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Edward-Elmhurst
MEDICAL GROUPS

Orthopedics

ADHESIVE CAPSULITIS GUIDELINES

The following adhesive capsulitis guidelines were developed by Hospital for Special Surgery Rehabilitation in order to assist with clinical decision-making to optimize patient outcomes and facilitate return to prior functional level. These guidelines apply specifically to individuals with primary idiopathic adhesive capsulitis and are categorized into 4 stages. The stages are a continuum of disease with stages 1 and 2 characterized by pain due to synovitis and stages 3 and 4 characterized by capsular contracture.

- Stage 1: Pre-adhesive- high irritability due to synovitis, painful shoulder active/passive range of motion (A/PROM) with empty feel
- Stage 2: Freezing- high to moderate irritability due to synovitis, painful and limited shoulder A/PROM
- Stage 3: Frozen- moderate to minimal irritability due to capsular contracture, stiff shoulder with pain at end ranges of A/PROM
- Stage 4: Thawing- low irritability, improving shoulder A/PROM with minimal pain at end ranges

The clinician should consistently monitor stage, level of irritability, shoulder range of motion and compensatory patterns to perform appropriate interventions. Although in many cases the condition will progress through all 4 stages, early recognition and treatment including physician consult for an ultrasound-guided intraarticular glenohumeral (GH) corticosteroid injection can significantly alter the duration of symptoms. Steroid injection during the first 3 months of symptoms may result in rapid resolution of symptoms as the stage is characterized by synovial inflammation and pain without capsular contracture. Injection in stage 2 will significantly improve the pain related to synovitis and will prevent the advancement of the existing capsular contracture but not reverse it. There is no indication for steroid injection in stages 3 and 4 when the synovitis will have already resolved.

It is common for patients to present to physical therapy at stage 2 of the continuum. In early stage 2 the individual will likely present with an extremely painful shoulder with high irritability and progressive loss of pure GH internal and external rotation, whereas in late stage 2 the shoulder is less painful but stiffer as it transitions to stage 3. Adjust frequency of treatment as appropriate considering the typically long course of this condition. For example, stage 2 alone may last for 6 months (i.e. from months 3 to 9), and the condition in its entirety for 15 months or more, with some evidence suggesting persistent limitations for as long as 3 years. Given the typical longevity and nature of the condition, ongoing communication with a physician is warranted.

Adhesive capsulitis occurs in 2-5% of the general population with associated factors including: female sex, age over 40 years, history of adhesive capsulitis in the contralateral shoulder, as well as diagnosis of diabetes mellitus, cardiac disease, pulmonary disease, Parkinson's Disease, stroke, thyroid deficits, scleroderma, and Dupuytren's disease. Adhesive capsulitis can also follow breast cancer treatment with chemotherapy or radiation therapy. Note that in approximately one third of cases, adhesive capsulitis will subsequently occur in the contralateral shoulder.

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Stage 1: High Irritability/Pre-Adhesive - Phase 1

PRECAUTIONS	▪ Avoid pain provoking activities and sudden movements e.g. sleeping on shoulder, reaching overhead or out to the side, carrying heavy bags with involved extremity, weight bearing on involved extremity ▪ Avoid painful exercises and activities, e.g. reaching behind back, overhead ▪ Do not immobilize the shoulder and continue to use the arm in pain-free activities ▪ Closely monitor response to treatment because therapeutic exercise and manual therapy may exacerbate condition; response to treatment may clarify diagnosis ▪ Following ultrasound-guided GH corticosteroid injection, hold formal PT for 2 weeks
ASSESSMENT	▪ Quick Disabilities of the Arm, Shoulder and Hand Score (QuickDASH) ▪ American Shoulder and Elbow Surgeons Shoulder Score (ASES) ▪ Numeric pain rating scale (NPRS) ▪ Nature and behavior of pain ▪ Current activity level ▪ Hand dominance ▪ Cervical screen ▪ Postural assessment ▪ Scapula position ▪ Palpation ▪ Active range of motion (AROM) including functional motion, e.g. internal rotation (IR) behind back ▪ Scapulohumeral rhythm ▪ Passive range of motion (PROM)- true GH motion in supine, noting end feel ▪ Joint mobility, e.g. posterior capsule, acromioclavicular (AC), sternoclavicular (SC), scapulothoracic (ST) ▪ Thoracic mobility ▪ Evaluation of soft tissue quality and flexibility ▪ Manual muscle testing (MMT) within available pain-free range ▪ Special tests for differential diagnosis of intra-articular, extra-articular or rotator cuff pathology (see Biederwolf reference for testing algorithm)

TREATMENT RECOMMENDATIONS	▪ Consultation with MD regarding ultrasound-guided GH steroid injection
	▪ Patient education
	  ○ Nature of the condition and typical progression
	  ○ Activity modification to decrease or avoid pain
	  ○ Postural awareness
	  ○ Early recognition and treatment if occurs in contralateral shoulder
	  ○ Superficial heat or cold modalities for pain management and relaxation
	▪ Gentle range of motion exercises, e.g. PROM in pain-free ranges, pendulums
	▪ Postural exercises/re-training

(continued)

TREATMENT RECOMMENDATIONS (continued)	▪ Manual therapy
	  ○ Low grade joint mobilization for pain management
	  ○ Pain-free, low intensity PROM / stretching
	  ○ Scapular mobility
	  ○ Gentle soft tissue mobilization as indicated
	▪ Strengthening/stabilization in pain-free ranges
	  ○ Peri-scapular muscles
	▪ Home exercise program (HEP)

CRITERIA FOR MOVING TO NEXT TREATMENT PHASE OF STAGE 1	▪ Decreased pain and irritability ▪ Progressing shoulder range of motion ▪ Goal of stage 1 is early recognition and treatment to resolve the condition and prevent progression through the remaining stages ▪ *If condition is not resolving, reconsider differential diagnosis and move to stage 2 guideline if indicated.*
EMPHASIZE	▪ Patient understanding of condition ▪ Symptom management ▪ Activity modification ▪ Early recognition and minimization of disease process
MODIFICATIONS TO STAGE 1 - PHASE 1	

ADHESIVE CAPSULITIS GUIDELINES

Stage 1: High Irritability/Pre-Adhesive - Phase 2

PRECAUTIONS	▪ Avoid pain provoking activities and sudden movements while gradually resuming normal use ▪ Monitor overhead activities and overexertion until symptoms are fully resolved ▪ Continue to monitor irritability and adjust therapy program as needed ▪ Following ultrasound-guided GH corticosteroid injection, hold formal PT for 2 weeks
ASSESSMENT	▪ Quick DASH ▪ Nature and behavior of pain ▪ Current activity level ▪ Hand dominance ▪ Cervical screen ▪ Postural assessment ▪ Scapula position ▪ Palpation ▪ AROM including functional motion, e.g. IR behind back ▪ Scapulohumeral rhythm ▪ PROM (true GH motion) noting end feel ▪ Joint mobility, e.g. posterior capsule, AC, SC, ST ▪ Thoracic mobility ▪ Evaluation of soft tissue quality and flexibility ▪ MMT ▪ Special tests

TREATMENT RECOMMENDATIONS	▪ Patient education
	  ○ Activity modification to decrease or avoid pain
	  ○ Postural awareness
	  ○ Early recognition and treatment if occurs in contralateral shoulder
	  ○ Importance of HEP
	▪ Progress range of motion exercises
	▪ Postural exercises/re-training
	▪ Manual therapy
	  ○ Evaluation based joint mobilization
	  ○ PROM/ stretching
	  ○ Scapular mobility
	  ○ Soft tissue mobilization as indicated
	▪ Strengthening/stabilization
	  ○ Peri-scapular muscles
	  ○ Shoulder musculature
	▪ Progress HEP

CRITERIA FOR MOVING TO TREATMENT STAGE 2 - PHASE 1	▪ Full shoulder PROM and AROM ▪ Normal scapulohumeral rhythm ▪ Resolved pain and irritability ▪ Independent HEP ▪ *If condition worsens or does not resolve, reconsider differential diagnosis and move to stage 2 guideline if indicated.*
EMPHASIZE	▪ Return to normal activities with good mechanics ▪ Avoidance of secondary pathologies, e.g. impingement ▪ Safe and appropriate HEP progression

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Stage 2: High-Moderate Irritability/Freezing - Phase 1

PRECAUTIONS	▪ Avoid pain provoking activities and sudden movements, e.g. sleeping on shoulder, reaching overhead or out to the side, carrying heavy bags with involved extremity, weight bearing on involved extremity ▪ Avoid painful exercises and activities, e.g. reaching behind back, overhead ▪ Do not immobilize the shoulder and continue to use the arm in pain-free activities ▪ Closely monitor response to treatment because therapeutic exercise and manual therapy may exacerbate condition ▪ Closely monitor true GH motion because pattern of motion loss will clarify diagnosis ▪ Following ultrasound-guided GH corticosteroid injection, hold formal PT for 1 week
ASSESSMENT	▪ Quick DASH ▪ Nature and behavior of pain ▪ Current activity level ▪ Hand dominance ▪ Cervical screen ▪ Postural assessment ▪ Scapula position ▪ Palpation ▪ AROM including functional motion, e.g. IR behind back ▪ Scapulohumeral rhythm ▪ PROM (true GH motion) noting end feel ▪ Joint mobility, e.g. posterior capsule, AC/SC, ST ▪ Thoracic mobility ▪ Evaluation of soft tissue quality and flexibility ▪ MMT within available pain-free range ▪ Special tests for differential diagnosis of intra-articular, extra-articular or rotator cuff pathology

TREATMENT RECOMMENDATIONS	▪ Consultation with MD regarding ultrasound-guided GH steroid injection
	▪ Patient education
	  ○ Nature of the condition and typical progression
	  ○ Activity modification to decrease or avoid pain
	  ○ Postural awareness
	  ○ Early recognition and treatment if occurs in contralateral shoulder
	  ○ Superficial heat or cold modalities for pain management and relaxation
	▪ Progress range of motion exercises
	  ○ Continue with PROM/stretching for elevation, external rotation (ER), IR
	  ○ Active assisted range of motion (AAROM), e.g. ER/IR in modified neutral position

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Stage 2: High-Moderate Irritability/Freezing - Phase 1 (continued)

TREATMENT RECOMMENDATIONS (continued)	▪ Manual therapy
	  ○ Low grade joint mobilization for pain management and to address capsular restrictions
	  ○ PROM into tissue resistance within patient's and shoulder's tolerance
	  ○ Gentle soft tissue mobilization as indicated
	▪ Strengthening/stabilization in pain-free ranges
	  ○ AROM in scapular plane
	  ○ Peri-scapular muscles
	▪ Postural exercises/ re-training
	▪ Consider hydrotherapy
	▪ Progress HEP

CRITERIA FOR MOVING TO TREATMENT PHASE 2 OF STAGE 2	▪ Decreased pain and irritability ▪ Improving range of motion ▪ *If condition is worsening, reconsider differential diagnosis and move to stage 3 guideline if indicated*
EMPHASIZE	▪ Patient understanding of condition ▪ Symptom management ▪ Minimizing loss of GH range of motion ▪ Activity modification
MODIFICATIONS TO STAGE 2 - PHASE 1	

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Stage 2: High-Moderate Irritability/Freezing - Phase 2

PRECAUTIONS	▪ Avoid pain provoking activities and sudden movements, e.g. sleeping on shoulder, reaching overhead or out to the side, carrying heavy bags with involved extremity, weight bearing on involved extremity ▪ Do not immobilize the shoulder and continue to use the arm in pain-free activities ▪ Closely monitor response to treatment because therapeutic exercise and manual therapy may exacerbation condition ▪ Following ultrasound-guided GH corticosteroid injection, hold formal PT for 2 weeks
ASSESSMENT	▪ Quick DASH ▪ ASES ▪ NPRS ▪ Nature and behavior of pain ▪ Current activity level ▪ Postural assessment ▪ Scapula position ▪ Palpation ▪ AROM including functional motion, e.g. IR behind back ▪ Scapulohumeral rhythm ▪ PROM (true GH motion) noting end feel ▪ Joint mobility, e.g. posterior capsule, AC/SC, ST ▪ Thoracic mobility ▪ Evaluation of soft tissue quality and flexibility ▪ MMT within available pain-free range

TREATMENT RECOMMENDATIONS	▪ Patient education
	  ○ Activity modification
	  ▪ Encourage use of UE within pain-free range without compensatory patterns
	▪ Active warm-up/ conditioning, e.g. UE ergometry
	▪ Progress range of motion exercises, avoiding compensatory patterns which may cause impingement or increased irritability
	  ○ Progress PROM/stretching for elevation, ER, IR, e.g.:
	  ▪ IR/ER PROM with CPM equipment
	  ▪ Closed chain PROM, e.g. table slides, in door frame
	  ○ Progress A/AAROM, e.g.:
	  ▪ AAROM with cane, e.g. ER/IR in progressive ranges of abduction, moving toward 90/90 position
	  ▪ Pulleys with good humeral head control

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Stage 2: High-Moderate Irritability/Freezing - Phase 2

TREATMENT RECOMMENDATIONS	▪ Manual therapy
	  ○ Joint mobilization to address evaluation-based restrictions
	  ○ Mobilization with movement (MWM)
	  ○ Stretching into tissue resistance within patient's and shoulder's tolerance
	  ○ Soft tissue mobilization as indicated
	  ▪ Referral to massage therapy if available
	▪ Neuromuscular reeducation
	  ○ Rhythmic stabilization
	  ○ PNF
	▪ Strengthening/ stabilization in pain-free ranges
	  ○ Progressive resistance exercise (PRE) in scapular plane
	  ○ Rotator cuff and peri-scapular muscles
	  ○ Closed chain strengthening
	▪ Active warm-up/Conditioning, e.g. UE ergometry
	▪ Postural exercises/ re-training
	▪ Consider hydrotherapy
	▪ Progressive increase in stretching and strengthening techniques
	▪ Progress HEP

CRITERIA FOR MOVING TO TREATMENT STAGE 2	▪ Full shoulder range of motion ▪ Normal scapulohumeral rhythm ▪ UE strength equal to uninvolved side ▪ *If pain has improved but other criteria have not been achieved, decrease frequency but avoid premature discharge.* ▪ *If condition is worsening (i.e. less pain but increasing stiffness), move to stage 3 guideline.*
EMPHASIZE	▪ Restoring shoulder ROM with proper mechanics ▪ Restoring shoulder strength ▪ Gradual return to previous level of function/activity without compensatory patterns
MODIFICATIONS TO STAGE 2 - PHASE 2	

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Stage 3: Moderate-Minimal Irritability/Frozen

PRECAUTIONS	▪ Monitor pain provoking activities and movement for increase in irritability extremity ▪ Avoid painful exercises and activities, e.g. reaching behind back, overhead ▪ Avoid too much, too soon as increase activities and therapeutic exercise
ASSESSMENT	▪ Quick DASH ▪ Nature and behavior of pain ▪ Current activity level ▪ Postural assessment ▪ Scapula position ▪ Palpation ▪ AROM including functional motion, e.g. IR behind back ▪ Scapulohumeral rhythm ▪ PROM (true GH motion) noting end feel ▪ Joint mobility, e.g. posterior capsule, AC/SC, ST ▪ Thoracic mobility ▪ Evaluation of soft tissue quality and flexibility ▪ MMT within available pain-free range

TREATMENT RECOMMENDATIONS	▪ Patient education
	  ○ Activity modification
	  ▪ Encourage use of UE within pain-free range without compensatory patterns
	▪ Active warm-up/ conditioning, e.g. UE ergometry
	▪ Progress range of motion exercises
	  ○ A/AA/PROM as tolerated
	  ○ Stretching into tissue resistance
	  ○ Low load prolonged positioning
	▪ Manual therapy
	  ○ Joint mobilization
	  ○ Stretching into tissue resistance and for increased duration
	  ○ Soft tissue mobilization
	▪ Progress neuromuscular reeducation and PREs in pain-free range with optimal mechanics
	▪ Postural exercises/ re-training
	▪ Progress hydrotherapy program
	▪ Progress HEP with emphasis on stretching and PREs

CRITERIA FOR MOVING TO STAGE 4	▪ Minimal pain at end ranges of shoulder A/PROM ▪ Improving shoulder A/PROM with good mechanics
EMPHASIZE	▪ Restoration of shoulder ROM with proper mechanics ▪ Promotion of pain-free ADLs ▪ Strengthening

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Stage 4: Low Irritability/Thawing

PRECAUTIONS	▪ Monitor pain provoking activities and movement ▪ Avoid painful exercises and activities, e.g. reaching behind back, overhead ▪ Avoid too much, too soon as increase activities and therapeutic exercise ▪ Monitor for secondary pathology, e.g. caused by faulty mechanics
ASSESSMENT	▪ Quick DASH ▪ Nature and behavior of pain ▪ Current activity level ▪ Postural assessment ▪ Scapula position ▪ Palpation ▪ AROM including functional motion, e.g. IR behind back ▪ Scapulohumeral rhythm ▪ PROM (true GH motion) noting end feel ▪ Joint mobility, e.g. posterior capsule, AC/SC, ST ▪ Thoracic mobility ▪ Evaluation of soft tissue quality and flexibility ▪ MMT within available pain-free range
TREATMENT RECOMMENDATIONS	▪ Patient education o Activity modification ▪ Encourage use of UE within pain-free range without compensatory patterns o Promote independent management of condition ▪ Active warm-up/ conditioning, e.g. UE ergometry ▪ Progress range of motion exercises o A/AA/PROM as tolerated o Stretching into tissue resistance o Low load prolonged positioning ▪ Manual therapy o Joint mobilization o Stretching into tissue resistance and for increased duration o Soft tissue mobilization ▪ Progress neuromuscular re-education and PREs in pain-free range with optimal mechanics ▪ Postural exercises/ re-training ▪ Progress hydrotherapy program ▪ Progress HEP with emphasis on return previous level of function
CRITERIA FOR DISCHARGE (OR ADVANCEMENT TO RETURN TO SPORT PHASE IF APPLICABLE)	▪ Full shoulder range of motion with normal scapulohumeral rhythm ▪ UE strength equal to uninvolved side ▪ Pain free ADLs ▪ Independent with HEP and appropriate progression ▪ If returning to sport, consider collaboration with trainer, coach or performance specialist
EMPHASIZE	▪ Restoring shoulder ROM with proper mechanics ▪ Restoring shoulder strength ▪ Gradual return to previous level of function/activity without compensatory patterns

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Return to Sport (if applicable)

PRECAUTIONS	▪ Avoid too much, too soon: monitor exercise dosing ▪ Don't ignore functional progressions ▪ Be certain to incorporate rest and recovery ▪ Monitor for loss of ROM/flexibility
ASSESSMENT	▪ Quick DASH including Sports Module ▪ ASES ▪ Sport-specific readiness ▪ Quality of movement during sport-specific activities ▪ Strength and cardiovascular endurance ▪ Overall fitness level ▪ Posture ▪ Cervical mobility ▪ Thoracic mobility ▪ Soft tissue quality and flexibility ▪ Scapulothoracic coupling ▪ Objective tests e.g. isokinetic testing or hand held dynamometry, Upper Quarter Y Balance Test™, Closed Kinetic Chain Upper Extremity Stability Test, Shot Put Test
TREATMENT RECOMMENDATIONS	▪ Progress humeral head control exercises in a variety of overhead positions ▪ Progress isotonic exercises to higher loads as indicated ▪ Sustained single arm holds with perturbations ▪ Single arm sport-specific plyometric drills ▪ Closed kinetic chain progression exercises ▪ Increase endurance and activity tolerance ▪ Prone scapulothoracic motion ▪ Sport-specific multidirectional core retraining ▪ Initiation of specific overhead sport program ▪ Progress total body multidirectional motor control and strengthening exercises to meet sport-specific demands ▪ Advance HEP according to current phase ▪ Collaboration with trainer, coach or performance specialist
CRITERIA FOR RETURN TO SPORT	▪ Independent in appropriate return to sport program, e.g. Thrower's 10 Program, Advanced Thrower's Ten Program ▪ Movement patterns, strength, flexibility, motion, power and accuracy to meet demands of sport ▪ Pain free
EMPHASIZE	▪ Self-monitoring volume of exercise ▪ Self-monitoring of load progressions ▪ Speed, accuracy, power and quality in sport-specific activities ▪ Full body training ▪ Collaboration with appropriate Sports Performance expert