

ANATOMISK AXELPROTES

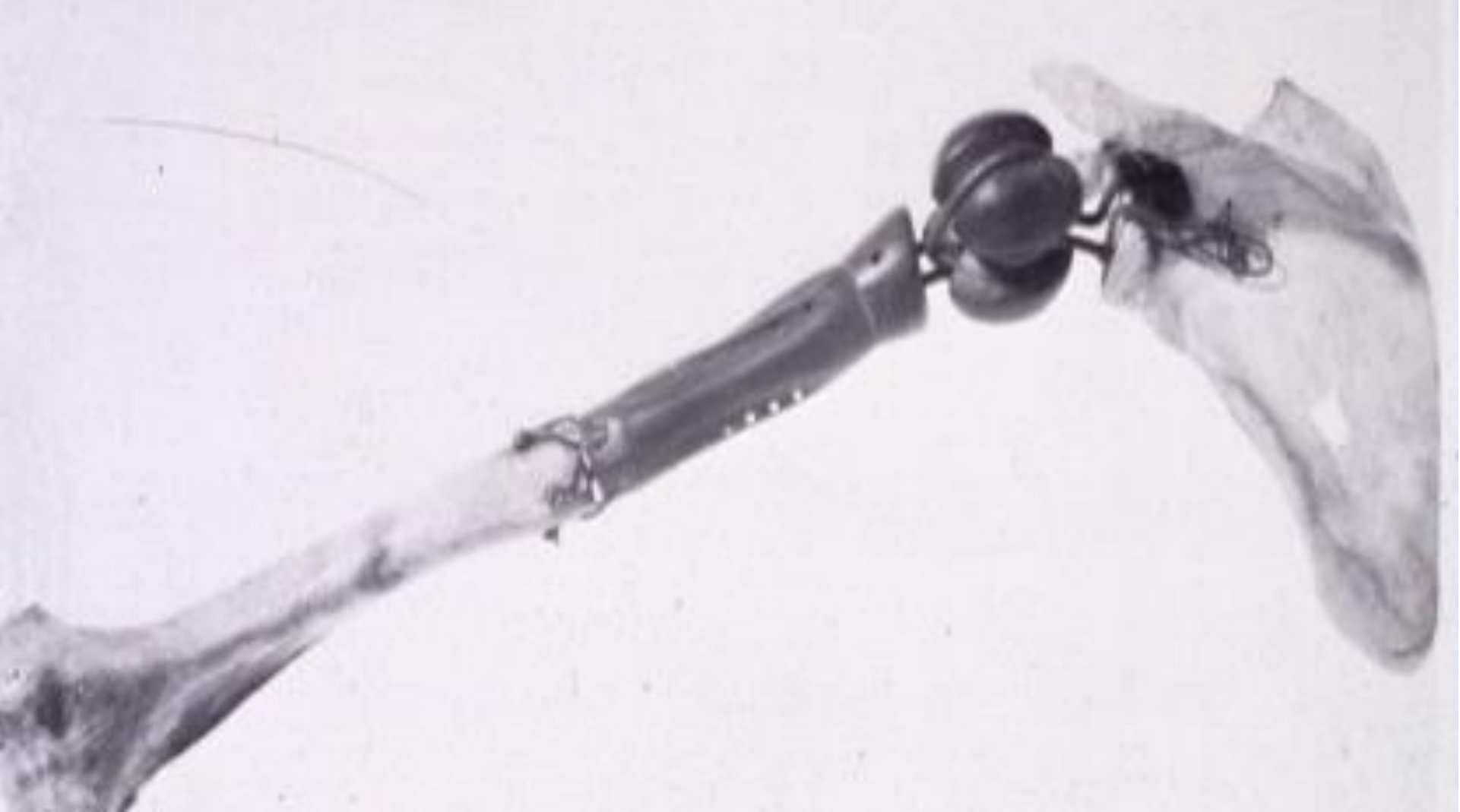
1 feb 2022

Fredrik Einarsson

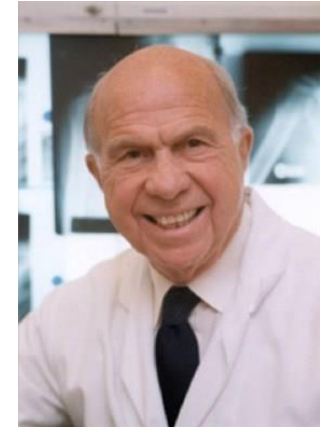




Pean 1893



Neer hemiprotés



ANATOMISK

Hemiprototes

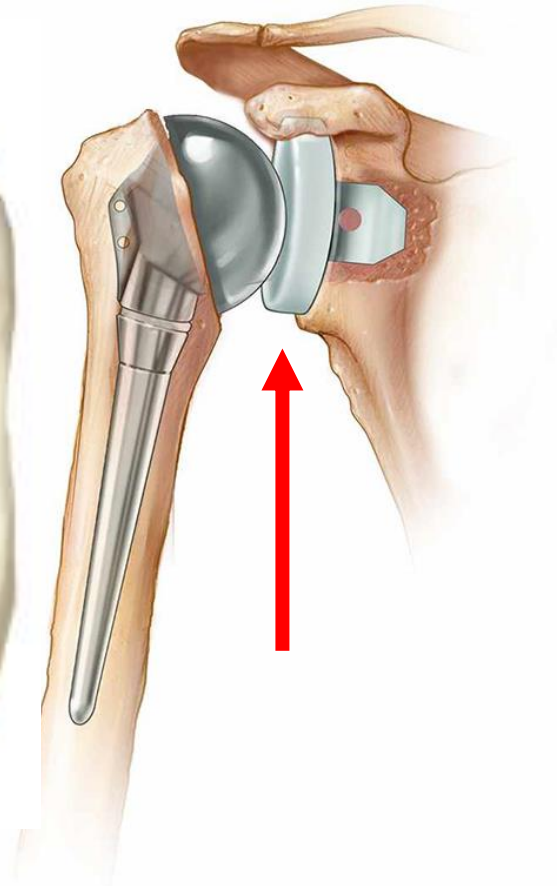


ANATOMISK

Hemiprototes



Totalprototes

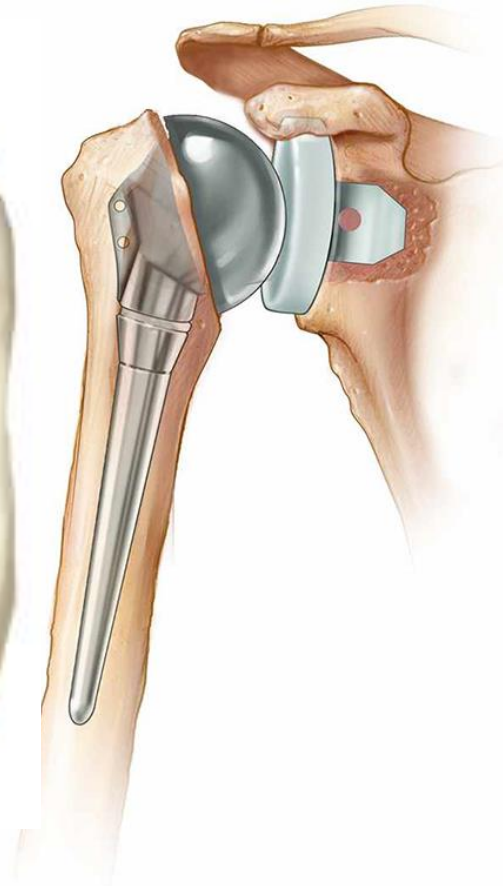


ANATOMISK

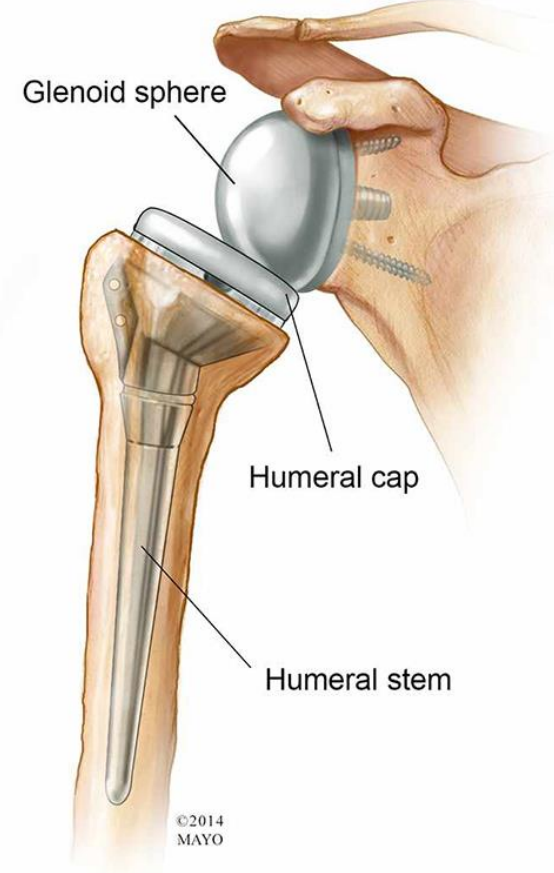
Hemiprototes



Totalprototes



Omvänd totalprototes



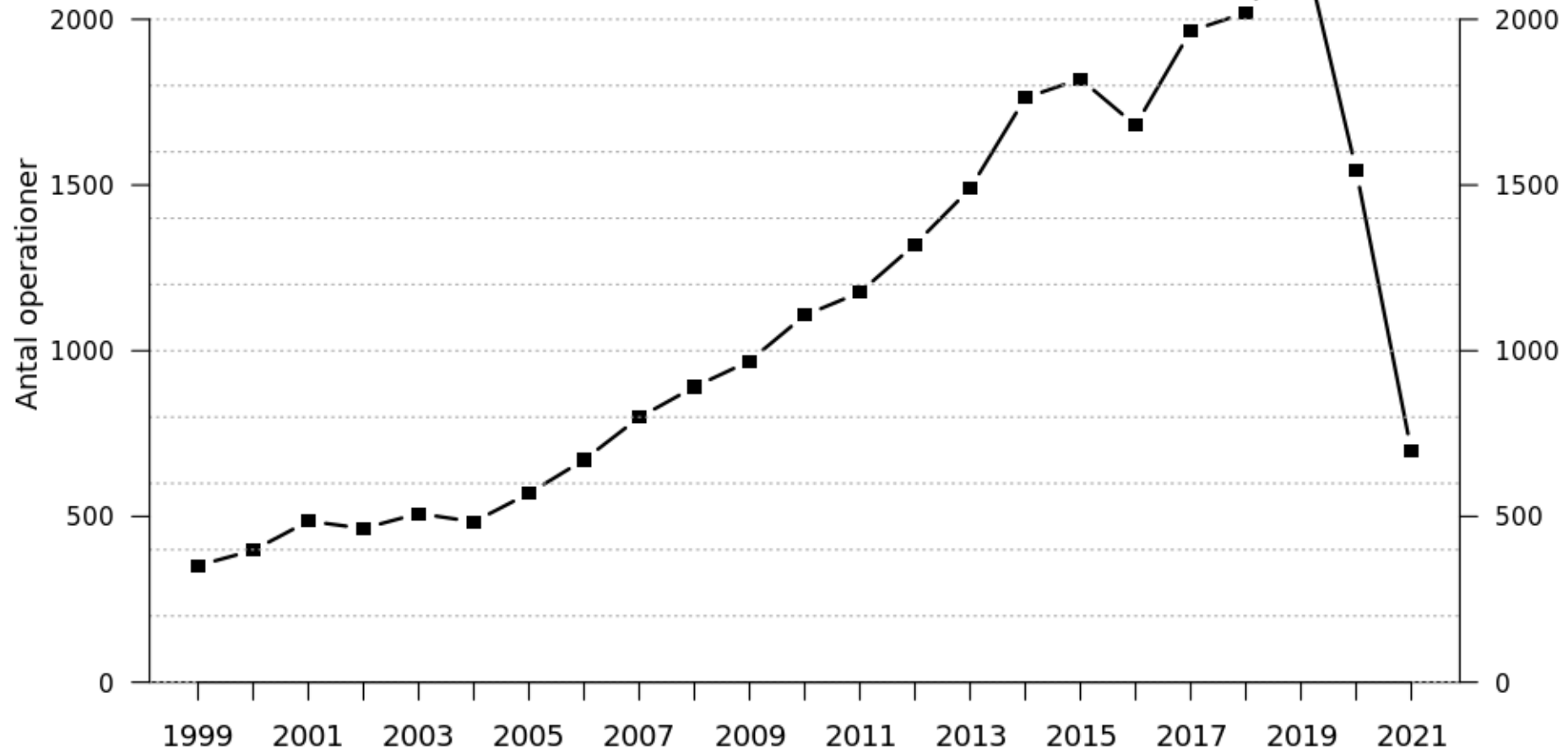
INDIKATIONEN axelprotes

Artros	40%
Fraktur	30%
Kuff	20%
Revision	10%



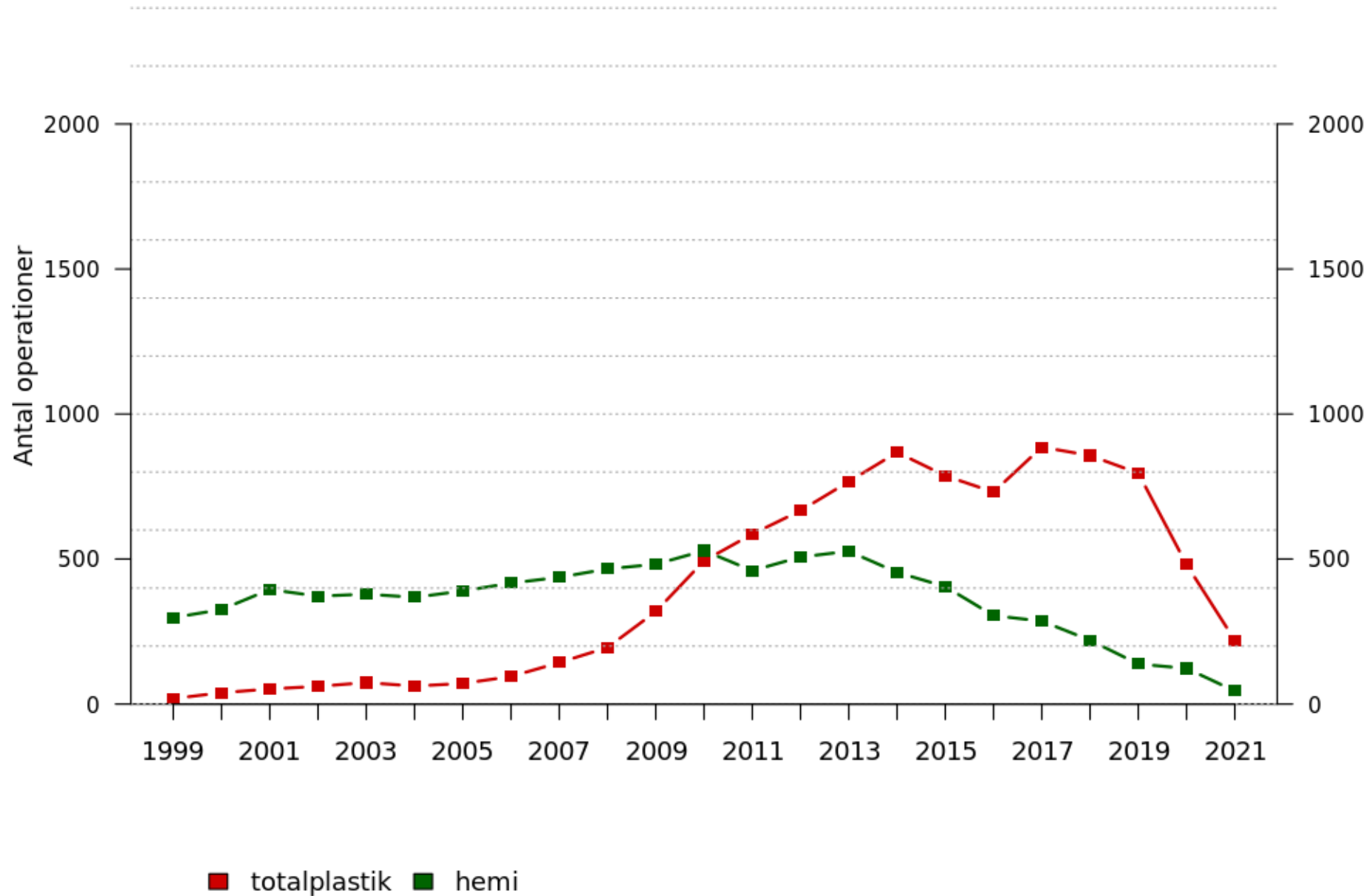
Antal operationer per koncept för alla patienter nationellt. Ålder: 18 - 100 år

2000 axelproteser / år

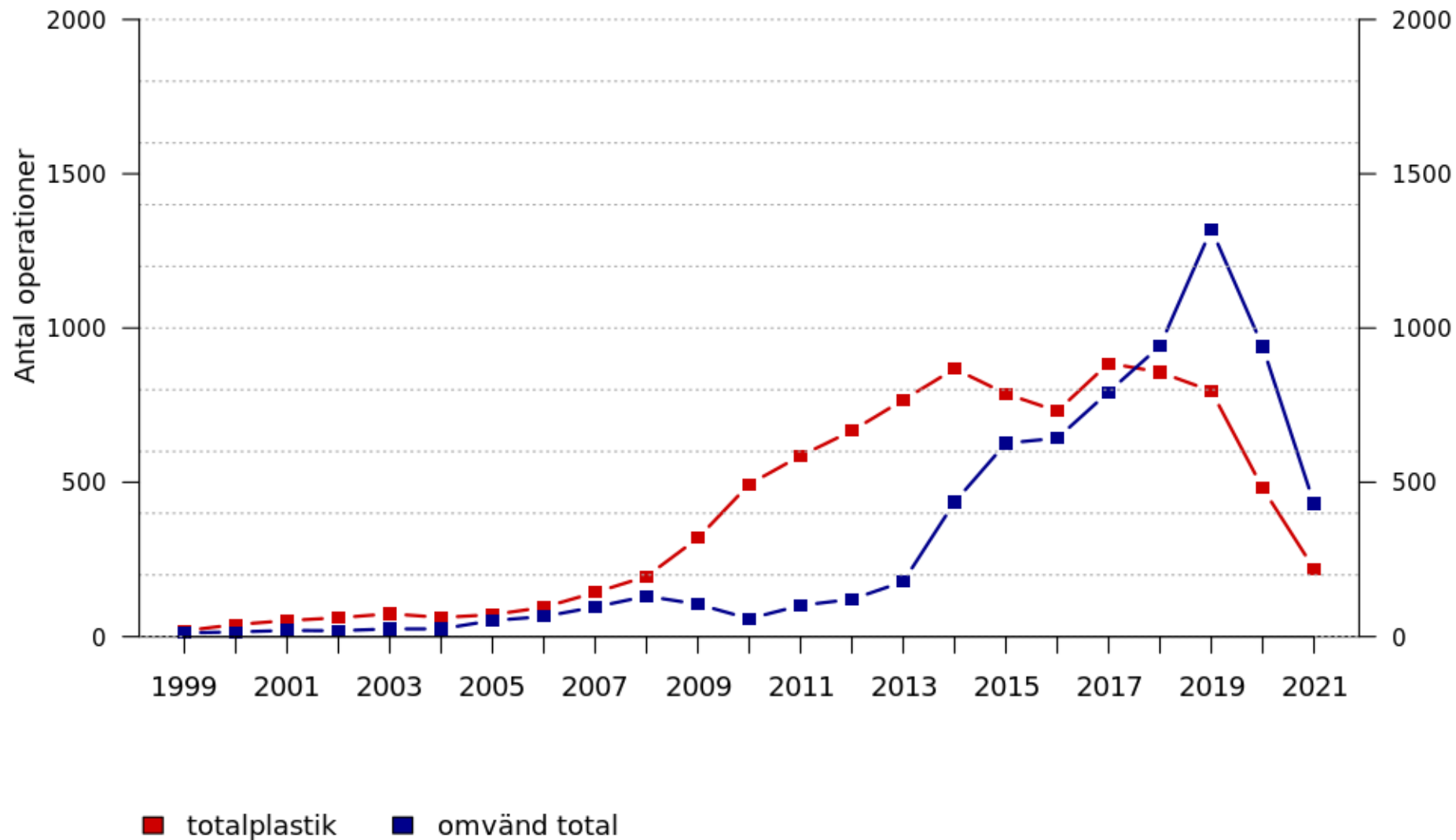


■ alla koncept

Antal operationer per koncept för alla patienter nationellt. Ålder: 18 - 100 år

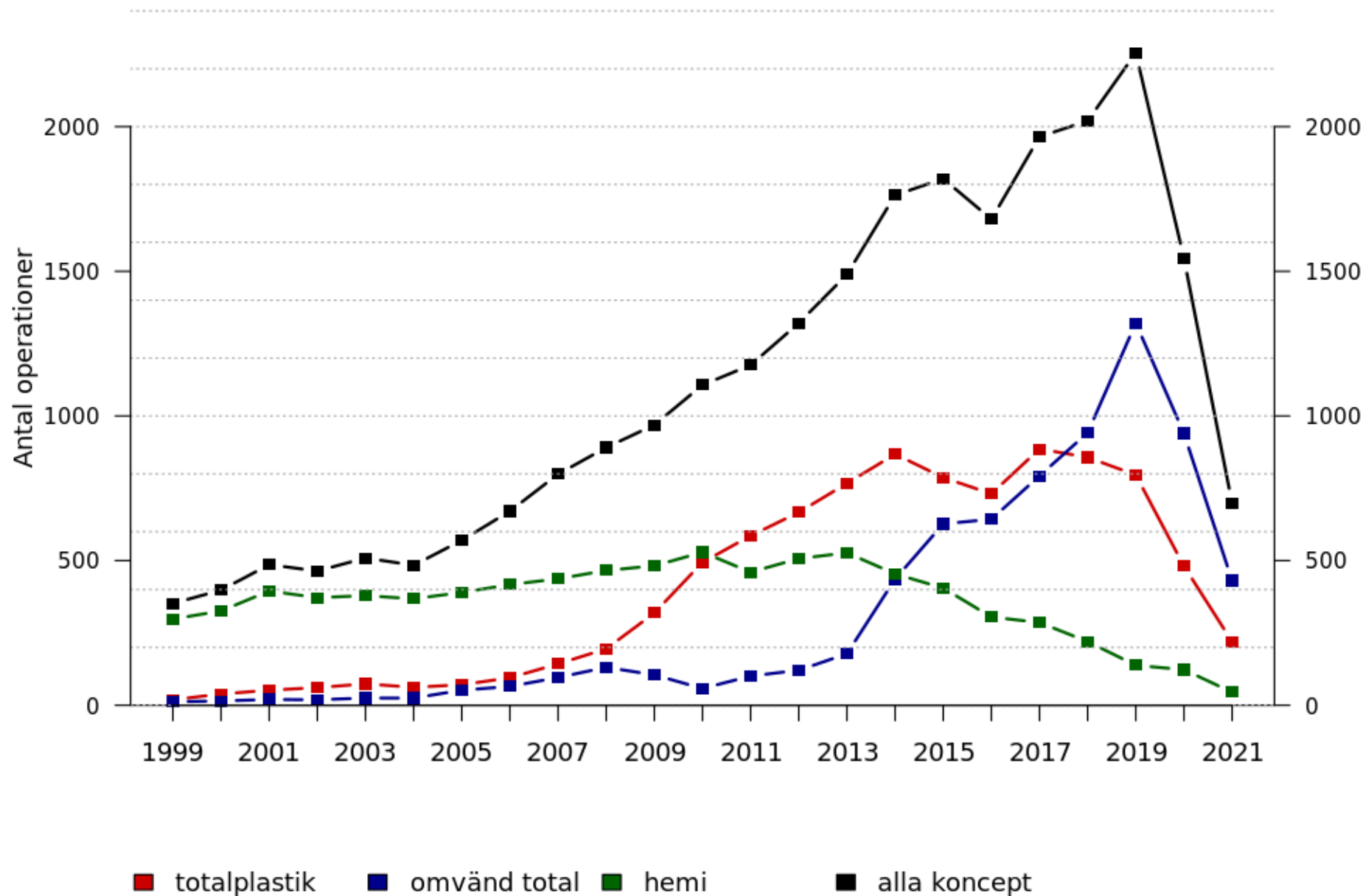


Antal operationer per koncept för alla patienter nationellt. Ålder: 18 - 100 år



Figur 1: Svenska Axel Registret 2021-12-16 13:29:53

Antal operationer per koncept för alla patienter nationellt. Ålder: 18 - 100 år



ANATOMISK PROTES

TOTAL

Primär ARTROS (800/år)

HEMI

Fraktur (125)

Avaskulär nekros

Nödlösning

Glenohumeral artros

VÄRK

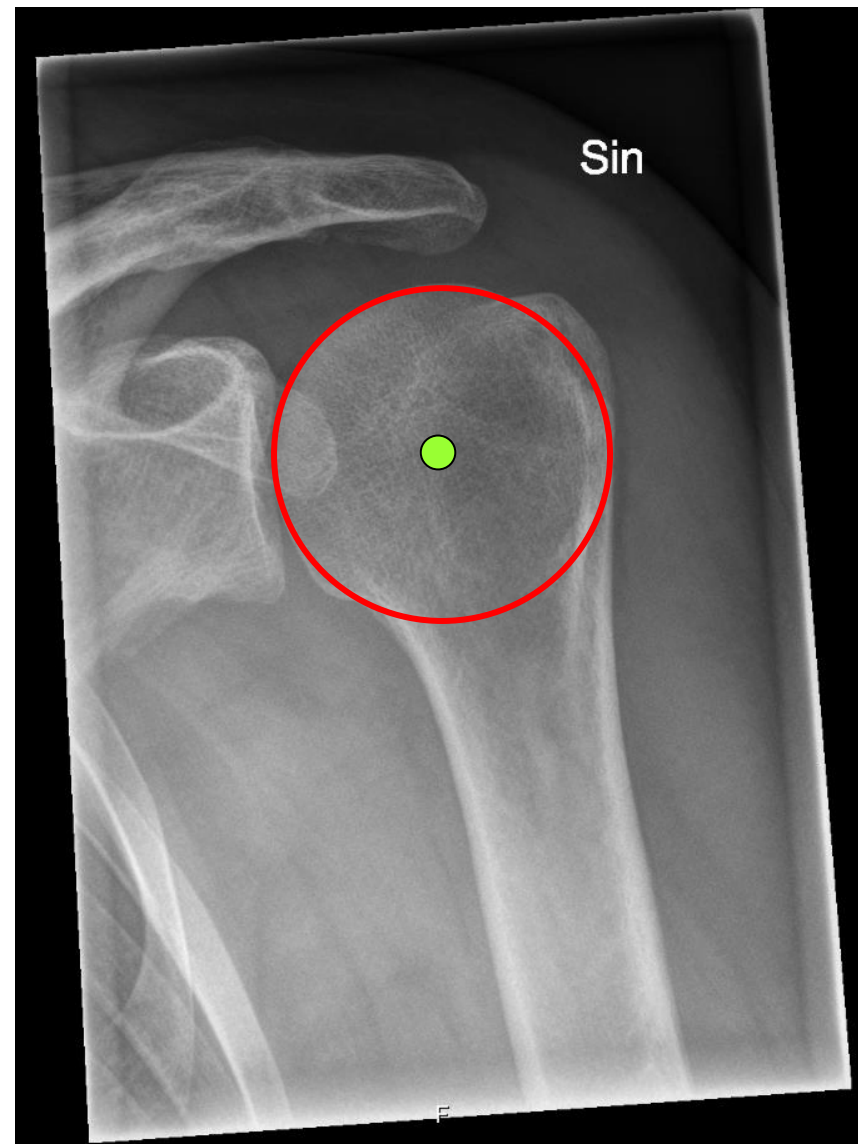
Beslutstöd från fysioterapeut

Vilken träning är genomförd?

Hur har det gått?

Finns det värde i fortsatt träning?

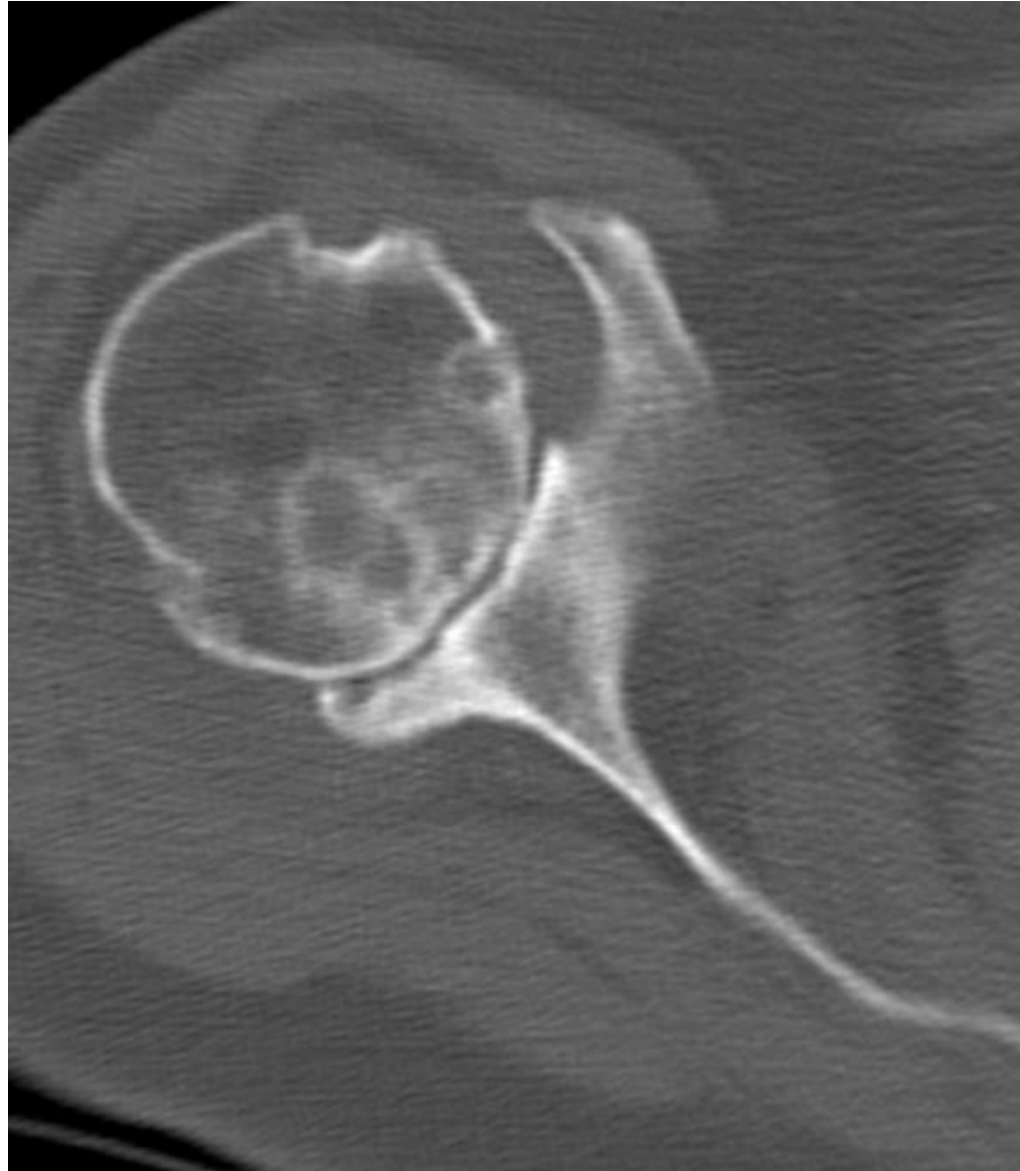
Normal röntgen



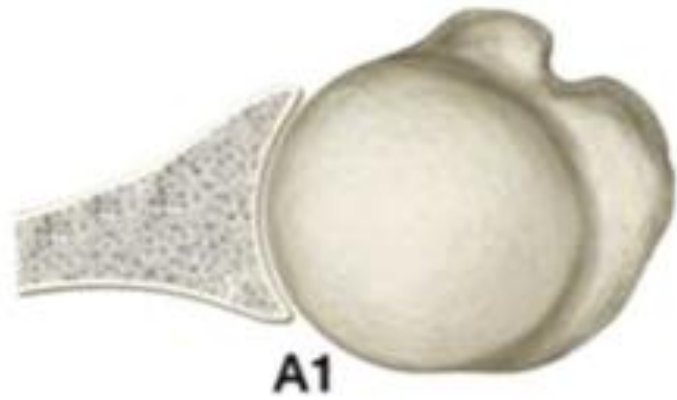
Röntgen för diagnostik



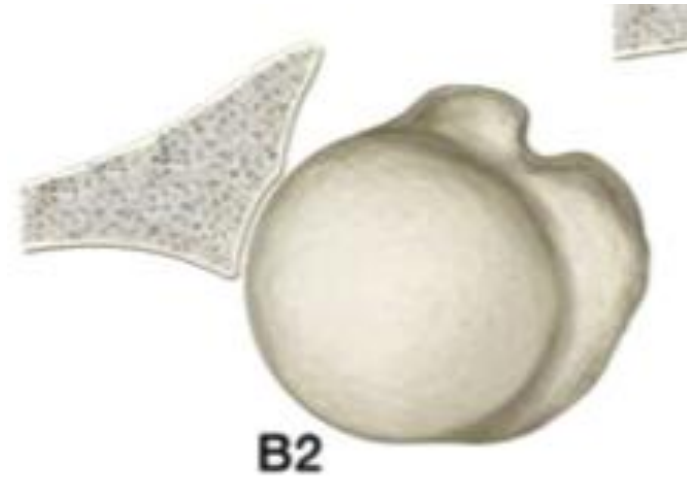
Datortomografi



Glenuiderosion

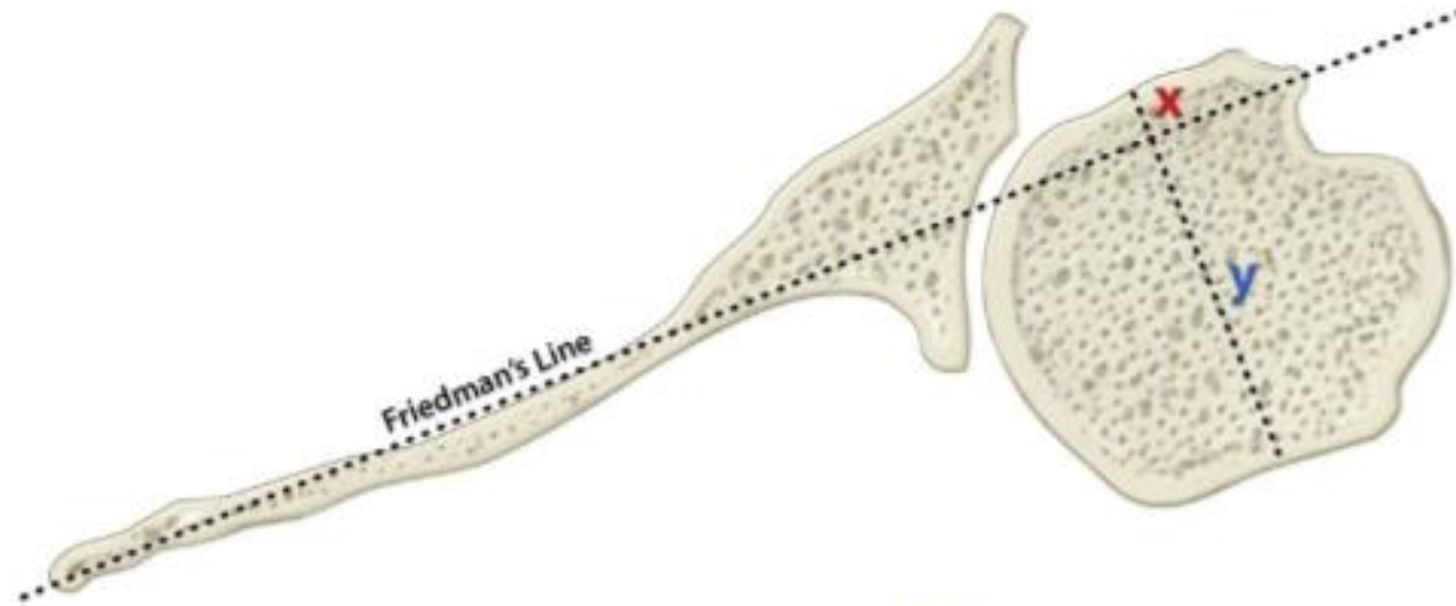


$1/3$



$< 2/3$

Dorsal subluxation



$$\% \text{ Subluxation} = \frac{y}{x + y}$$



ELSEVIER

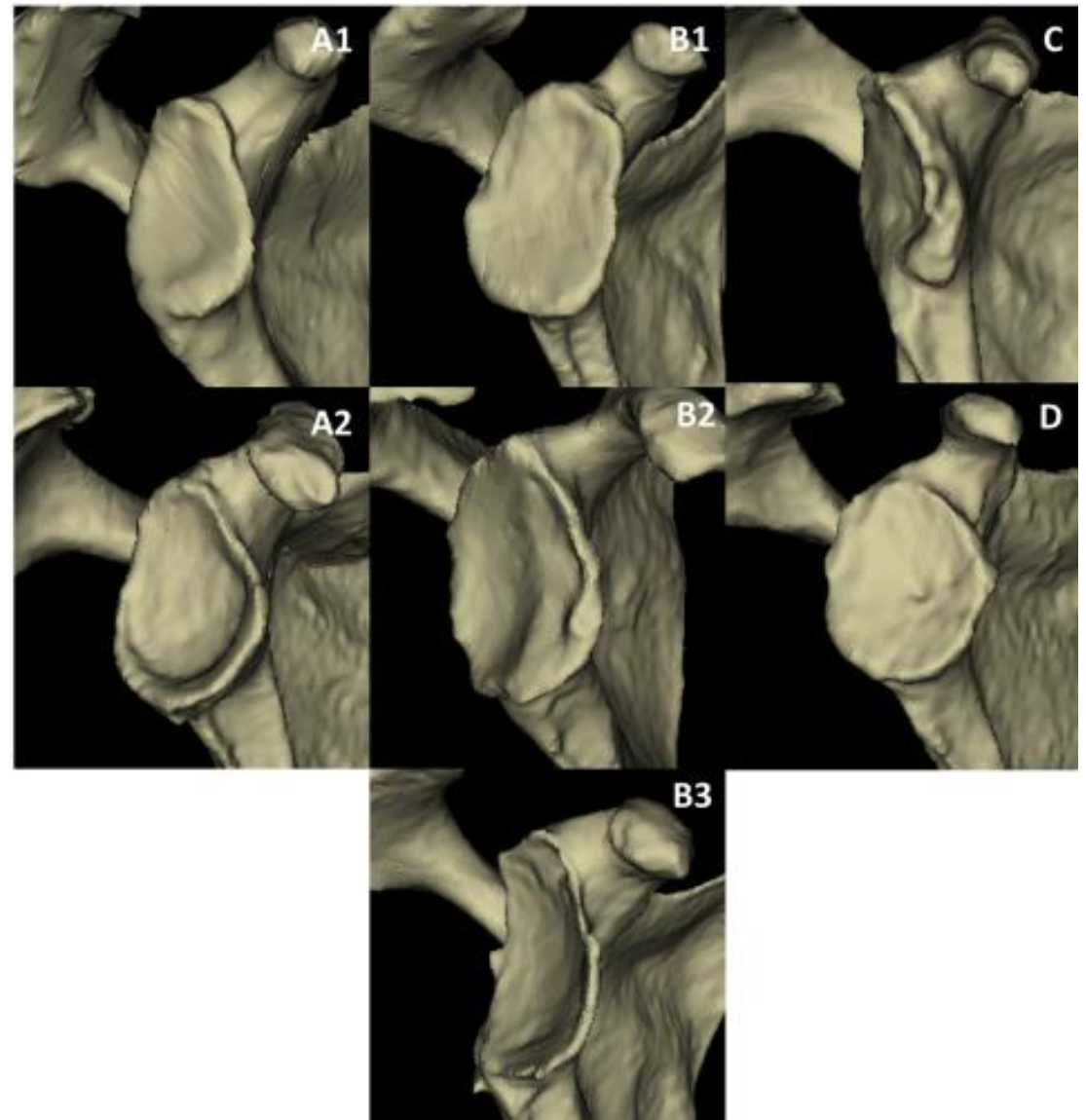
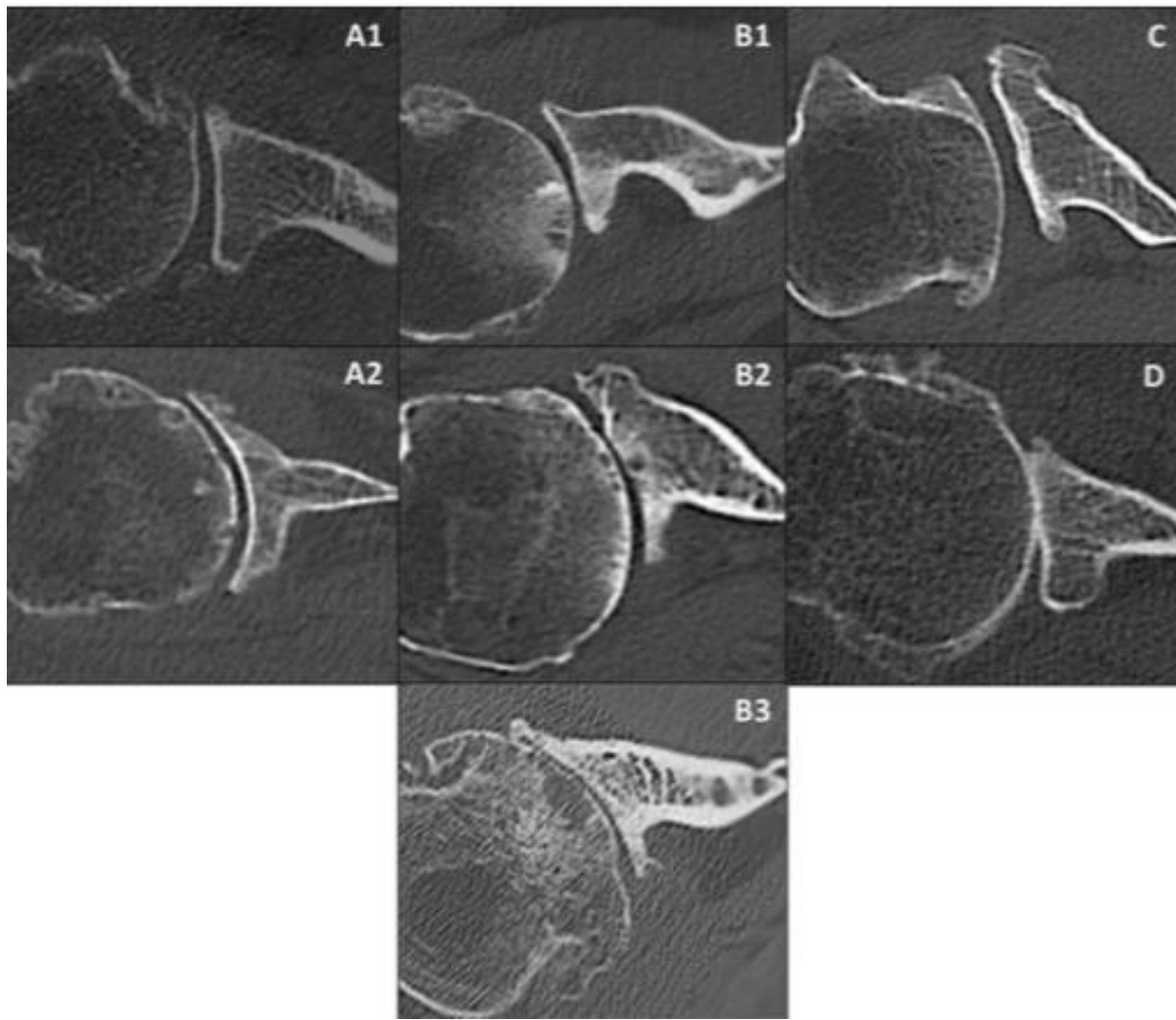
Identification of threshold pathoanatomic metrics in primary glenohumeral osteoarthritis

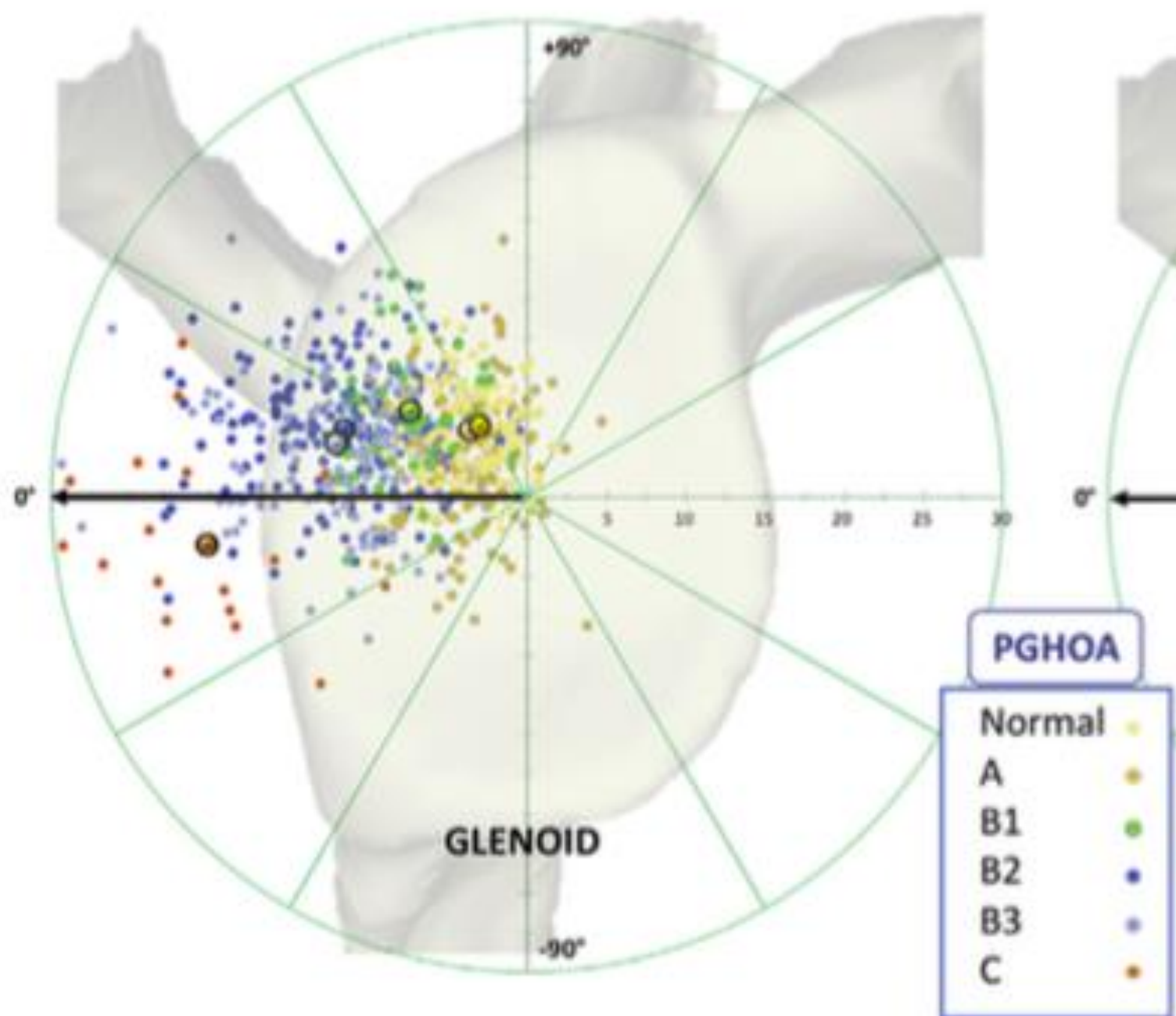


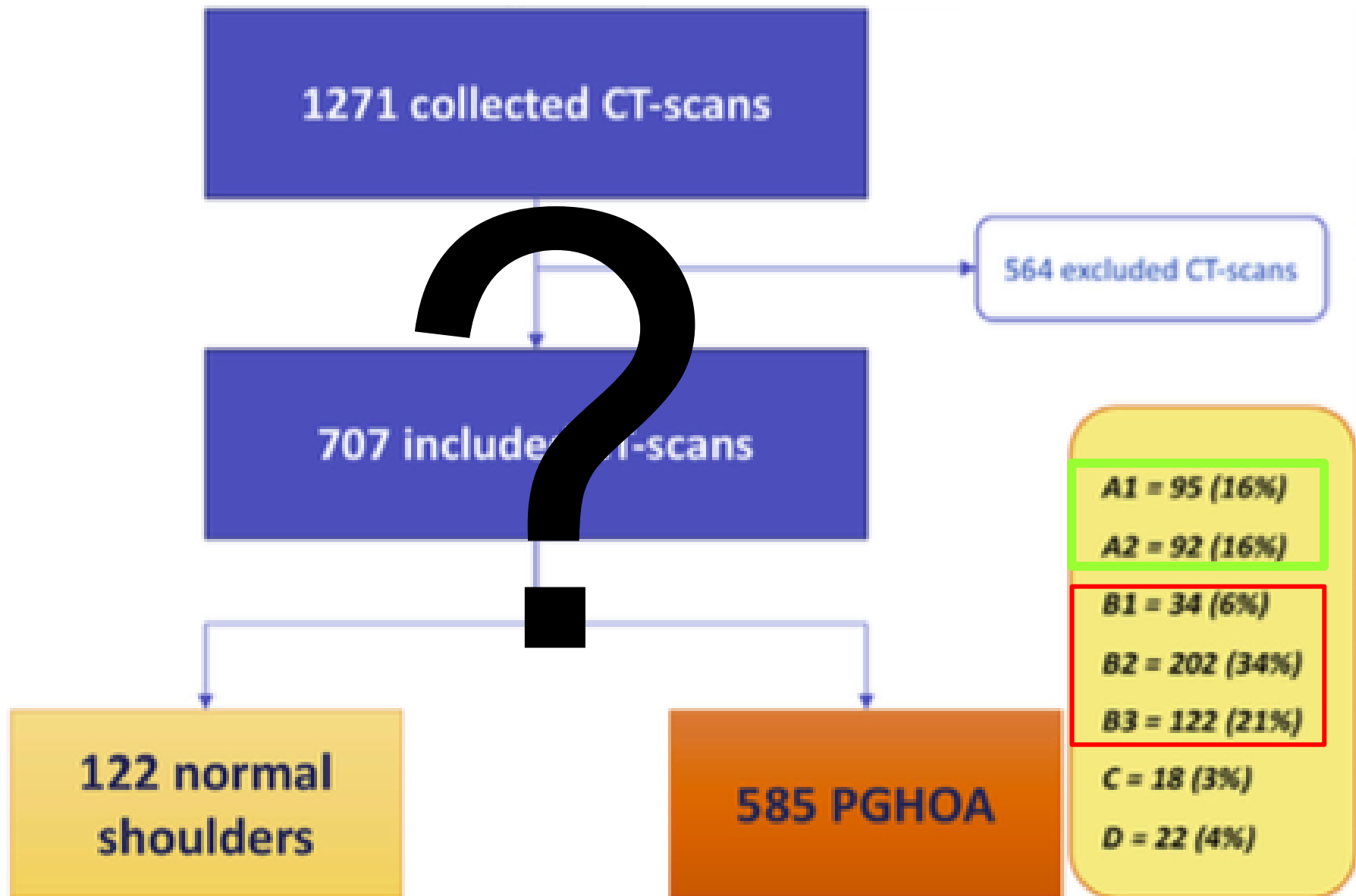
Marc-Olivier Gauci, MD, PhD^{a,*}, George S. Athwal, MD^b,
Joaquin Sanchez-Sotelo, MD, PhD^c, Jean Chaoui, PhD^d, Manuel Urvoy, MEng^d,
Pascal Boileau, MD^a, Gilles Walch, MD^e

707 CT-undersökningar

585 med artros





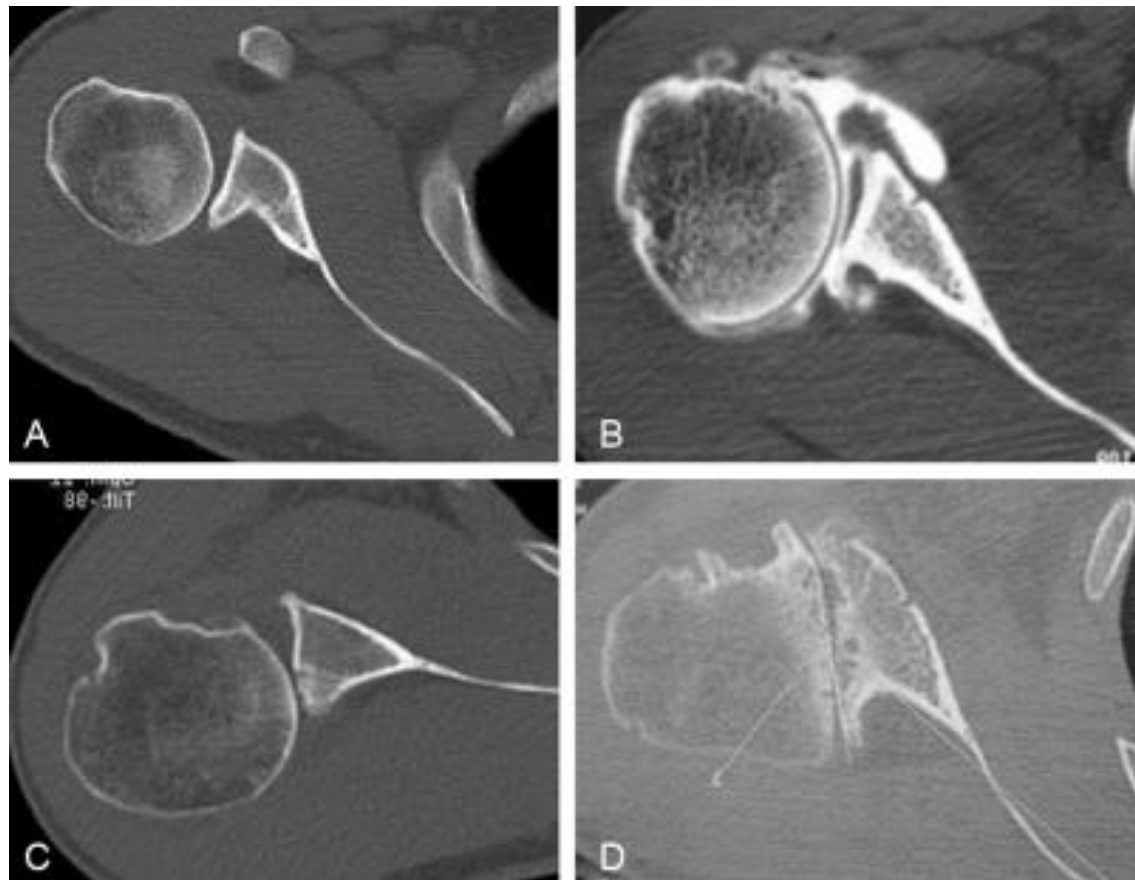




Walch B0 glenoid: pre-osteoarthritic posterior subluxation of the humeral head



Peter Domos, MD, FRCS^{a,*}, Caio Santos Checchia, MD^b, Gilles Walch, MD^c



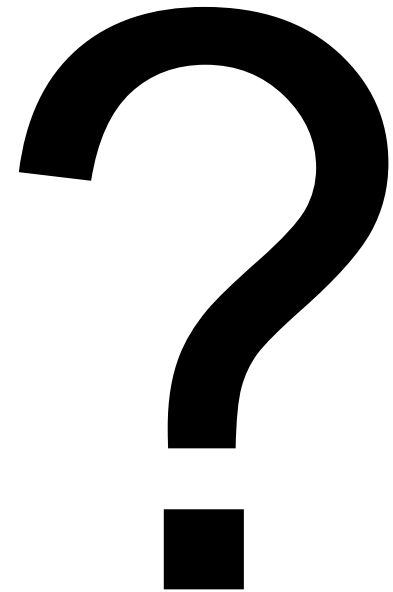
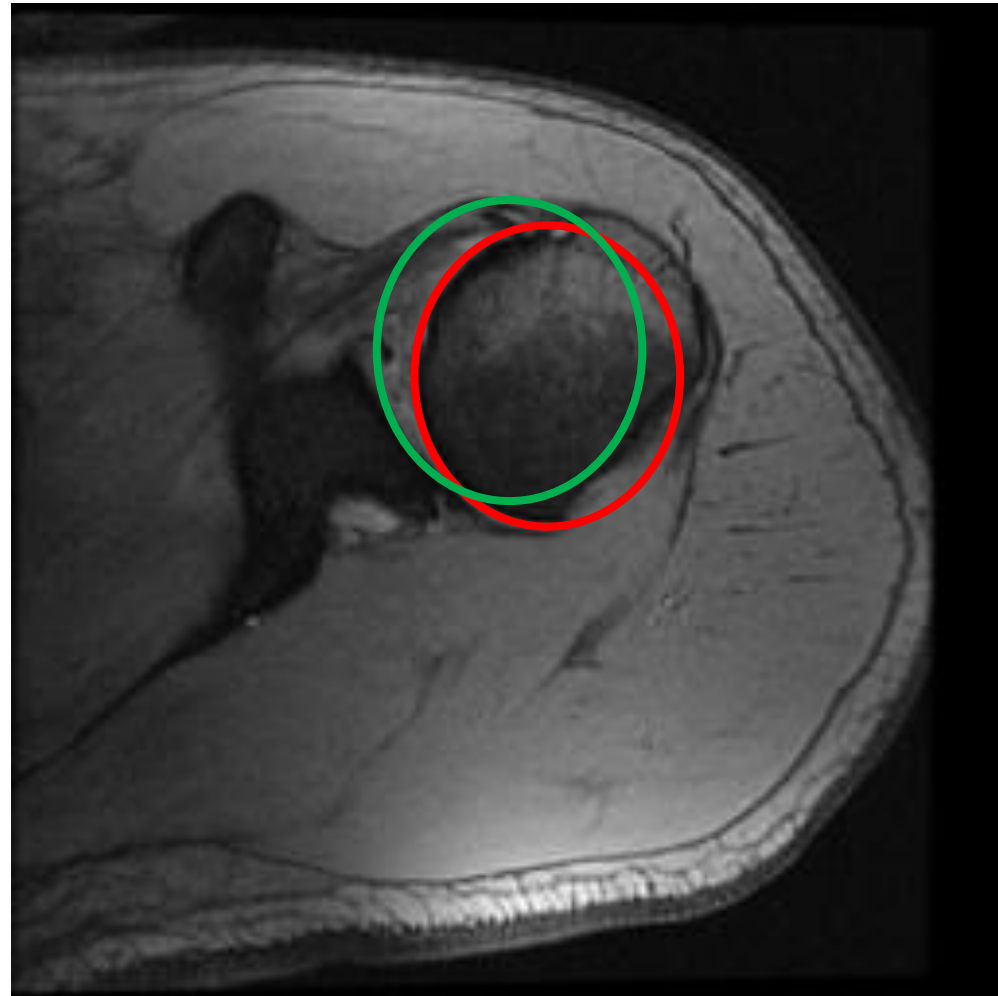
Dynamisk subluxation

Statisk subluxation

Utveckling av neo-gleionid (B-glenoid)

Strama ventrala strukturer? Muskulär imbalans?

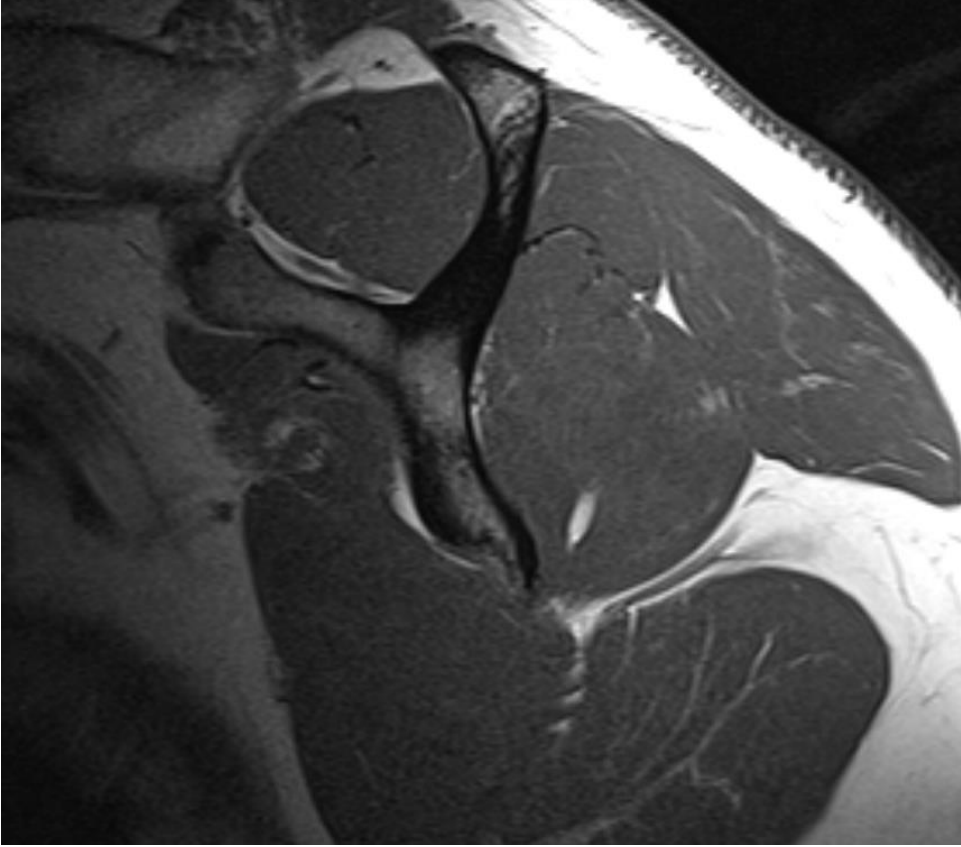
M76 vä
sublux → RSA



Röntgen för diagnos

Datortomografi för glenoidstatus

Magnetkamera för kuffstatus

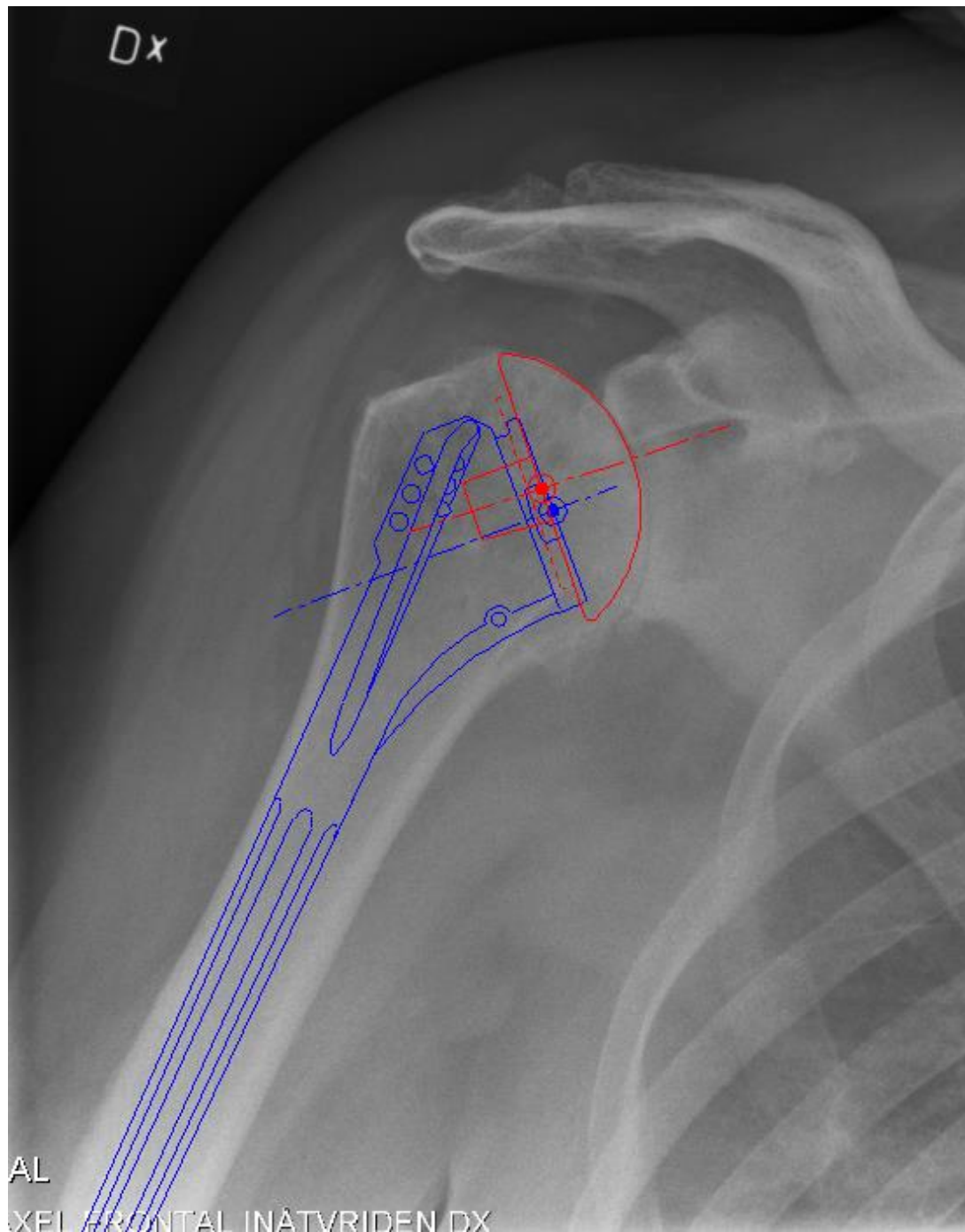


MR



CENTRERAD LED

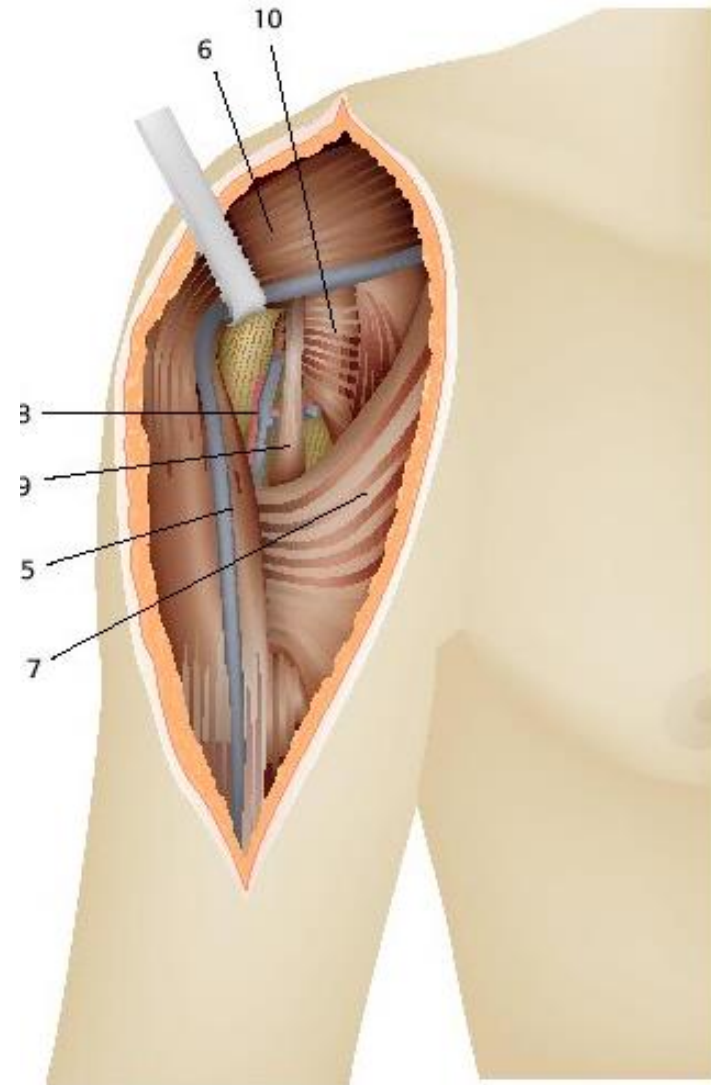
INTAKT KUFF



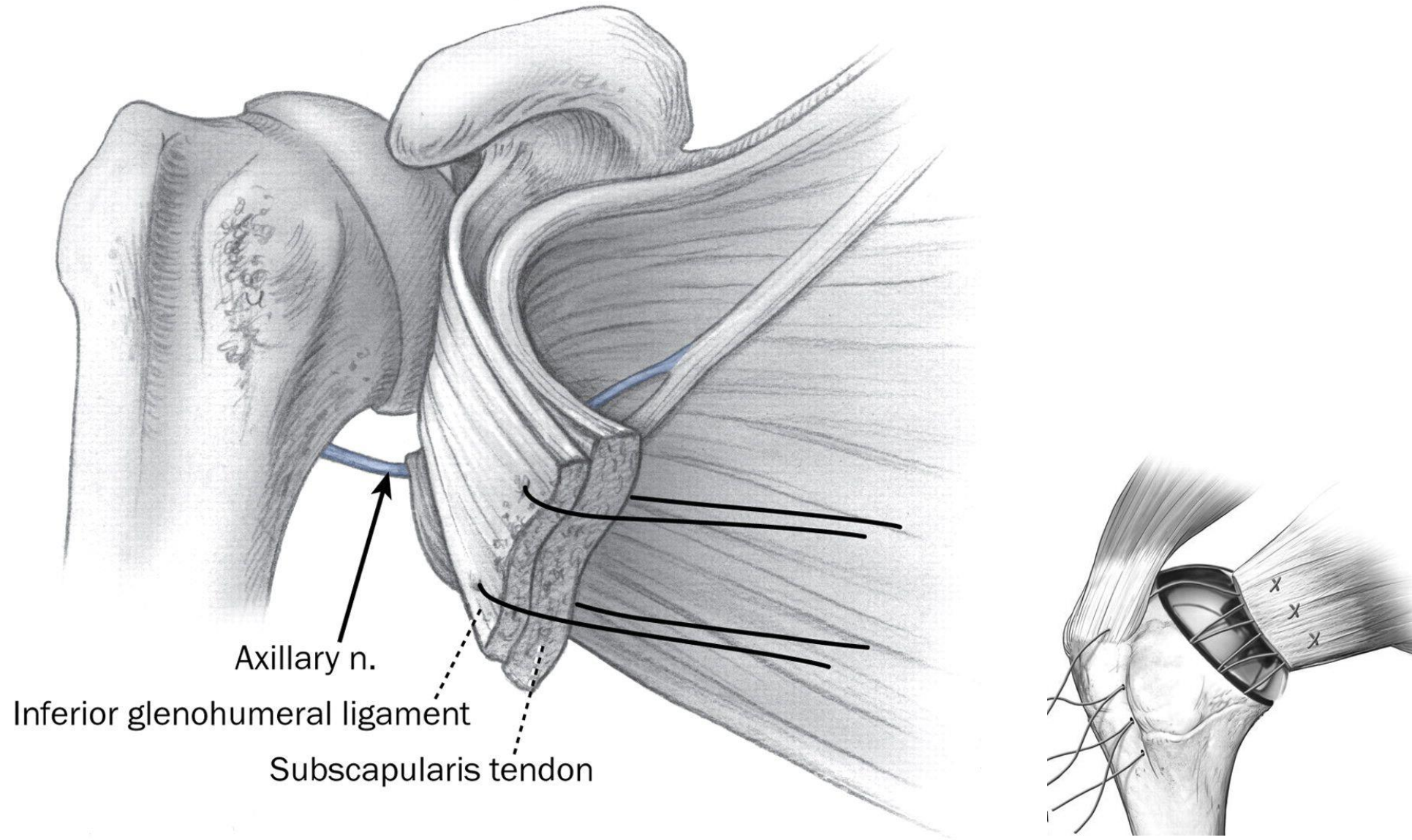
Strandstolsläge

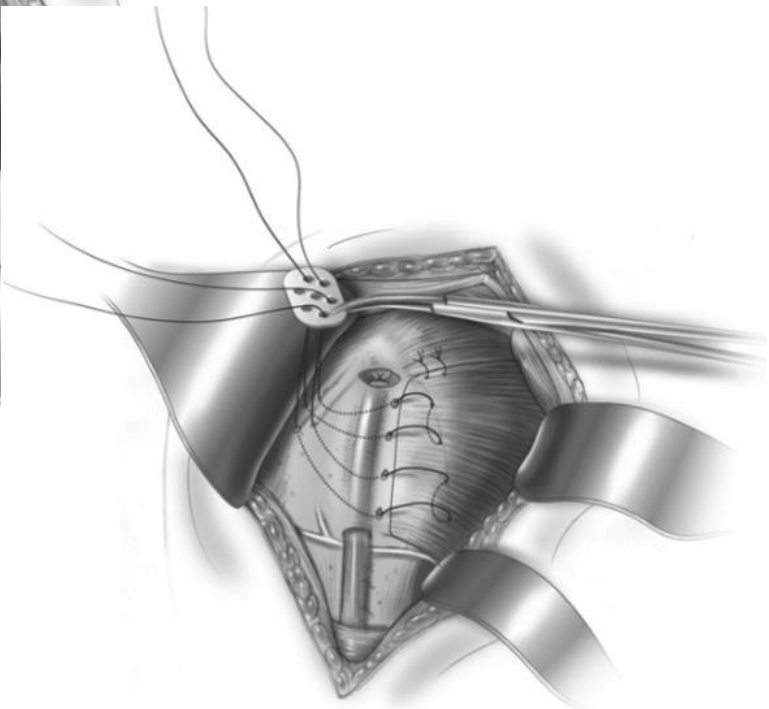
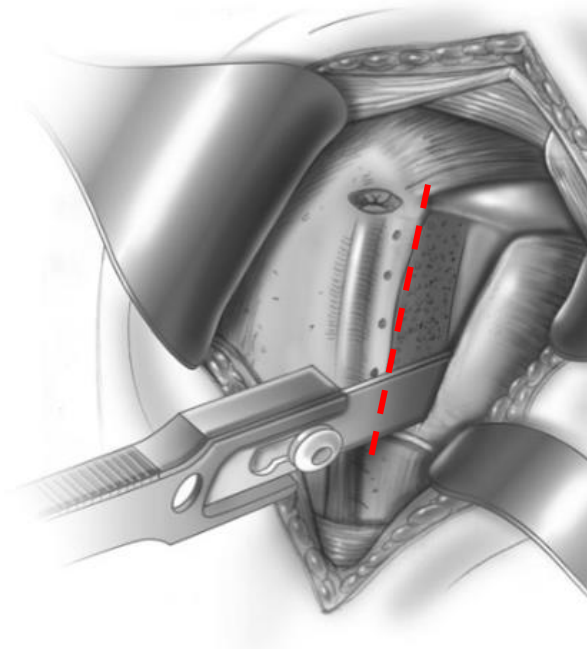
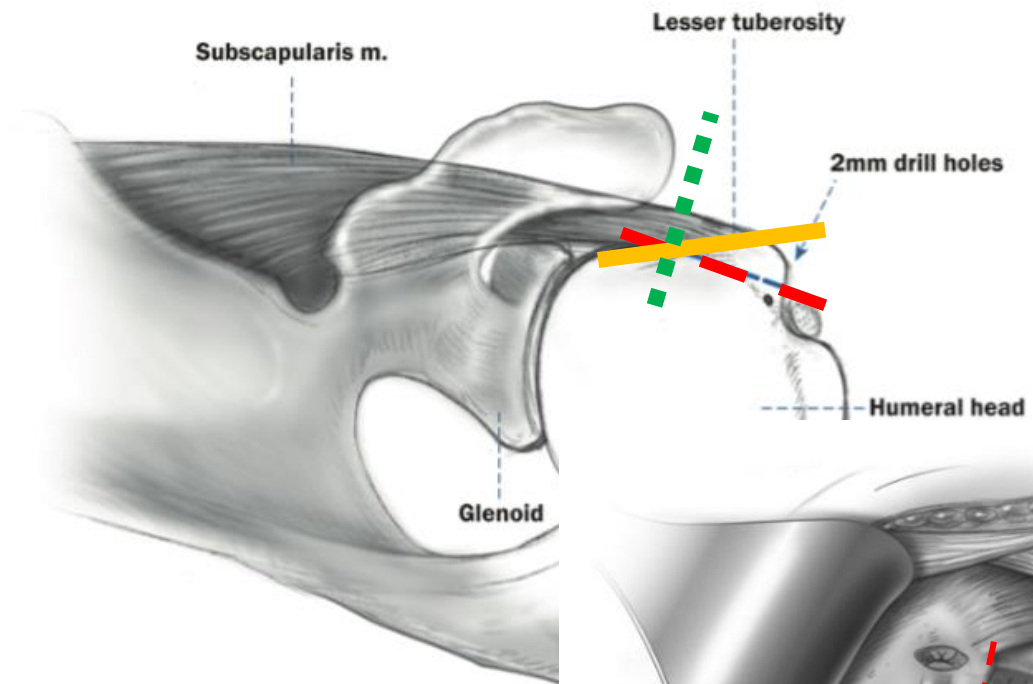


Delto-pectoral ingång



Subscapularis delas







Subscapularis management in stemless total shoulder arthroplasty: tenotomy versus peel versus lesser tuberosity osteotomy



William R. Aibinder, MD^a, Ryan T. Bicknell, MD, MSc, FRCSC^{b,c}, Stefan Bartsch, MD^d,
Markus Scheibel, MD^{e,f}, George S. Athwal, MD, FRCSC^{a,*}

n=188

Table II Clinical and functional outcomes

	Subscapularis tenotomy (n = 68)	Subscapularis peel (n = 65)	LTO (n = 55)	P value
VAS pain score				
6 mo	0.8 (0-9.8)	1.5 (0-8.5)	1.2 (0-6.2)	.09
1 yr	0.5 (0-6.0)	0.8 (0-8.6)	0.9 (0-6.9)	.33
2 yr	0.5 (0-7.6)	0.7 (0-7.8)	1.0 (0-7.0)	.20
ER at 90° of abduction, °				
6 mo	62 (0-100)	60 (0-98)	50 (0-90)	.04*
1 yr	69 (0-100)	67 (0-100)	55 (10-90)	.003*
2 yr	66 (0-108)	66 (10-105)	61 (20-90)	.50
ER at side, °				
6 mo	42 (0-75)	47 (10-90)	37 (0-70)	.006*
1 yr	45 (10-90)	54 (15-90)	44 (0-70)	.003*
2 yr	45 (0-90)	55 (20-88)	48 (0-80)	.02*
Forward elevation, °				
6 mo	142 (70-170)	130 (40-180)	130 (20-170)	.02*
1 yr	153 (80-180)	137 (75-150)	141 (60-180)	.002*
2 yr	152 (45-180)	142 (85-180)	147 (30-180)	.13
ASES score				
6 mo	85 (28-100)	78 (14-100)	82 (20-100)	.09
1 yr	91 (55-100)	87 (20-100)	88 (20-100)	.50
2 yr	91 (42-100)	90 (38-100)	89 (16-100)	.76

LTO, lesser tuberosity osteotomy; VAS, visual analog scale; ER, external rotation; ASES, American Shoulder and Elbow Surgeons.

Data are presented as mean (range).

* Statistically significant.

Metoderna säkra och LIKVÄRDIGA

Table II Clinical and functional outcomes

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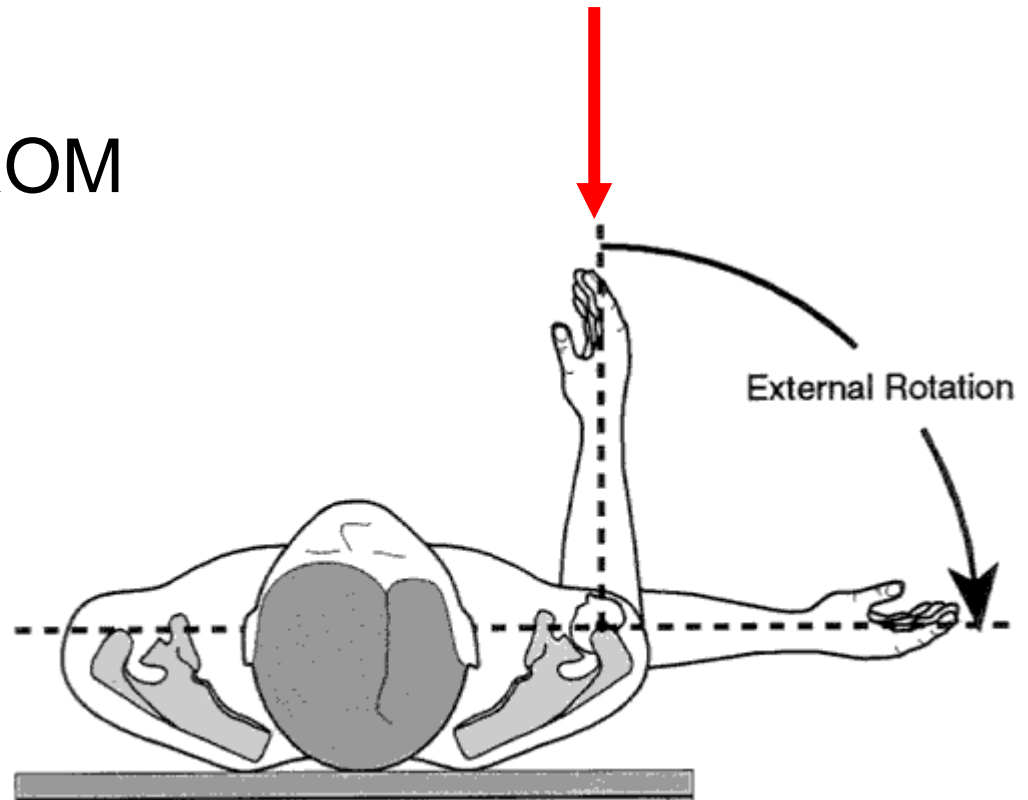
* Statistically significant.

Avlasta subscapularis

Slynga/axellås främst för smärtlindring

Typiskt begränsa utåtrotation till 0° i 6 v

Tidig smärtfri ROM



Subscapularisruptur

Ovanligt

Belastningssmärta, svaghet för inåtrotation, ökad passiv utåtrotation

Subscapularisruptur

Ovanligt

Belastningssmärta, svaghet för inåtrotation, ökad passiv utåtrotation

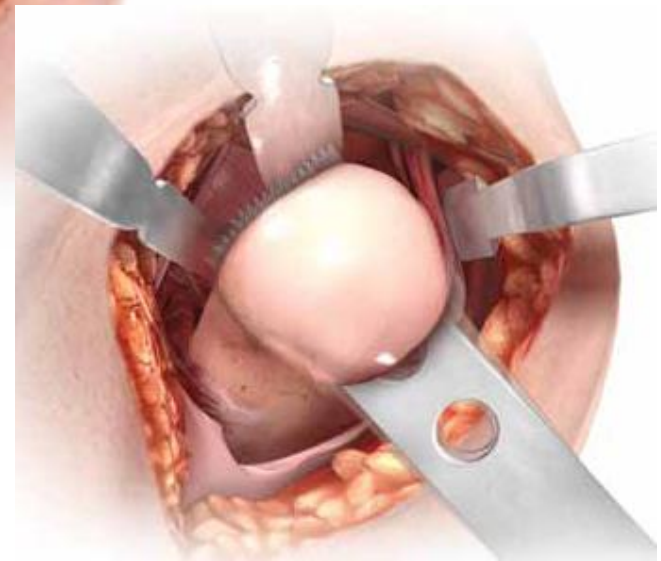
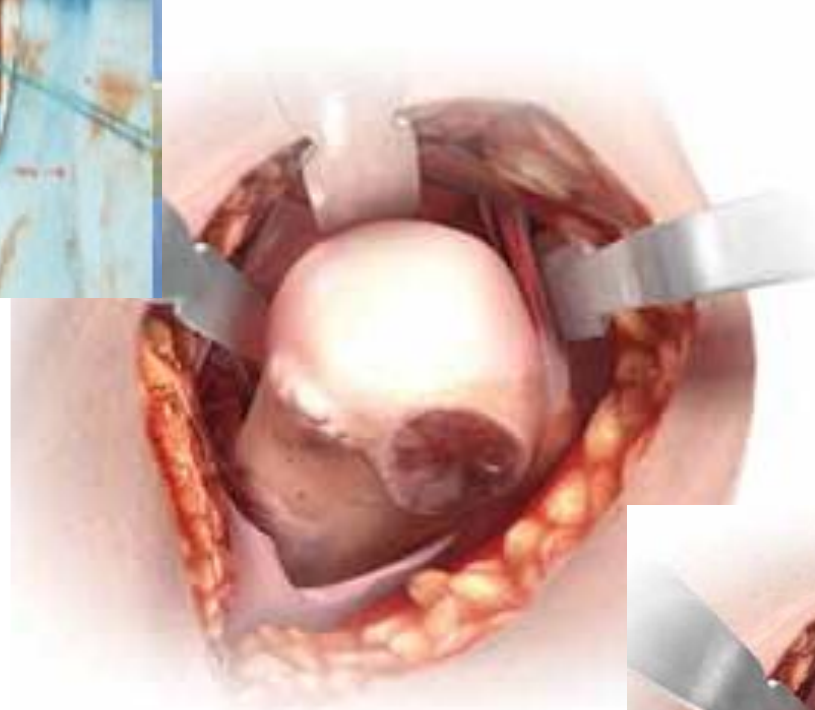
Bear hug

belly press

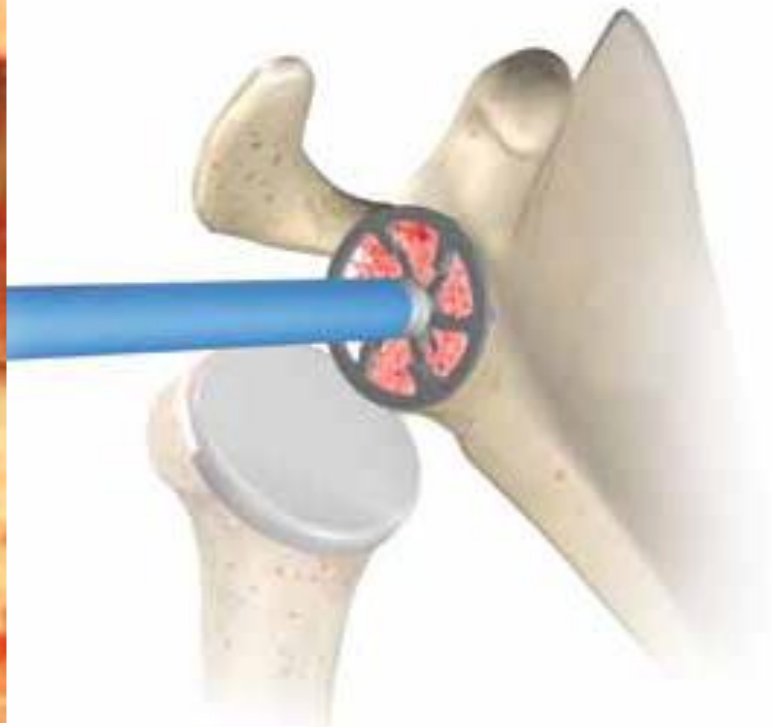
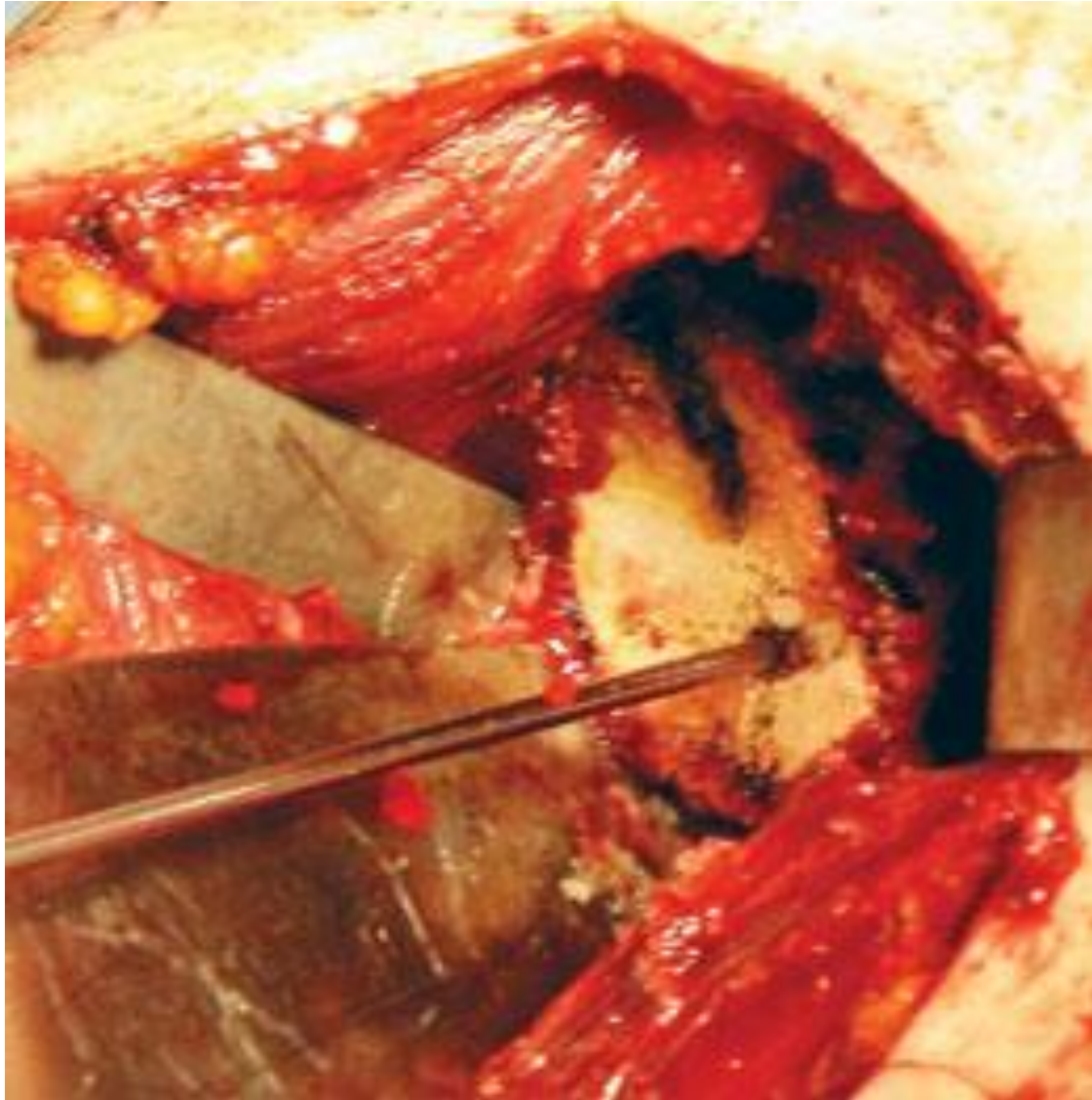
Gerber lift-off och lift-off lag-sign

passiv utåtrotation

Ledhuvudet sågas bort



Ledpannan rensas från brosk

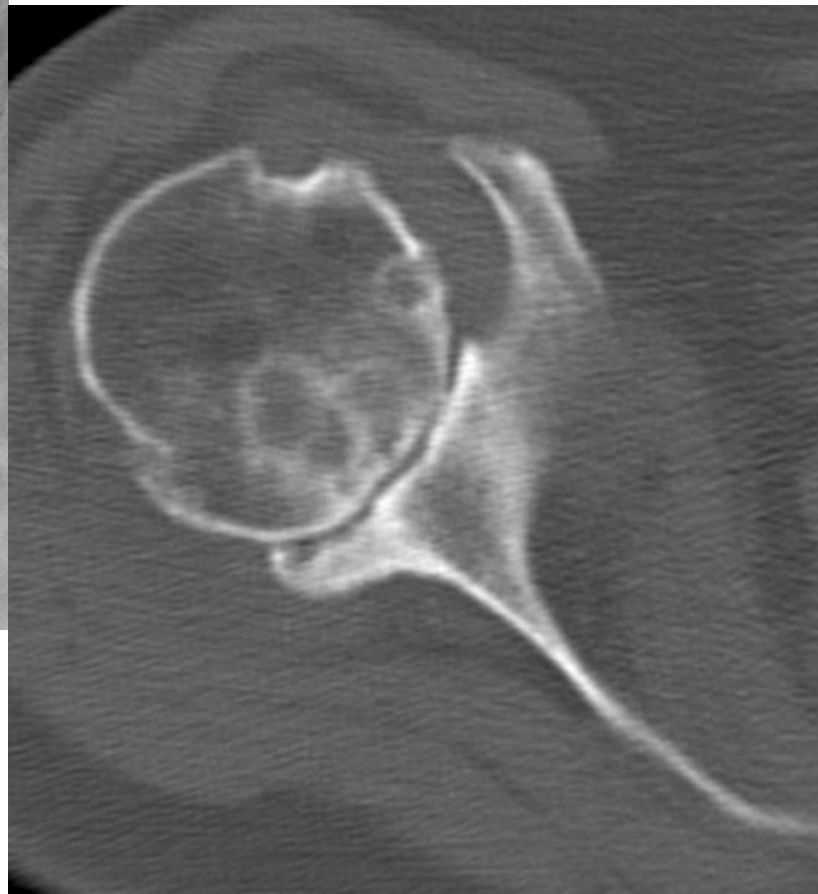


Plastyta på ledpannan



Stam och huvud i överarm





85 år

Walch A2

Anatomisk?

Omvänd?



2012 anatomisk totalprotes

Efter 1 år:

- ingen värk
- abd/flex 140 gr
- ER 60 gr
- mkt nöjd

Idag hade vi satt en omvänd ?

ANATOMISK PROTES

TOTAL

Primär ARTROS

HEMI

Fraktur

Avaskulär nekros

Nödlösning

Avlastning av svårläkt spinafraktur





Fraktur

Tuberkelinläkning
avgörande för
resultat



Original article

Hemiarthroplasty versus reverse shoulder arthroplasty in 4-part displaced fractures of the proximal humerus: Multicenter retrospective study

N. Bonneville^{a,*}, C. Tournier^b, P. Clavert^c, X. Ohl^d, F. Sirveaux^e, D. Saragaglia^f,
la Société française de chirurgie orthopédique et traumatologique

If the greater tuberosity was not in an anatomic position, whether because of non-union or malunion, this resulted in a significantly poorer mean adjusted Constant score in the HA group (anatomic union: 80% vs 54% without anatomic union, $P < 0.0001$), but did not significantly influence the RSA group (anatomic union: 85% vs nonunion: 82%, $P = 0.36$).





Can surgeons predict what makes a good hemiarthroplasty for fracture?

Pascal Boileau, MD^{a,*}, Matthias Winter, MD^b, Alec Cikes, MD^c, Yung Han, MD^a, Michel Carles, MD, PhD^d, Gilles Walch, MD^e, Daniel G. Schwartz, MD^a

n=60, f/u 5 år

Sämre resultat om:

>75 år

Kvinna

Protes vid fraktur

Oförutsägbara resultat efter hemiprotes

Omvända blir ofta ganska bra

Tuberkelinläkning nyckeln

Kvinnor, rökare, äldre och små tuberkelfragment

Äldre kvinnor överrepresenterade vid PHF

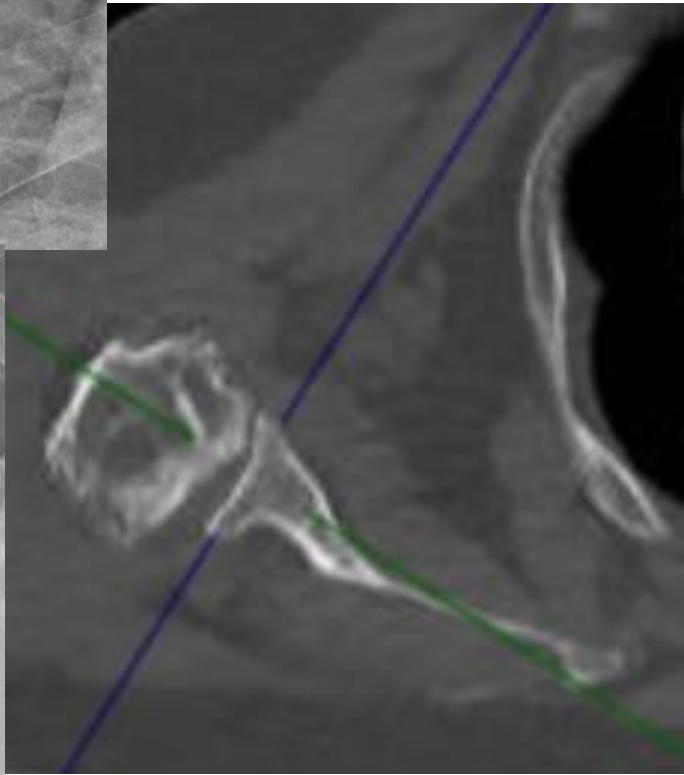
Avaskulär nekros



Ex.v efter cytostatika- eller
kortisonbehandling
Glenoidbrosket opåverkat



AVN





Short-term outcomes and survival of pyrocarbon hemiarthroplasty in the young arthritic shoulder



Caroline Cointat, MD^{a,*}, Jean Luc Raynier, MD^a, Héloïse Vasseur, MD^b,
Fabien Lareyre, MD, PhD^b, Juliette Raffort, MD, PhD^b, Marc Olivier Gauci, MD, PhD^a,
Pascal Boileau, MD^c

n=64, medelålder 53 år, f/u 3 år

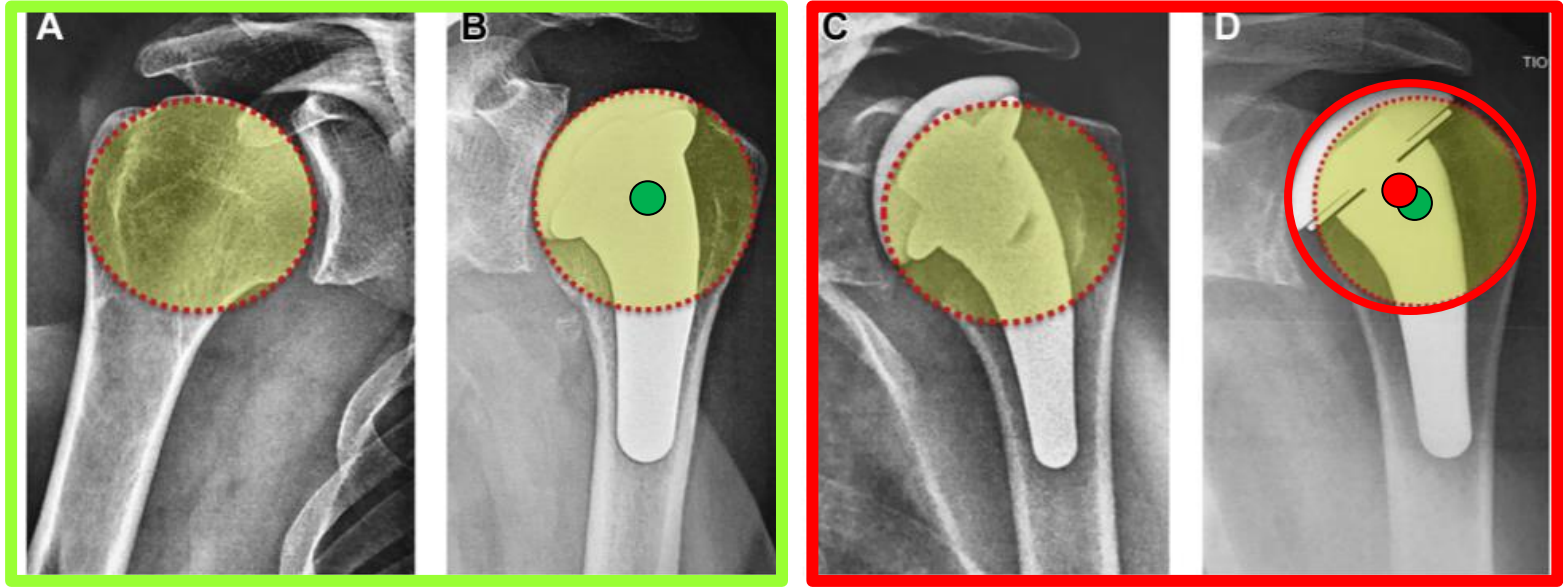
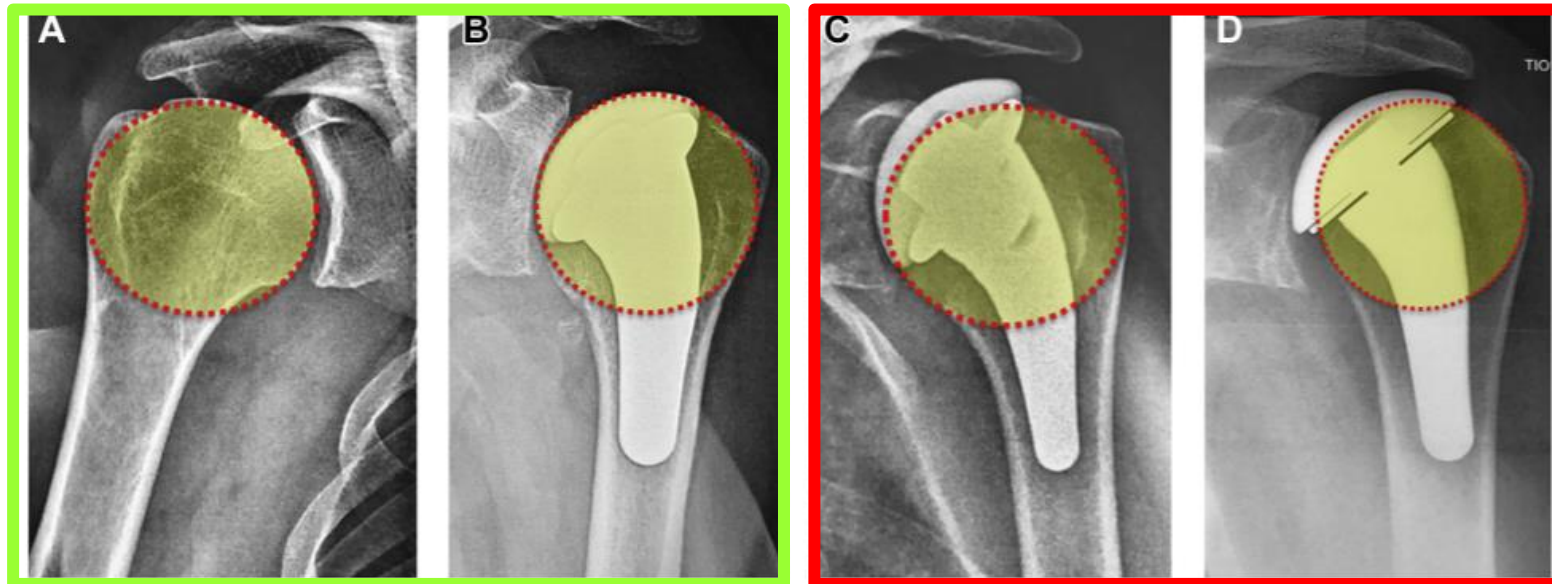


Table IV Comparison of clinical and radiologic results between anatomic and nonanatomic humeral reconstruction

	Anatomic reconstruction (n = 46)	Nonanatomic reconstruction (n = 18)	P value
Active forward elevation, °	154	111	.005
Active external rotation, °	46	28	.004
Active internal rotation, points	7	4	.002
Constant score, points	78 (14-100)	48 (14-72)	.003
Subjective Shoulder Value, %	83	58	.004
Progressive glenoid erosion, %	37	61	.07
Subscapularis tear, n	1	3	.04
Revision rate, %	2.2	22	.019

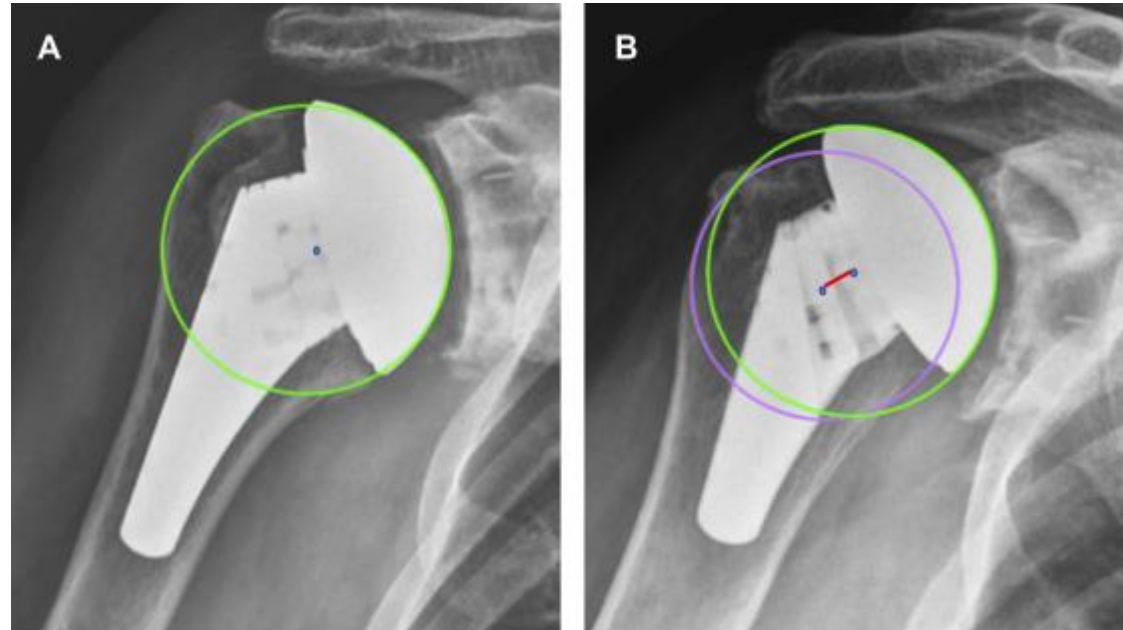


Icke-anatomisk återställande av COR > 3mm mkt sämre resultat
Revisionsfrekvens 22%

Prosthetic humeral head center of rotation shift from ideal is associated with inferior clinical outcomes after anatomic total shoulder arthroplasty

Brian C. Werner MD, R. Alexander Creighton MD, Patrick J. Denard MD, Evan Lederman MD, Anthony Romeo MD and Justin W. Griffin MD

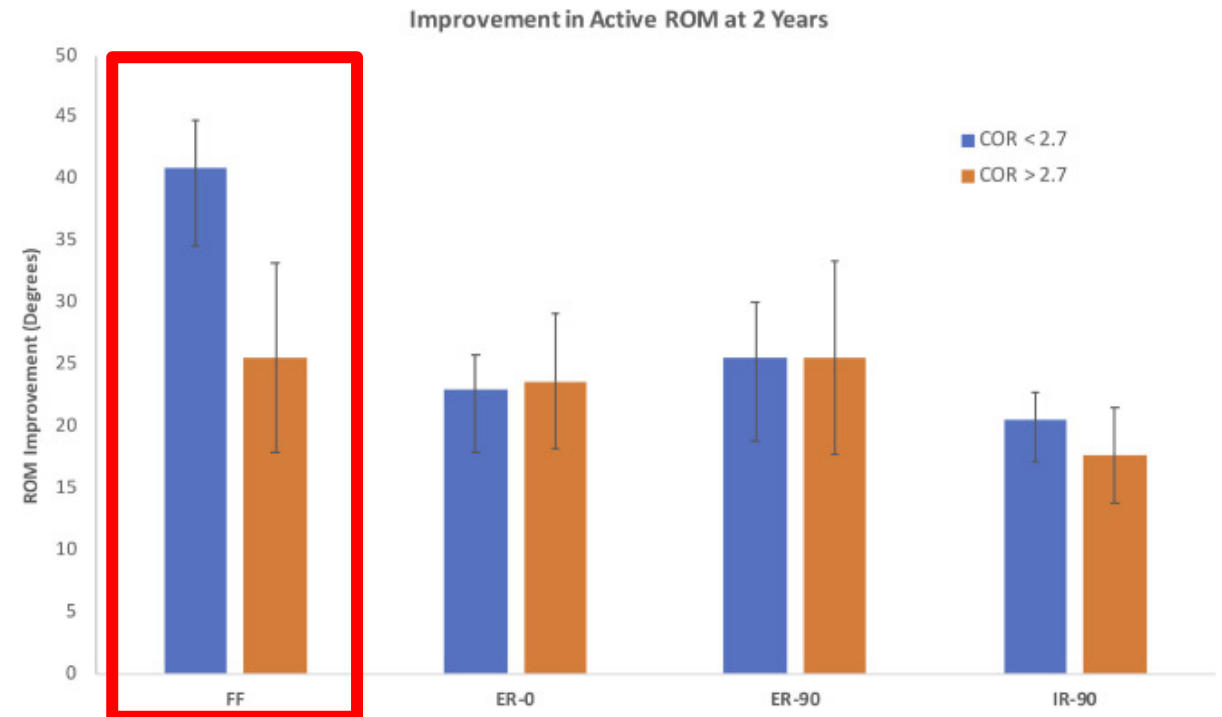
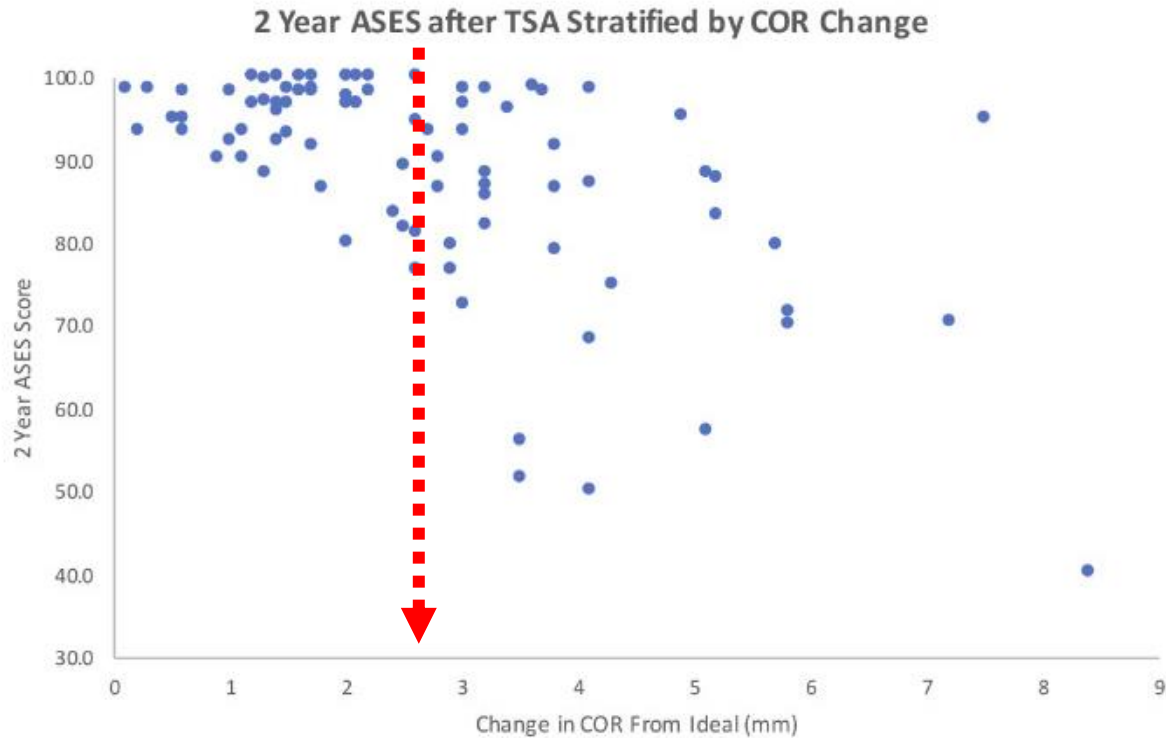
Seminars in Arthroplasty: JSES, 2021-11-01, Volume 31, Issue 4, Pages 668-676, Copyright © 2021 American Shoulder and Elbow Surgeons



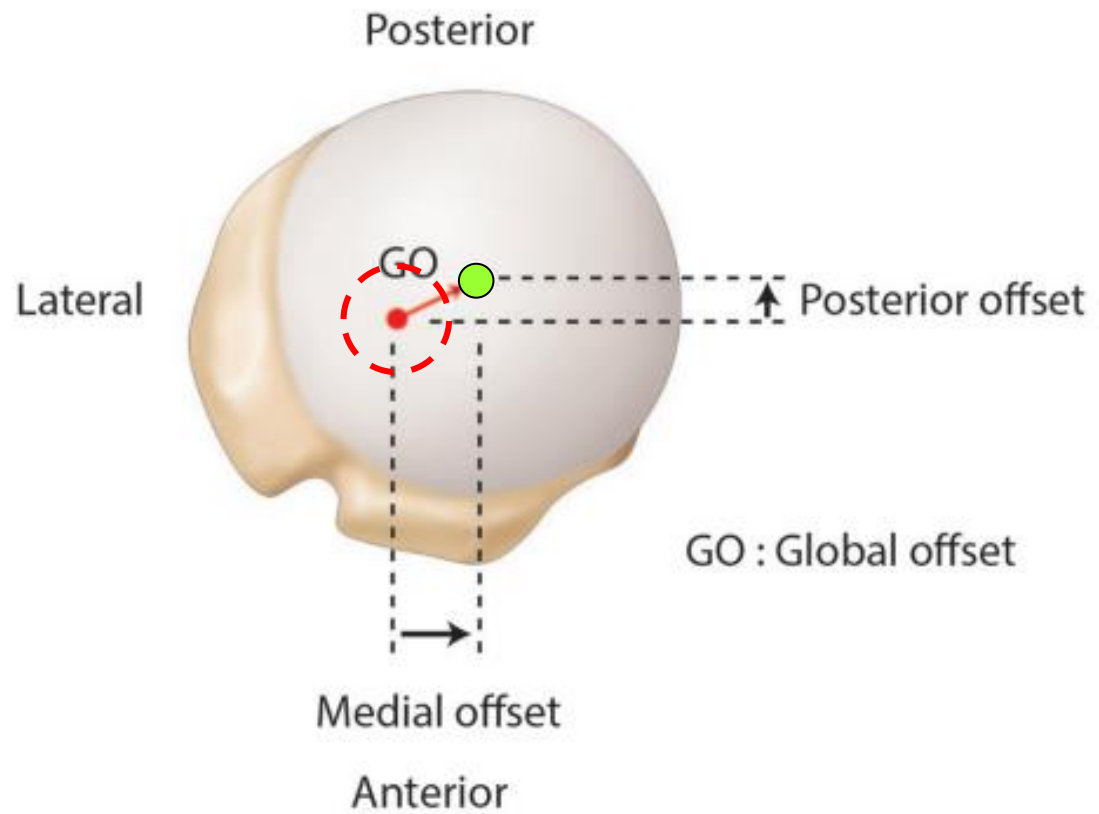
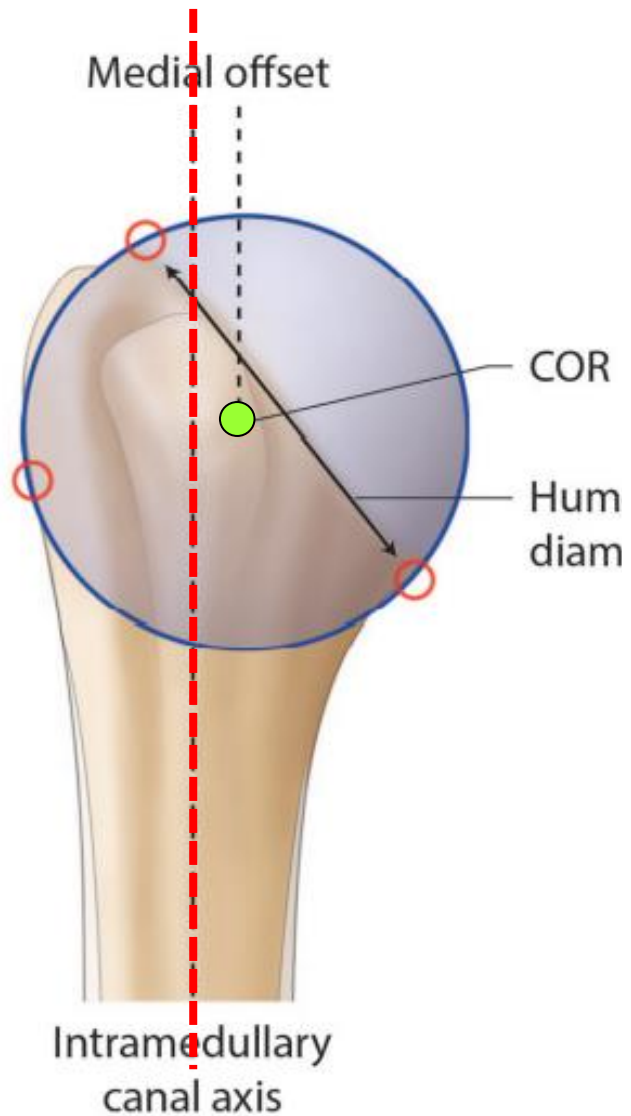
n=87, medelålder 66 år, f/u 3 år

64% > 2mm, 18% > 4mm

Om COR förskjutet > 2.7 mm sämre subjektiv funktion och mätbart sämre flexion

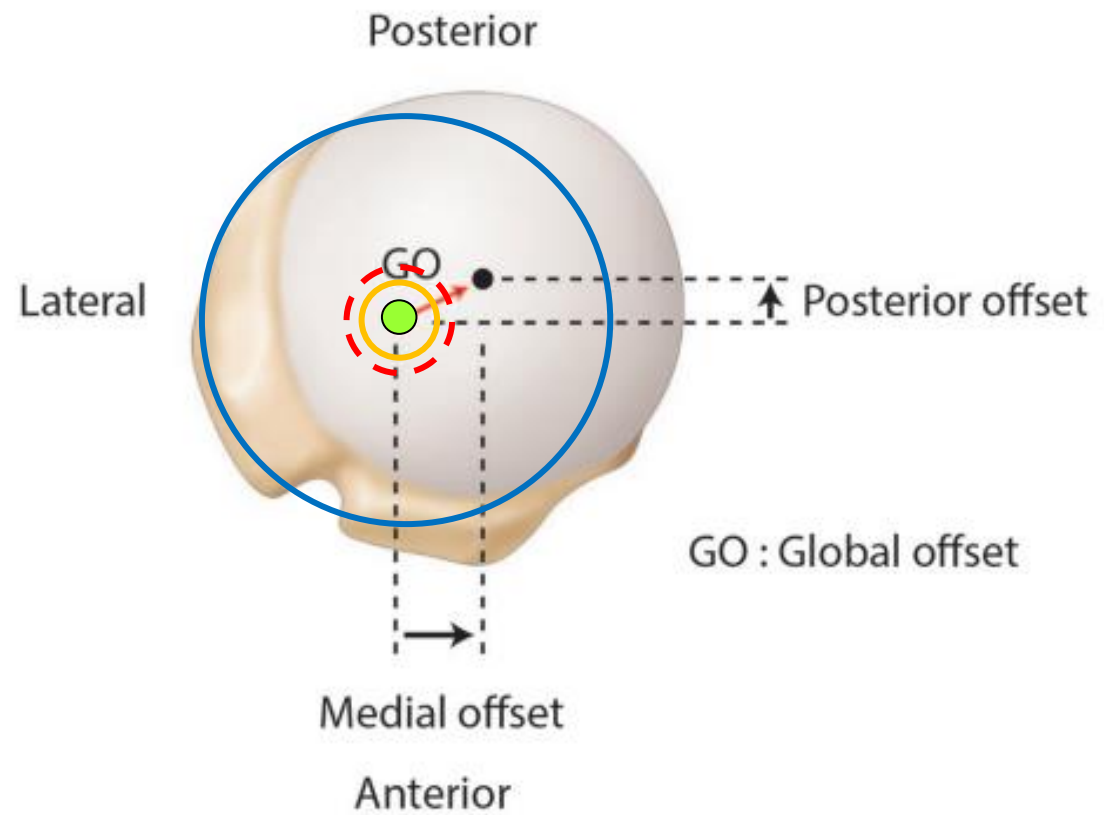
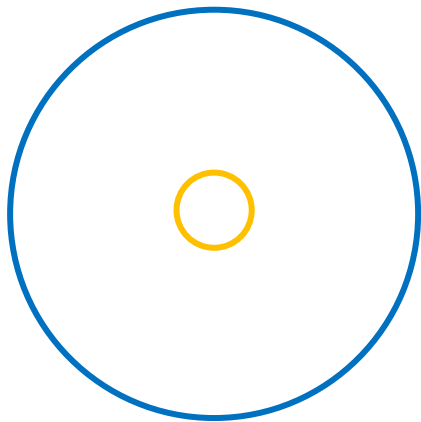


Rotationscentrum medialt och dorsalt om humeruskanalens

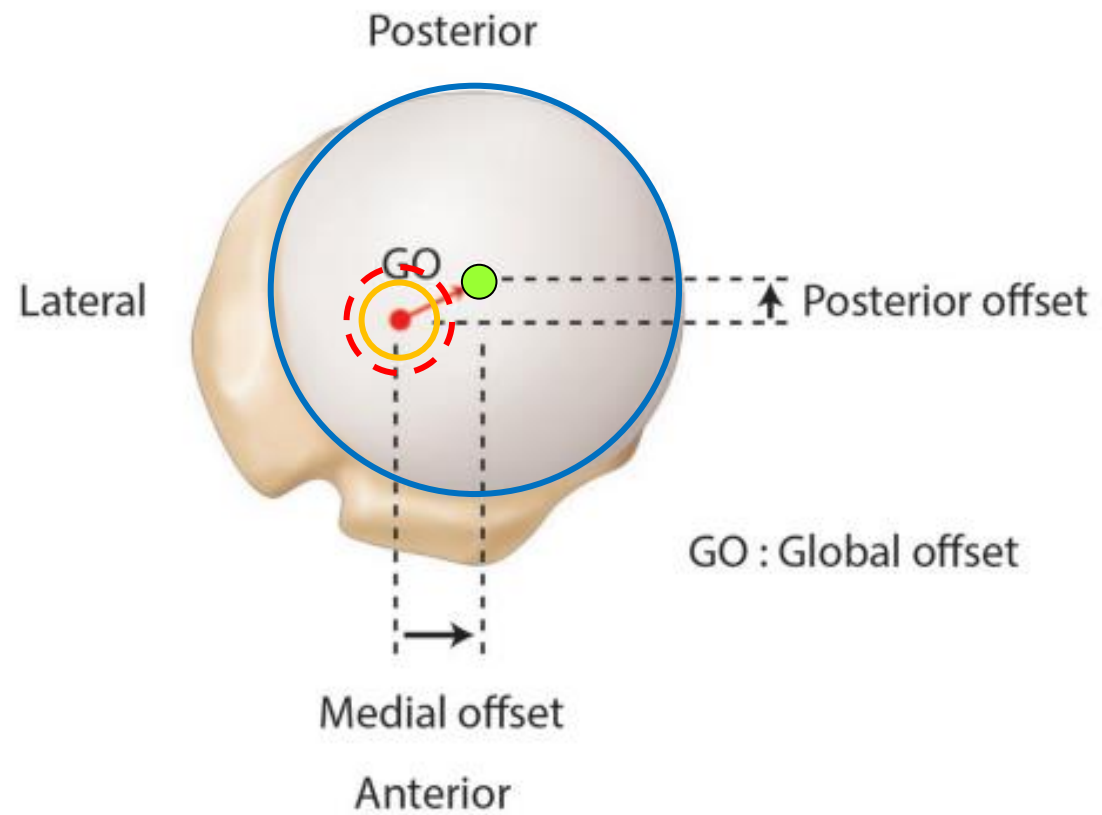
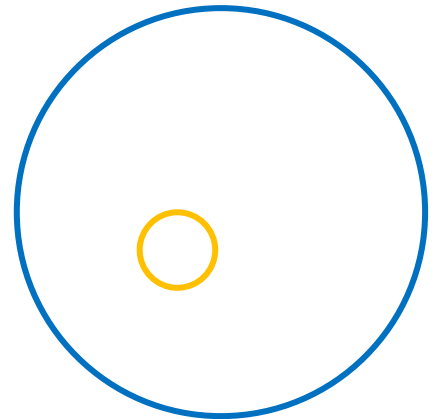




Caput utan offset



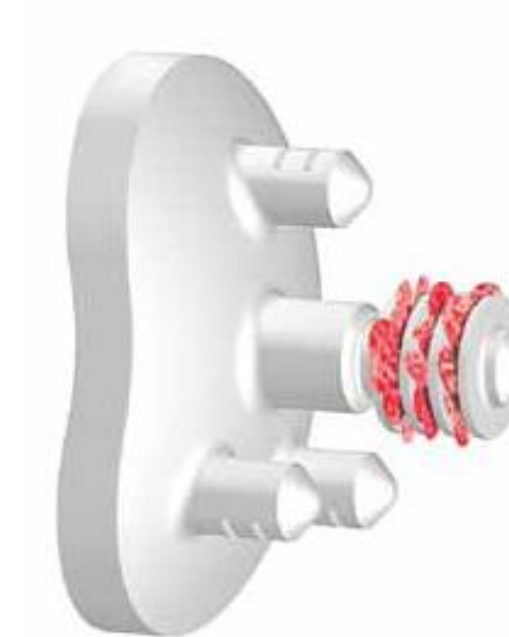
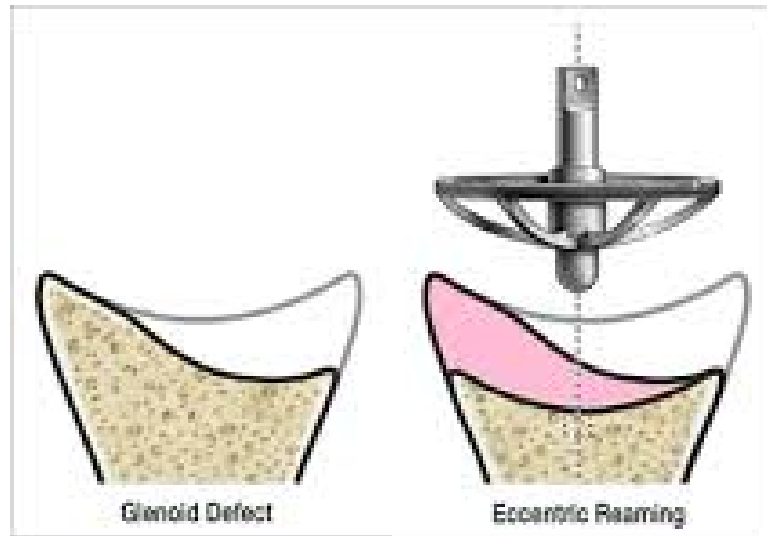
Caput med eccentricitet



GO : Global offset

GLENOIDEN

Korrektion av B-glenoid

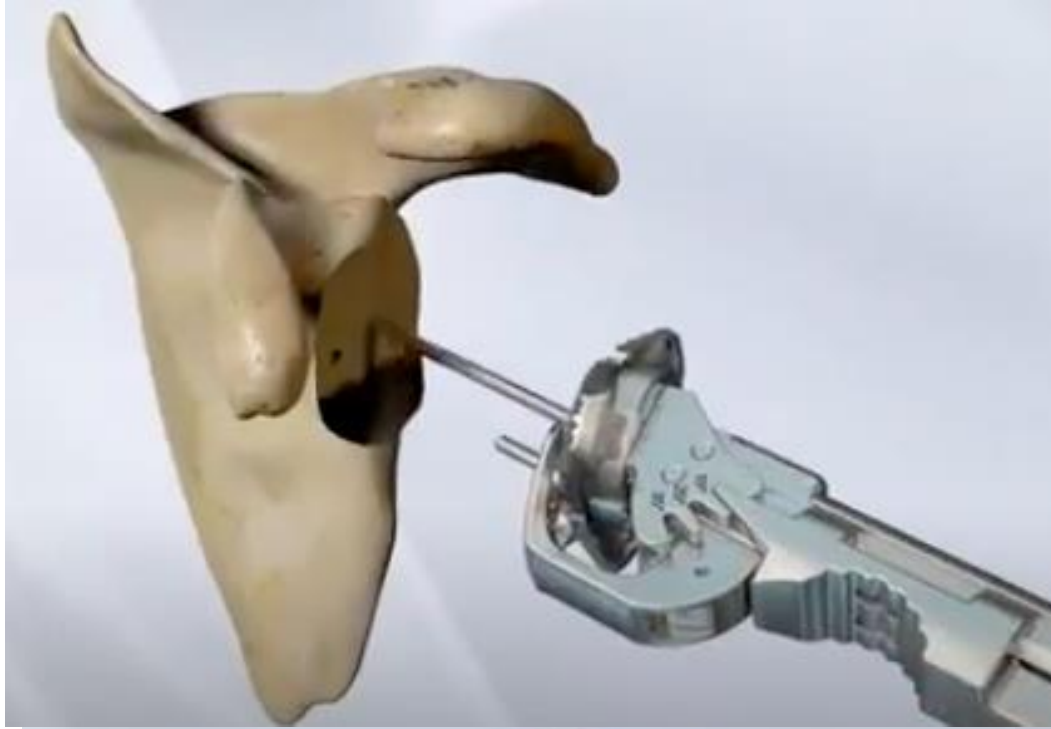


Från B → A



Kilformad glenoidkomponent



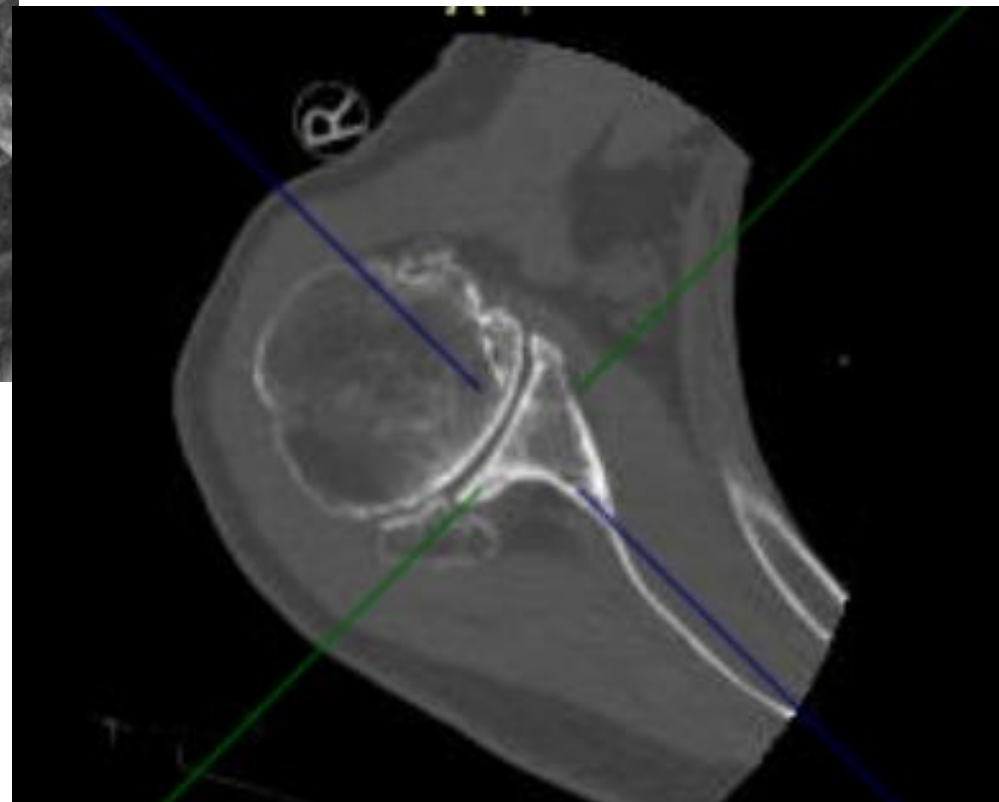


Anatomisk rekonstruktion av glenoiden med bevarad kuffdynamik





77 år



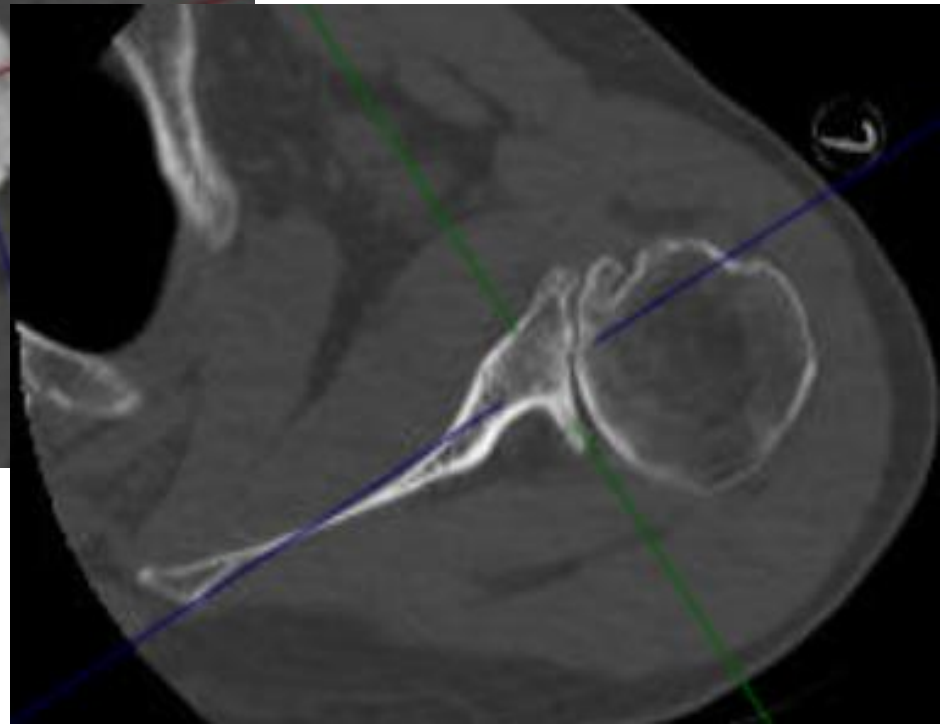
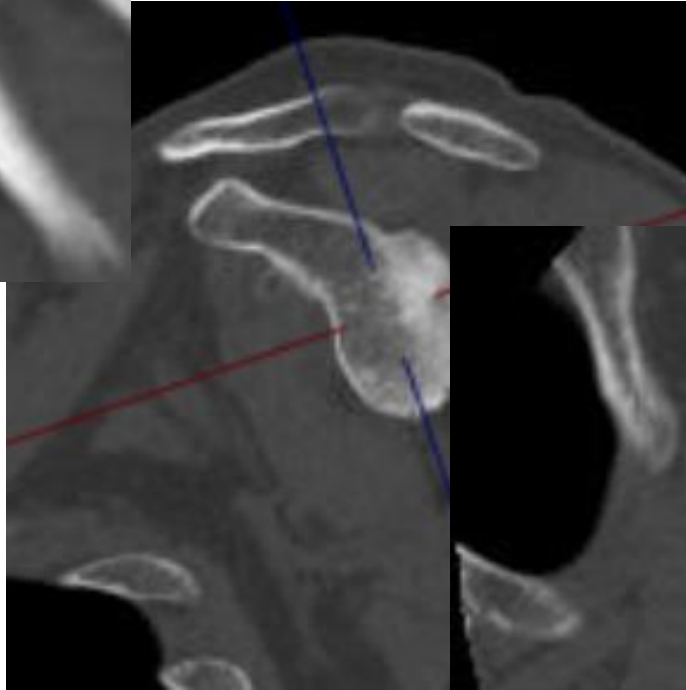
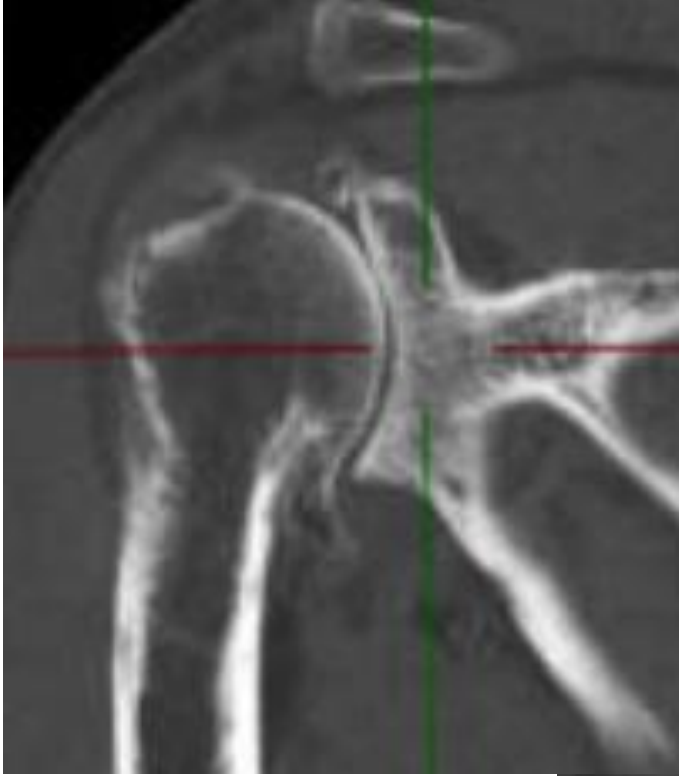
Kilformad glenoidkomponent 15°



61 år



Uttalad B2





Kilformad glenoidkomponent 35 °
Stamlös humeruskomponent



Bensparande humeruskomponent



RESULTAT

AROM

Subjektiv skattning

Protesöverlevnad

Komplikationer: lossning, kuffruptur, infektion

EQ-5D (5L)

Ditt
nuvarande
hälsotillstånd

Rörlighet

Jag går utan svårigheter

Jag kan gå men med viss svårighet

Jag är sängliggande

Hygien

Jag behöver ingen hjälp med min dagliga hygien, mat eller påklädning

Jag har vissa problem att tvätta eller klä mig själv

Jag kan inte tvätta eller klä mig själv

Huvudsakliga aktiviteter *(t ex arbete, studier, hushållssysslor, familje- och fritidsaktiviteter)*

Jag klarar av mina huvudsakliga aktiviteter

Jag har vissa problem med att klara av mina huvudsakliga aktiviteter

Jag klarar inte av mina huvudsakliga aktiviteter

Smärtor/besvär

Jag har varken smärtor eller besvär

Jag har måttliga smärtor eller besvär

Jag har svåra smärtor eller besvär

Oro/nedstämdhet

Jag är inte orolig eller nedstämd

Jag är orolig eller nedstämd i viss utsträckning

Jag är i högsta grad orolig eller nedstämd

Bästa
tänkbara
tillstånd

100

90

80

70

60

50

40

30

20

10

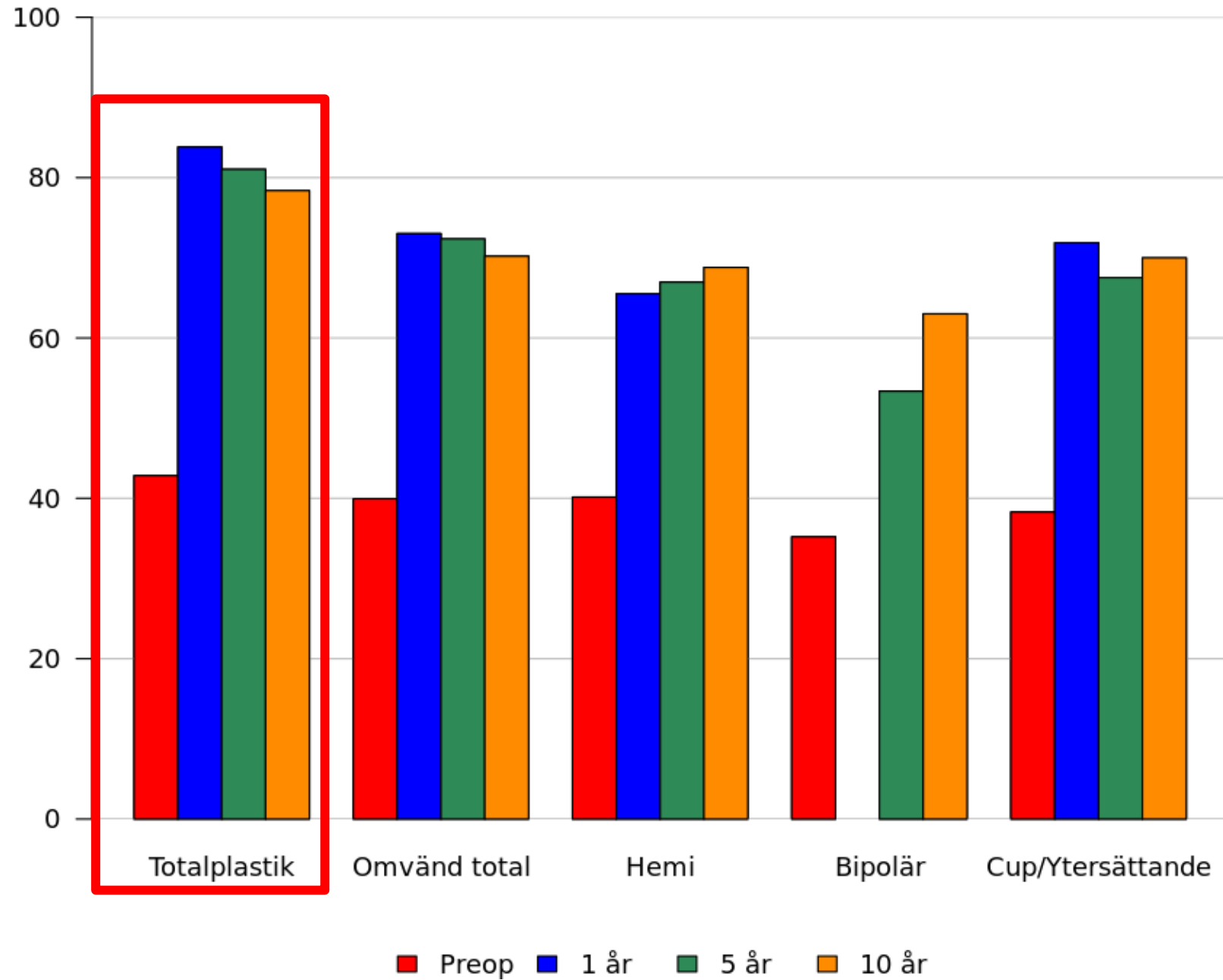
0

Sämsta
tänkbara
tillstånd

WOOS

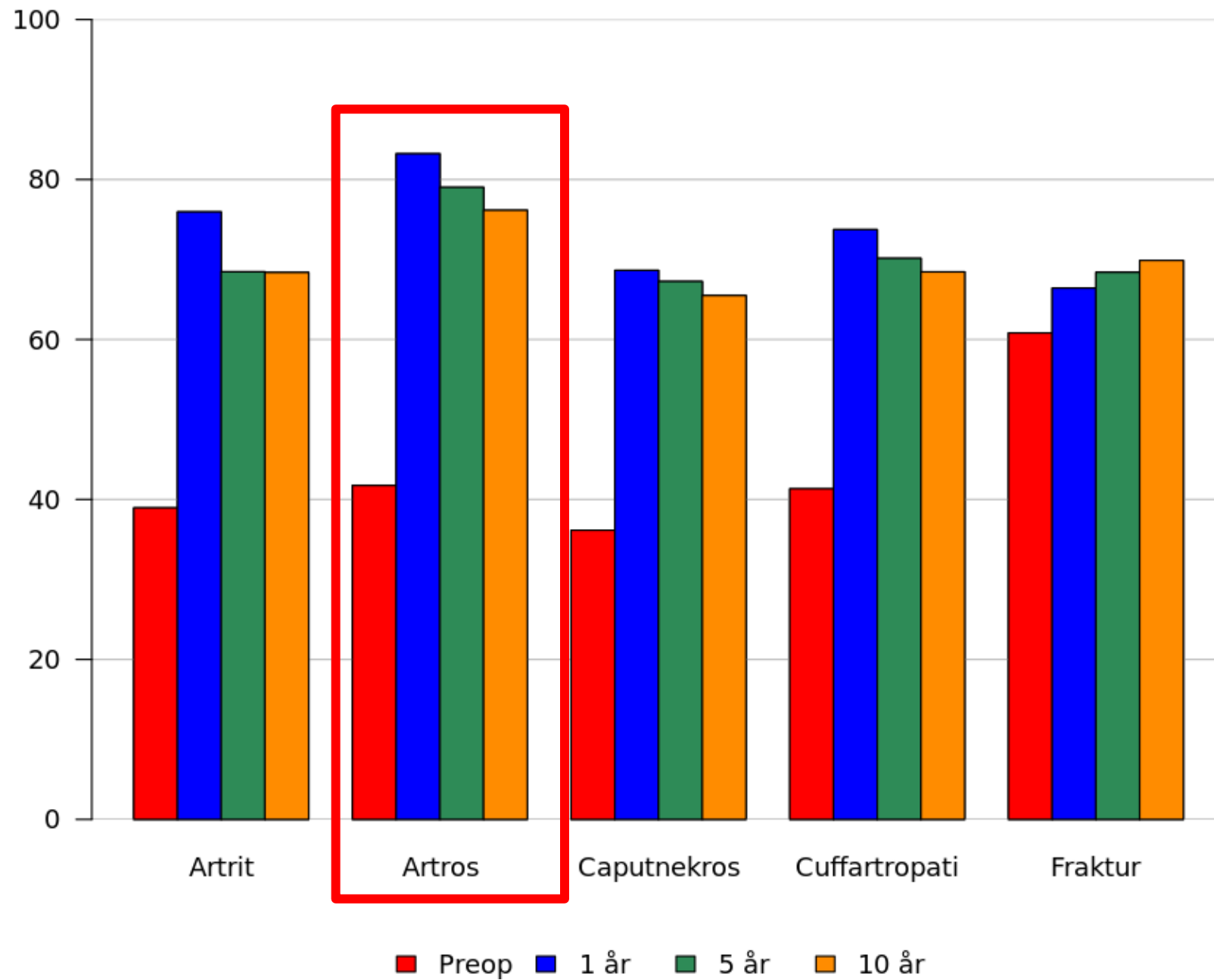
Fysiska symptom	Sport / Fritid / Arbete	Livsstil	Känslor	Total
F1 ,	S7 ,	L12 ,	K17 ,	F ,
F2 ,	S8 ,	L13 ,	K18 ,	S ,
F3 ,	S9 ,	L14 ,	K19 ,	L ,
F4 ,	S10 ,	L15 ,	Summa K:	K ,
F5 ,	S11 ,	L16 ,	,	Summa:
F6 ,	Summa S:	Summa L:	300-	,
Summa F:	,	,	/ 3	1900-
,	500-	500-	= %	/ 19
600-	/ 5	/ 5		= %
/ 6	= %	= %		
= %				

Genomsnittlig WOOS (medelvärde) alla patienter



Figur 5: Svenska Axel Registret, 2022-01-16 17:33:39

Genomsnittlig WOOS (medelvärde) alla patienter



Figur 5: Svenska Axel Registret, 2022-01-16 17:34:07

MINSKAD VÄRK

GOD RÖRLIGHET



Anatomic total shoulder arthroplasty for primary glenohumeral osteoarthritis is associated with excellent outcomes and low revision rates in the elderly



Andrew R. Jensen, MD, MBE^a, Jennifer Tangtiphaiboontana, MD^b, Erick Marigi, MD^c, Katherine E. Mallett, MD^c, John W. Sperling, MD^c, Joaquin Sanchez-Sotelo, MD, PhD^{c,*}

n=377, > 70 år , medel 76.2 år, OA

UTÅTROTATION från 26° pre- till 64° postop (SD, 26°)

Inte uteslutet med anatomisk protes pga hög ålder

Knee Surg Sports Traumatol Arthrosc (2018) 26:100–112

**Return to sport after shoulder arthroplasty: a systematic review
and meta-analysis**

Joseph N. Liu¹ · Michael E. Steinhaus¹ · Grant H. Garcia¹ · Brenda Chang² ·
Kara Fields² · David M. Dines³ · Russell F. Warren³ · Lawrence V. Gulotta³

n=944, f/u 5.1 år

Patienter som opererades med anatomisk totalprotes
(TSA) kom oftare tillbaka till idrott

TSA 92.6%

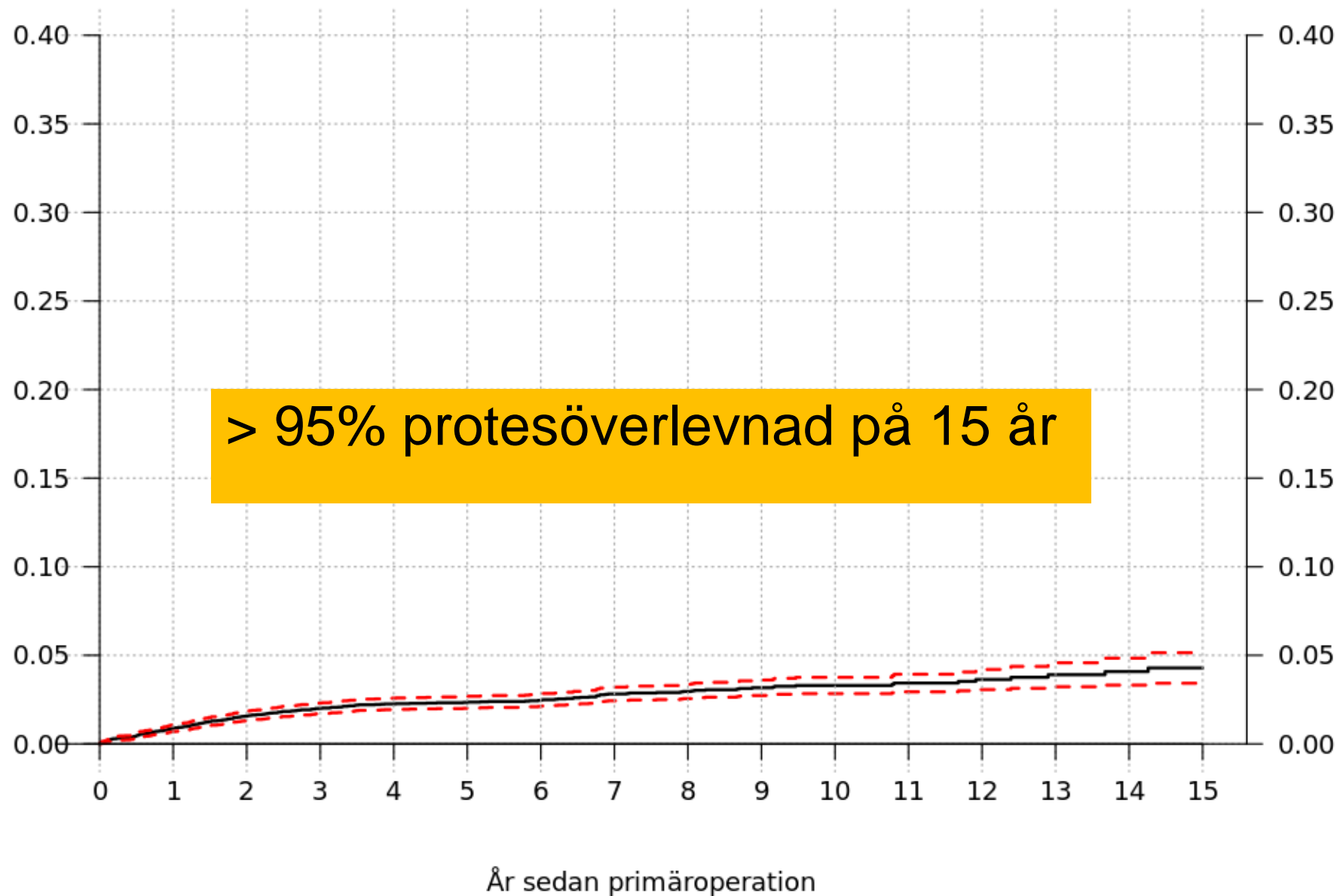
HHA 71.1%

rTSA 74.9%

Protestyp: Totalplastik

Antal op = 8973

Antal revision t.o.m. 2021 = 235

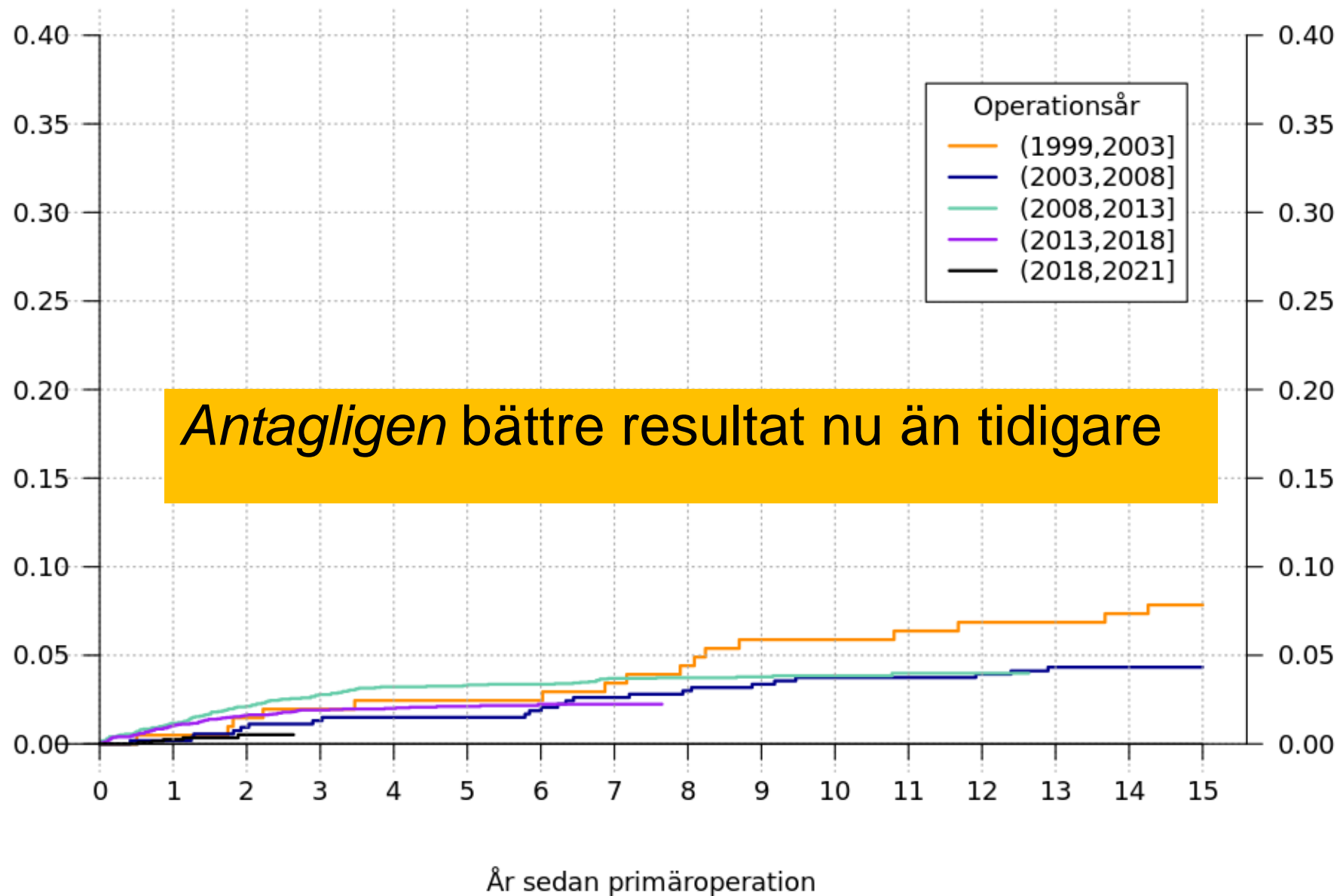


Figur 7: Svenska Axel Registret 2022-01-16 18:10:57

Protestyp: Totalplastik

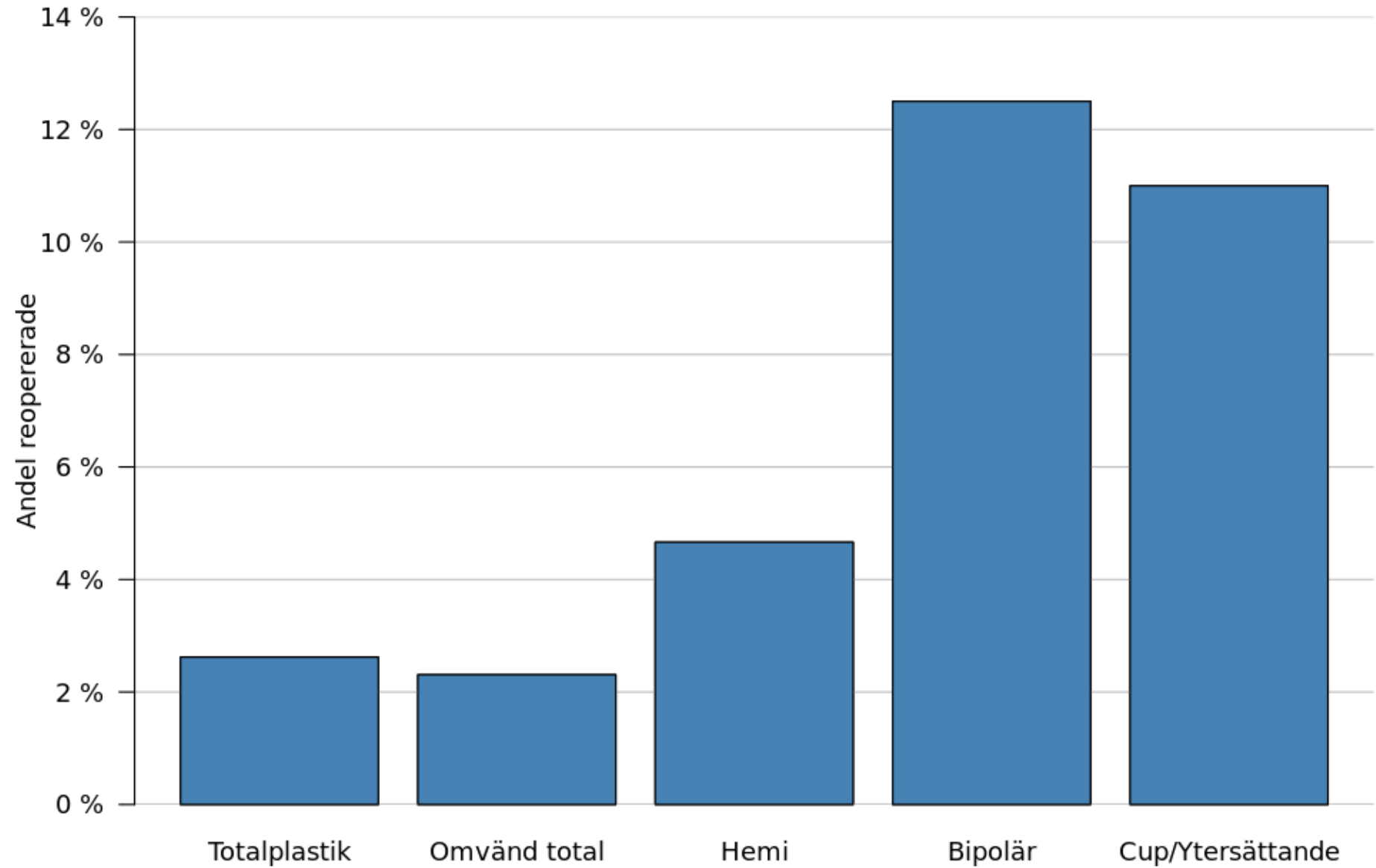
Antal op = 8973

Antal revision t.o.m. 2021 = 235



Figur 7: Svenska Axel Registret 2022-01-16 18:12:03

Andel reopererade av totalt antal opererade



Figur 6: Svenska Axel Registret, 2022-01-22 09:18:00

RESULTAT

Rörelseomfång och styrka

Subjektiv skattning av axelfunktion och livskvalitet: WOOS och EQ-5D

Kombination av subjektiv funktion och AROM/styrka: Constant score

Protesöverlevnad

Komplikationer: lossning, kuffruptur, infektion

RESULTAT

Rörelseomfång och styrka

Subjektiv skattning av axelfunktion och livskvalitet: WOOS och EQ-5D

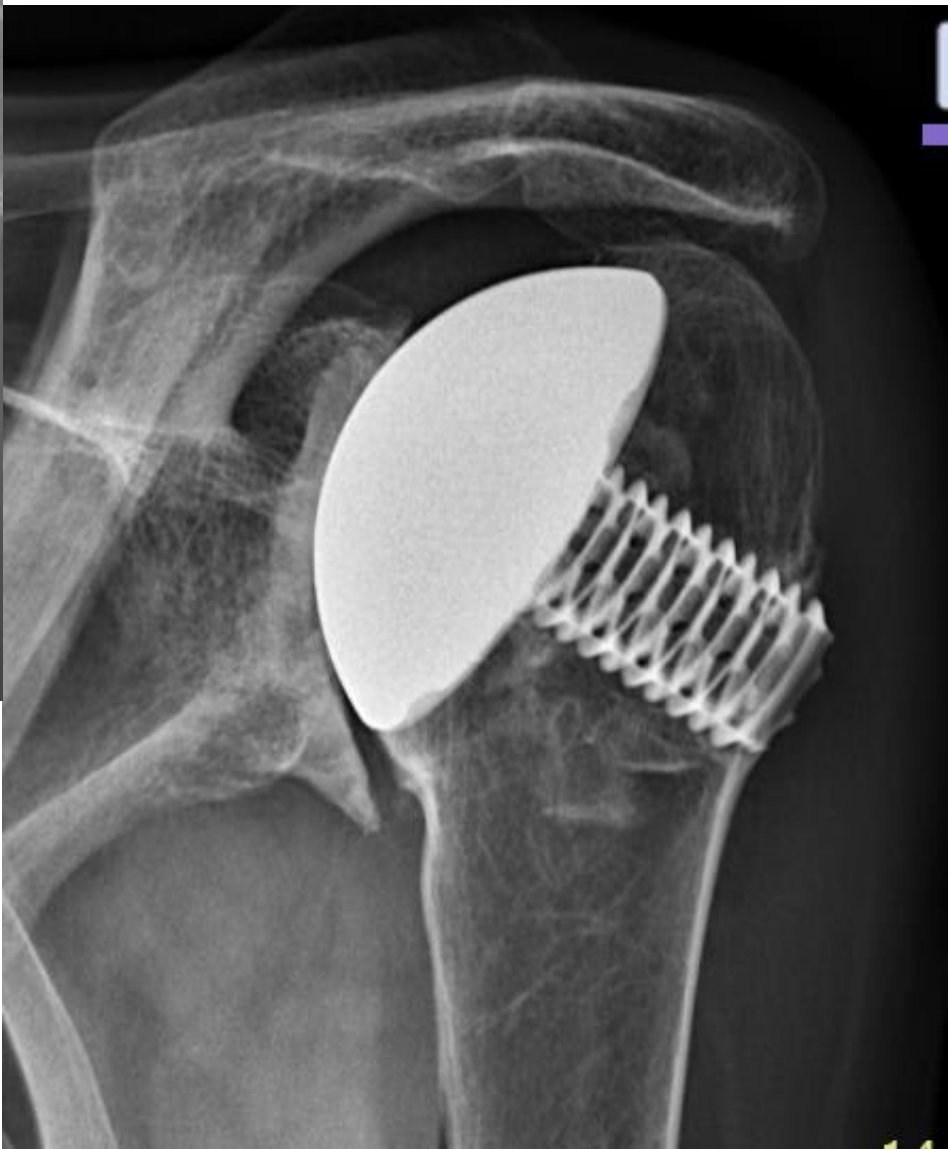
Kombination av subjektiv funktion och AROM/styrka: Constant score

Protesöverlevnad

Komplikationer (hemi): glenoiderosion, kuffruptur, infektion



Glenoiderosion efter hemi
> 10 år



Risk factors for glenoid erosion in patients with shoulder hemiarthroplasty: an analysis of 118 cases



Ramin Herschel, MD*, Karl Wieser, MD, Mark E. Morrey, MD, Ca
Christian Gerber, MD, FRCSEd (Hon), Dominik C. Meyer, MD

n=118, f/u 31 mån

Uttalad erosion hos 1/3 inom 2.5 år

Negativa prediktorer: cystor, RA, kvinna, kuffpåverkan

1/30 med HA pga fraktur utvecklade erosion



RESULTAT

Rörelseomfång och styrka

Subjektiv skattning av axelfunktion och livskvalitet: WOOS och EQ-5D

Kombination av subjektiv funktion och AROM/styrka: Constant score

Protesöverlevnad

Komplikationer: lossning, kuffruptur, infektion



REVIEW ARTICLE

Outcomes of total shoulder arthroplasty in patients younger than 65 years: a systematic review



Troy A. Roberson, MD^a, Jared C. Bentley, MD^a, James T. Griscom, BA^b,
Michael J. Kissenberth, MD^a, Stefan J. Tolan, MD^a, Richard J. Hawkins, MD^a,
John M. Tokish, MD^{a,*}

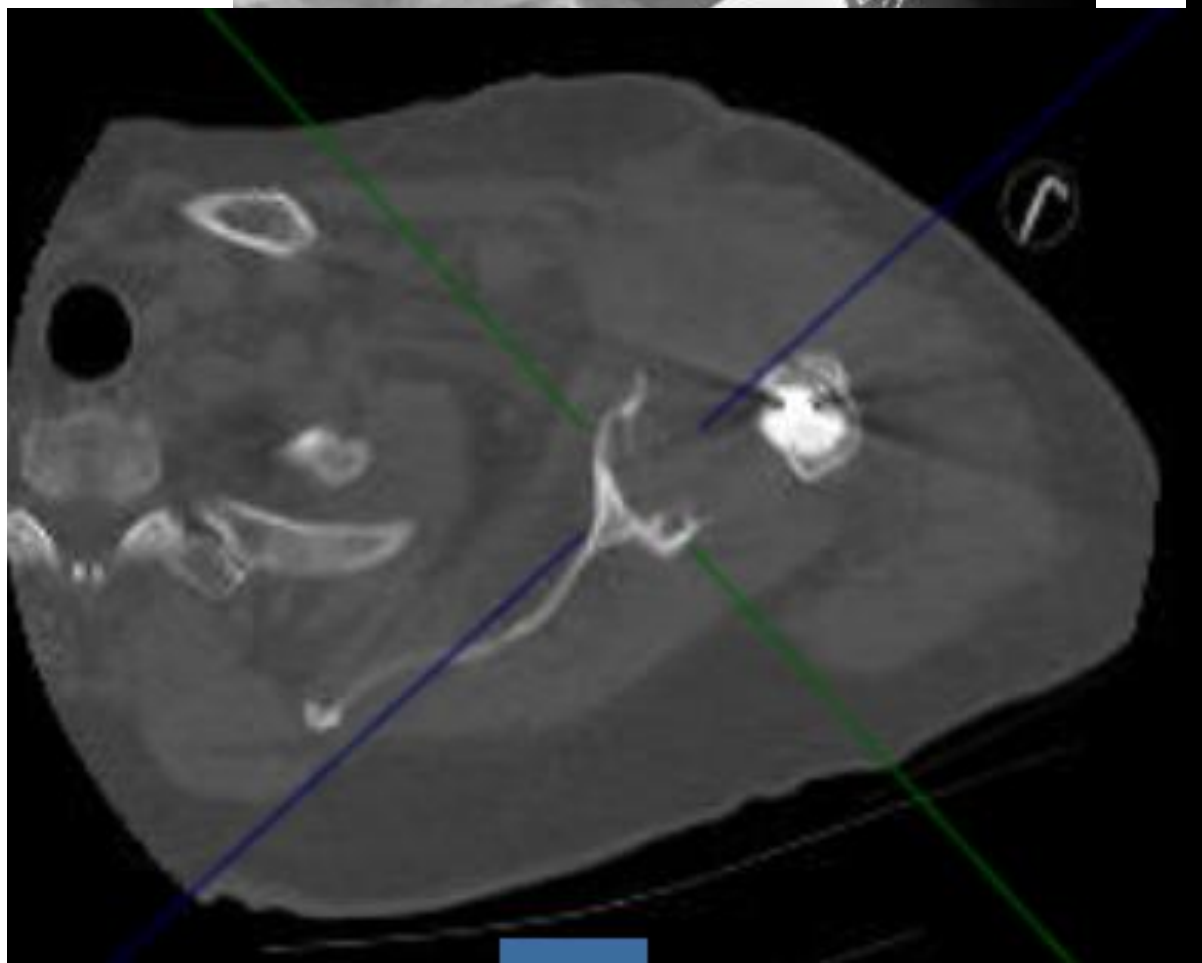
n=134, blandade diagnoser, OA vanligast

16-64 år

17% revision inom 20 år (medel 9.4 år)

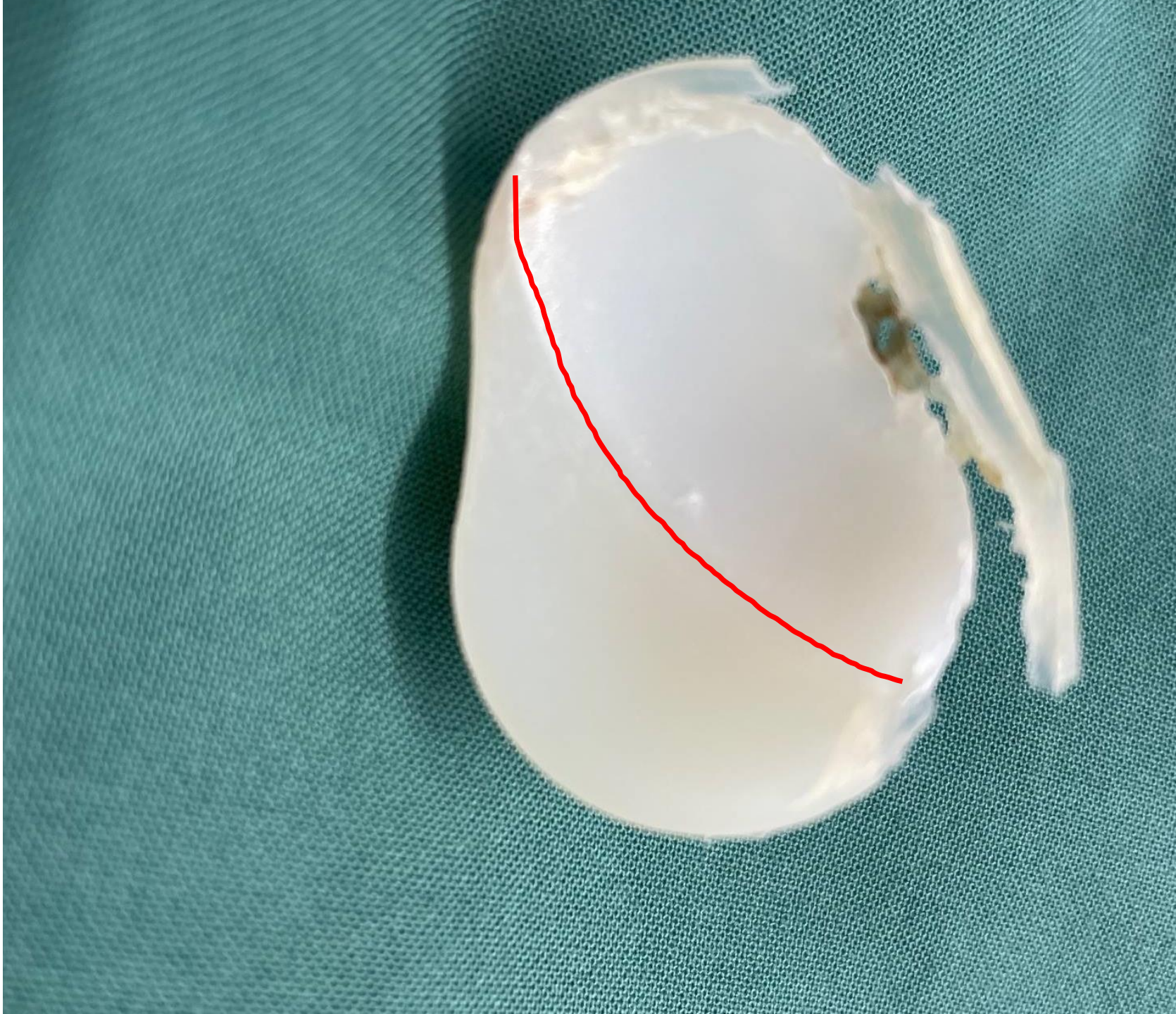
Glenoidlossning vanligast, Walch typ B högrisk

Lossning 12 år efter anatomisk totalprotes



Plastglenoid med uttalat slitage







ELSEVIER

JOURNAL OF
SHOULDER AND
ELBOW
SURGERY

www.elsevier.com/locate/jmse

ORIGINAL ARTICLE

Survival of the pegged glenoid component in shoulder arthroplasty: part II



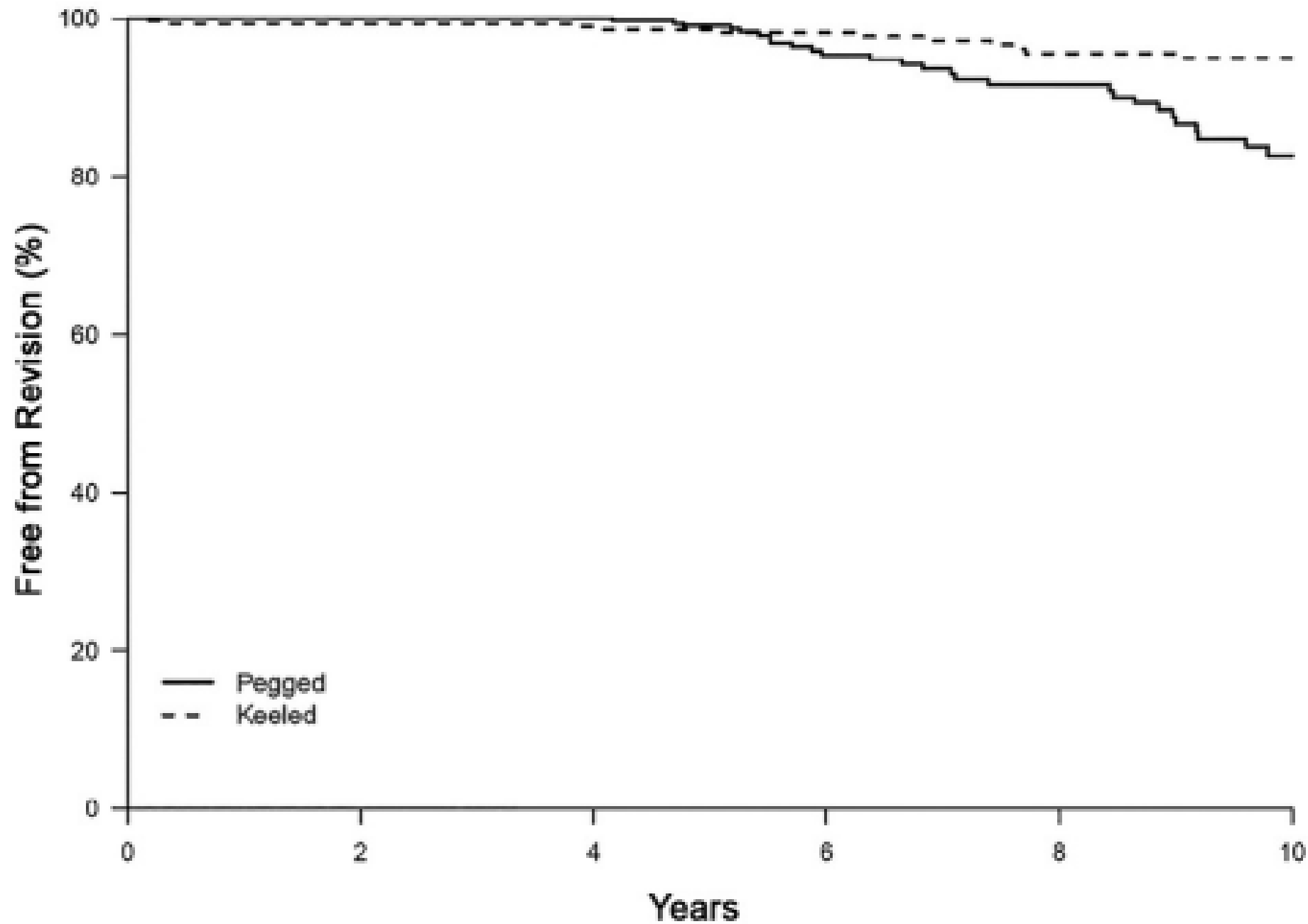
Paul B. McLendon, MD, Bradley S. Schoch, MD, John W. Sperling, MD, MBA*,
Joaquín Sánchez-Sotelo, MD, PhD, Cathy D. Schleck, BS, Robert H. Cofield, MD

n=330, f/u medel 7 år

Revision 1 % 5år, 17% 10 år

Risk: Walch A2, B2 och C

Survival Free of Glenoid Clinical Failure





The role age p complication:

Eric R. Wagner, MD
W. Scott Harmsen,
Bassem T. Elhassan

1970-2012
n=5494

Table I Demographic breakdown by age

Characteristics	Age categories		
	<50 y (n = 549)	50-65 y (n = 1647)	>65 y (n = 3298)
	10%	30%	60%
Gender			
Female	266 (48.5)	787 (47.8)	1991 (60.4)
Male	283 (51.5)	860 (52.2)	1307 (39.6)
Primary underlying diagnosis			
Osteoarthritis	92 (17)	728 (44)	1689 (51)
Post-traumatic arthritis	145 (26)	322 (20)	538 (16)
Rotator cuff arthropathy	12 (2)	126 (8)	610 (18)
Inflammatory	163 (30)	272 (16)	238 (8)
Other	137 (25)	199 (12)	223 (7)
Implant type			
Hemiarthroplasty	266 (49)	403 (25)	719 (22)
RSA	6 (1)	137 (8)	663 (20)
TSA	277 (50)	1107 (67)	1916 (58)
Surgery year group			
1970-1994	256 (47)	649 (39)	798 (24)
1995-2000	61 (11)	195 (12)	451 (14)
2001-2012	232 (42)	803 (49)	2049 (62)

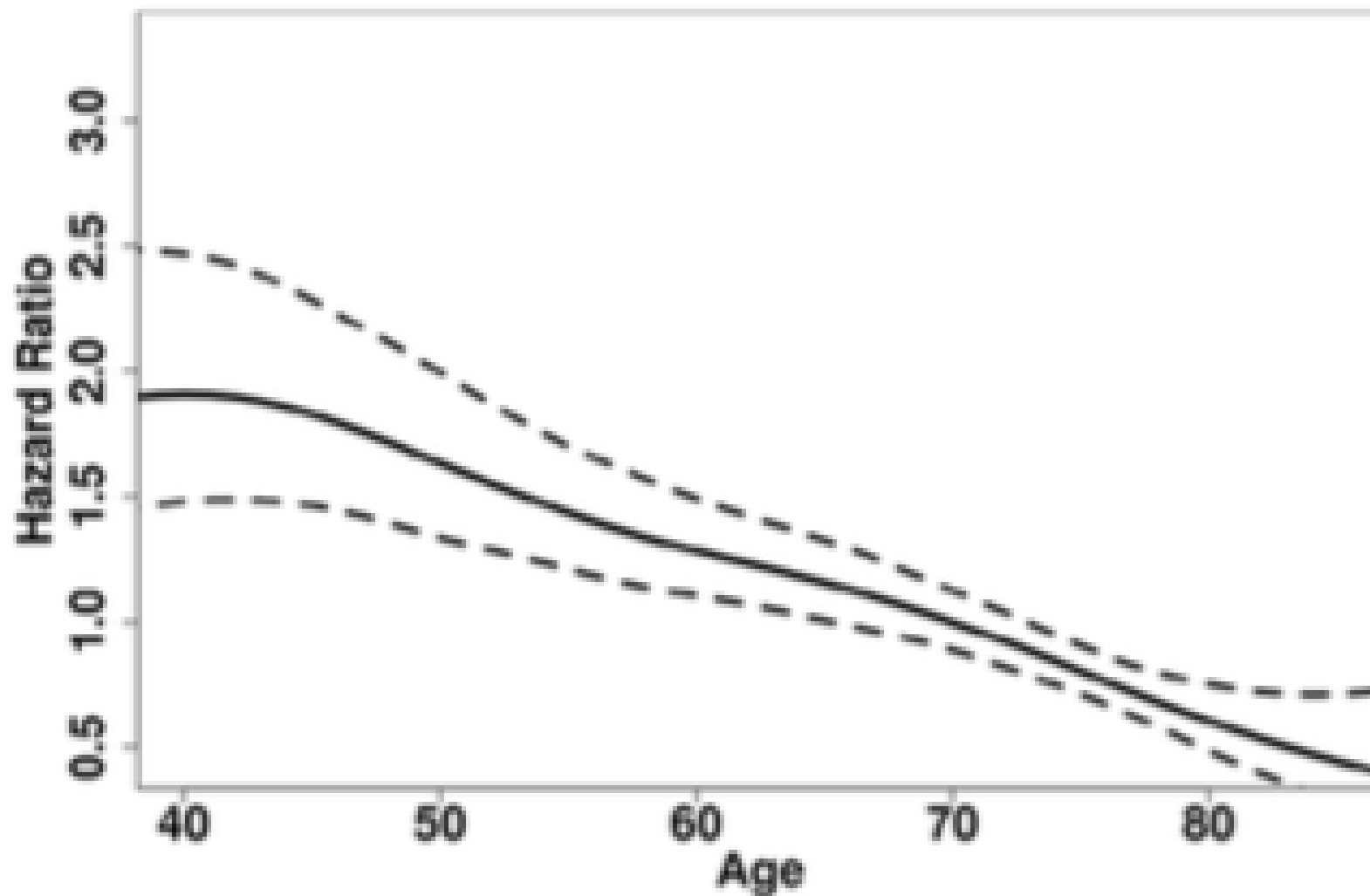
RSA, reverse shoulder arthroplasty; TSA, total shoulder arthroplasty.



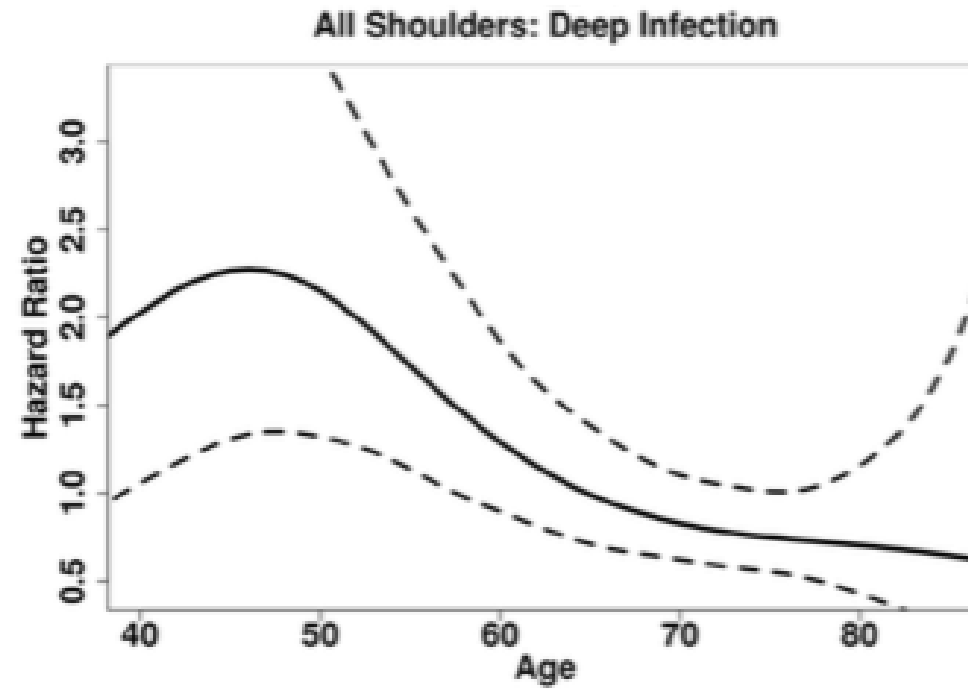
ld, MD^a,

Relativ risk för REVISION

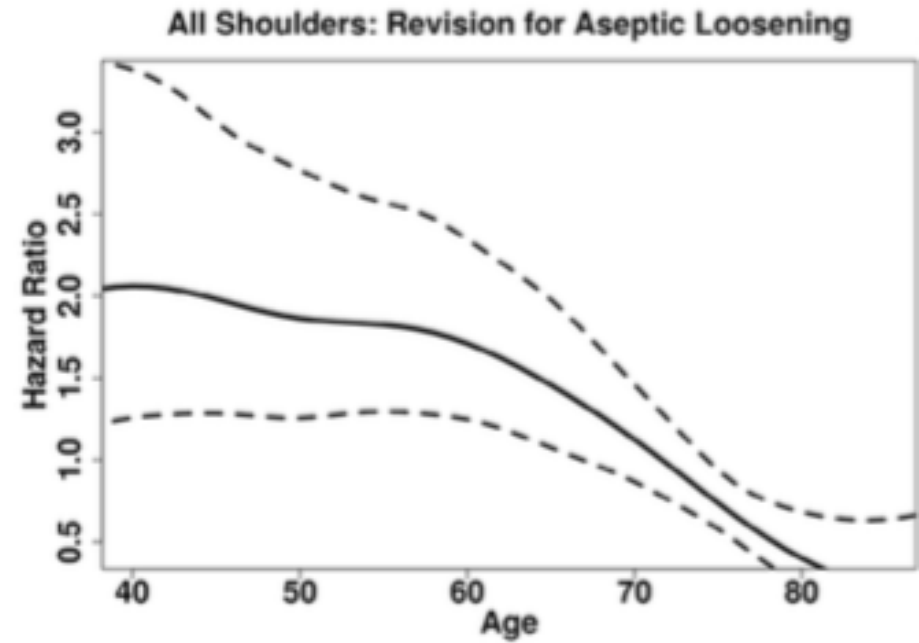
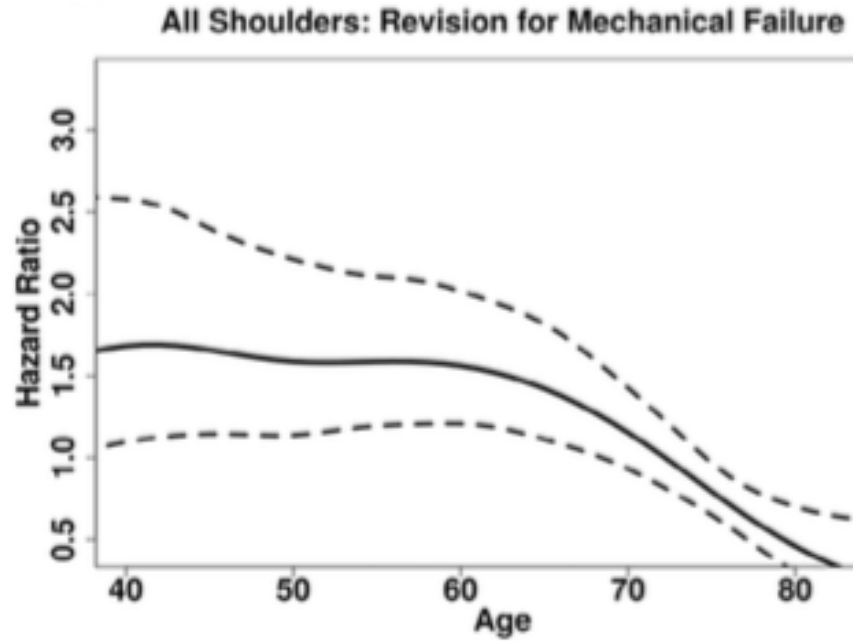
All Shoulders: Revision



INFEKTION



LOSSNING



Review **Article**

Rotator cuff tears after total shoulder arthroplasty in primary osteoarthritis: A systematic review

David M. Levy, Geoffrey D. Abrams¹, Joshua D. Harris², Bernard R. Bach Jr,
Gregory P. Nicholson, Anthony A. Romeo

Access this article online

Website:

www.internationalshoulderjournal.org

DOI:

10.4103/0973-6042.180720

Quick Response Code:



follow-up were included. Fifteen studies with 1259 patients (1338 shoulders) were selected. Student's *t*-tests were used with a significant alpha value of 0.05. All patients demonstrated significant improvements in motion and validated clinical outcome scores ($P < 0.001$). Radiographic humeral head migration was the most commonly reported data point for extrapolation of rotator cuff integrity. After 6.6 ± 3.1 years, $29.9 \pm 20.7\%$ of shoulders demonstrated superior humeral head migration and $17.9 \pm 14.3\%$ migrated a distance more than 25% of the head. This was associated with an $11.3 \pm 7.9\%$ incidence of postoperative superior cuff tears. The incidence of radiographic anterior humeral head migration was $11.9 \pm 15.9\%$, corresponding to a $3.0 \pm 13.6\%$ rate of subscapularis tears. We found an overall $1.2 \pm 4.5\%$ rate of reoperation for cuff injury. Nearly all studies reported indirect markers of rotator cuff dysfunction, such as radiographic humeral head migration and clinical exam findings. This systematic review suggests that rotator cuff dysfunction following TSA may be more common than previously reported. IV, systematic review of Levels I-IV studies.

INFEKTION

1-2%, cutibact acnes, (staph spp)

Män>kv, Rökare, DM

KONTINUERLIG VÄRK

STELHET

Oftast ingen synlig påverkan vid inspektion, ibland blålila hudförändring

Utredning/diagnostik: öppen vävnadsprovtagning för odling av bakterier

Behandling: revision i en eller två seanser

Postop varningstecken

Nyttillkommen svaghet (kuffruptur)

Nyttillkommen VÄRK och stelhet (infektion)

FÖRÄNDRING av funktion / symtom

Sammanfattning anatomisk axelprotes

Patientselektion

Anatomisk hemiprotetes

Avaskulär nekros

Vanligen bevarad glenoid
Pyrokarbonhuvud?



Fraktur

Yngre män med stort
tubelkelfragment
Aktivitetsnivå?

Anatomisk totalprotes

- fortfarande ett alternativ

Lämpliga patienter

Intakt kuff

Centrerad led

Resultat

God smärtlindring

God rörlighet

Risk för lossning över tid



Utveckling



NIH National Library of Medicine
National Center for Biotechnology Information

PubMed.gov

shoulder arthroplasty Search

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MY NCBI FILTERS 8,154 results Page 1 of 816

RESULTS BY YEAR

TEXT AVAILABILITY

- Abstract
- Free full text
- Full text

ARTICLE ATTRIBUTE

- Associated data

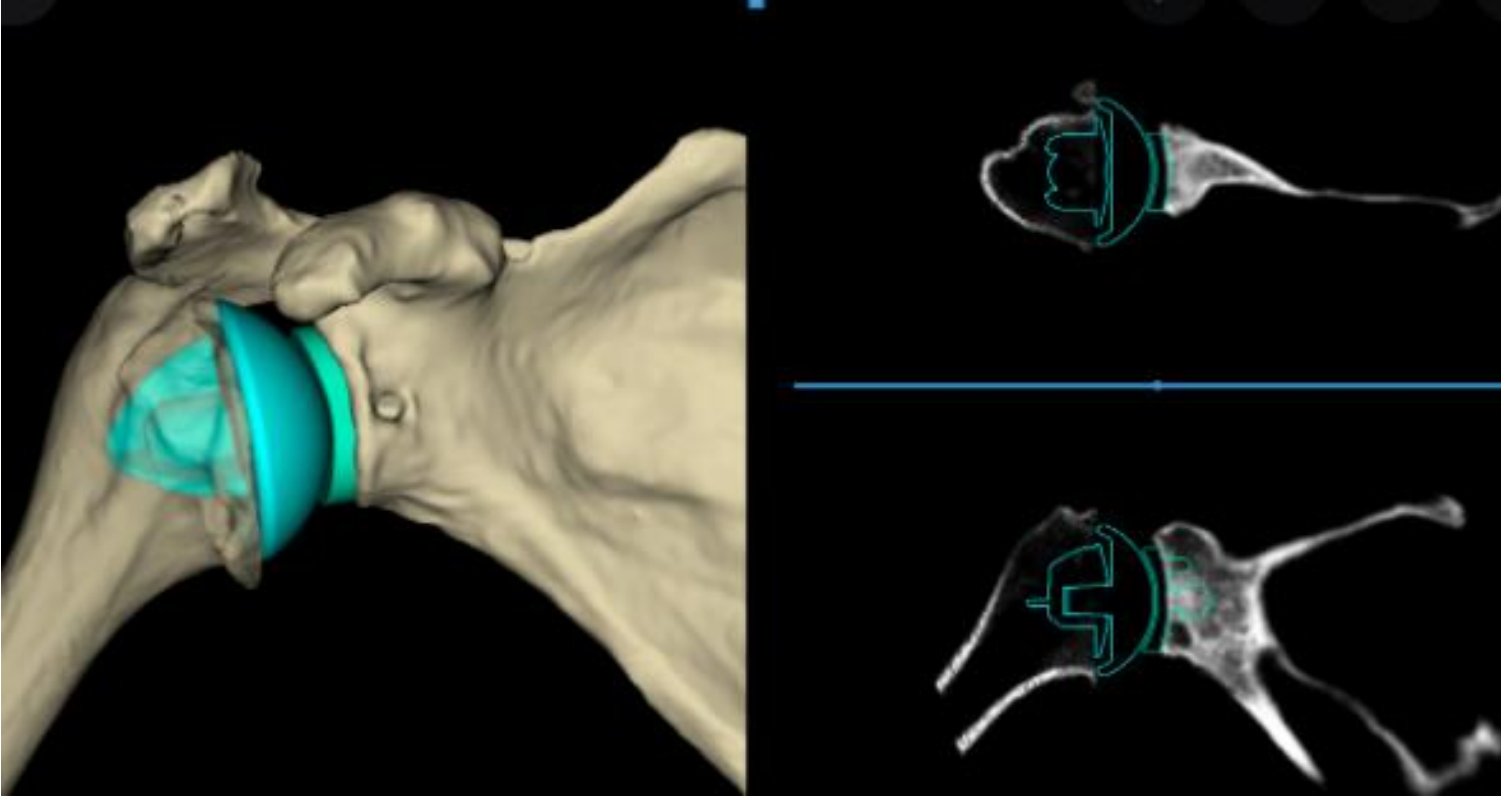
ARTICLE TYPE

- Books and Documents
- Clinical Trial

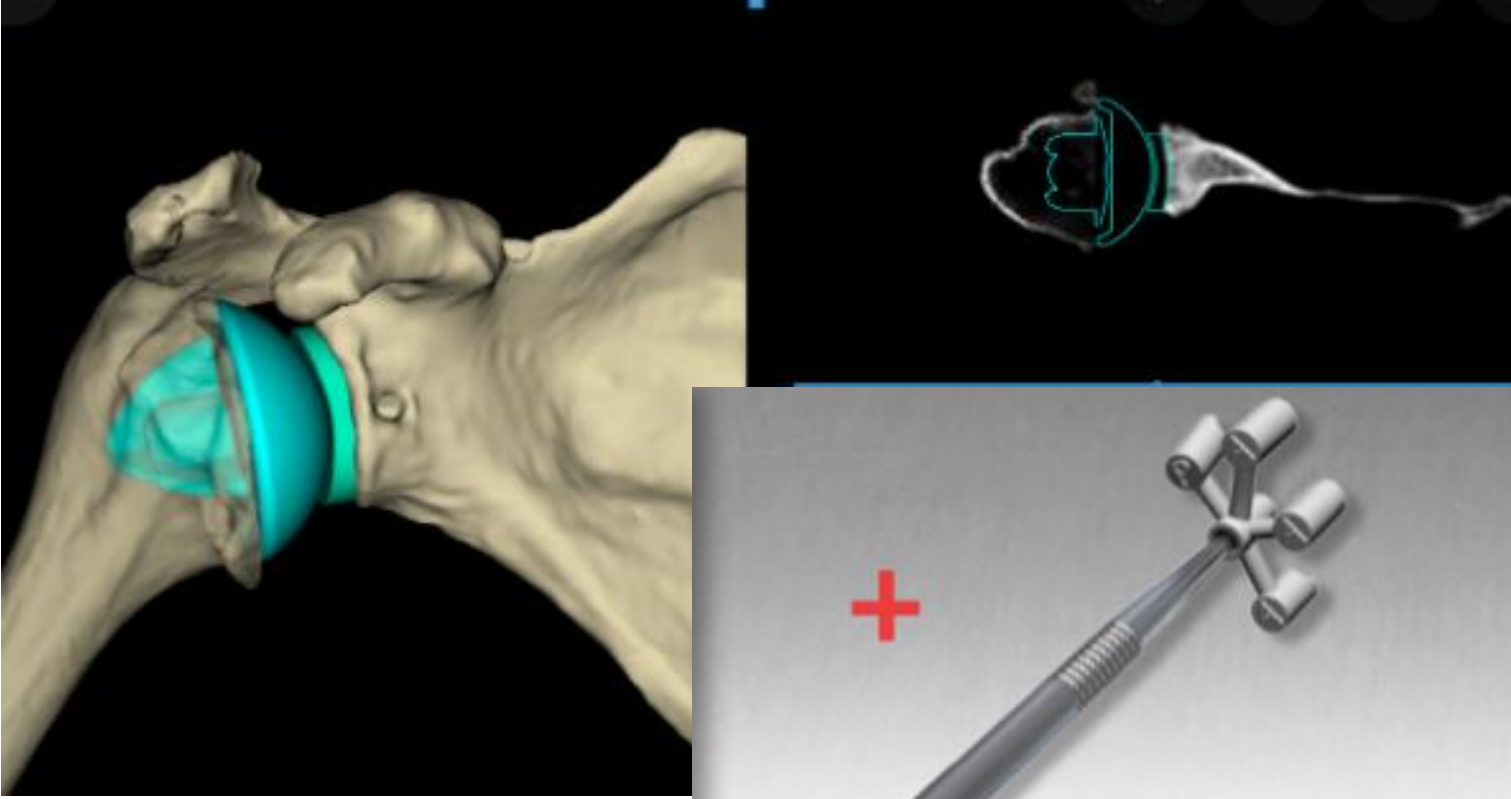
1 **Long-Term Outcomes of Massive Rotator Cuff Tear Repair: A Systematic Review.**
Shah NS, Suriel Peguero E, Umeda Y, Crawford ZT, Grawe BM.
Cite HSS J. 2022 Feb;18(1):130-137. doi: 10.1177/15563316211008137. Epub 2021 Apr 15.
PMID: 35087343 Review.
Share RESULTS: Six studies met the inclusion criteria, for a total of 472 **shoulders**; average patient age was 57.6 years. Follow-up ranged from 119 to 240 months. ...

2 **Factors Associated With Elevated Inflammatory Markers Prior to Shoulder Arthroplasty.**
Kopechek KJ, Cvetanovich GL, Everhart JS, Frantz TL, Samade R, Bishop JY, Neviasser AS.
Cite HSS J. 2022 Feb;18(1):70-77. doi: 10.1177/1556331621998662. Epub 2021 Mar 20.
PMID: 35087335
Share Background: Preoperative erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) ranges for several **shoulder arthroplasty** indications are not well understood. Purpose: We sought to compare preoperative ESR and CRP values for a variety of **shoulder** ...

3 **Fracture dislocation of the humerus with intrathoracic humeral head fragment - A case report and review of the literature.**
Frodl A, Eberbach H, Senbakkavaci O, Schmal H, Jaeger M.
Cite Trauma Case Rep. 2021 Dec 23;37:100592. doi: 10.1016/j.tcr.2021.100592. eCollection 2022 Feb.
PMID: 35005168 **Free PMC article.**



Datorstödd
operationsplanering



Datorstödd
operationsplanering
Skräddarsydd riktguide

NOT FOR CLINICAL USE

Patient: [Name]
Birthdate: [Date]
Case UID: [ID]
Operated side: Right

Glenoid Measures

Glennoid version: [Value]
Glennoid inclination: [Value]
Medial offset: [Value]

Glenoid Implant

[Implant Name]
[Implant Size]

ANAT

GLN

HLM

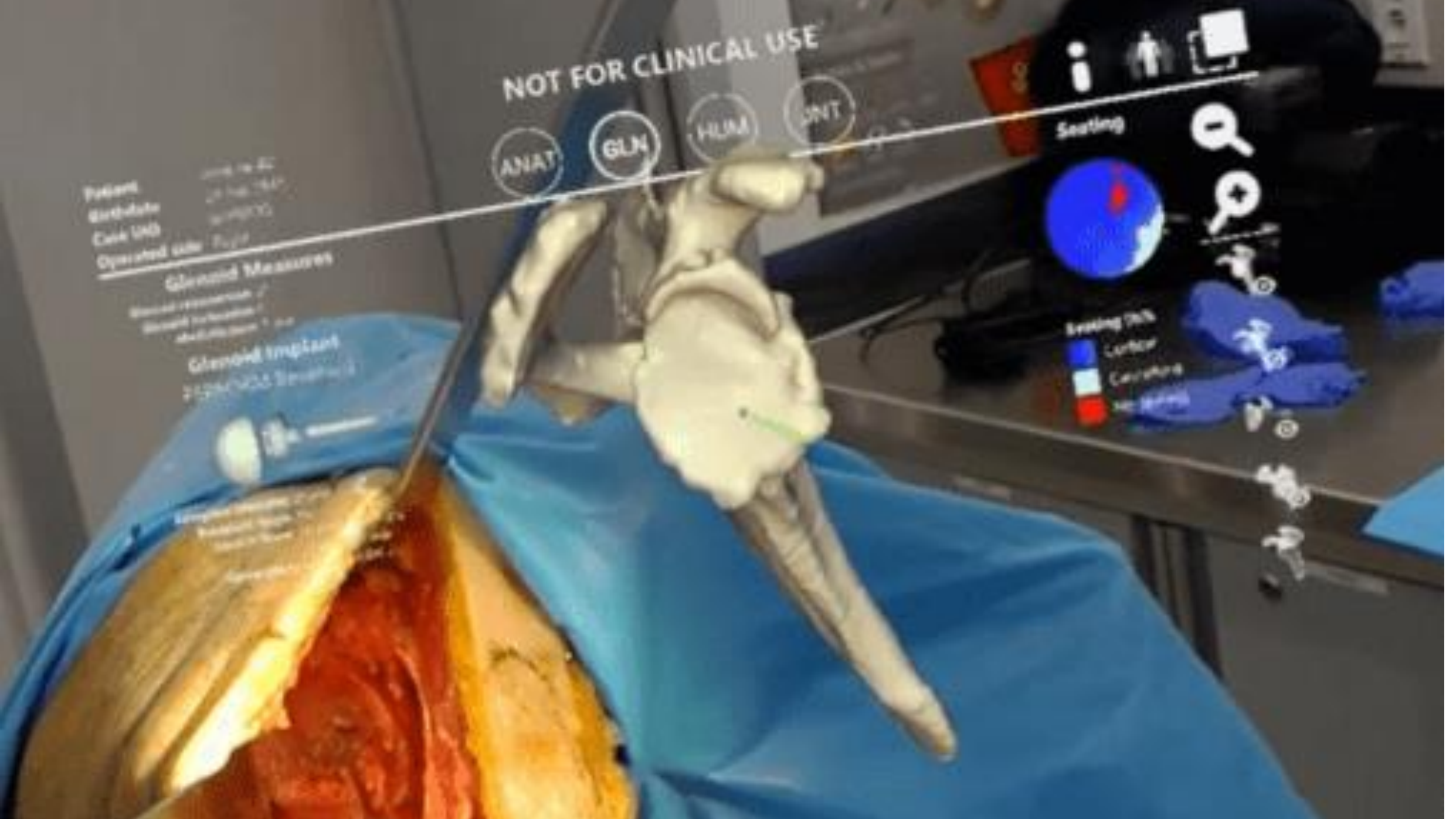
UNT

Seating



Seating Disk

- Center
- Centerline
- Seating





fredrik.einarsson@vgregion.se