

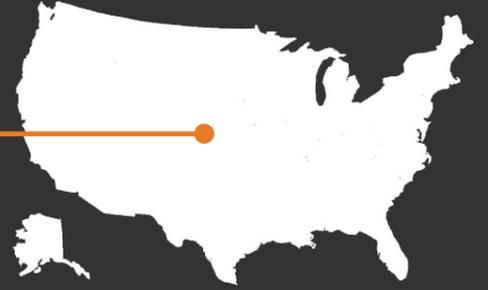
>50%

ROTATOR CUFF TEARS AFFECT >50% OF

PEOPLES GREATER THAN THE AGE OF 60 YEARS OLD



APPROXIMATELY **6 MILLION CITIZENS**
HAVE ROTATOR CUFF TEARS



75,000 - 250,000
ROTATOR CUFF REPAIRS ARE DONE
ANNUALLY

Failure rates range
from 25% - 90%
- 2013 NEER AWARD ARTICLE



*A delayed rehabilitation protocol is **recommended** in the presence of the risk of improper healing.*

CHANG, AJSM

EARLY RANGE OF MOTION TENDS TO

CAUSE HIGHER RATE OF RECURRENT TEARS

FACTORS AFFECTING **POST-OPERATIVE**
ROTATOR CUFF REHABILITATION PROGRAMS

SURGICAL
APPROACH

SIZE OF
THE TEAR

TISSUE
QUALITY

LOCATION
OF THE TEAR

TYPE
OF TEAR

MECHANISM
OF FAILURE

ROTATOR CUFF REPAIR

PHYSICAL THERAPY PROTOCOL



At **The Shoulder Center of Arkansas** and at **201: Train · Recover · Move**, our goal is to create an environment that is safe for the healing structures, exciting for the patient, and able to provide an open and transparent line of communication with the therapist. If you ever have any questions or concerns, please feel free to give us a call and we would be more than happy to discuss any concerns or questions you might have.

Our protocol can be divided into three distinct and separate phases:



Before we dive into the details of the separate phases, we would love to take some time answer some common questions our patients often ask considering this surgery and rehabilitation process:

DO I REALLY NEED TO WEAR MY SLING?



- Based on the size and severity of your rotator cuff tear, you will be instructed to wear your sling for the first six weeks following your surgery. Unwanted movement early on can hinder tendon healing.
- We encourage the patient to wear the sling at all times. There are components on the sling that might seem bulky, but we need you to keep these foam cushions in the correct places for the entire six weeks unless notified by your surgeon.
- You may remove the sling only for the exercises that have been prescribed by your physical therapist for using ice, and for dressing or showering.

WHEN DO I BEGIN MY PHYSICAL THERAPY?



- When physical therapy begins will depend on the size and severity of the tear.
- **While the following grading of tears are generalized, the frequency and when a patient starts physical therapy can be adjusted by the surgeon.**
 - For tears < 3 cm, physical therapy can begin at week three.
 - For tears > 3 cm, physical therapy will not begin until week six.

HOW OFTEN DO I NEED TO GO TO PHYSICAL THERAPY?



- The frequency of physical therapy will typically start at two-three times a week. This frequency can also be adjusted by your surgeon or your physical therapist's recommendations.
- Once strength training begins, the patient's frequency can be reduced to one or two times a week considering good home exercise compliance.

WHEN CAN I START STRENGTHENING?



- We do not recommend strength training until week twelve after surgery.

WHEN DO I GET BACK TO SPORTS AND ACTIVITIES?



- Sports that demand high level use of the upper extremity (examples: baseball, volleyball, football, and tennis) will typically be asked to wait six months before returning to the sport or the recreational activity.
- Please seek permission from your surgeon and physical therapist before starting back to any sporting or recreational activity.

IS THERE ANYTHING I NEED TO AVOID AFTER SURGERY?



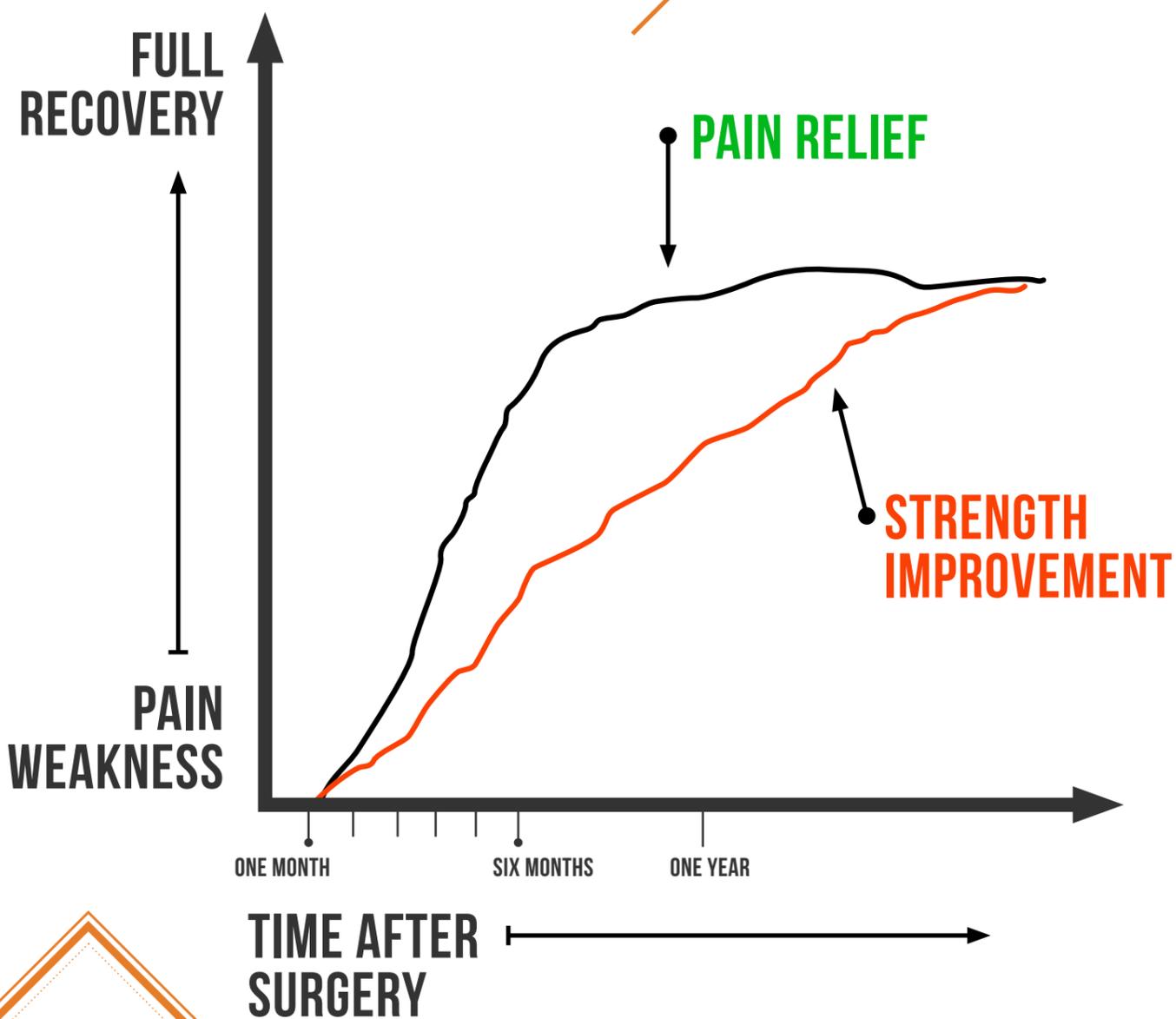
- We encourage any patient who smokes to avoid smoking after surgery for the first twelve weeks. Smoking can correlate with delayed and improper tendon healing of the rotator cuff.
- Avoid moving your arm away from your body during the first six weeks. If you are at a computer, keep your elbow by your side at all times during the initial six weeks.
- No pushing, pulling, or lifting anything larger than a cup of coffee (approx. 1-2 pounds). Avoid pushing yourself up from a chair, bed, or from your car for the initial six weeks following your surgery.
- We do not want our patient to take any kind of anti-inflammatories (naproxen sodium, ibuprofen, or Aleve) for the first twelve weeks following surgery. In order to manage any pain, we encourage our patients to use their ice machine as needed.

I HAVE FRIENDS WHO HAVE HAD ROTATOR CUFF SURGERY, WILL MY EXPERIENCE BE LIKE THEIRS?



- There are several factors that are specific to the patient that will affect their recovery. Some of these factors can include the size of the tear, the surgical approach, the quality of the tissue, the type of the tear, the mechanism of failure, or the quality of the rotator cuff. Each patient's recovery is very individualized. It will generally take approximately six months before we hear patients say they feel "back to normal." However, for other patients it might take up to 1 year before full recovery takes place.

HOW LONG DOES IT TAKE TO RECOVER?



PHASE 1—PROTECT

DAY 1 - WEEK 6



201 TRAIN RECOVER MOVE

GOALS

- Protect surgical repair by avoiding unwanted strain to insertion site
- Maintain elbow, hand, and wrist mobility
- Improve neuromuscular activation that's been inhibited by edema AND PAIN
- Normalize scapular position and posture
- Address cervical and thoracic posture / mobility

THINGS TO AVOID

There should be no active movement of the shoulder.

No pushing, pulling, or lifting anything larger than a cup of coffee (approx. 1-2 pounds). Avoid pushing yourself up from a chair, bed, or from your car.

While we encourage you to tease, touch, and nudge any pain you might experience, please don't push through the pain. Do not be aggressive with any passive mobility that might cause muscle spasms or increased sharp pains in the shoulder.

WEEK 3

BEGIN PHYSICAL THERAPY 1X / WEEK

ADDRESS PORTAL SITE MOBILITY, DRAINAGE, EXCESSIVE REDNESS, OR DISCOLORATION

KEEP ANY MOTION IN SCAPULAR PLANE IN ORDER TO STAY IN OPEN PACKED POSITION

PATIENT POSITIONING IN SUPINE OR RECLINED

- Avoid supine or prone positions

IF AQUATIC OPTION IS AVAILABLE, THIS CAN BE UTILIZED IF PORTAL SITES ARE COMPLETELY HEALED

- Scapular plane passive movement only to 90°
- Avoid internal rotation
- No external rotation greater than 30°

BEGIN HOME EXERCISE PROGRAM THAT IS TO BE COMPLETED 2-3 TIMES EACH DAY:

- Pendulums (no active movement of the shoulder!)
- Elbow, hand, and wrist active mobility exercises. No weights
- Submaximal and PAIN FREE isometrics
 - Flexion, extension, abduction, adduction, and external rotation
- Scapular squeezes, depression, and rolls
- Passive scapular plane elevation to 90° with pulley apparatus
- Ice and modalities as needed
 - No motoric response with electrical stimulation

WEEK 4

CONTINUE TO MONITOR PORTAL SITES HEALING PROGRESSION

ASSESS PATIENT COMPLIANCE / UNDERSTANDING WITH HOME EXERCISE PROGRAM

PATIENT MAY NOW BE POSITIONED IN SUPINE POSITION IF TOLERATED

IF AQUATIC OPTION IS AVAILABLE:

- Active assisted scapular plane elevation can be performed up to 90°
- Active assisted external rotation at neutral can be performed up to 30°
- No resistance

CONTINUE HOME EXERCISE PROGRAM:

- Grade 1-2 joint mobilizations to reduce pain, guarding, and tone
- PNF scapular movement patterns in side lying with elbow @ neutral
- Therapist guided passive mobility to 90° scapular elevation with grade 1-2 joint oscillations at end range
- Continue isometrics
- Cervical and seated thoracic mobilizations as needed and guided by clinical examination / history
- Continue week three exercises for elbow, wrist, and hand mobility
- Ice and modalities as needed
 - No motoric response with electrical stimulation

WEEK 5

FINALIZE PORTAL SITE HEALING PROGRESSION

ASSESS PATIENT COMPLIANCE / UNDERSTANDING WITH HOME EXERCISE PROGRAM

PATIENT MAY BE POSITIONED IN ALL POSITIONS (EXCEPT DIRECTLY ON INVOLVED SIDE) AS TOLERATED

ONLY IF AQUATIC OPTION IS AVAILABLE:

- Active scapular plane elevation to 90° with no resistance can be added to progressions

CONTINUE HOME EXERCISE PROGRAM:

- Active assisted range of motion exercises in gravity eliminated positions as tolerated
- Scapular PNF movement patterns in varying positions
 - Quadruped, side lying, standing, and seated
 - No weight bearing on involved shoulder
- Therapist guided passive mobility to 120° scapular elevation as tolerated by patient's pain response
- Continue isometrics
- Cervical and thoracic extension and rotation mobilizations as needed and guided by clinical exam / history
- Continue elbow, wrist, and hand mobility exercises
- Ice and modalities as needed
 - No motoric response with electrical stimulation

PHASE 1—PROTECT

SUMMARY

- Begin physical therapy at week three if tear is smaller than 3 cm
- Portal site healing monitoring and compliance with home exercise program.
- Focus on preventing inhibition and scapular control early in healing PROCESS.
- Improve patient awareness of cervical and thoracic joint posture
- Reduce postural musculature tone and desensitize portal sites

PHASE 2—MOBILITY

WEEK 6 - WEEK 12



201 TRAIN
RECOVER
MOVE

GOALS

- Discharge sling
- Protect surgical repair by avoiding unwanted strain to insertion site
- Begin to restore full active and passive mobility in the shoulder girdle
- After 8 weeks, the tendon will be about 40% as strong as a normal tendon
- After 12 weeks, the tendon will be about 60% as strong as a normal tendon
- No strengthening of rotator cuff muscles until week 12
 - Physical therapy may begin for rotator cuff tears LARGER than 3 cm

THINGS TO AVOID

■ No pushing, pulling, or lifting anything larger than a cup of coffee (approx. 1-2 pounds). Avoid pushing yourself up from a chair, bed, or from your car.

■ While we encourage you to tease, touch, and nudge any pain you might experience, please don't push through the pain. Don't perform any activity that requires more range of motion than you comfortably have during this phase.

■ No movements that require excessive behind the back movements. Avoid jerky movements behind your back (putting wallet in pocket, putting belt on, or tucking in a shirt).

■ We will NOT begin running during this phase

THINGS TO BE DOING

Try and go back to "normal life" as safely as possible. You can now use your shoulder for activities such as dressing, bathing, typing, grooming, and driving.

You will begin progressing your home exercises in physical therapy.
We want patients to be doing their exercises 1-2x / day.

Physical therapy frequency will increase to 2-3x / week at this time.

Patient can continue to use ice machine for pain relief.
However, heat may be added before therapy if needed.

WEEK 6 - WEEK 12

JOINT MOBILIZATIONS AND MANUAL THERAPY AS NEEDED TO IMPROVE MOBILITY AND REDUCE PAIN AND GUARDING

- Grade 1-4 mobilizations as needed
- Instrument assisted soft tissue mobilizations

ACTIVE AND ACTIVE ASSISTED SHOULDER MOTION WITHOUT RESTRICTION

- Forward elevation in scapular plane
- Side lying external rotation and abduction
- Supine shoulder flexion (active or active assisted)
- Ball rolls
- Wall / table slides
- Wand assisted shoulder movements
- Supine serratus elevations with circles
- Forward reaching (active or active assisted with cane)
- Recumbent bike

PASSIVE SHOULDER MOTION WITHOUT RESTRICTION

- Pulley apparatus (if proper joint arthrokinematics are noticed)
- Prayer stretch
- Doorway stretches

SCAPULAR STABILIZATION AND SETTING EXERCISES

- PNF scapular movements in all positions
- No weight bearing on involved shoulder
- Bilateral external rotation with manual cues for lower trap
- Scapular clocks
- Protraction and retraction with control and prolonged holds

AQUATIC THERAPY FOR RANGE OF MOTION (IF AVAILABLE). NO RESISTANCE, JUST MOTION

REGIONAL INTERDEPENDENCE

- Cardiovascular demands. Begin increasing cardiovascular benefits with elliptical, stationary bike, or recumbent biking. Avoidance of running is instructed in this phase.
- Sagittal and frontal plane lunges
- Step ups
- Balance and lower extremity proprioceptive work

CLINICAL DECISION MAKING ALGORITHMS FOR MOBILITY PHASE

PASSIVE ROM DEFICIT

If passive ROM measures lag behind staged ROM goals, the clinician needs to determine if pain or stiffness is the primary barrier and modify interventions accordingly.

PAIN PREDOMINATES

- Notify MD
- Review early education topics
- Pain control modalities
- Pendulums only (small arc)
- Manual therapy to cervical, thoracic, periscapular areas as needed
- Continue until pain controlled

STIFFNESS PREDOMINATES

- HEP at least 3x/day
- Additional/alternate PROM exercises
- Glenohumeral Joint Mobs
- Increase end range time to 15-30 sec repetition
- Therapist PROM in clinic 2-3x/week
- Continue until ROM goals are met

ACTIVE ROM DEFICIT

If the patient is meeting PROM goals, but is unable to achieve staged AROM goals, the clinician needs to determine if continued weakness of the RC is the limitation or if the deficit is neuromuscular coordination. Rotator cuff function should be tested. The presence of “lag signs” raises the concern of lack of integrity of the rotator cuff repair.

WEAKNESS WITHOUT LAG

- Consider motor control strategies such as manual
- PNF, mirror feedback and positional strengthening
- Differentiate rotator cuff vs scapular muscle deficits
- Utilize gravity eliminated or minimized positions
- Consider NMES to improve volitional contraction
- Supervised visits 1-3x/week until AROM goals met

WEAKNESS WITH LAG

- Notify surgeon re: concerns about repair integrity
- Modified external rotation exercises within available ROM and/or multiposition ER isometrics
- Subscapularis exercises such as belly press, low forward punches, etc
- Progressive, assisted elevation program beginning in gravity eliminated/minimized positions
- Consider NMES to improve volitional contraction
- Supervised visits 2-3x/week until RC integrity has been determined and AROM goals have been met

GLENOHUMERAL STIFFNESS

Although PROM goals are being met, persistent stiffness at end ranges can perpetuate compensations of NM planning or stresses on incompletely healed RC. These concerns must be balanced against repetitive cyclic stresses at end ranges.

- Continue previous focus on passive ROM program
- Continue joint mobs/therapist PROM to improve joint mobility
- Educate pt. regarding goals and dosing of ROM program
- Judicious volume of AROM exercises
- Advise pt. to limit use of shoulder at end ranges, loading in end range positions should be avoided.

PHASE 3

PHASE 3—STRENGTH

WEEK 13 - WEEK 20



201 TRAIN
RECOVER
MOVE

GOALS

- Protect surgical repair until strength and mobility is full
- Begin gradually restoring strength, power, and endurance in the rotator cuff complex
- Improve shoulder stability with initiating and progressing weight bearing activities in the shoulder
- After 16 weeks, the tendon will be about 70% as strong as a normal tendon
- In MASSIVE rotator cuff tears approx. 5 cm or had medial retraction before surgery, strengthening might be held off until week 14. Please check with the surgeon if these are questions you might have concerning your patient.

THINGS TO AVOID

No sudden jerking or uncontrolled movements

No lifting objects away from the body that is heavier than 5 lbs.

No empty can (thumbs down) position with weights

THINGS TO BE DOING

Continue to use your shoulder as normal as possible for daily activities.

Strengthening exercises will be added to your home exercise regime.

Patients should be performing their exercises 1x/day.

Home exercise resistance equipment may include Thera bands, free weights, and body weight.

Physical therapy frequency can decrease to 1-2x / week if patient demonstrates good compliance with home exercise program.

WEEK 13 - WEEK 20

GRADUAL PROGRESSION ON ROTATOR CUFF STRENGTH WITH BANDS / FREE WEIGHTS

- Thrower's Ten Program
 - Advanced Thrower's Ten Program
- Body Blade
- Prone rowing with shoulder rotation progression
- Prone I's / Y's / and T's

SCAPULAR STRENGTHENING PROGRESSION AND DELTOID FORCE COUPLING

- Three-way rowing
- Scapular push up with plus
- Bilateral external rotation with elevation
- Serratus wall slides

CLOSED-KINETIC CHAIN UPPER EXTREMITY EXERCISE PROGRESSION

- Quadruped opposite arm / opposite leg
- Wall push ups
- Seated press ups

PNF SHOULDER MOVEMENT PATTERNS

- D1 and D2 flexion and extension in varying positions
 - Standing, lunge, and supine

REGIONAL INTERDEPENDENCE

- Bicep and triceps strengthening
- Progress lower extremity cardiovascular endurance
 - Running may be progressed in this phase

RETURN TO SPORT AND WORK HARDENING ACTIVITIES BEGIN AT WEEK 18

- Plyometric shoulder progression can be started at week 18
- Sport specific shoulder power at 90/90 can be started at week 18

If the patient is an **overhead** or **throwing athlete** and you wish to contact us about our **throwing** or **golf progressions** after the physical therapy protocol, please feel free to contact us at:

201 TRAIN
RECOVER
MOVE

(479) 966-4491

ATTN: **JEREMY BRAZIEL**, ATC, LAT, FMS, SFMA

REFERENCES

SILVERIO, LUZ

PATIENT ADHERENCE WITH POSTOPERATIVE RESTRICTIONS AFTER ROTATOR CUFF REPAIR. JOURNAL OF SHOULDER AND ELBOW SURGERY. 2014. 23, 508-513.

PARSONS, BRADFORD

DOES SLOWER REHABILITATION AFTER ARTHROSCOPIC ROTATOR CUFF REPAIR LEAD TO LONG-TERM STIFFNESS? JOURNAL OF SHOULDER AND ELBOW SURGERY. 2010. 19, 1034-1039.

RUSSELL, ROBERT

STRUCTURAL INTEGRITY AFTER ROTATOR CUFF REPAIR DOES NOT CORRELATE WITH PATIENT FUNCTION AND PAIN. THE JOURNAL OF BONE AND JOINT SURGERY. 2014. 96:265-271.

UEZONO, KEIJI

EFFECT OF POSTOPERATIVE PASSIVE MOTION ON ROTATOR CUFF RECONSTRUCTION WITH ACELLULAR DERMAL MATRIC GRAFTS IN

COX, WESLEY

ARTHROSCOPIC ROTATOR CUFF REPAIR PHYSICAL THERAPY PROTOCOL. WWW.SHOULDERCENTEROFARKANSAS.COM.

WILK, KEVIN

TYPE ONE ROTATOR CUFF REPAIR ARTHROSCOPIC ASSISTED. CHAMPION SPORTS MEDICINE PROTOCOLS.

HEAD, PENNY

POSTOPERATIVE GUIDELINES FOR SHOULDER PATHOLOGY-ROTATOR CUFF PATHOLOGY. SEMINAR LECTURE POWERPOINT NOTES. 2013.

DUTTON, MARK.

ORTHOPAEDIC EXAMINATION, EVALUATION, AND INTERVENTION. THE SHOULDER. 2012.

CHANG K, HUNG C, HAN D, CHEN W, WANG T, CHIEN K

EARLY VERSUS DELAYED PASSIVE RANGE OF MOTION EXERCISE FOR ARTHROSCOPIC ROTATOR CUFF REPAIR: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS. AMERICAN JOURNAL OF SPORTS MEDICINE. MAY 2015; (435): 1265-1273.

THIGPEN, CHARLES A., SHAFFER, MICHAEL A., GAUNT, BRYCE W., LEGGIN, BRIAN G., WILLIAMS, GERALD R., WILCOX, REG B.

THE AMERICAN SOCIETY OF SHOULDER AND ELBOW THERAPISTS' CONSENSUS STATEMENT ON REHABILITATION FOLLOWING ARTHROSCOPIC ROTATOR CUFF REPAIR. JOURNAL OF SHOULDER AND ELBOW SURGERY. 2016; 4: 521-535.

MILLETT, PETER J., WILCOX, REG B., O'HOLLERAN, JAMES D., WARNER, JON J.P.

REHABILITATION OF THE ROTATOR CUFF: AN EVALUATION-BASED APPROACH. JOURNAL OF THE AAOS. 2006; 14 (11): 599-609.
