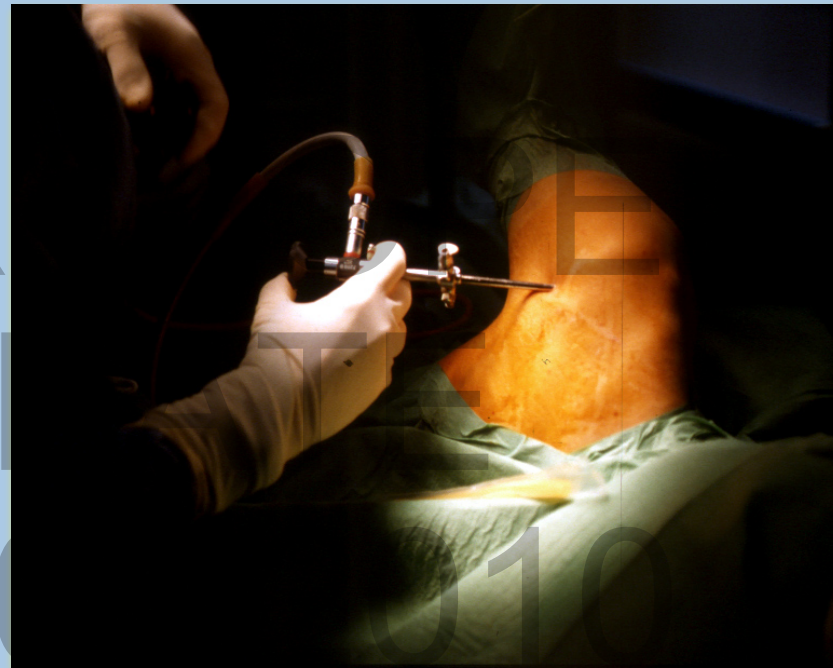


Arthroscopic anterior shoulder stabilization: ORTHOPEDICS UPDATE 2010



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**Department of Orthopedic Surgery + Traumatology
University of Bern, Inselspital, Switzerland**

THANK YOU !

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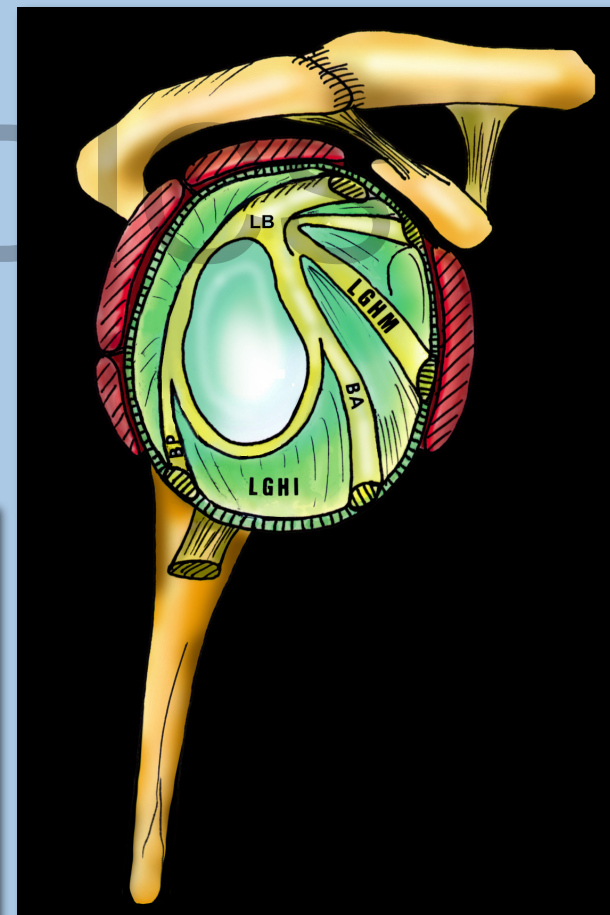
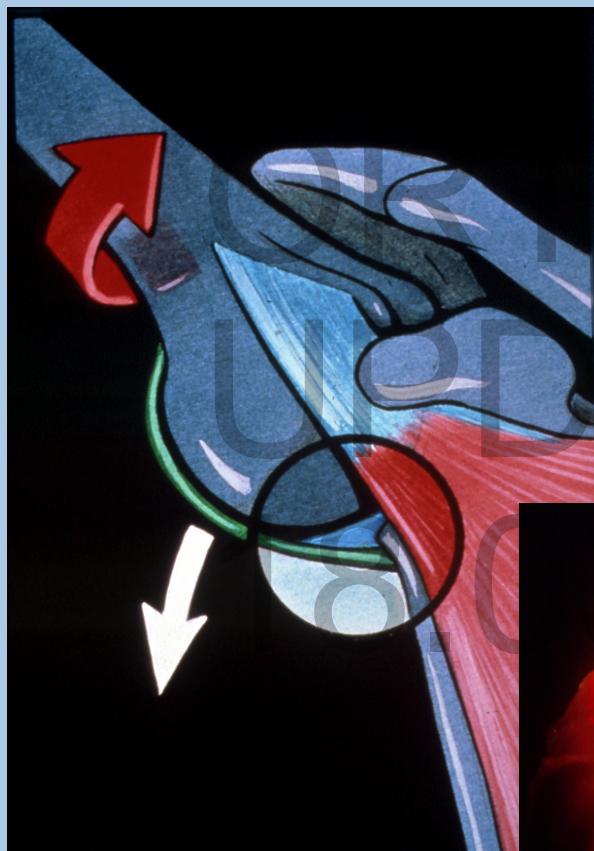


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University of Zürich, Balgrist
(Switzerland)**



**Dep. of Orthop. Sports Surgery
University of Nice
(France)**

THE INFERIOR HAMOC



SOFT TISSUE LESIONS

1. labral lesion
2. Caps-lig distension (IGHL)
3. context of hyperlaxity

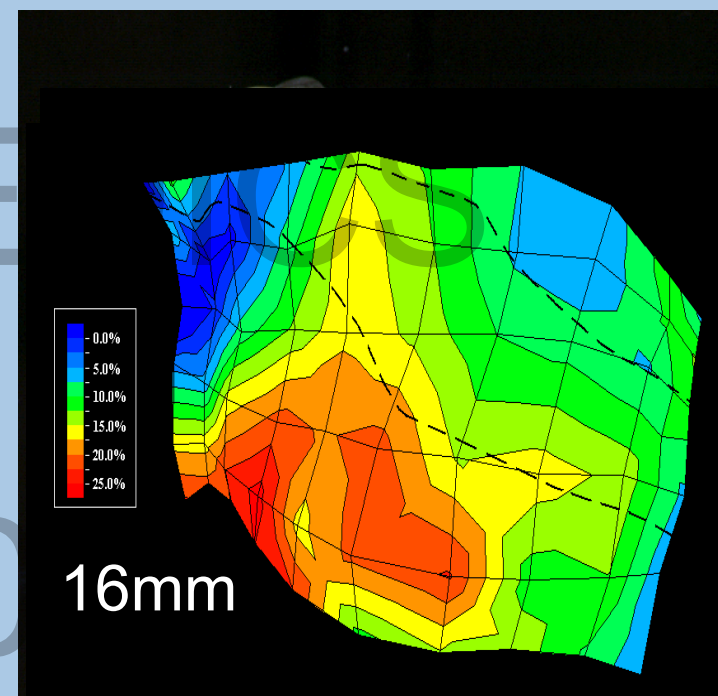
O'Brien, Saunders; 1990

Malicky DM, JSES: 2002

Bigliani, L, 1992

Soskowsky, L, 2001

Speer, L, 1994



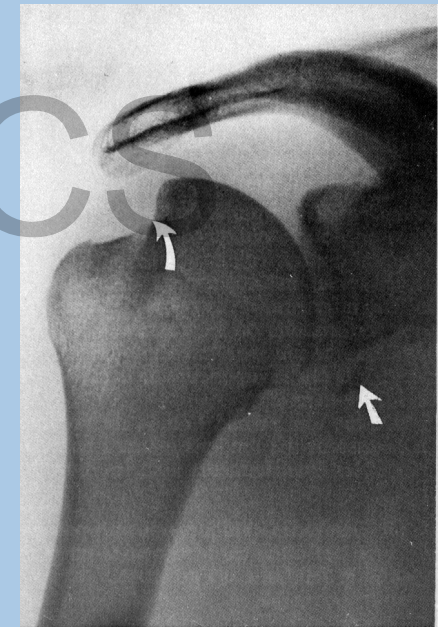
BONY LESIONS

humerus ->

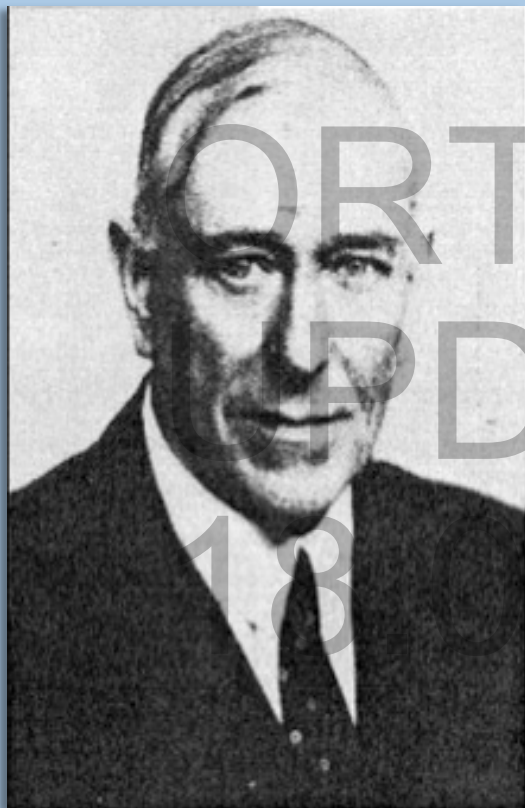
Malgaigne 1855

Hill Sachs 1940

glenoid



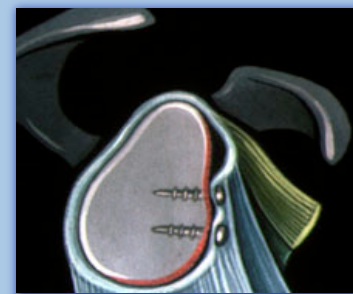
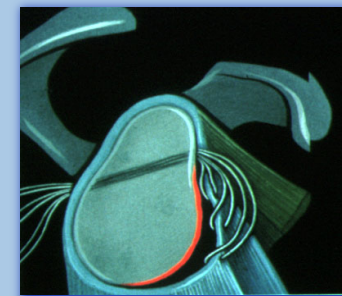
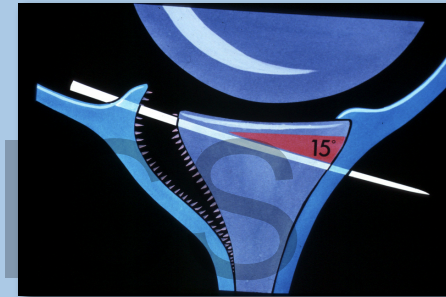
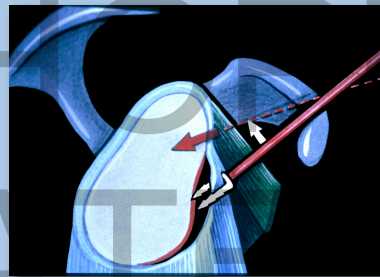
1. LABRAL REPAIR



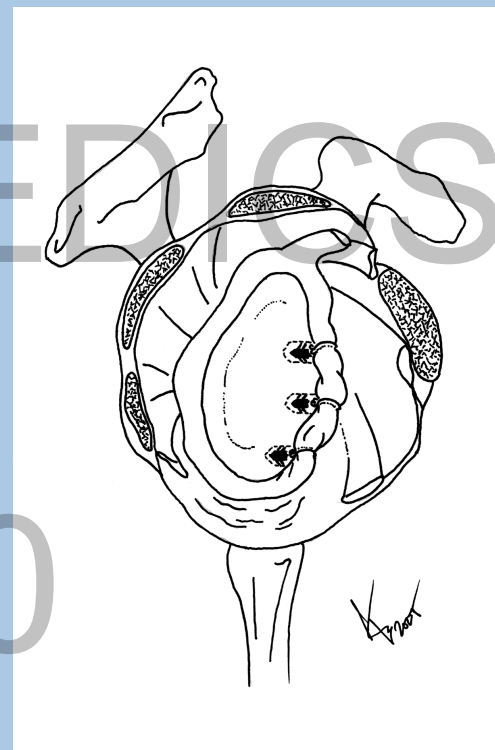
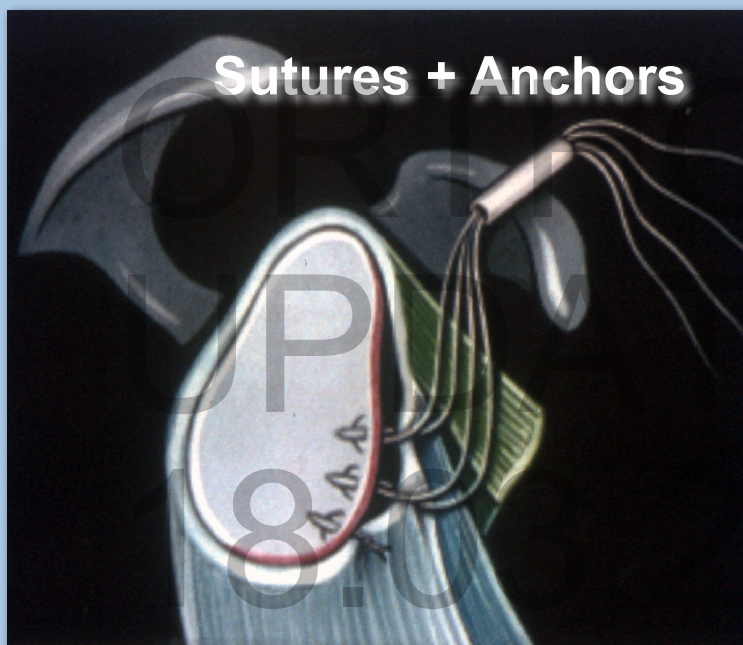
Bankart Blundell A: The BMJ, 1923

DIFFERENT TECHNIQUES EVOLVED...

- Morgan (transglenoid sutures)
- Staples
- Caspari (transglenoid sutures)
- Absorbable Tacs (Suretac)



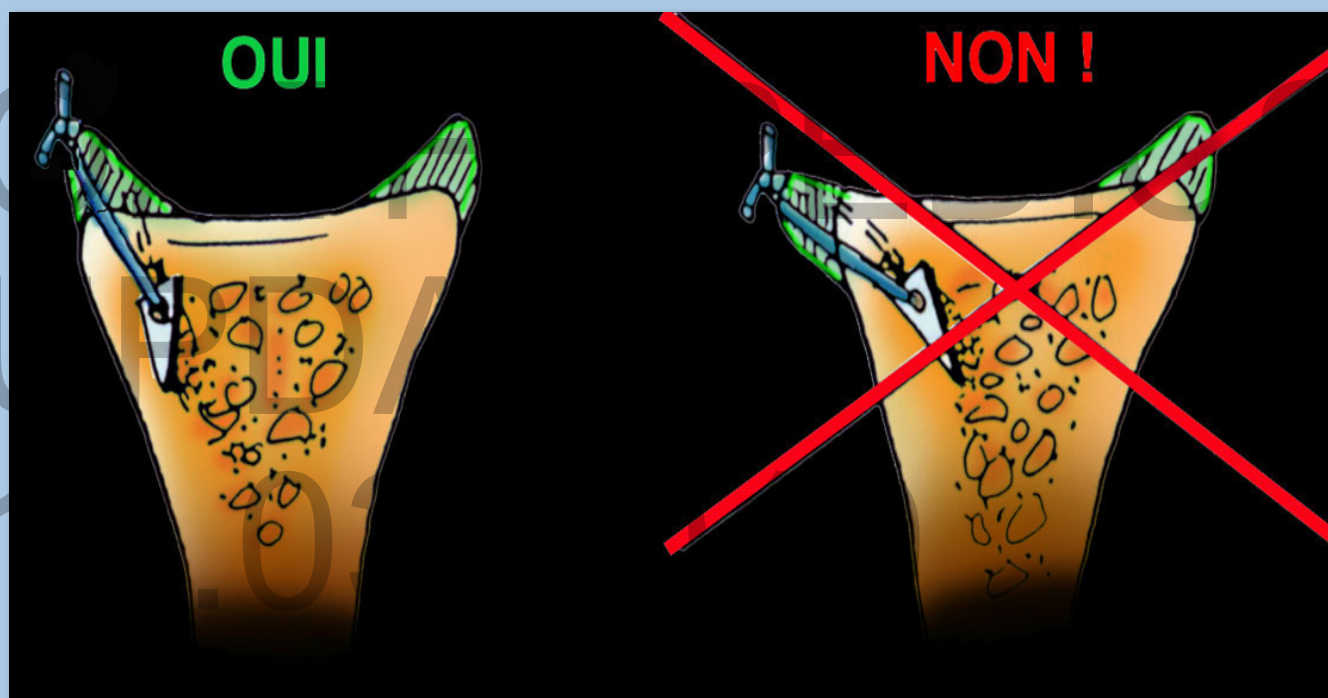
ARTHROSCOPIC BANKART REPAIR



Standardized Technique

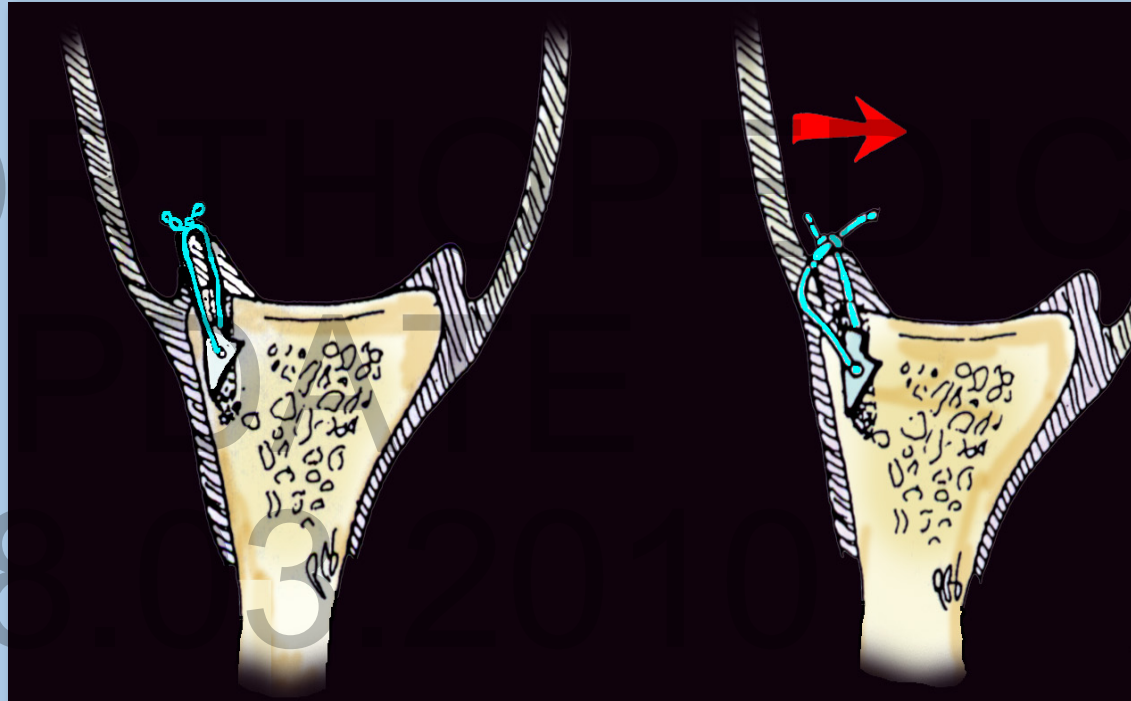
Wolf E, 1993

SURGICAL GOAL # 1: LABRAL LESION



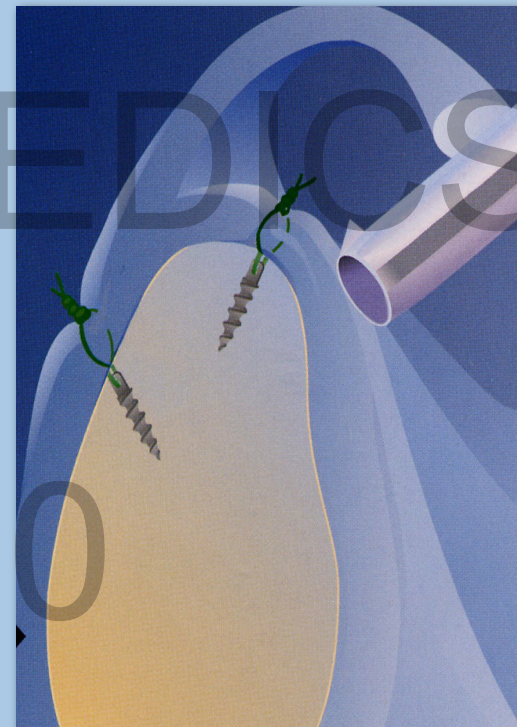
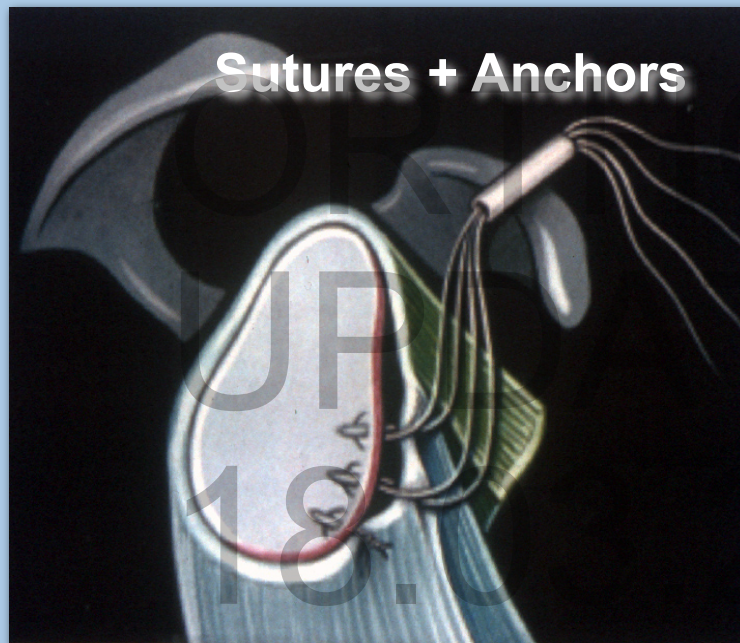
Recreate the concavity completely !

SURGICAL GOAL # 2: CAPSULE



- Repair the labrum **INCLUDING** a capsular plication

SURGICAL GOAL # 3: CAPSULE + LABRAL LESION



- LOOK and REPAIR all lesions: sup, inf, post
- -> change the scope into anterior portal

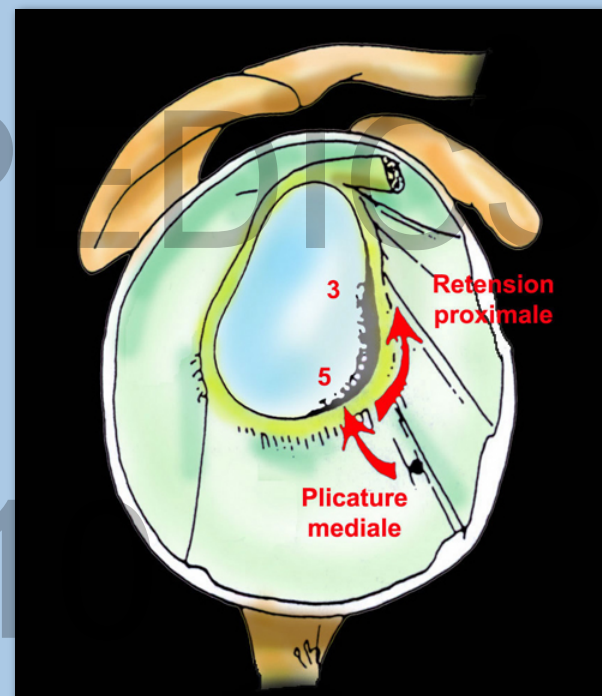
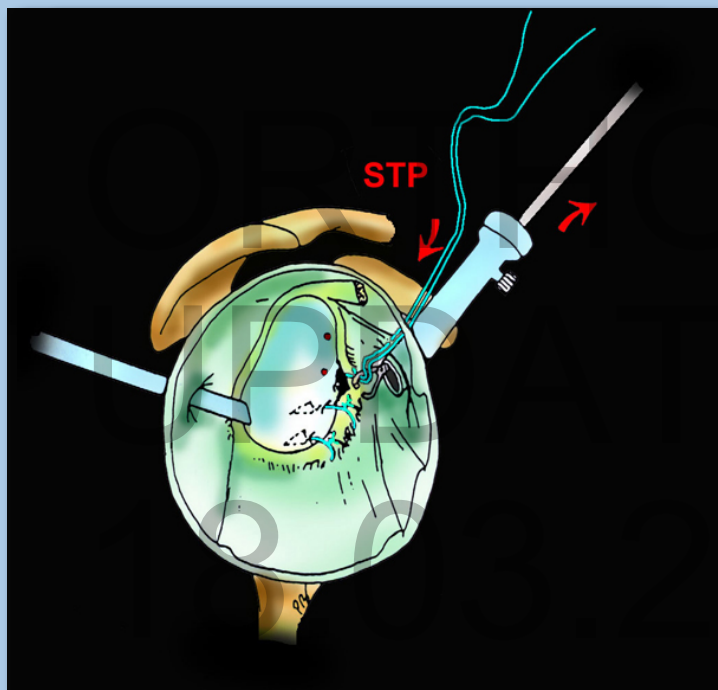
SURGICAL GOAL # 3: CAPSULE + LABRAL LESION

ORTHOPEDIC
UPDATE
.03.2010

SURGICAL GOAL # 3: CAPSULE + LABRAL LESION



SURGICAL GOAL # 4: SHIFT THE CAPSULE



Ant-inf lesion should be shifted

- south -> north
- west -> east

Neer CS, JBJS Am; 1980

Boileau P, Ahrens P: Arthroscopy; 2003

ARTHROSCOPIC BANKART REPAIR

ARTHROSCOPIC

- Standard therapy
- > redislocation rate up to 15%

Boileau P. JBJS Am; 2006

Rhee YG. AJSM; 2006

Tjumakaris FP. CORR, 2006

Bottoni CR: AJSM, 2006

OPEN

- detachment and reattachment of the subscapularis muscle -> partial insufficiency
- > loss of ER
- > redislocation rate <4%

STANDARDIZED SURGICAL TECHNIQUE

Labrum+Capsule:

Debridement,
mobilization &
reduction

IGHL:

south-north
east-west
(TOTS Suture # 1
PDS)

Anchor placement:

1mm on surface



SURGICAL TECHNIQUE

Labrum+Capsule:

Debridement,
mobilization &
reduction

IGHL:

south-north
east-west
(TOTS Suture # 1
PDS)

Anchor placement:

1mm on surface



RESULTS OF ARTHROSCOPIC SHOULDER STABILIZATION

Some Failures remained [Meta-analysis]:

- | | |
|----------------------------------|-----|
| • Morgan (transglenoid sutures) | 33% |
| • Staples | 23% |
| • Caspari (transglenoid sutures) | 22% |
| • Absorbable Tacs (Suretac) | 17% |
| • Sutures + anchors | 11% |

Hobby, J: JBJS Br, 2007



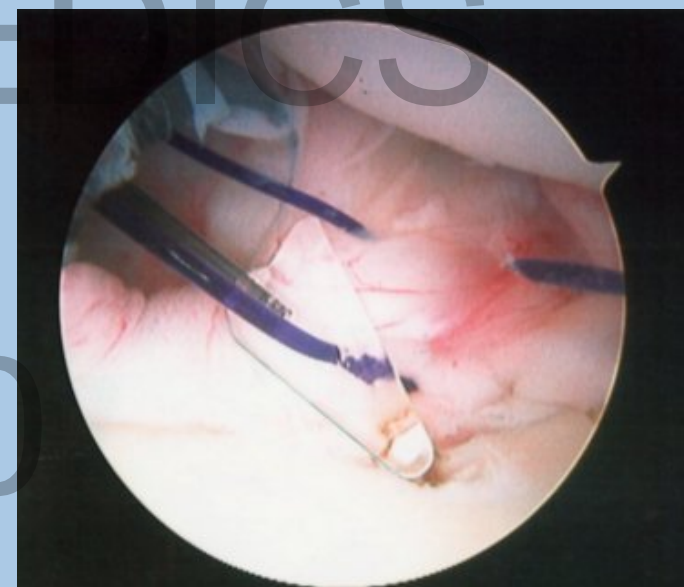
CONCLUSIONS: Advantages

Functional Shoulder

- 90% Patients satisfied
- 80% Painless shoulders
- Mild Limitation ER1 : 10°
- 75% Return same sport and same level

Virgin Shoulder

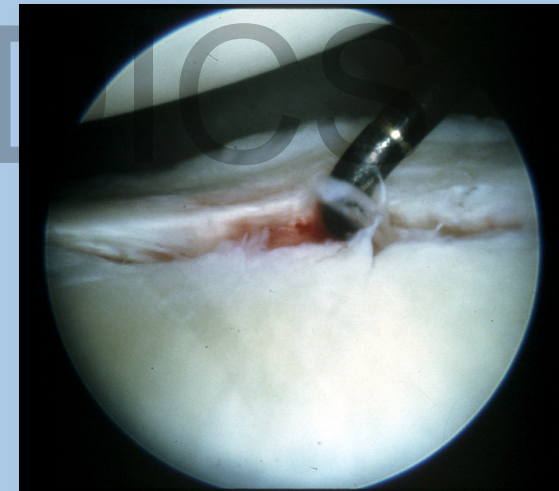
- Allows revision/latarjet



CONCLUSIONS: Disadvantages

Stability Still deceiving

- > 11-15% of recurrence of dislocations/subluxations
- > 9% persisting apprehension



?

ARTHROSCOPIC BANKART FAILURES

**Reason of
failures ?...**

...our incompetence

to select

the right patient!



RISK FACTOR FOR RECURRENCE

Age at Surgery < 20 years

Age (years)	Redislocation rate (%)	Reference
< 20	95	McLaughlin [73]
	92	Wheeler [108]
	90	Ryf [88]
	66	Simonet [93]
	65	Hovelius [42]
20–30	79	Rowe [88]
	67	Hoelen [41]
	50	Hovelius [42]
30–40	18	Hovelius [44]
> 41	10	Hovelius [44]

RISK FACTOR FOR RECURRENCE

Age at Surgery < 20 years

Mean Age

Recurrence = 22 yo

No recurrence = 28 yo

p=0.014

**Age
(categorized)**

**Recurrence
20 yo or younger 31%**

Older 20 yo 8%

p=0.001

If > 30 y, recurrence = 4%

Balg, F: JSES; 2007

RISK FACTOR FOR RECURRENCE

Contact or Forced-Overhead Sports



Lafosse, L: Revue de chir orth; 2000
Pagnani, M: AJSM; 1996



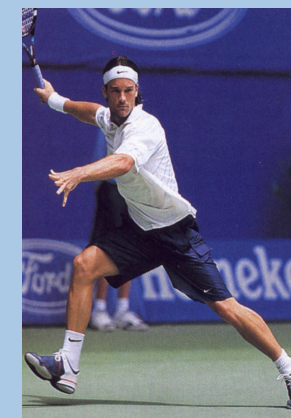
Roberts, S: JSES; 1999
Torchia, M: Arthroscopy; 1997

RISK FACTOR FOR RECURRENCE

Level of Sport Practice [Competition]



	Recurrence
Competition	50%
Recreational or no sports	15%



p=0.01

Lafosse, L: Revue de chir orth; 2000 Roberts, S: JSES; 1999

Balg, F: JSES; 2007

RISK FACTOR FOR RECURRENCE

Hyperlaxity (Ant or Inf)

Anterior Shoulder hyperlaxity:

External rotation at the side $> 85^\circ$



Kempf, JF: Revue de chir orth; 2000

Coudane, S: Revue de chir orth; 2000

Inferior Shoulder hyperlaxity :

Side to side difference in
hyperabduction $> 20^\circ$ (Gagey Test)



Torchia, M: Arthroscopy; 1997

RISK FACTOR FOR RECURRENCE

Hill-Sachs Lesion visible on AP view in ER



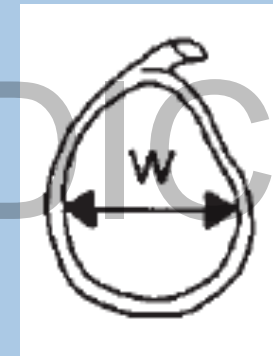
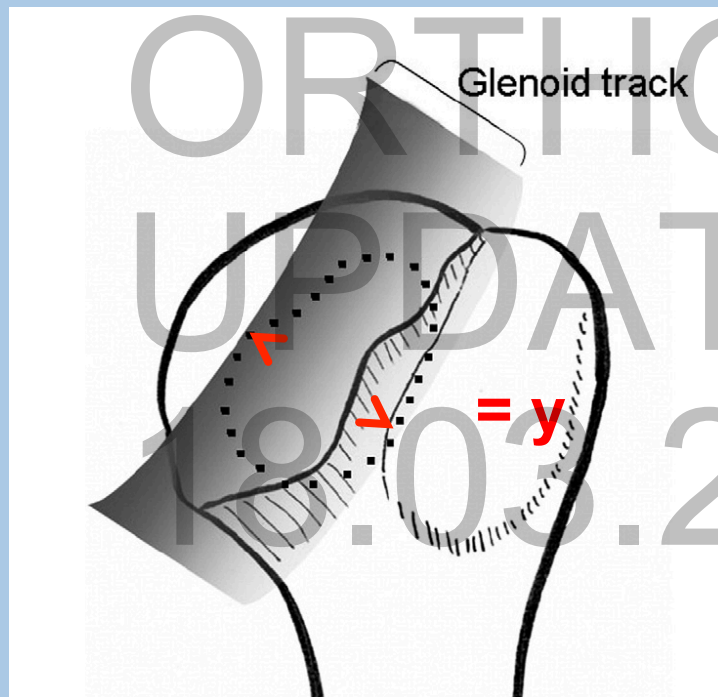
Internal rotation

Neutral rotation

External rotation

Burkhart S, De Beer J: Arthroscopy; 2000

GLENOID TRACK = ENGAGING HILL SACHS



- Medial margin of the glenoid track $\rightarrow$ 18.4 mm
- $y / w > 84\%$ $\rightarrow$ risk for engagement

Yamamoto, N: JSES; 2007

BONY BANKART - WHY IMPORTANT ?

critical bony defect

ORTHOPEDICS

arthroscopic capsulolabral repair

UPDATE

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-recurrence rate 56 to 67%

Burkhart SS, Arthroscopy; 2000

Tauber M, JSES; 2004

RISK FACTOR FOR RECURRENCE

Glenoid Bone Loss on AP View

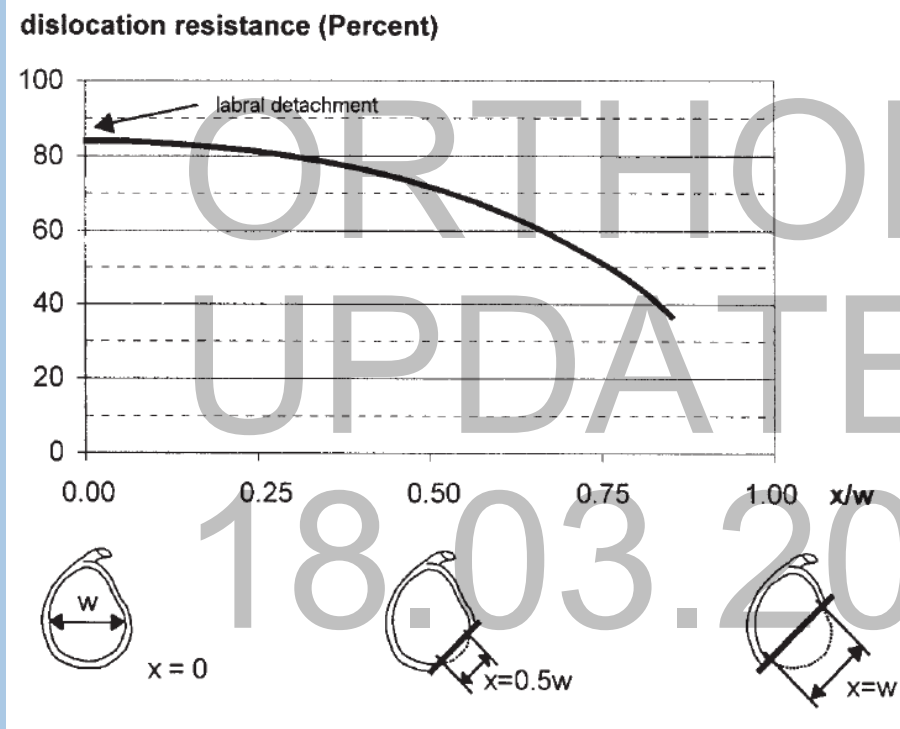
3 types



Jankauskas L, JSES; 2010

Balg F, JBJS B; 2007

CRITICAL BONY DEFECT ?



- 1/2 of ap-diameter (glenoid width)
- 20% of anterior glenoid

Itoi E, JBJS A: 2000

Gerber C, Clin Orthop Rel Res: 2002

Yamamoto N, Am J Sports Med: 2009

WHICH FACTOR IS HOW IMPORTANT?

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ORTHOPEDICS
UPDATE
18.03.2010



**What are the pejorative
prognostic factors in our
daily practice?...**

**(Who are the High Risk
Patients?...)**

INSTABILITY SEVERITY INDEX SCORE (ISIS)

			points
Questionnaire	Age (at surgery)	Inf or equal to 20 y	= 2
		> 20 y	= 0
	intensity of sport activity	Competition	= 2
		Leisure or no sport	= 0
	Type of sport	Contact or forced overhead	= 1
		others	= 0
Ex.	Hyperlaxity	Hyperlaxity Ant. ou inf.	= 1
		NO hyperlaxity	= 0
AP x-ray	Hill-Sachs lesion	Visible in ER	= 2
		Non visible in ER	= 0
	Glenoid Bone loss	Glenoid bone loss	= 2
		No bony lesion	= 0

Balg F, Boileau P, JBJS B; Nov 2006



Total = 10

ISIS BREAKPOINTS

The ISIS score was applied to the Bankart population

ISIS	Recurrence rate
0 to 3	5%
4 to 6	10%
> 6	70%

$p < 0.001$

(Latarjet / Bristow Recurrence rate < 5%)

RETROSPECTIVE ANALYSIS

Selection of Patients ++++

ISIS Score < 3 → <5% of failure = 76 patients (55%)

ISIS Score > 3 → 10% of failure = 48 patients (37%)

ISIS Score > 6 → 70% of failure = 10 patients (8%)

**Today, these (45%) patients
should be contraindicated for an
'@ Bankart'**

PATIENT SELECTION

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**ISIS Score < 3 = @
Bankart**

**18.03.2010
ISIS Score > 3 =**

WHAT'S THE PROBLEM?

1. IS THE PROBLEM...



... only poor soft tissue quality without bony lesions

Lésions de l'intervalle des rotateurs

Cela existe-t-il?...

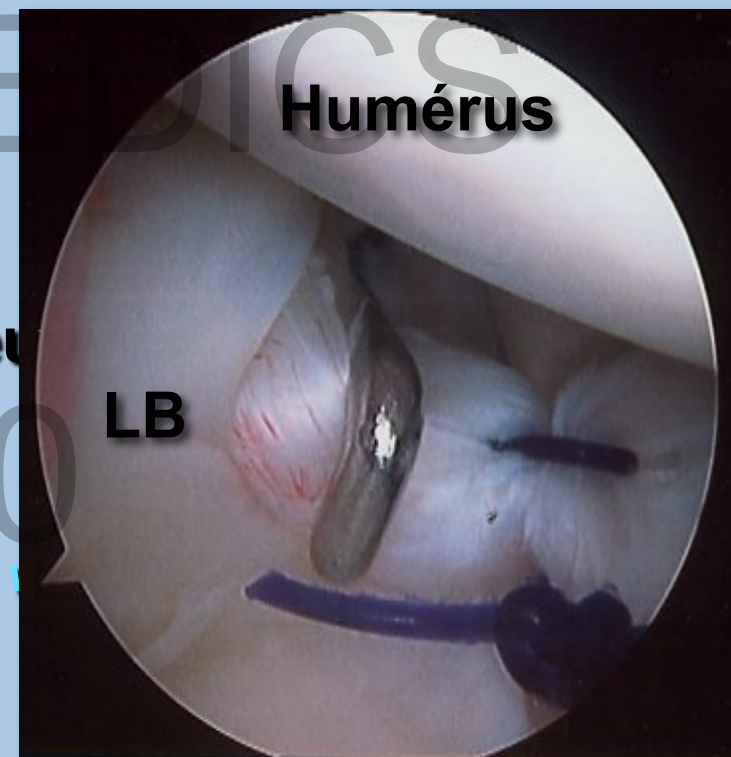
- Déhiscence ?... (Neer, Nobuhara)

- Absence congénitale (Cole, 2001) ?...
Fermeture de l'intervalle des rotateurs

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- Translation Inf & Post (Harryman, *in vivo*)

- Translation Inf (Garstman, *in vivo*)

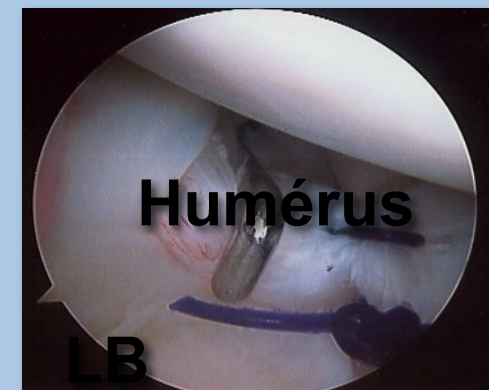


ARTHROSCOPIC BANKART AND CLOSURE OF THE ROTATOR INTERVAL

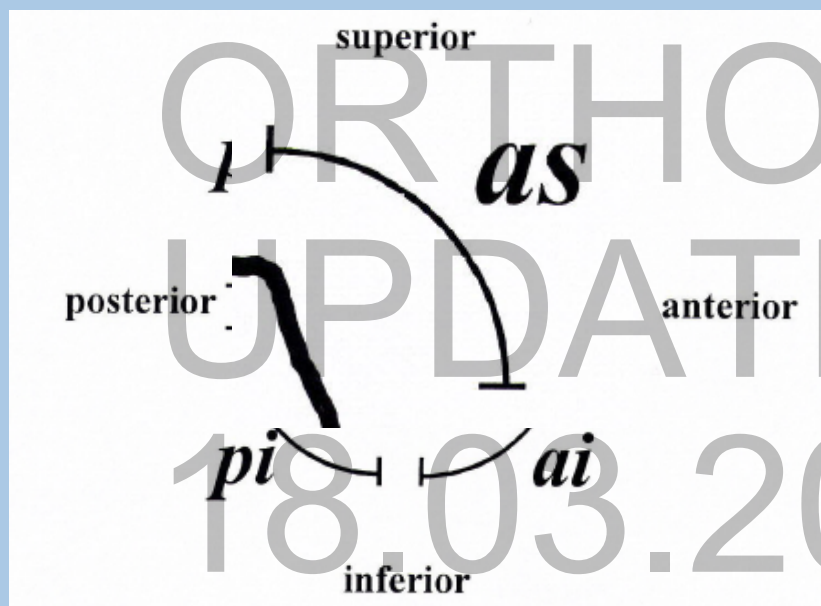
- in hyperlax patients (Wolf)
- in inf + post instability (Harryman)
- in inferior instability (Garstman)

... but low scientific evidence!

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ARTHROSCOPIC BANKART AND CLOSURE OF THE ROTATOR INTERVAL



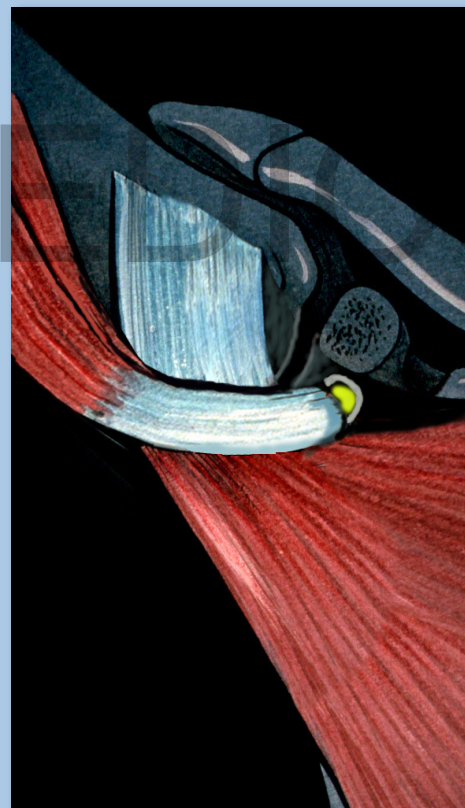
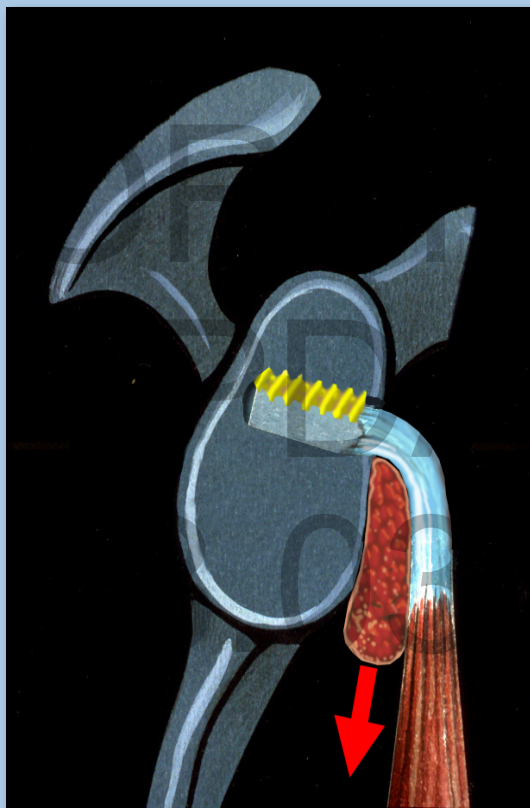
CAVE patients > 40 yrs

... stiffness +++

- er in add 30° ↓
- er in 90° abd n.s. ↓
- flexion 14° ↓
- rotator interval contracture mostly limits -> er in add and -> flexion

Werner CM, Gerber, C. JOR, 2004

ARTHROSCOPIC BANKART AND CAPSULOTENODESIS CORACOBICEPS



(Recurrence rate: 3/36 patients -> 8%)

Boileau P, Arthroscopy; 2007

2. IS THE PROBLEM...



... additional big Hill-Sachs lesion

MASSIVE HILL SACHS DEFECTS

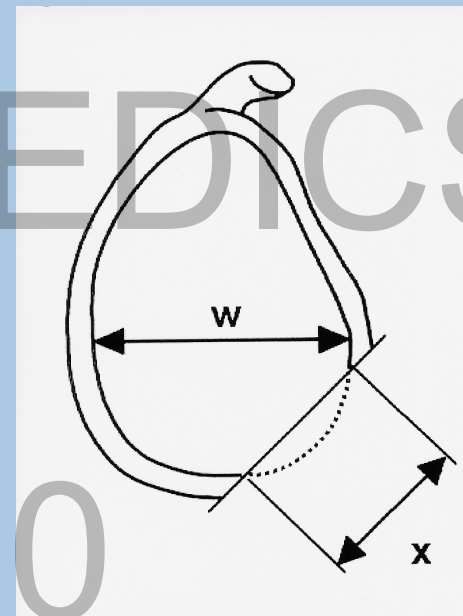
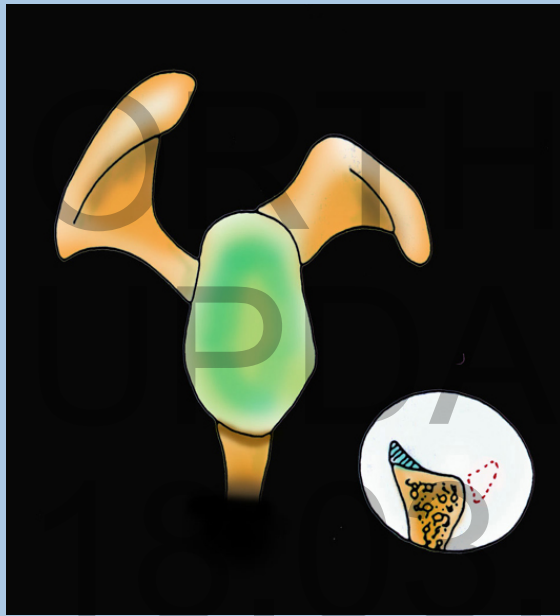


SEGMENTAL HEAD RECONSTRUCTION



Gerber C, JBJS A; 1996

3. IS THE PROBLEM...

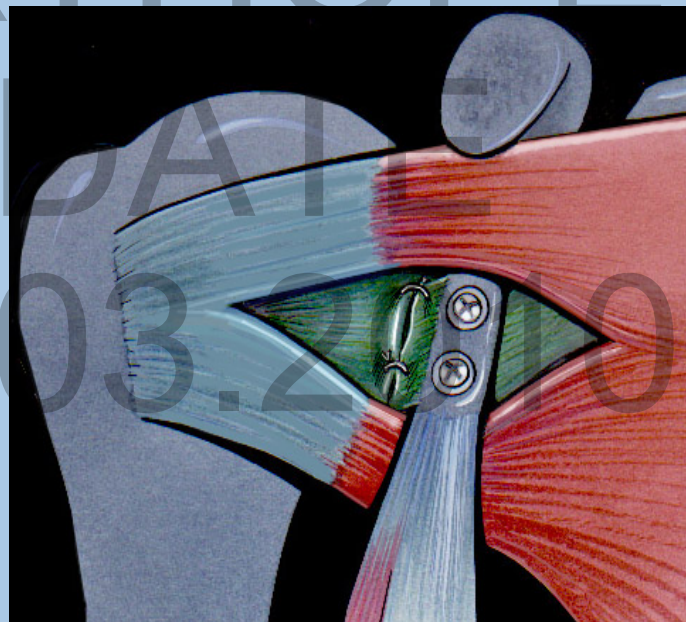
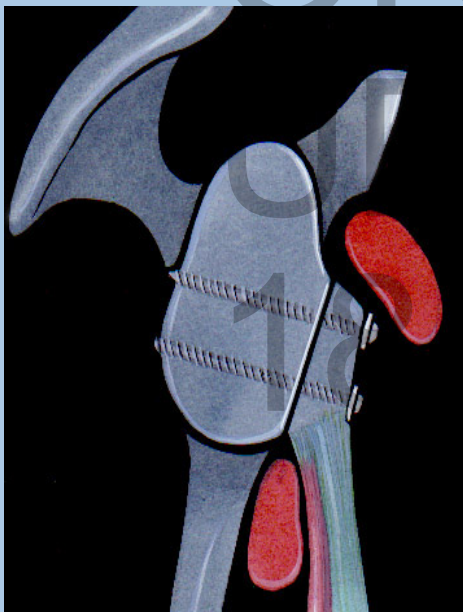


**... additional glenoid erosion & poor capsule
= often associated !!**

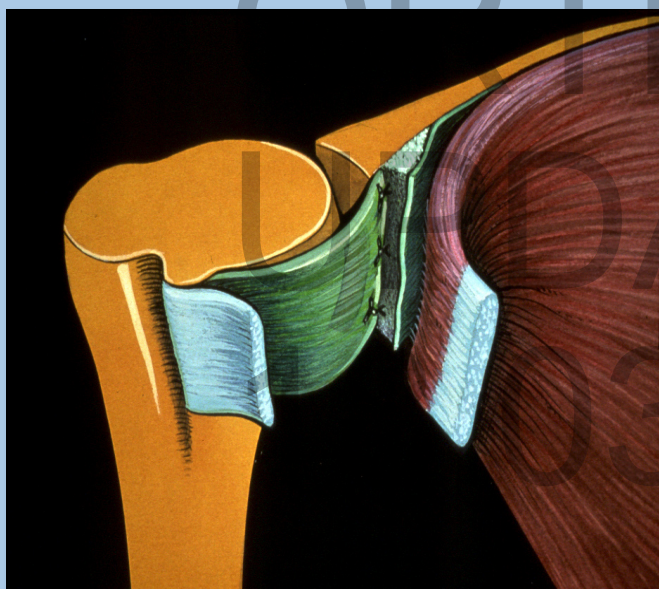
Gerber, C. CORR, 2002

Boileau P: JBJS Am, 2006

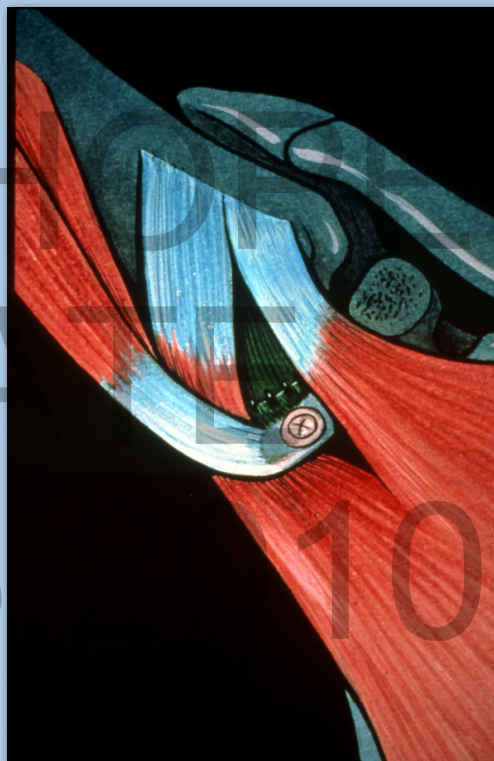
OPEN LATARJET



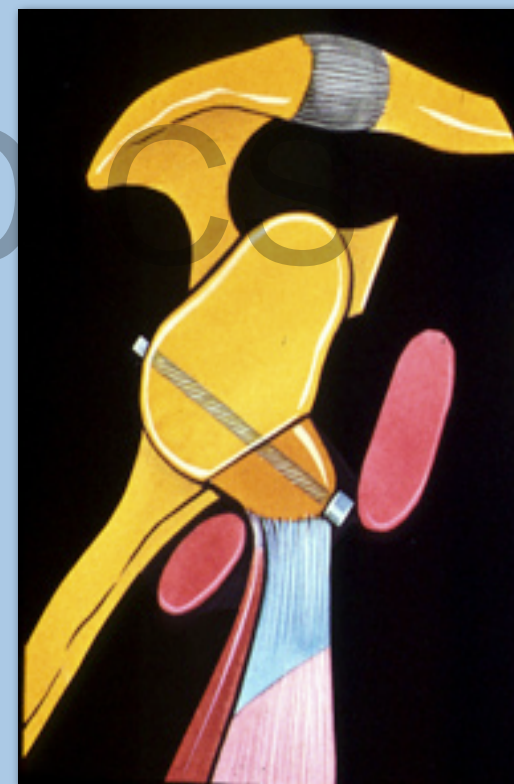
ARTHROSCOPIC BANKART AND ARTHROSCOPIC LATARJET



Bumper Effect



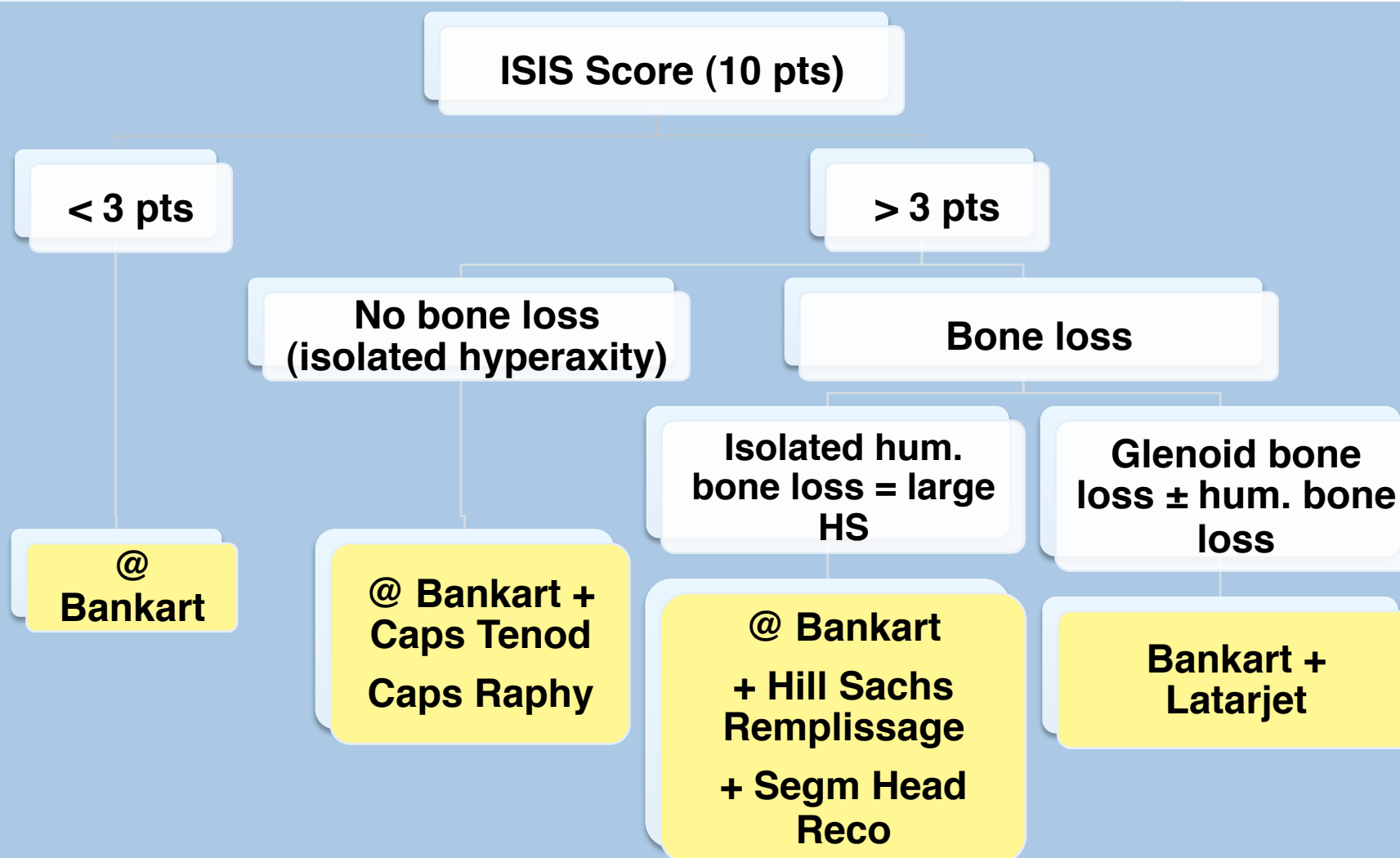
Sling Effect



Bony Effect

Sperling J, SECEC 22nd ann meeting, 1st poster prize, Madrid, 2009

INSTABILITY TREATMENT „à la carte“



THANK YOU FOR YOUR ATTENTION !



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