
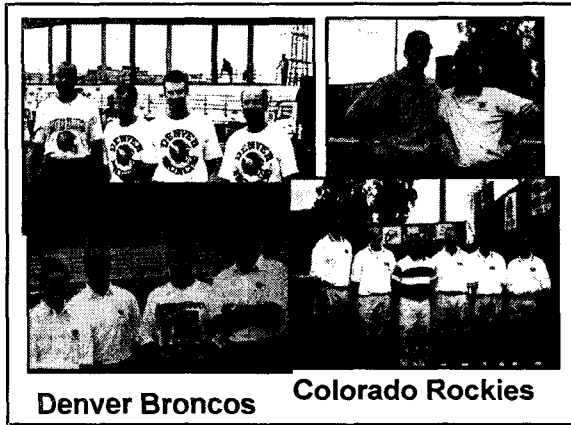
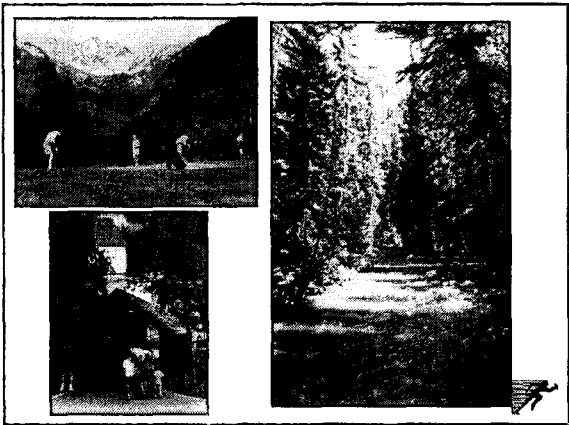
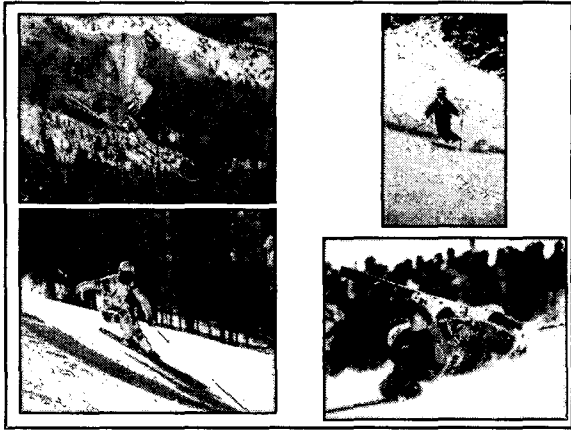



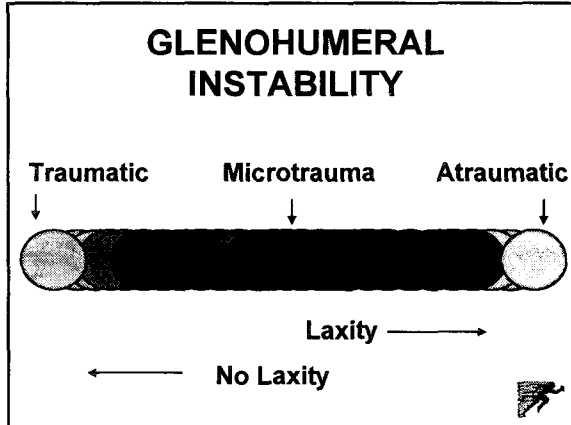
**Shoulder Problems  
in the  
Overhead Athlete**  
by  
Richard J. Hawkins, M.D., FRCS(c)  
for

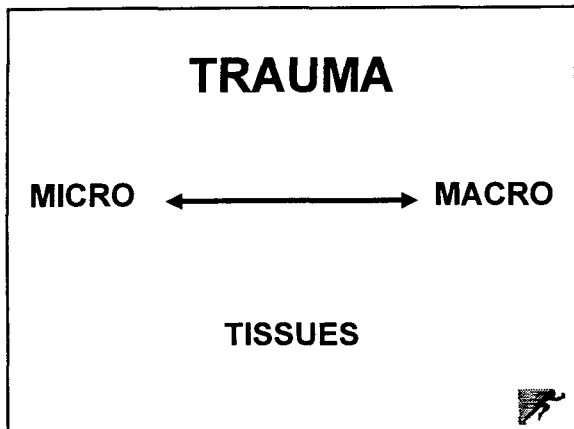
4<sup>th</sup> ACASA  
November 2, 2002  
Seoul, Korea

*“... the difficulties encountered in treatment of injuries to the shoulder joint have always been more troublesome and more obscure than the difficulties in treating all other joints together”*

John Ridlon, 1992





## GLENOHUMERAL INSTABILITY

Atraumatic

Traumatic

Overuse






TRAUMATIC

UNIDIRECTIONAL

BANKART

SURGERY

ATRAUMATIC


MULTIDIRECTIONAL

BILATERAL

REHABILITATION

INFERIOR CAPSULAR SHIFT

INTERVAL CLOSURE




### EXAM UNDER ANAESTHESIA


Anterior

Inferior


Posterior



Translation



## A Dilemma Exists in the Overhead Athlete



## Involved Pathologies

### Anterior instability

- Classic
- Impingement
- SLAP
- Int. imp.



Challenging to diagnose



## Mechanics Of Impingement

Matsen described the yo-yo effect of the glenohumeral joint and it's relationship to impingement

Suggested a tight posterior capsule pushes head forward where it is more vulnerable to impingement

*Rockwood and Matsen's Text  
The Shoulder, Saunders 1998*



## Basic Science

### Cadaveric model

- Obligate ant translation
- Post capsule involvement
- Impingement



*Harryman DT, et al JBJS 1990(72)*



## These Basic Science Studies

Suggest with anterior translation or an anteriorly translated humeral head the rotator cuff is more vulnerable to classic impingement.

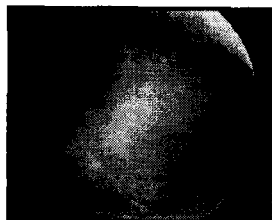


## ROLE OF THE BICEPS

SLAP Lesions

EMG studies

Decelerator



## Pathological Changes

### Classification:

Degeneration

Origin problems

Instability



### Resurgence of Interest

#### Relates to ....

- SLAP lesions
- Subscapularis lesions
- Hidden lesions
- Assoc. with SAD failure



### Biceps Rupture

- Anterior acromioplasty
- Explore cuff
- Repair biceps



### Humeral Head Depressor

- Release with massive tears
- No ↑ migrations of head

*Walch et al; 1998 ASES Open Mtg.*



### Question

- Tenodesis      Tenotomy
- “Fix it”      or      “Let It Fly”



### Release vs Tenodesis

- Deformity
- Weakness
- Recovery



### Release vs Tenodesis

- 30 of each
- Release
- Quicker recovery
- Fewer complications
- Less pain



## RELEASE

**Half hang in groove with no deformity**

*Walch, Abrams, Misamore, Hawkins*



## Biceps Rupture

**No Tenodesis**

**21% Loss Supination**

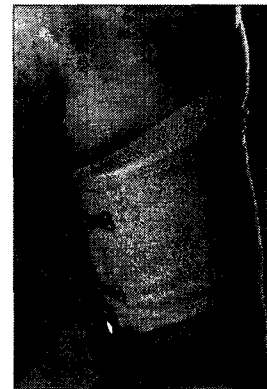
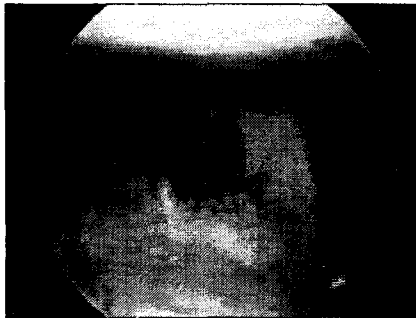
**8% Loss Flexion**

*Mariani et al; CORR, 1988*

**Biceps rupture rarely painful except at biceps stump**



## Bovie Release



**Following release we now apply ACE wrap for 2 weeks**



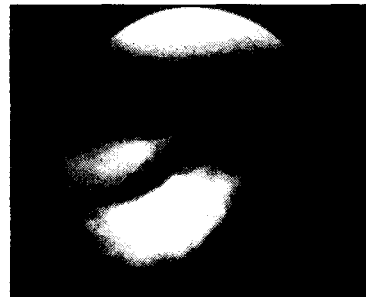
**Although biceps function important - if degenerative it may be source of pain**



*eg. Elway, Zimmerman*



## HIGH ASSOCIATION OF BANKART AND SLAP



## BICEPS

Eccentrically loaded, protects

- SLAP area
- I.G.H.G. area



## BICEPS - LABRAL COMPLEX

SLAP pathology

Relationship to instability



SUPERIOR

LABRAL

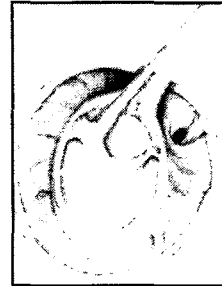
ANTERIOR

POSTERIOR



## CLASSIFICATION

- I - Fraying
- II - Labral Detachment
- III - Bucket
- IV - Biceps



*Snyder, Arthroscopy: 1990*

## TREATMENT

- Debride
- Stabilize
- Excise

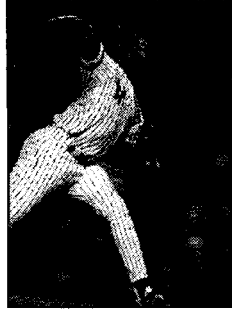


## Postero - Superior Glenoid Impingement



## BY DEFINITION

Arthroscopic finding  
Cocking position  
Davidson / Jobe and  
Walch descriptions



## TWO SCHOOLS

### Walch

Present in overhead athletes  
unrelated to  
anterior instability



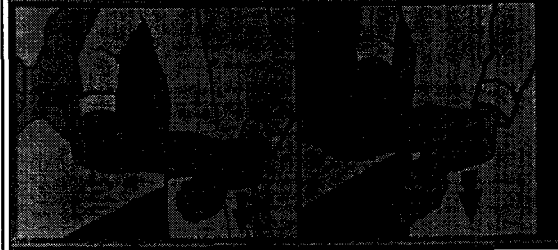
## TWO SCHOOLS

### Davidson, Jobe

Spectrum often associated  
with or worsened by  
anterior instability



## RELOCATION TEST



## SURGICAL MANAGEMENT

Debride  
Debride + Stabilize  
Osteotomy



## Physical Exam

### Anterior instability

- Apprehension sign
- Increased ant translation
- Other signs neg



## Physical Exam

### Classic impingement

- Impingement signs
- Painful arc
- Tender tuberosity (biceps)
- Other signs neg



Positive imp test i.e. injection



## Physical Exam

### Internal impingement

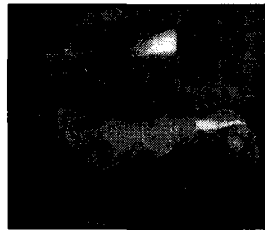
- Pos relocation test
- Impingement signs
- Tender post
- Pain in ER-ABD
- Other signs neg



## Physical Exam

### SLAP lesions

- Positive O'Brien
- Positive clunk
- Biceps signs
- Increased translation



Since these diagnoses  
are often  
present together  
there is often  
overlapping signs



## Diagnosis

### MRI most helpful

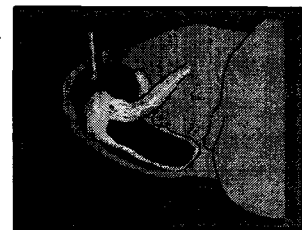
- Impingement-supra
- Instability-ant capsule
- Int imp-sup labrum

-post cuff



## Diagnosis Often Difficult

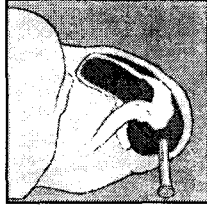
- Careful history
- Physical exam
- Injection tests
- X-ray and MRI
- EUA and Arthroscopy





## Injection Techniques

Subacromial  
Impingement test  
Acromio --  
Clavicular joint  
Biceps Tendon



## Impingement test Predicting Outcomes After ASD

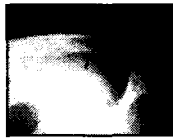
60 patients  
> 75% pain relief = ASD success > 90%  
< 25% pain relief = ASD success < 65%

*Mair, Hawkins, et al.*  
1999 ASES Specialty Day,  
Anaheim, CA



## Neer

- Subacromial impingement leading to rotator cuff tears occurs under the anterior third of the acromion
- Variation in the shape and slope of the acromion cause impingement



*Neer, JBJS 1972*



## Open Acromioplasty

188 patients

5 year follow – up

Satisfactory 87%



*Hawkins R.J. JBJS, 1988*



## Open Acromioplasty Results

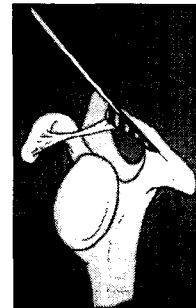
Neer, 1972  
Warren, 1985  
Post, 1987  
Cofield, 1987  
Hawkins 1988

Satisfactory Rates 86% - 95%



## Open Decompression Results

Satisfactory Rate  
86% - 95%



## Published ASD Results

Ellman, 1987  
Gartsman, 1990  
Altcheck, 1990  
Paulos, 1990

Satisfactory Rates 73% - 88%



## Arthroscopic Decompression

Ellman 1983 –  
Concept

Gartsman 1988 -  
Cadaveric



Ellman, 1983, described concept of  
arthroscopic decompression

Gartman, 1988, described a cadaveric  
model with emphasis that  
decompression can be effectively  
performed arthroscopically



## Hawkins

Arthroscopic decompression. 96  
patients, Failure rate 50%

Followed by finger identification of  
adequacy of acromioplasty, Two  
year follow-up. 40 patients,  
Success rate 86%



## Subacromial Arthroscopy

Scarring ?

Cuff pathology

- Bursal side
- Full – thickness



Acromial pathology



## Subacromial Impingement

Decompression vs. Smoothing

Biceps tendon

AC joint

Role of ligament



## When Not to Decompress

? Acute dislocation with cuff tear

- Younger patients

Large or massive cuff tears

- Lose fulcrum

Cuff arthropathy



## Complications of Decompression

Take to much --- Fracture

Disruption of superior arch with large and massive tears



## ANTERO-SUPERIOR Instability

Cuff failures with  
insufficient hood  
= Disaster



## Recent Work...

Rotator cuff repair  
without acromioplasty  
(50 pts)

- No acromioplasty
- SST outcomes
- ASD – NOT NEEDED



Matsen, Clin Orthop 2001 Sep;(390):142-50



## Older Work...

- Maintain superior arch with preservation of coracoacromial ligament – massive tears  
*Bigliani, Orth Clin, 1998*

- Debridement of partial thickness RCT No acromioplasty

*Nirschl, JBJS 1998*



## Dr. Neer's Question to the Above Authors

What if there is a spur ????????

Answer – “Smooth it”

Response – “I can live with that”

*ASES, Kiawah, 1998*



### Advantages of Acromioplasty

↓ Pain

↑ Exposure

Protects repair of cuff



### Does ASD ↓ Pain ?

After 3000 acromioplasties  
If it does not work...

I owe a lot of patients an  
apology and/or a refund !!!



### Impingement and Cuff Tears

#### Process

- Eccentric overload
- Fiber failure
- Proximal migration
- *Impingement*
- Cuff tearing



### Impingement Surgery



Undersurface	→	Debride
Bursal	→	Decompress
Partial	→	Decompress
+ / -	→	Reconstruct
Tear	→	Reconstruct



### Conservative Treatment

Stretch post capsule  
Strengthen GH rotators  
Strengthen ST muscles



GOAL -To hold head down  
and keep it centered



## Scapular Exercises

- Push-up plus
- Bear hug
- Seated rows
- Shrugs
- Upright rows



*Mosely; AJSM 1992  
Decker & Hawkins; AJSM 1999*



## The Athlete's Shoulder

Unfortunately often has a multitude of diagnoses and pathologies present at the same time

Which to correct if surgery is considered is the challenge

Remembering to do the right amount and not too much



## Andrew's Throwers

Reported improved outcomes in throwers who had anterior heat added to the treatment of internal impingement debrided with or without post labral fixation  
Or debridement or fixation of SLAP

*J Orthop Sports Phys Ther 2002 Jun;32*



## Surgical Indications

Depends on  
Accurate diagnosis  
Significant disability  
Failure of cons Rx



## With EUA

Compare translation of both shoulders especially for any increase in anterior translation



## With Arthroscopy

Examine

- Subacromial space
- Ant labrum & capsule
- Undersurface cuff
  - supraspinatus
  - infraspinatus
- Sup labrum ant & post

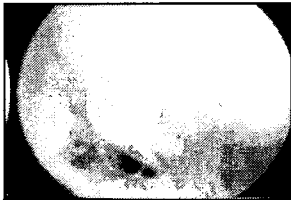


## Surgical Approach

Internal impingement

Debride post-sup  
labrum

Debride post cuff  
Heat ant capsule



## Surgical Approach



## Surgical Approach

Anterior instability

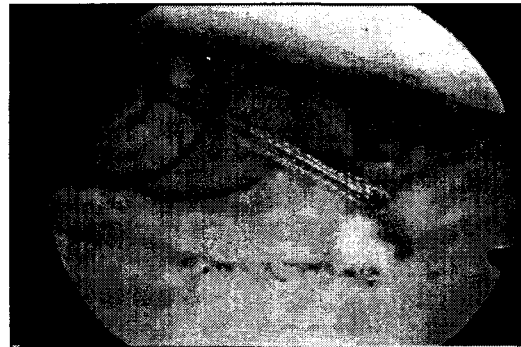
- Cap-lab reconstruction
- Open procedure of your choice
- Open capsular overlap (Altchek)
- Arthroscopic bankart plus heat



Usually no Bankart



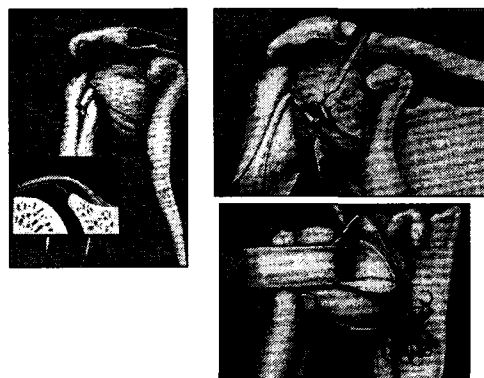
## Surgical Approach



## Capsulolabral Reconstruction

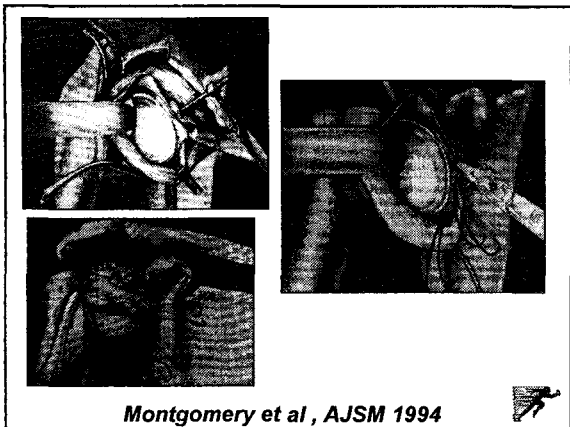
- 32 overhead athletes
- Instability complaint
- Increased ant. translation
- 81% returned to same level
- 1 recurrent instability

Montgomery and Jobe , AJSM 1994



Montgomery et al , AJSM 1994

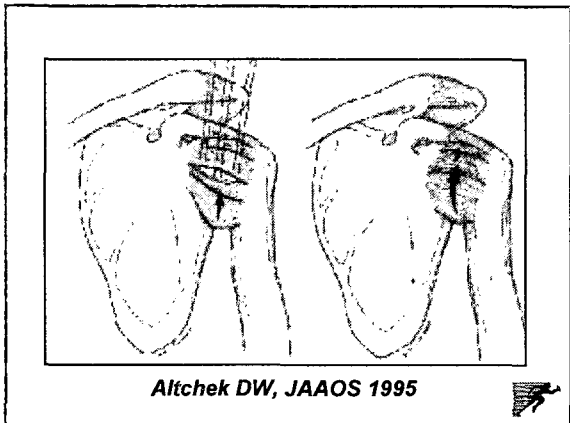




**Capsular Repair:  
Labrum Intact**

- Horizontal subscap split
- Horizontal capsular split
- Three mattress sutures

Altchek DW, JAAOS 1995



**Surgical Approach**

**Impingement plus instability**  
 Determine main problem  
 If impingement-decompress  
 If instability-stabilize

**If both decompress and stabilize**

**Surgical Approach**

SLAP lesions  
 Debride  
 Stabilize labrum  
 (suture)  
 Excise bucket  
 Question of heat

**Biceps**

Role of Biceps  
 Failure of SLAP.....

-

## Surgical Approach



## Treatment of athlete's shoulder

- Treat primary shoulder problem
- Rehab GH and ST joints

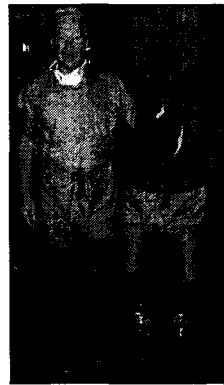


## Summary

- Instability in the overhead athlete complicated
- Consider other pathologies:
  - Internal Impingement
  - SLAP
- Diagnose by Hx, Px, MRI, EUA, and arthroscopy



Thank You



1. Neer CS II. Anterior acromioplasty for the chronic impingement syndrome in the shoulder: a preliminary report. JBJS (Am) 1972;54:41-50.
2. Goldberg BA, Lippitt SB, Matsen FA 3<sup>rd</sup>. Improvement in comfort and function after cuff repair without acromioplasty. Clin Orthop 2001 Sep;(390):142-50

