- Usually only partial arc of motion may be initially performed to avoid compression of the rotator cuff.
- Resistance is applied either through Theraband or light weights. Commence with light resistance (yellow or red) or ½kg and then increase as tolerated. Resistance drills should only be performed initially once a day until it is clear that no aggravation of the tendon or joint is going to occur. May progress to performing twice a day.
- For most exercises endurance repetitions are recommended, and rarely are any drills progressed past 1½kg - 2kg maximum in the first 12 weeks and most people are ½kg - 1kg.

12 Weeks Onwards

Range of Motion Exercises

- Full range of assisted active motion is allowed apart from horizontal Flexion and HBB. These motions may be able to be initiated in lower ranges of elevation without any sustained holding by 10 weeks. On others, may not be able to commence till 12 weeks or longer due to the presence of biceps pain. Always watch for any aggravation of biceps pain and cease if biceps pain increases.
- Strengthening further into range as pain and range of motion allows. Never load the tendon into end of range if shoulder stiffness is present.
- Keep in mind tendon biology and patient requirement. Obviously different functional requirements for younger patients than older patients.

Strengthening Exercises

- Prone horizontal extension drills are commenced into higher ranges of abduction till 90° reached, elbow bent, short lever.
- Internal and external rotation strength may gradually progress into above 90°, usually in standing against Theraband. Only commence if the rotator cuff is strong, good tissue quality and there is adequate range of motion. Do not progress into end of range of abd/ER if there is any compression pain in the cuff. May only do partial arc.

Occupational & Recreational Activity Return

Computer: 2-4 weeks.

Exercise Bike: 4-6 weeks (in sling) 6 weeks onwards out of sling.

Road Bike: 6 months

Gardening: 12 weeks below shoulder height. Overhead – 4 months or longer.

Run: 6-8 weeks or 2 weeks after out of sling.

Golf: 4 months (lighter irons). Chip / putt as determined by physiotherapist / surgeon.

Gym: 6-12 months. Some weight / exercise restrictions apply. Check with physiotherapist.

Heavy lifting – below shoulder height: Discuss with surgeon / physiotherapist.

Swim: 6-12 months (with a kickboard).

Tennis: 6-12 months. Discuss with surgeon / physiotherapist. May not be realistic due to pathology.

Throw: 6-12 months. Discuss with surgeon / physiotherapist.

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REHABILITATION PROTOCOL FOR SHOULDER JOINT REPLACEMENT

Physiotherapy Guidelines

This is a guideline for your physiotherapist to help you progress your shoulder rehabilitation over the next 12 weeks so that you can achieve a functional shoulder. A *physiotherapist* who is experienced in shoulder rehabilitation should be consulted throughout the programme to teach and individually modify your programme.

Immobilization/Movement Restrictions

Wear sling/immobilizer	During the day: ________ weeks. At night: ________ weeks.
Additional restriction of range of motion required	YES: Motion: ________ Restriction: ________ NO

Post Operative Programme

1-14 Days

Manual Physiotherapy

Heat may be utilized prior to exercise.

Ice may be applied post exercise.

Gentle massage around the shoulder girdle, trigger points; supraspinatus, infraspinatus and biceps belly.

Range of Motion Exercise

Pendular exercises:

- Flexion, extension, circular, horizontal flexion/extension-respecting pain.
- Arms supported or hanging, whatever is most comfortable.
  - (Arm may need to be in neutral rotation if internal rotation compresses the biceps)

2-4 Weeks

Active assisted ROM exercises:

- **ER/IR** performed supine, arm supported in slight flexion (so that arm doesn't fall into extension), in 20° - 30° abduction.

- **Flexion** to 90°. Initially therapist provides assistance by supporting arm, especially with arm lowering.
- May commence in supine but if too painful continue with pendular exercises only.
- Patient eventually should be able to cradle their arm with the other side, set shoulder blade back and assist arm up. Re-set shoulder blade prior to commencing lowering. May need to keep the arm in neutral rotation to avoid biceps compression.
- Aim is for 60° - 90° (max) flexion by end of the fourth week, do not force.

Elbow ROM:
- Flexion / extension exercises.
- Pronation / supination.

Wrist ROM:
- Flexion / extension.

Strengthening Exercises

Isometric scapula setting drills only:
Scapula elevation, retraction, depression.

Hand Strength:
Gripping.

Precautions/Dosages

No isometric glenohumeral exercises.

Exercises performed 3 times per day – or as pain determines.

Usually stretches are held for a count of 5 and repeated 10 times dependent on pain. Do not hold if any pain.

4-6 Weeks

Range of Motion Exercises

Active assisted exercises are performed with the assistance of the other arm or with the assistance of a stick.

Active assistance ROM exercise progressed:
- ER/IR still performed in supine with arm supported. Performed in 20° - 30° abduction.
- 30° of motion of External and Internal or as tolerated – never force.
- Flexion of 90° - 120° (max) as tolerated, do not force.

6-8 Weeks

Range of Motion Exercises

- ER/IR range progressed to 45° if tolerated or able, (some patients will not achieve full range of motion), arm supported on towel, progress arc of motion to full as tolerated.
- Supine flexion commenced with a stick as tolerated but may still need to be performed cradling arm.
- Range of flexion over head progressed as tolerated to 120° (often elbow is required to be bent slightly).

8 Weeks

Strengthening Exercises

Sub-maximal pain free isometric exercises:
- Extension with elbow bent (care arm doesn't go back past body).
- ER/IR may need to perform in plane of the scapula (only performed on non-repaired rotator cuff).
- Only perform sub-maximal glenohumeral isometric exercises if no night pain present. If night pain present then leave till 6 weeks post-operation or when night pain settles.
- Perform all exercises with elbow bent, sub-maximal resistance <30% MVC.

Dosage

- Perform 2 times a day.
- Most exercises are held for a count of 5 and repeated to a maximum of 20 repetitions.
- Stretches may be held for longer durations as required up to a count of 15 seconds, usually 10 repetitions.
- Whilst the assisted active EROM exercises are progressed here, expect that the range may come out gradually over the next 12 weeks and never should be forced.

8-12 Weeks

Range of Motion Exercises

- Continue with all exercises outlined in weeks 4-6.
- May utilize more advanced stretches such as longer duration holds, sidelying stretching over head with a stick, sliding arm out along the bed or preacher stretches (patient kneeling on ground, arms supported on chair or table while patient leans back onto their haunches) as tolerated.
- ER/IR may gradually be progressed into higher ranges of abduction.
- Supine assisted active abduction may gradually be commenced but care not to force the motion or create any impingement pain by pushing the motion too far.
- Be aware not all patients achieve full range of motion due to limitation of pathology +/- prosthesis
- Check with surgeon for realistic range limits.

Strengthening Exercises

- Supine flexion – arm supported on towel to prevent arm dropping into extension – lift up only 30° (may initially require assistance).
- Sidelying external rotation – arm supported on towel, 0° abduction. May initially require support of forearm on pillow or books. Limit arc of motion initially.
- Shoulder shrugs – add weight as tolerated.
- Supine internal rotation (arm supported by a rolled up towel to prevent arm dropping into extension) 0° abduction – Theraband or standing – internal rotation at 0° abduction – Theraband pull from position or external rotation into internal rotation of 0° - 10°.
- Bent over rows in neutral to 30° abduction (do not go past the level of the body).
- Biceps / triceps
- All resisted exercises are performed below shoulder height for the first 8-10 weeks post operation.