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Arthroscopic Rotator Cuff (ARC) Clinical Trial

NONOPERATIVE REHABILITATION PROTOCOL

NONOPERATIVE GUIDELINES

Do not add or skip any part of this program. If you have questions or concerns, please contact the Lead Physical Therapist for your site below.

You may also contact the trial’s Lead Physical Therapists at Vanderbilt:

Brian Richardson: brian.richardson@vanderbilt.edu
Rebecca Dickinson: rebecca.dickinson@vanderbilt.edu
GENERAL INSTRUCTIONS

• The patient should work with the physical therapist approximately 1-2x/week for 6-12 weeks. There is no required minimum number of visits per week.
• The patient should perform a home exercise program (HEP) as prescribed by the physical therapist approximately 30 minutes/day, 2-4x/week.
• The combined total of physical therapy visits & HEP (in any combination) should equal 4+x/week.

Modalities
Patients are encouraged to use cryotherapy after exercise or any time the shoulder is painful.

Each phase should include:
• Physical therapy (PT) intervention as indicated by treating physical therapist’s plan of care within guidelines of this study protocol
• Perform Home Exercise Program (HEP)

Progression:
• For each exercise, begin with 1 set (up to 10 repetitions per set) and progress to 3 sets (up to 10 repetitions per set). The number of sets/reps given should be based on good quality movement.
• The non-operative guidelines should be advanced per progression criteria.
• If the patient has met all of the criteria, then the patient should be progressed to the next phase.
• Patients will be evaluated for various impairments. Once these impairments have been identified, certain exercises will be given to address those impairments. If there is no impairment identified, it is not necessary to perform the exercise which addresses that particular impairment.
PHASE ONE: Passive Motion & Scapular Exercises

GOALS OF PHASE ONE:

- Restore PROM to the shoulder
- Minimize pain and edema

Normalize ROM of the shoulder by performing manual techniques. Manual techniques may include: joint mobilizations, soft tissue mobilizations, and active release techniques. ROM limitations to both the cervical spine and thoracic spine should be addressed as well. Passive range of motion (PROM) requires the therapist to put the arm through a comfortable range of motion while the patient is supine. Motions include flexion, abduction, external rotation, and internal rotation. Manual therapy, pendulums, and scapular retraction should be done at each therapy visit. Ice may be used as needed.

PROM: The therapist should move the arm while the patient remains relaxed.
PENDULUM EXERCISES
Clockwise/Counterclockwise, forward back and side/side. Keep the arm relaxed and move at the hips and trunk.

SCAPULAR RETRACTION
Instruct patient to squeeze their shoulder blades together.

PHASE ONE

CRITERIA FOR PROGRESSION TO PHASE TWO

Patient must meet 2 of the 3 criteria.

1. Attain full PROM
2. Maximum rest pain (3/10 on VAS)
3. Maximum pain with ADLs (4/10 pain on VAS)
PHASE TWO: Active Assisted Motion, Shoulder Stretches, Rotator Cuff Strengthening & Scapular Stabilization

GOALS OF PHASE TWO

- Attain full AROM shoulder
- Patient will exhibit a minimum of 4/5 strength in the following muscle groups:
  - Internal rotators
  - External rotators
  - Serratus anterior
  - Middle trapezius
  - Lower trapezius
- Increase shoulder flexibility
- Improve scapulohumeral movement
- Eliminate rest pain and decrease pain with ADLs

The therapist should continue with manual therapy techniques during this phase. Active assisted range of motion (AAROM) should be introduced during this phase. AAROM includes the use of a cane/stick and pulleys. Motions include flexion, abduction, external rotation, and internal rotation. Instruct the patient to use a cane/stick and/or pulleys to elevate or rotate the involved arm. The uninvolved arm should guide the involved arm. The patient should increase the elevation or rotation of the involved arm as tolerated. AAROM should be done at each therapy visit.

The therapist should introduce rotator cuff and scapular stabilization and rhythmic stabilization exercises. These exercises should be done at each therapy visit. Exercises may start with bands or no weights and progress to hand weights. All exercises should be performed while squeezing the shoulder blades together. It is important to avoid “hiking” of the shoulder. These exercises should be performed at home at least three days per week. The patient should feel muscle fatigue toward the end of the exercise but still be able to perform the exercise with good form and no pain. The therapist should introduce shoulder stretches during this phase. These exercises should be performed at each therapy visit as well as at home. Ice may be used as needed.
PHASE TWO

FLEXION

ABDUCTION

EXTERNAL ROTATION

ABDUCTION

FLEXION
PHASE TWO
The patient may begin with gentle stretching and progress as tolerated. Stretching should be done at each therapy visit. Perform 5 repetitions and hold each stretch for 20 seconds.
PHASE TWO

PRONE ROW

PRONE SCAPTION

SIDELYING EXTERNAL ROTATION

RHYTHMIC STABILIZATION WITH MANUAL RESISTANCE

PRONE HORIZONTAL ABDUCTION
PHASE TWO

THERABAND SHOULDER EXTENSION

THERABAND ROW

THERABAND EXTERNAL ROTATION

THERABAND INTERNAL ROTATION
PHASE TWO

WALL SLIDES

CRITERIA FOR PROGRESSION TO PHASE THREE

Patient must meet 3 of the 4 criteria.
1. Attain full AROM shoulder
2. Patient exhibits a minimum of 4/5 strength in the following muscle groups:
   - Internal rotators
   - External rotators
   - Serratus anterior
   - Middle trapezius
   - Lower trapezius
3. Eliminate shoulder pain at rest
4. Decrease shoulder pain (2/10 on VAS) with ADLs
PHASE THREE: Advanced Scapular Stabilization, Rotator Cuff Strengthening & Rhythmic Stabilization

GOALS OF PHASE THREE

- Patient will exhibit a minimum of 4+/5 strength in the following muscle groups:
  - Internal rotators
  - External rotators
  - Serratus anterior
  - Middle trapezius
  - Lower trapezius
- Maintain flexibility
- Improve proprioception
- Normalize scapulohumeral movement with no substitution patterns
- Return to normal ADLs, sports, work without limitations

The therapist should continue to focus on scapular stabilization and rotator cuff strengthening as well as shoulder stretching exercises. The therapist may advance the program to include advanced scapular stabilization, rotator cuff strengthening and rhythmic stabilization exercises as tolerated by the patient. Ice may be used as needed. Patient may advance to perform both overhead and plyometric exercises when appropriate in order to return to work, sport or functional tasks.

BALL ON WALL FLEXION

INSTRUCTIONS: The patient should place a ball against the wall at shoulder height, holding it with the palm of their hand, and perform small circles both clockwise and counterclockwise.

BALL ON WALL ABDUCTION
PHASE THREE

BODY BLADE FLEXION

BODY BLADE EXTERNAL/INTERNAL ROTATION

DYNAMIC HUGS

THERABAND SCAPULAR RETRACTION
PHASE THREE

C R I T E R I A  F O R  D I S C H A R G E

Patient must meet 4 of the 5 criteria.

1. Full AROM of the involved shoulder
2. Patient exhibits a minimum of 4+/5 strength in the following muscle groups:
   - Internal rotators
   - External rotators
   - Serratus anterior
   - Middle trapezius
   - Lower trapezius
3. Normalize scapulohumeral movement with no substitution patterns
4. No shoulder pain at rest or with ADLs
5. Return to prior level of ADLs and/or sport

PUSHUPS WITH A PLUS AGAINST WALL
PRIMARY STUDY INVESTIGATORS

**Vanderbilt University Medical Center** *(Nashville, TN)*
- Nitin Jain, MD, MSPH – Trial Principal Investigator
- John E. Kuhn, MD – Trial Co-Investigator, Surgical Core Leader
- Kristin R. Archer, PhD, DPT – Trial Co-Investigator, Rehabilitation Core Leader
- Brian Richardson, PT, MS, MCS, CSCS – Trial Lead Physical Therapist
- Rebecca Dickinson, DPT, COMT – Site Lead Physical Therapist
- Helen Koudelková, MA – Trial Project Manager

**PARTNER SITES**

**The Ohio State Wexner Medical Center** *(Columbus, OH)*
- Andrew Neviaser, MD – Site Principal Investigator
- Mitch Salsbery, PT, DPT, SCS – Site Lead Physical Therapist

**Orthopedic Institute** *(Sioux Falls, SD)*
- Keith M. Baumgarten, MD – Site Principal Investigator
- Matthew Zens, DPT, MS, SCS, ATC – Site Lead Physical Therapist

**Knoxville Orthopaedic Clinic** *(Knoxville, TN)*
- Edwin E. Spencer, Jr., MD – Site Principal Investigator
- Garrett Rich, DPT – Site Lead Physical Therapist

**University of California San Francisco Orthopaedic Institute** *(San Francisco, CA)*
- C. Benjamin Ma, MD – Site Principal Investigator
- Sarah Pawlowsky, PT, DPT, OCS – Site Lead Physical Therapist

**University of Colorado-CU Sports Medicine** *(Denver & Boulder, CO)*
- Eric McCarty, MD – Site Principal Investigator
- Anthony Kinney, PT, DPT, OCS, FAAOMPT – Site Lead Physical Therapist (Denver)
- Pamela Andringa, MSPT – Site Lead Physical Therapist (Boulder)

**University of Iowa** *(Iowa City, IA)*
- Brian R. Wolf, MD, MS - Site Principal Investigator
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Matthew V. Smith, MD, MSc – Site Principal Investigator
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Arthroscopic Rotator Cuff (ARC) Clinical Trial

NONOPERATIVE REHABILITATION PROTOCOL

ARC Clinical Trial is led by:
Vanderbilt Physical Medicine & Rehabilitation
Vanderbilt Sports Medicine
Vanderbilt Orthopaedic Institute

ShoulderStudy.com