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PRINCIPLES OF SHOULDER REHABILITATION AND RETURN TO SPORT

Presented by: Joel Werman B.App.Sc. (Physio), Grad.Dip.Sc. (Sports Physio)

Specialist Sports Physiotherapist

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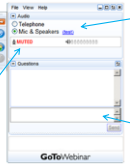

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Joel Werman

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Specialist Sports Physiotherapist

- Specialist Sports Physiotherapist and Fellow of the Australian College of Physiotherapy.
- Specialized in the treatment of shoulders for over 23 years
- Founding member of the Shoulder and Elbow Physiotherapists of Australia group
- Lectured extensively on the subject of the shoulder covering a wide range of subjects
- Through extensive clinical experience has devised own approach to assessment and treatment of the shoulder which is based on a structured clinical reasoning model.

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PRINCIPLES OF SHOULDER REHABILITATION AND RETURN TO SPORT

Joel Werman
APA Specialist Sports Physiotherapist
Fellow of The Australian College of Physiotherapists

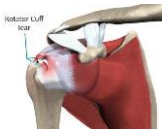
THREE CATAGORIES OF SHOULDER PROBLEMS:

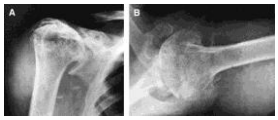
1. Structural
2. Functional
3. Combination

It is imperative to determine which category the patient falls into so as to establish appropriate goals, expectations and management outcomes.

THREE CATAGORIES OF SHOULDER PROBLEMS:

1. Structural





THREE CATAGORIES OF SHOULDER PROBLEMS:

- *LISTEN to the history…*
  - *was there a significant trauma or incident?*
  - *has this built up over many years?*
  - *unable to sleep at night due to the pain*

- *LOOK at the patient…*
  - *Severe pain and disability*

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THREE CATAGORIES OF SHOULDER PROBLEMS:

2. Functional

Timing and tuning.

- The objective of the shoulder is for the ball to stay centered in the middle of the socket throughout a full range of movement.

THREE CATAGORIES OF SHOULDER PROBLEMS:

3. Combination (structural and functional):

- The existence of some structural issues combined with (often) secondary/ compensatory functional deficits.
- You must understand the extent of the structural concerns together with the needs and expectations of the patient to determine the management options.

ASSESSMENT

- Posture, symmetry, general muscle tone,
- Signs of hyper-mobility

ASSESSMENT

- *Active* range of motion- assess quality of movement with respect to scapular dyskinesia , pain and end range.

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ASSESSMENT

- Scapular 'dumping' : support under the inferior angle of the scapular and reassess active forward elevation &/or active range of external rotation in neutral

ASSESSMENT

- Strength testing :
  - manually
  - Hand held dynamometer
  - Re-test with active scapular retraction

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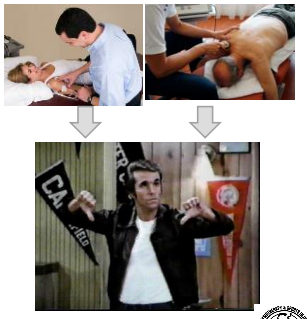
WHAT DOESN'T WORK:

- Electrotherapy:
  - interferential
  - ultrasound
  - laser
  - short wave



RESEARCH / EVIDENCE :

The Cochrane Collaboration - Cochrane Reviews 2003

Physiotherapy interventions for shoulder pain

Green S, Buchbinder R, Hetrick SE

Main results

Twenty six trials met inclusion criteria. Methodological quality was variable and trial populations were generally small (median sample size = 48, range 14 to 180). Exercise was demonstrated to be effective in terms of short term recovery in rotator cuff disease (RR 7.74 (1.97, 30.32), and longer term benefit with respect to function (RR 2.45 (1.24, 4.86). Combining mobilisation with exercise resulted in additional benefit when compared to exercise alone for rotator cuff disease. Laser therapy was demonstrated to be more effective than placebo (RR 3.71 (1.89, 7.28) for adhesive capsulitis but not for rotator cuff tendinitis. Both ultrasound and pulsed electromagnetic field therapy resulted in improvement compared to placebo in pain in calcific tendinitis (RR 1.81 (1.26, 2.60) and RR 19 (1.16, 12.43) respectively). **There is no evidence of the effect of ultrasound in shoulder pain (mixed diagnosis), adhesive capsulitis or rotator cuff tendinitis. When compared to exercises, ultrasound is of no additional benefit over and above exercise alone.** There is some evidence that for rotator cuff disease, corticosteroid injections are superior to physiotherapy and no evidence that physiotherapy alone is of benefit for adhesive capsulitis

RESEARCH / EVIDENCE :

Does Passive Mobilization of Shoulder Region Joints Provide Additional Benefit Over Advice and Exercise Alone for People Who Have Shoulder Pain and Minimal Movement Restriction? A Randomized Controlled Trial

Ross Yiasemides, Mark Halaki, Ian Cathers and Karen A. Ginn

Physical Therapy February 2011 vol. 91 no. 2 178-189

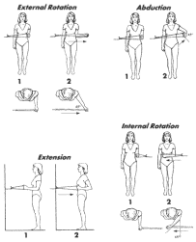
Conclusion This randomized controlled clinical trial ***does not provide evidence that the addition of passive mobilization,*** applied to shoulder region joints, to exercise and advice is more effective than exercise and advice alone in the treatment of people with shoulder pain and minimal movement restriction.

WHAT DOESN'T WORK:

- Most other *passive interventions*, particularly in isolation

WHAT DOES WORK:

- Exercise therapy



EXERCISE THERAPY:

Addresses:

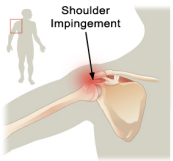
- a. Flexibility
- b. Strength
  - neuromuscular control
  - muscle hypertrophy

The relevance of an exercise is how it relates to the patient's problem. *Clinical reasoning* requires the physio to ***justify*** the choice of intervention as dictated by the initial examination.

OBJECTIVES:

Goal of Physiotherapy:

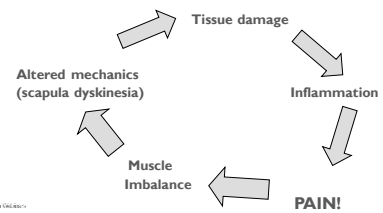
- to 'normalize' the shoulder girdle mechanics to allow the humeral head to stay centered in the glenoid fossa through a full range of movement



ABNORMAL BIOMECHANICS

PAIN AND NEUROMUSCULAR CONTROL:

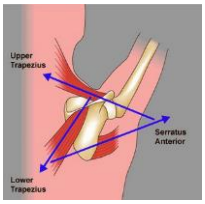
- Neuromuscular control of scapular musculature is diminished in the presence of pathology (Ludewig, 2000).
- Pain inhibits muscle activation at a central level.



EXERCISE THERAPY:

b. Strength :

- The *scapular* provides a dynamic platform for the arm.
- Alteration of the normal anchoring function of the scapular stabilizers results in compromise to the subacromial space



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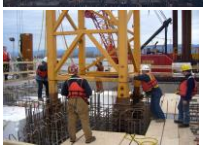
EXERCISE THERAPY:

Crane analogy:

If the base is not anchored securely, the crane is unable to lift the load.



4 PHASES OF REHABILITATION

- *Crawl ⇨ walk ⇨ run ⇨ sprint !*
- *'Would you ask your limping patient to go for a run?'*
- *'Would you expect a crane to lift a load if the base was not securely anchored?'*
- *Phase 1: Reactivate the scapular stabilizers*
- *Phase 2: Add light resistance*
- *Phase 3: Muscle hypertrophy*
- *Phase 4: Sport specific rehabilitation*

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THEORY:

Journal of Bodywork and Movement Therapies (2006) 10, 71–76
Self-management of shoulder disorders—Part 3:

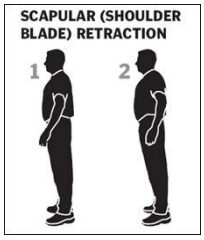
Craig Liebenson, DC

'Starting with light resistance perform scapular setting (***pulling your shoulder back and down***).'

PHASE 1

Scapular setting:

- Early rehabilitation focuses on re-establishing normal scapular control. Setting the scapular *back and* ***level*** (NOT DOWN !) while raising the arm away from the body.
- The ability to *dissociate* movement of the arm from the scapular is the essential building block of restoring normal biomechanics.
- *Unilateral* control initially.



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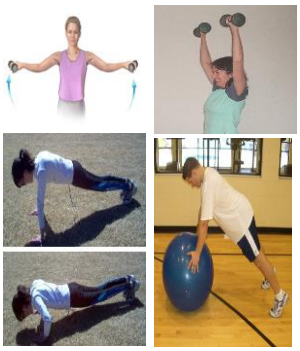
PHASE 2

- Begin adding external loads to the arm while performing exercises in an *inner range* of movement.
- All exercises must be performed with the scapular anchored in it's *retracted* (back & level) position.
- All exercises must be performed *without symptoms!*

PHASE 3 (early)

- Increase loads and begin training in outer ranges, working to include aspects of endurance, speed and sport specificity…
- All with an emphasis on control



PHASE 4

Return to sport:

- *How do you know when the athlete is ready to return to sport?*
  - When the objective findings have normalized to the extent that they are compatible with the demands of the individual's sport
  - Must be able to understand the biomechanical requirements of the sport

PHASE 4

Return to sport:

- Must be *graduated* with consideration to the variables of intensity, frequency, duration, environment, equipment and technique

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EXPECTATIONS / OUTCOMES:

- Rule of thumb: Initial improvement generally takes as many weeks as it has been months, that the problem has existed.
- By 12 weeks you will have 80% of your potential improvement behind you.
- Average patient requires about 4–6 visits over a two to three month period.

PATIENT COMPLIANCE:

- " How do you get your patients to do their exercises ?"
  - Appropriate education
  - Goal setting – written out in the form of a contract
  - Make the exercises achievable – set the patient up for success, not for failure
  - Write everything down- clear diagrams, instructions re repetitions/ frequency

EXERCISE THERAPY:

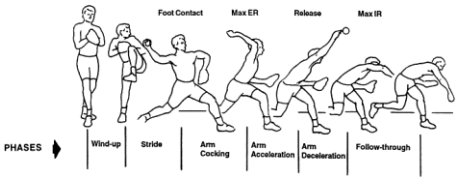
- **Exercise prescription:**
  - Which exercise ?
  - How many ?
  - How often ?
  - What force / resistance ?
  - Pain ?
  - Technique

THE THROWING SHOULDER






THE THROWING SHOULDER



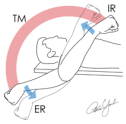
THE THROWING SHOULDER

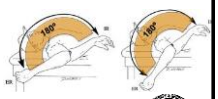
- Retroversion of the humerus in throwing athletes is a developmental consequence of participation from a young age

THE THROWING SHOULDER

Glenohumeral internal rotation deficiency (GIRD):

When the amount of IR or total arc of motion difference reaches a certain threshold (typically 20 or more degrees of IR or 8 degrees total arc difference), it is known as glenohumeral internal rotation deficit or total arc of motion deficit.





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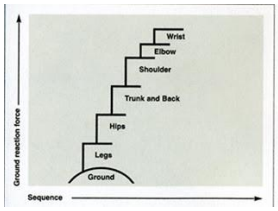
THE THROWING SHOULDER

- A detailed consideration must be given to the ***entire kinetic chain*** when assessing the shoulder of the throwing athlete.



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THE THROWING SHOULDER

Treatment:

- As previously discussed, the objective of rehabilitation of the throwing shoulder is to identify the deficient biomechanical components and set about strategies to correct them
- Assess issues of flexibility, neuromuscular control and strength as relevant to the thrower
- Establish an appropriate plan of action with the patient

CONCLUSION

- Physiotherapy rehabilitation for shoulder pathology aims to ***normalize*** deficient shoulder mechanics
- A ***targeted,*** clinically reasoned approach, determined from the initial objective examination, addressing issues of flexibility and/or muscle control and strength, is essential

CONCLUSION

- Rehabilitation programs must be suitably structured to work in a ***graduated*** manner from least to more demanding exercises
- *Use this logical approach to help make treating shoulders easy!*

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Coming up next week

World Health Webinars

"Past, Present and Future Directions in Running Shoes"

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