Accelerated Rehabilitation Protocol Following Reverse Total Shoulder Arthroplasty:

A new concept

• Increasing use of rTSA (NJR: 45%)

• Consensus that postoperative rehabilitation is vital to regaining motion, strength and function

• Protocols based on expert opinion not evidence-based

• Remains neglected area
AIM

- Compare outcomes of accelerated VS standard rehabilitation protocols

- Assess safety and effectiveness of active accelerated rehabilitation protocol
305 shoulders (273 patients, 32 bilateral) underwent rTSA

Mean age at surgery

3-groups depending on rehabilitation protocol (6w, 3w & 2d (immediate) of postoperative immobilisation respectively)

Constant score, Satisfaction score, video recording

Independant blinded assessor

Clinic review: preop, at 3w, 3m, 6m, 1 year and yearly postop
Patients and Methods

Preoperative Diagnosis (%)

- Rotator cuff arthropathy: 66%
- Rheumatoid Arthritis: 14%
- Revision for failed resurfacing: 8%
- Osteoarthritis with glenoid deficiency: 7%
- Failed rotator cuff repair: 14%

Proximal humeral fractures excluded (immobilized for 3w)
• Acromial attachment of deltoid lifted as “Osteo-periosteal flap”

• **Closure:**
  All remnants subscapularis or teres minor/infraspinatus tensioned & reattached using intraosseous sutures.

• Deltoid osteoperiosteal flap reattached to acromion through bone with robust “double row intraosseous repair”
Patients and Methods

Accelerated Active Rehabilitation Protocol

- **Early phase:** early mobilisation without restriction (joint mobility)
- **Later phase:** functional rehabilitation
- **“Reading deltoid regime”:** elevation in scapular plane, low weight & high repetition 3 min x 5 per day (shoulder endurance)
- External and internal rotation in abduction
- **6 weeks of precautions to reduce dislocation**
  - Avoid hand behind back
  - Avoid weight bearing through arm
  - “Do not push yourself out of a chair”

Start supine, progress to sitting & standing
**Results**

**Results: Constant Score**

**Constant score**

- Immediate mobilisation
- 3 weeks in sling
- 6 weeks in sling

**Constant Score Age Adjusted**

- Immediate mobilisation
- 3 weeks in sling
- 6 weeks in sling
Results

Range of Motion

Forward Flexion

- Immediate mobilisation
- 3 weeks in sling
- 6 weeks in sling

Abduction

- Immediate mobilisation
- 3 weeks in sling
- 6 weeks in sling
Results

Satisfaction Score

No statistical difference between the 3 rehab protocols
Results

Complications

None related to the rehabilitation regime

- **6w immobilisation:**
  - 1 Acromial fracture (fall)
  - 1 Scapular spine fracture (plated)
  - 1 periprosthetic humeral fracture healed conservatively
  - 1 axillary nerve neuropraxia

- **3w immobilisation:**
  - 2 periprosthetic humeral fracture healed conservatively (fall)
  - 1 acromial stress fracture
  - 1 infection successfully treated with washout.

- **Immediate mobilisation:** no complications
First Study comparing 3 different rehabilitation protocols rTSA

Traditionally, rehabilitation following rTSA is conservative

No detrimental effect with immediate mobilisation protocol

Lower rate of periprosthetic fracture could be due to better balance

No dislocations or acromial fracture related to Rehabilitation

CS, patient satisfaction marginally better in early mobilisation group but with no statistical significance

ROM in early mobilisation group was better, early & late follow-up
Immediate rehabilitation is safe and reliable

- No increased risk of dislocation or fracture
- Faster recovery
- Reduced immobilisation discomfort
- Reproducible good outcome
- Happy patients!