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ARTHROSCOPIC ROTATOR CUFF TRIAL

**NONOPERATIVE REHABILITATION PROTOCOL**

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# Arthroscopic Rotator Cuff (ARC) Clinical Trial

## NONOPERATIVE REHABILITATION PROTOCOL

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## NONOPERATIVE REHABILITATION PROTOCOL

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### 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](mailto:brian.richardson@vanderbilt.edu)*

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## 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.

## PHASE ONE

**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.

## 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

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- 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.



**CROSS BODY STRETCH**



**SLEEPER STRETCH**



**CORNER STRETCH**



**TOWEL STRETCH**



**PRONE SHOULDER EXTENSION**



**SERRATUS PUNCH**

PHASE TWO



PRONE ROW



PRONE SCAPTION



SIDELYING EXTERNAL ROTATION

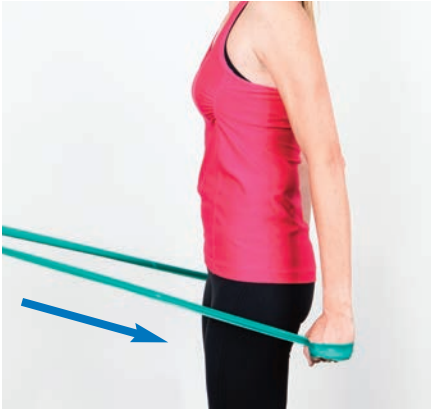


RHYTHMIC STABILIZATION  
WITH MANUAL  
RESISTANCE

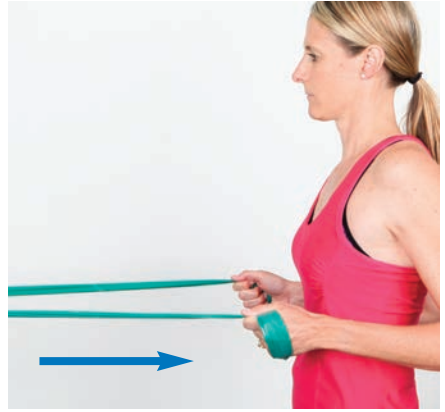


PRONE HORIZONTAL ABDUCTION

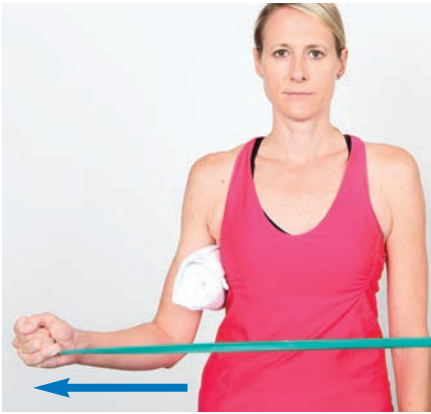
PHASE TWO



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.



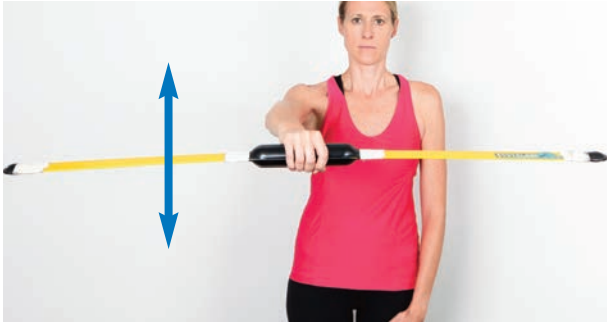
**BALL ON WALL FLEXION**



**BALL ON WALL ABDUCTION**

**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.

### PHASE THREE



BODY BLADE FLEXION



BODY BLADE EXTERNAL/INTERNAL ROTATION

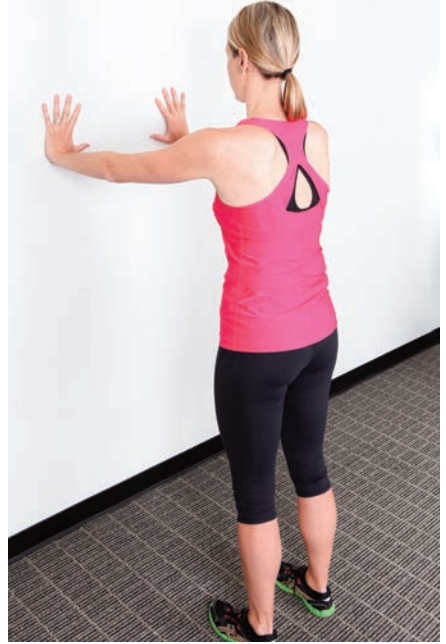


DYNAMIC HUGS



THERABAND SCAPULAR RETRACTION

## PHASE THREE



## PUSHUPS WITH A PLUS AGAINST WALL

## CRITERIA FOR DISCHARGE

**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



## 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, SCS, 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)**

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### **Knoxville Orthopaedic Clinic (Knoxville, TN)**

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**Sarah Pawlowsky, PT, DPT, OCS** – Site Lead Physical Therapist

### **University of Colorado-CU Sports Medicine (Denver & Boulder, CO)**

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**Pamela Andringa, MSPT** – Site Lead Physical Therapist (Boulder)

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Research reported in this brochure was partially funded through a Patient-Centered Outcomes Research Institute (PCORI) Award (1605-35413). The statements presented in this brochure are solely the responsibility of the author(s) and do not necessarily represent the views of the Patient-Centered Outcomes Research Institute (PCORI), its Board of Governors or Methodology Committee.

Research reported in this publication was supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health under award number U34AR069201. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

The project brochure described was supported by CTSA award No. UL1TR000445 from the National Center for Advancing Translational Sciences. Its contents are solely the responsibility of the authors and do not necessarily represent official views of the National Center for Advancing Translational Sciences or the National Institutes of Health.



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*ARC Clinical Trial is led by:*

Vanderbilt Physical Medicine & Rehabilitation

Vanderbilt Sports Medicine

Vanderbilt Orthopaedic Institute

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