The Orthopedic Surgeon’s Role in Rehabilitation of Shoulder injuries

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• Active but specific role
• “If you were interested enough to be there at the start of this, you ought to be interested enough to be there at the end as well”
  - Tom Shirley MD
Knowledge base
- Goals of rehabilitation
- Progressions of protocols
- Content of rehab phases
- Limitations of rehabilitation
- Rehabilitation controversies

Rehabilitation
- Restore function

Function
- Anatomy, physiology, biomechanics
- All rehab situations, as a result of injury or treatment, will have elements of each contributing to dysfunction
Functional restoration
- Optimized anatomy
- Task, activity specific physiology
- Task, activity specific biomechanics, motions
- Criteria for return to play

1- Anatomy
- Optimized anatomy to allow rehabilitation
- Non surgical elements
- Surgical elements - repair, tissue quality, length of protection

• Optimize surgical anatomy
  – Anterior Bankart - bony, soft tissue
  – Rotator cuff repairs
  – Superior labral lesions
  – Other pathology
• Don’t distort anatomy
  – Overtightening- anterior, posterior, rotator interval
  – Biceps tightening
  – Medialization of labrum
  – Wrong rotator cuff repair pattern, tension

2- Initial exercise prescription
• Based on exam- anatomy, physiology, mechanical deficits- local, distant
• Pre operative, non operative, post operative
• Non surgical areas

Prescription
• Specific anatomic areas
• Specific types of exercises
• Specific timing of exercises
• Not “evaluate and treat”
• Not “rotator cuff exercises”
Prescription
• Surgeon evaluates for deficits that need to be addressed
• PT develops the specific exercises to restore the deficits towards function

3- Mobilization/immobilization/protection
• Structures to protect
• Length of time
• Type of brace/sling
• Position of extremity
• Progression in mobilization

Security of repair
• Labrum, instability
  – Anchors-number, location
  – (-) biceps/labral peel back
  – Biceps external rotation
  – Capsular tension
(-) Rotator cuff repair

- Protect labral repair 3-4 wks
  - Min biceps eccentric load
  - No external rotation strain
  - Abd < 90 degrees - closed chain, hand supported
- Sling full time - 10 days

Security of repair

- Rotator cuff
  - Type of tendon repair
  - Attachment to footprint
  - No tension on repair in rotation
  - Amount of rotation
(+ Rotator cuff repair

- Most data - animal models
- Protect repair 6-8 wks
  - No early CPM/passive motion
  - No active/assisted motion away from body - 3-4 wks
(+ ) Rotator cuff repair

- Protect repair 6 - 8 wks
  - Low level - controlled force
  - Closed chain < 90 deg - 3 wk
  - No resisted ER/IR - 4 - 6 wks
  - No RC activation - 6 wks
- Sling x 2 - 3 wks - scap retract

4- Rehabilitation phases

- General types of exercises in each phase - flexibility, strength, strength balance, endurance, stability
- “Red flags” - caution within each phase
4- Rehabilitation phases
• “Green flags”- progression within each phase, progression to next phase
• Criteria- progression
• Criteria- return to modified, full activity

ACUTE PHASE
• Protect repair
• Kinetic chain activation
  – Hip/leg flexibility/strength
  – Back/core strength
  – Integrate core/scapula
  – Scapular retractions- sling

ACUTE PHASE
• Criteria for progression- function, not time based
  – (-) one leg stability
  – Active scapular retraction
  – Repair capable of withstanding low loads
RECOVERY PHASE
• Kinetic chain normalization
  – Hip/back- core stability
  – Scapula- retraction- control internal rotation, anterior tilt
  – Integration- core/scapula

RECOVERY PHASE
• Range of motion- closed chain- emphasize rotation
  – Body around stable arm
  – Codman’s on ball
  – < 90 deg abduction/flexion
  – > 90 deg abduction/flexion

RECOVERY PHASE
• Repair loading- closed chain
  – Safe ranges of motion- flexion, rotation
  – < 90 deg- > 90 deg
  – Scapular plane (minimal loads)- other planes
FUNCTIONAL PHASE

• Task specific progressions
  – Throwing- long/short toss
  – Serving- node progression
  – Other sports
  – Work- work hardening, work conditioning

Return to Activity

• Optimized anatomy
• Kinetic chain capability
• Scapular control- SHR
• GH motion, strength
• Activity specific functional progressions

CONCLUSIONS

• Specific role in rehabilitation
• Optimize, evaluate anatomy
• Identify deficits- red/green
• Progressions thru phases
• Return to activity criteria
THANK YOU