • Point tenderness with palpation of the tendon at the bicipital groove <p><u>SPECIAL TESTS</u></p> <ul style="list-style-type: none"> • Positive Speed's test
Proximal biceps rupture	<ul style="list-style-type: none"> • Often traumatic onset • Potential audible pop or snap • Anterior shoulder and biceps pain followed by relief 	<ul style="list-style-type: none"> • Subsequent discolouration and swelling with acute ruptures • Change in muscle contour <p><u>SPECIAL TEST</u></p> <ul style="list-style-type: none"> • Positive Popeye's sign
LABRAL PATHOLOGY		
Superior labral tear from anterior to posterior (SLAP)	<ul style="list-style-type: none"> • Common in young to middle-aged overhead athletes or labourers • Traumatic onset or insidious • Poorly localized pain that is constant, dull, achy, and perhaps intermittent • Pain with activity, especially overhead • Popping, catching, snapping may be present 	<ul style="list-style-type: none"> • Active ROM limited (Loss of internal rotation and overhead activity) • Associated instability during testing <p><u>SPECIAL TESTS</u></p> <ul style="list-style-type: none"> • Positive O'Brien's test • Positive Speed's test
Degenerative tear	<ul style="list-style-type: none"> • Similar to rotator cuff disease 	

*Special Test instructions can be found in [APPENDIX 1](#)

SECTION 4B: ROTATOR CUFF DISEASE, BICEPS PATHOLOGY & SUPERIOR LABRAL TEAR PATHWAY (Bursitis, impingement, rotator cuff tears (partial, full, massive), proximal biceps pathology, superior labral tear from anterior to posterior (SLAP))

Obtain XRAY (standard shoulder series)

XRAY is **NEGATIVE** for fracture

Acute, traumatic mechanism of injury

YES

NO

Is the patient able to lift arm (forward flexion) to 90 degrees?

NO

YES

Suspect an acute massive/large rotator cuff tear

URGENT REFERRAL for orthopaedic surgical consult via phone call
(Ideal timeline: 2 weeks)

XRAY is **POSITIVE** for fracture

Refer humeral, scapular, and clavicular fractures immediately to orthopaedic surgeon via phone call
(Ideal timeline: 1 week)

Is pain interfering with initiation of physical activity?

YES

NO

Perform, or refer for image-guided, steroid injection

Has **APPROPRIATE** non-operative management been attempted **AND** for at least 12 weeks?

YES

NO

Prescribe Conservative Treatment

- At least 12 weeks of **APPROPRIATE** physical therapy (home or supervised – active, strength-based)
- If patient is unable to achieve pain-free status with improved range-of-motion after 6 weeks, provide additional means of pain control (i.e. oral NSAID medication and/or injectable corticosteroids) and continue with physical therapy for another 6 weeks

GOOD Functional Outcome
Follow-up with patient as needed

POOR Functional Outcome

Refer to [Provincial Orthopaedic Referral Pathway](#) for **FAST** referral info and required investigations
(Ideal timeline to assessment: 6 weeks)

Refer to **SURGEON** if required
(Ideal timeline to surgical consult: 6 weeks)

Obtain appropriate imaging if required

Prescribe **POST-OPERATIVE** rehabilitation program

SURGERY

If deemed necessary by surgeon
(Ideal timeline to surgery: 12 weeks)

NO SURGERY

Surgeon and patient will develop appropriate plan

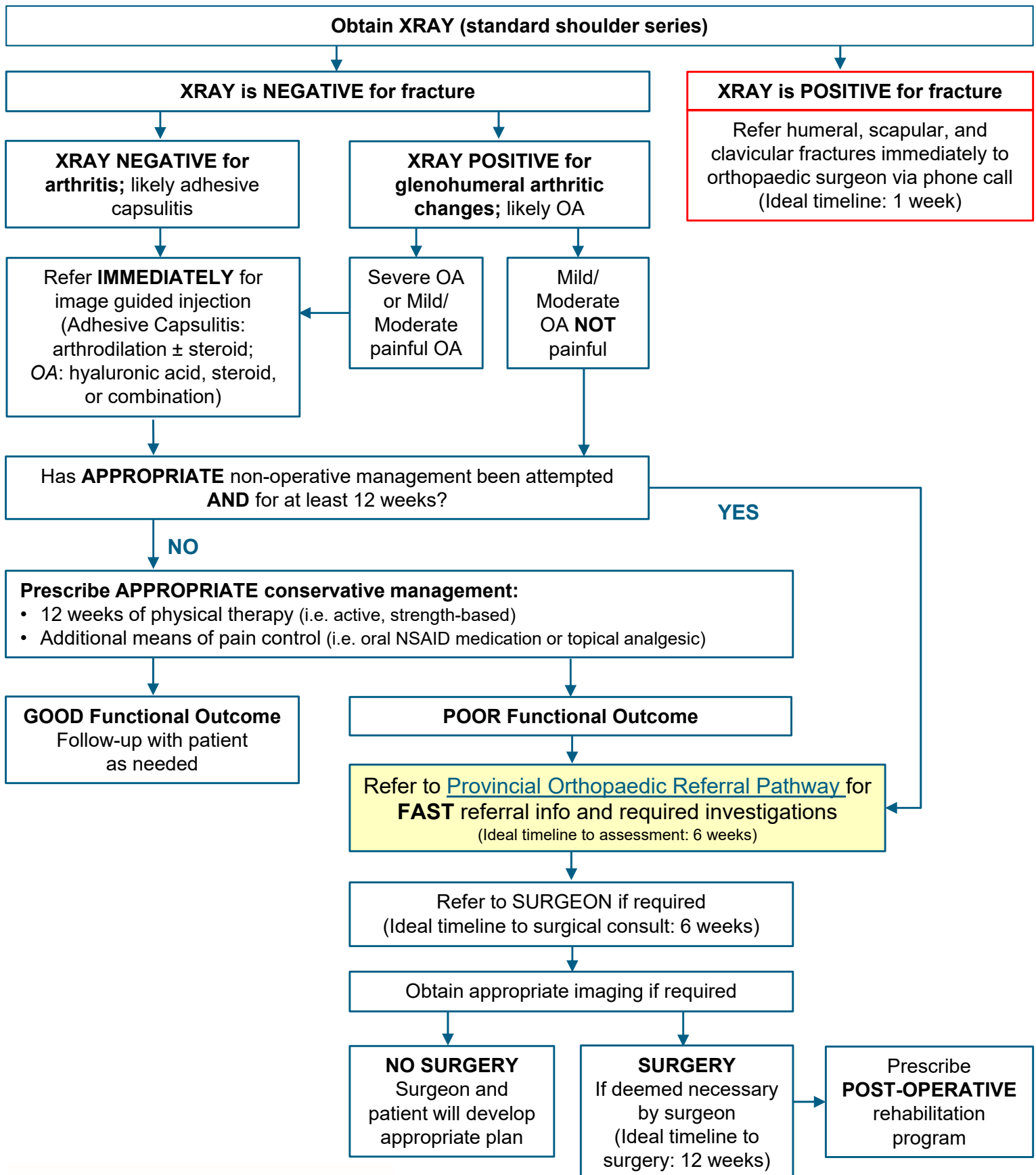
SECTION 5A. DIFFERENTIAL DIAGNOSIS FOR ADHESIVE CAPSULITIS OR ARTHRITIS

If you suspect adhesive capsulitis or arthritis, follow [PATHWAY 5B](#).

DIAGNOSIS	HISTORY	PHYSICAL EXAMINATION
ADHESIVE CAPSULITIS (FROZEN SHOULDER)		
Primary (Idiopathic)	<ul style="list-style-type: none">• Spontaneous onset• Common in middle-aged females• Stage 1: pain and reluctance to move; night pain, especially if lying on affected side (usually 3 months)• Stage 2: similar to Stage 1 with persistent severe pain, but with progressive capsular contracture leading to loss of motion• Stage 3: characterized by stiffness with resolution of long-standing pain	<ul style="list-style-type: none">• Gradual loss of both active and passive ROM• Limited active ROM during forward flexion at the glenohumeral joint• Limited active ROM during external rotation at 90 degrees abduction at the glenohumeral joint• Loss of active ROM with external rotation at neutral• Capsular pattern of limited ROM (e.g. where external rotation is more limited than abduction which is more limited than internal rotation)
Secondary	<ul style="list-style-type: none">• Commonly associated with Rotator Cuff Disease• May occur following trauma• Stages similar to Primary (Idiopathic)	
Diabetic	<ul style="list-style-type: none">• Associated with diabetic patients• Stages similar to Primary (Idiopathic)	
ARTHRITIS		
Glenohumeral joint osteoarthritis (GHJ OA)	<ul style="list-style-type: none">• Deep joint pain• Pain diffuse around upper arm and axilla• Pain with increasing activity• Pain at night, but relieved with change in position• Stiffness, crepitus• Progressive loss of function• Painful locking, with subsequent “giving way”	<ul style="list-style-type: none">• Decreased active and passive ROM with later stages of OA depending on site of degeneration, fragment, or loose body
Acromioclavicular joint osteoarthritis (ACJ OA)	<ul style="list-style-type: none">• Pain at the top of the shoulder• Pain can present as dull ache over deltoid, exacerbated with movement• Pain with increasing activity• Pain at night with sleeping on affected side• Stiffness, crepitus	<ul style="list-style-type: none">• Glenohumeral active ROM preserved with the exception of cross-body adduction, which is limited by pain• Full, but painful passive ROM

SECTION 5B: SHOULDER ADHESIVE CAPSULITIS & ARTHRITIS PATHWAY

(Adhesive capsulitis, glenohumeral joint osteoarthritis (GH OA), acromioclavicular joint osteoarthritis (AC OA))



SECTION 6A. DIFFERENTIAL DIAGNOSIS FOR SHOULDER INSTABILITY

If you suspect shoulder instability, follow [PATHWAY 6B](#).

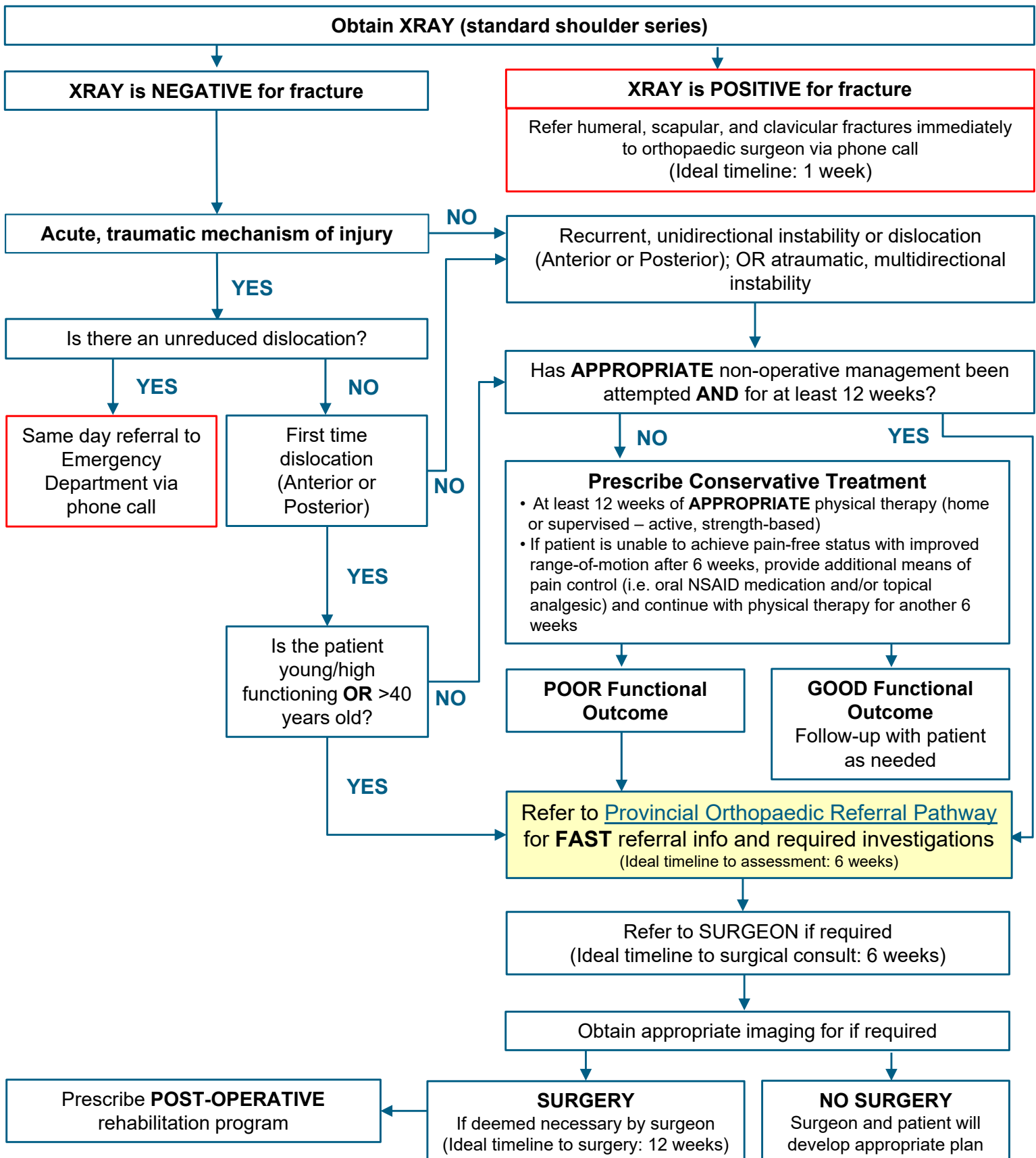
DIAGNOSIS	HISTORY	PHYSICAL EXAMINATION
INSTABILITY		
Glenohumeral joint instability	<ul style="list-style-type: none"> •Traumatic instability common in young males •Multidirectional, atraumatic instability common in young, flexible females •Pain or feeling of insecurity with activity •Audible or palpable click 	<ul style="list-style-type: none"> •Full active and passive ROM, although pain and apprehension may occur in overhead positions •Possible pain at extreme passive ROM •Normal strength, except in provocative position •Laxity <p><u>SPECIAL TESTS</u></p> <ul style="list-style-type: none"> •Positive Anterior Shift test for anterior instability •Positive Anterior Apprehension and Relocation test •Positive Jerk test for posterior instability •Positive Sulcus sign for inferior instability
Acromioclavicular joint separation	<ul style="list-style-type: none"> •Traumatic event such as landing on top of shoulder •Pain at the top of the shoulder •Pain with sleeping on affected side •Presence of a step deformity •Tenderness to palpate relative to unaffected side 	<ul style="list-style-type: none"> •Glenohumeral active ROM preserved with the exception of cross-body adduction, which is limited by pain •Full, but painful passive ROM at end range of cross-body adduction <p><u>SPECIAL TESTS</u></p> <ul style="list-style-type: none"> •Positive Cross Body Adduction test

*Special Test instructions can be found in [APPENDIX 1](#)



SECTION 6B: SHOULDER INSTABILITY PATHWAY

[Anterior (traumatic/atraumatic), Posterior (traumatic/atraumatic), Multidirectional, Atraumatic]



APPENDIX 1: SPECIAL TEST GUIDE

SPECIAL TESTS FOR THE [ROTATOR CUFF \(p.5\)](#)

EMPTY CAN TEST

Technique: perform manual muscle test in the scapular plane (i.e. thumb down) and by having the patient resist against a downward pressure placed on the forearms.

Positive Sign: weakness



INFRASPINATUS MANUAL MUSCLE TEST

Technique: perform manual muscle test by having the patient externally rotate from 45° of internal rotation against resistance.

Positive Sign: weakness



EXTERNAL ROTATION LAG SIGN

Technique: patient seated with back towards examiner. Position the shoulder in 20° abduction, with elbow in 90° flexion and maximal external rotation (minus 5°). Patient must maintain position.

Positive Sign: unable to maintain position



LIFT OFF TEST

Technique: patient attempts to move hand away from lower back.

Positive Sign: weakness in moving hand or unable to do so



APPENDIX 1: SPECIAL TEST GUIDE

SPECIAL TESTS FOR BURSITIS/IMPINGEMENT (p.5)

BELLY PRESS

Technique: patient's hand is flat on belly. Examiner places hand between patient's hand and the abdomen. Instruct patient to press down on abdomen.

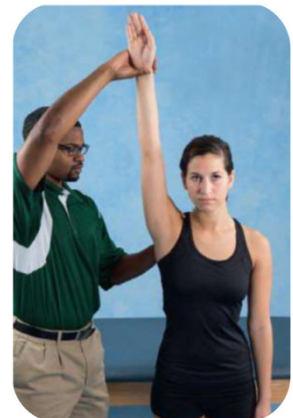
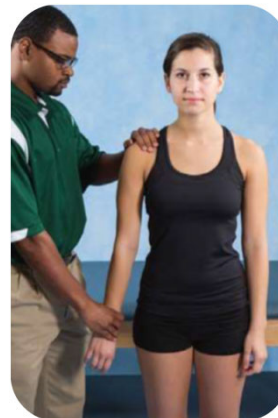
Positive Sign: inability to compress the abdomen without flexing at wrist



NEER'S IMPINGEMENT SIGN

Technique: stabilize the patient's shoulder with one hand and passively flex the patient's arm.

Positive Sign: pain



HAWKINS KENNEDY TEST

Technique: place patient's arm in 90° of shoulder flexion with elbow in 90° of flexion. Examiner internally rotates arm, while supporting under elbow.

Positive Sign: pain



APPENDIX 1: SPECIAL TEST GUIDE

SPECIAL TESTS [FOR BICEPS/LABRAL PATHOLOGY \(p.5\)](#)

SPEED'S TEST

Technique: extend patient's elbow and supinate arm. As the examiner stabilizes the shoulder, patient flexes the elbow while the therapist holds patient's forearm and applies resistance.

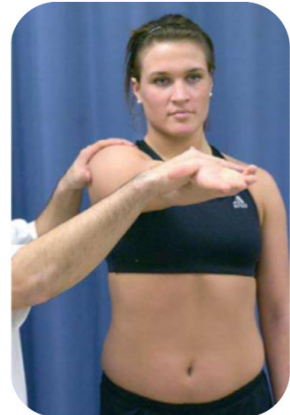
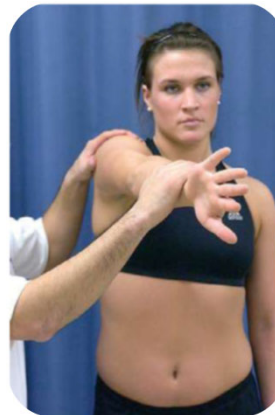
Positive Sign: bicipital pain during resistance



O'BRIEN'S TEST

Technique: patient's arm is placed in 90° shoulder flexion and 10-15° horizontal adduction. Patient internally rotates and pronates the elbow fully. As the examiner stabilizes the shoulder, patient lifts arm upwards while the therapist holds patient's forearm and applies resistance. Repeat in neutral shoulder and forearm position.

Positive Sign: pain or clicking in internal rotation/pronation but not in neutral position



POPEYE SIGN

Technique: patient flexes biceps.

Positive Sign: obvious deformity



APPENDIX 1: SPECIAL TEST GUIDE

SPECIAL TESTS FOR [GLENOHUMERAL INSTABILITY \(p.9\)](#)

ANTERIOR SHIFT TEST

Technique: with the patient's arm resting on the thigh, place one hand on the shoulder and one hand to stabilize the scapula. Position your thumb over the posterior humeral head and fingers over the anterior humeral head. Push the humeral head into a neutral position (load inwards) and shift the humeral head anteriorly.

Positive Sign: excessive anterior movement compared to other side; pain



ANTERIOR APPREHENSION TEST

Technique: flex the patient's elbow to 90° in a neutral position. Slowly apply an external rotation force to the arm while carefully monitoring the patient's reaction.

Positive Sign: patient apprehension (feels like their shoulder will dislocate)



ANTERIOR RELOCATION TEST

Technique: repeat anterior apprehension test but this time apply a downward pressure to the glenohumeral joint.

Positive Sign: patient apprehension is decreased or eliminated; examiner is able to move patient further into external rotation



APPENDIX 1: SPECIAL TEST GUIDE

SPECIAL TESTS FOR GLENOHUMERAL INSTABILITY (p.9)

SULCUS SIGN

Technique: one hand stabilizes the shoulder, while the other applies a downward force applied at the elbow or wrist.

Positive Sign: appearance of sulcus or depression greater than fingerbreadth between the lateral acromion and humeral head



JERK TEST

Technique: holding the elbow at 90° in a neutral position, apply axial compression load to the shoulder at the elbow maintaining abducted position. Maintain this force and move the arm into horizontal adduction.

Positive Sign: sharp pain or clunking sound

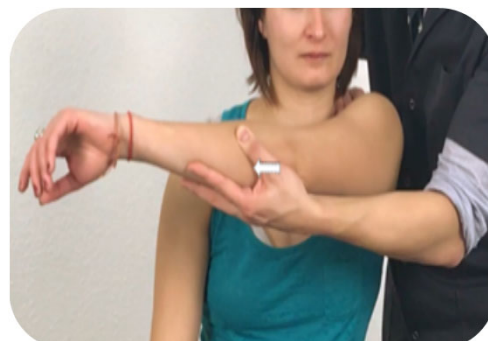


SPECIAL TEST FOR ACROMIOCLAVICULAR INSTABILITY (p.9)

CROSS-BODY ADDUCTION TEST

Technique: passively adduct the patient's shoulder

Positive Sign: pain



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