



## **Rotator Cuff Rehabilitation**

There are 3 principle causes of rotator cuff impingement –

- 1) Weakness and/or lack of control of the rotator cuff muscles (principally infraspinatus)
- 2) Lack of shoulder flexibility (in particular a tight posterior capsule)
- 3) Decreased subacromial space (for example a thickened/swollen subacromial bursa, thickened and degenerative cuff tendons and spur formation along the coracoacromial ligament).

Research has shown that conservative rehabilitation is effective in resolving shoulder rotator cuff impingement and avoiding surgery in a significant number of patients. In those patients, where restoring the strength and flexibility does not resolve symptoms because of persistent subacromial crowding, the outcome from surgery will be improved if a rehabilitation programme has been followed prior to invasive treatment.

EMG research completed at the Wakefield Sports Clinic showed that low intensity (< 40% of maximum) isometric external rotation with the shoulder in adduction, isolates infraspinatus and reduces the activity of middle deltoid. The significance of this finding indicates that it is possible to tailor a rehabilitation programme, specifically aimed to strengthen infraspinatus, the key rotator cuff muscle in keeping the humeral head centred within the glenoid and preventing the humeral head from riding up and causing impingement of the cuff under the acromion. It also shows that it is possible to reduce inadvertently strengthening the deltoid muscle over the rotator cuff during rehabilitation by using adduction and low intensity external rotation, which reduces the activity of middle deltoid. If deltoid is unintentionally strengthened over the rotator cuff, then rotator cuff impingement will continue as the rotator cuff will not have the strength and endurance to keep the humeral head centred on the glenoid against the upward pull of deltoid.

The Wakefield Sports Clinic has adapted this research into the clinical situation, known as the 'Wakefield Sports Clinic Rotator Cuff Rehabilitation Programme'. The main elements of this rehabilitation programme is to use low intensity

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resisted isotonic external rotation with the shoulder held in adduction and emphasizing endurance and technique over strength and power. This is achieved by using light grade theraband and using EMG biofeedback to ensure middle deltoid remains relatively inactive during resisted isotonic external rotation. This helps maintain good technique and prevents deltoid being recruited when fatigue occurs. Increased repetitions are favoured over increased theraband resistance as the strength and endurance of infraspinatus improves and only if deltoid is not recruited as shown on EMG biofeedback. Shoulder biomechanics can also be normalised with posterior capsule stretching, massage and scapular retraining. Once rotator cuff external rotation strength and endurance improve and impingement is relieved, then progression to a specific light weights programme can ensue.



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Michael was Adelaide 36ers physiotherapist for 21 years before his retirement from the team in 2008. He has also worked with National League Soccer and national basketball and volleyball teams. His particular interests are shoulders, jumping injuries, swimming injuries, exercise therapy and acupuncture. He is a life member of the Adelaide 36ERS and Burnside Swimming Club. He currently takes sessions at Mount Barker and Wakefield St.

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