

Rotator Cuff Repair

Introduction

Surgery: This involves the repair of small to large rotator cuff tears either arthroscopically or through a small open approach. A subacromial decompression is usually performed simultaneously and sometimes the distal end of the clavicle is excised. The tears involve mainly supraspinatus, but infraspinatus, subscapularis and teres minor can also be involved.

Indications for surgery: Rotator cuff tear resulting in pain and reduced function.

Expected Length of Stay: Day case

Surgeons: Ms J McBirnie, Mr C M Robinson, Mr J Reid, Mr I D M Brown.

Scope of practice

These guidelines are designed to guide Physiotherapists when treating patients following a Rotator Cuff Repair. These guidelines were produced by a process of systematic review of the current evidence based literature, medical and peer consultation. They were correct at the time of writing. The guidelines should be used in conjunction with the clinical reasoning skills of the physiotherapist and patients should always be treated on a case-by-case basis.

Aim

The aim of these guidelines is to provide physiotherapy staff with a series of recommendations, from the current evidence base, to assist them in the management of patients who have undergone Rotator Cuff Repair.

Literature review question

What is the appropriate post-operative management following Rotator Cuff Repair from day of surgery to return to function and sport, in order to maximise outcome?

Search Process

Appraisal process: The databases below were searched between 2008 and 2020 (February). The titles and abstracts of all identified studies were assessed to determine whether they were pertinent to the research question.

Total number of articles selected: 74

Total number of articles discarded: 47

CASPs used: Systematic Review, Cohort Study, Systematic Review & Randomised Control Trial.

Data Bases:

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Data Base	Dates	Limitations
Medline	2008 - Current	English
Cinahl	2008 – Current	English
Cochrane	2008 – Current	English
Trip	2008 - Current	English
Embase	2008 – Current	English
PEDro	2008 – Current	English
Google	2008 – Current	English
Joanna Briggs	2008 - Current	English

Key Words:

Rotator Cuff Repair	AND/OR
Rotator Cuff Tear	Exercise
Rotator Cuff Injuries	Physical Therapy
Rotator Cuff Surgery	Physiotherapy
	Rehabilitation
	Post-Surgical
	Post-operative
	Ice
	Sling
	Exercise Therapy
	Proprioception
	Immobilisation
	Strengthening
	Isokinetic
	Neuromuscular control
	Sport
	Sports Specific
	Functional Assessment

Results

The scientific evidence for physiotherapy rehabilitation following Rotator Cuff Repair is beginning to become evident. Although, specific interventions continue to be lacking sufficient high quality research. Some aspects of the rehabilitation process, for example the need for relative immobilisation for a period following surgery, have been investigated. A fine balance needs to be achieved between minimising the stress on the repaired tissue and promoting normal movement. There is no suggestion in the current literature to suggest that an immobilisation period of 4 weeks increases post-operative stiffness at 1 year following surgery. It does suggest that for larger tears, or patients with poorer healing comorbidities that prolonged immobilisation lowers re-tear rates. However, patients who are identified by the surgical team as being at risk of developing complications may require earlier intervention. Lower risk patients who are required to return to sport or work may also benefit from earlier intervention. ⁽¹⁷⁾ The remainder of the guidelines, reflect current practice in various centres, studies of normal movement and the opinion of experts. The current research is beginning to support these guidelines more sufficiently.

Recommendations

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It is important to note that these recommendations are for guidance only and do not reflect the specific requirements that individual patients may need, depending on the extent of their repair. Guidance from the surgical team should always be sought, as the requirements may vary significantly with large repairs being delayed for a significant period of time prior to progression through the documented stages. Alterations in these guidelines should be made accordingly.

Phase 1 : 0 to 4 weeks

Immediate post-op to initial out-patient Physiotherapy appointment (usually 4 weeks post-op)

Goals	Recommendations	
Allow early scar formation at the repair site and facilitate wound healing	Sling except for physiotherapy exercises. (2, 7, 8, 12, 14, 21, 28)	A3
Decrease immediate post-op complications	Ice (25)	B
Maintain distal joint ROM	Active forearm, wrist and exercises (30)	C
Initiate early GH joint ROM (Only if instructed by surgeon)	Passive/pendular exercise as instructed by the consultant (7, 11, 15, 18, 20)	A1

If requested by the surgeon, pendular exercise should be in a circular motion with a diameter of 20cm or less to decrease the stress on the repaired tissue.
(18)

Phase 2 : 4-6 weeks

Precautions: Avoid activities above shoulder height.
Avoid pushing up from a chair.
Avoid weight bearing through the arm.
Use arm for light activities only

Goals	Recommendations	
Regain Glenohumeral movement, minimising stress on the repair	Graduated range of movement exercises at the glenohumeral joint (in order of increasing muscle activity) (8, 19, 30) Pendular exercises. Passive elevation, medial and lateral rotation by therapist with patient in supine (LR: 0-10° only) (12) Auto assisted elevation and rotations with patient in supine (LR: 0-10° only)	A1

Goals	Recommendations
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Maintain shoulder girdle function	Exercises for scapulo-thoracic muscles (19, 30, 32) Removal of sling and graduated use of arm for light activities of daily living below shoulder level (19, 30, 31)	A1
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Phase 3 : 6-12 weeks

In normal circumstances it is not advisable to utilise a pulley within the first 6 weeks of rehabilitation following surgery, due to strain that this may place on the repair. After this time, the decision to utilise this equipment should be made on a case by case basis, taking into account the extent of the surgery performed and the capsular restriction encountered. It should not increase pain levels.

Goals	Recommendations	
Achieve full, active range of shoulder movement	Active exercise in pain free range progressing gradually through positions and through short to long lever, therefore, gradually increasing shoulder muscle activity. (19, 31) PNF (30) Graduated passive stretches to full range of movement (28, 30) Graduated passive stretches to full range of movement (28, 30) Use of isokinetic machine in passive mode	A1
Restore good scapulo-humeral rhythm	Scapular muscle rehabilitation (26, 30, 32)	A3
Commence early strengthening	Graduated isometric exercises (17, 26, 30)	A3
Facilitate neuromuscular control	Commence proprioceptive training (6)	C

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3 months onwards

Goals	Recommendation	
Increase the stability of the humeral head in the glenoid and therefore regain maximum glenohumeral active movement	Tensile strength of repair increases at 3 months post op therefore gentle rotator cuff strengthening can commence. (28, 30)	B
Maximise the function of the shoulder without damage to the repair and avoiding impingement.	Progressive resisted exercises with light weights and Theraband, below shoulder level. (31) Emphasis should be on muscle coordination, control and endurance and exercises should be kept within the pain free range. (10, 17, 26,) Isokinetic machine used in passive mode for medial/lateral rotation. (higher speeds concentrically for lower muscle tension)	A3

NB: Heavy weight lifting above the shoulder level should be avoided in any shoulder rehabilitation programme because the force generated at the shoulder during such manoeuvres may place excessive strain on the rotator cuff and shoulder ligaments. (31)

Abduction exercises, particularly with the patient in an upright position should be avoided as this movement is well documented as producing sub-acromial impingement. (29) It would follow that this would be more pronounced in patients with a deficient rotator cuff. However, abduction to 45° with the patient in side lying is suggested as being a good exercise for supraspinatus recruitment and rotator cuff rehabilitation. (29)

Open repairs will be immobilised for a minimum of 3 weeks.

Expectations

It could take up to six months to restore the maximum tensile strength of the repaired tendon. (23, 28)

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Disclaimer: This information should be used in conjunction with treatment from an appropriate physiotherapist and not in isolation.

Levels of Evidence

Evidence from large randomised controlled trials (RCTs) or systematic review(including meta-analyses)†	A1
Evidence from at least one high quality cohort	A2
Evidence from at least on moderate size RCT or systematic review	A3
Evidence from at least one RCT	B
Expert opinions	C
Laboratory Evidence*	D

† Arbitrarily, the following cut-off points have been used: large study size ³ 50 patients per intervention group; moderate study size ³ 30 patients per intervention group.

* Arbitrarily, added by Lothian Physiotherapy Musculoskeletal Network Group
Modified from: MacAuley D and Best TM (2007) Evidence-based Sports Medicine. 2nd Edition. BMJ Books. Blackwell Publishing. Oxford, UK.

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