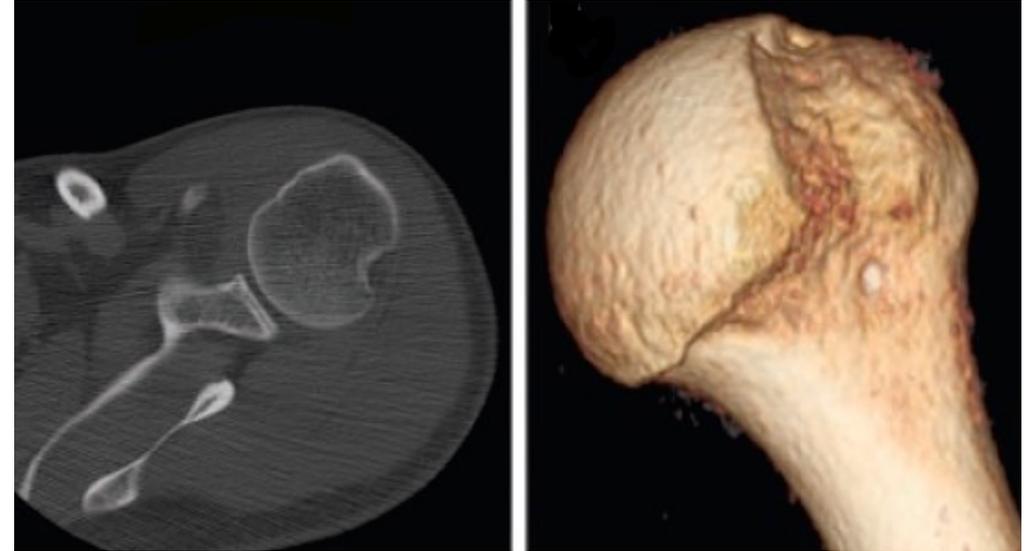


Dr Diego Valdez  
Hospital Universitario Sant Joan de Reus, Tarragona



# EVALUACION DE DEFECTOS OSEOS HUMERALES

**40** ANIVERSARIO  
1982-2022  
AEA  
ANIMACION ESPAÑOLA DE  
ARTROSCOPIA

**serod**  
Sociedad Española de la Rodilla

**9** CONGRESO CONJUNTO  
AEA - SEROD  
9th JOINT AEA-SEROD CONGRESS  
MURCIA  
1, 2, 3 DE JUNIO | 2022

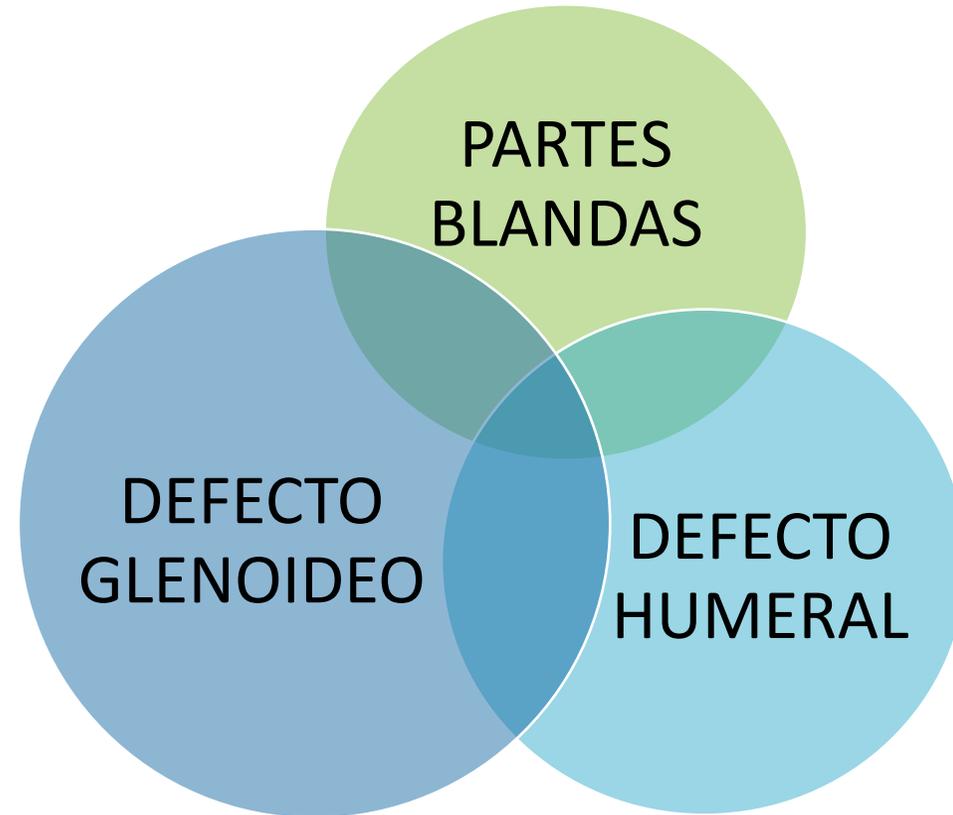
Salut/ Hospital Universitari  
Sant Joan  
REUS



# PACIENTE CON INESTABILIDAD GH

- **CLINICA Y EXPLORACION FISICA**
- **EDAD**
- **DEPORTE Y/O PROFESION**
- MECANISMO DE LESION y RE-LUX
- PRUEBAS COMPLEMENTARIAS
- OTRAS PATOLOGIAS (Neuro)

# PLANIFICACION PREOPERATORIA



67 a 81% en 1er episodio

+87% en Recurrentes

➔ **EVITAR RECIDIVA** ←

## Understanding the Hill-Sachs Lesion in Its Role in Patients with Recurrent Anterior Shoulder Instability

Jake A. Fox<sup>1</sup> · Anthony Sanchez<sup>1</sup> · Tyler J. Zajac<sup>2</sup> · Matthew T. Provencher<sup>1,2</sup>

Shoulder & Elbow

EOR | VOLUME 4 | APRIL 2019  
DOI: 10.1302/2058-5241.4.180031  
www.efortopenreviews.org



EFORT open reviews

### How to measure a Hill–Sachs lesion: a systematic review

Marta Maio<sup>1</sup>  
Marco Sarmento<sup>2</sup>  
Nuno Moura<sup>2</sup>  
António Cartucho<sup>2</sup>

## Diagnosis and Management of Humeral Head Bone Loss in Shoulder Instability



Jack G. Skendzel,<sup>\*</sup> MD, and Jon K. Sekiya,<sup>\*,†</sup> MD  
*Investigation performed at MedSport, Department of Orthopaedic Surgery, University of Michigan, Ann Arbor, Michigan*

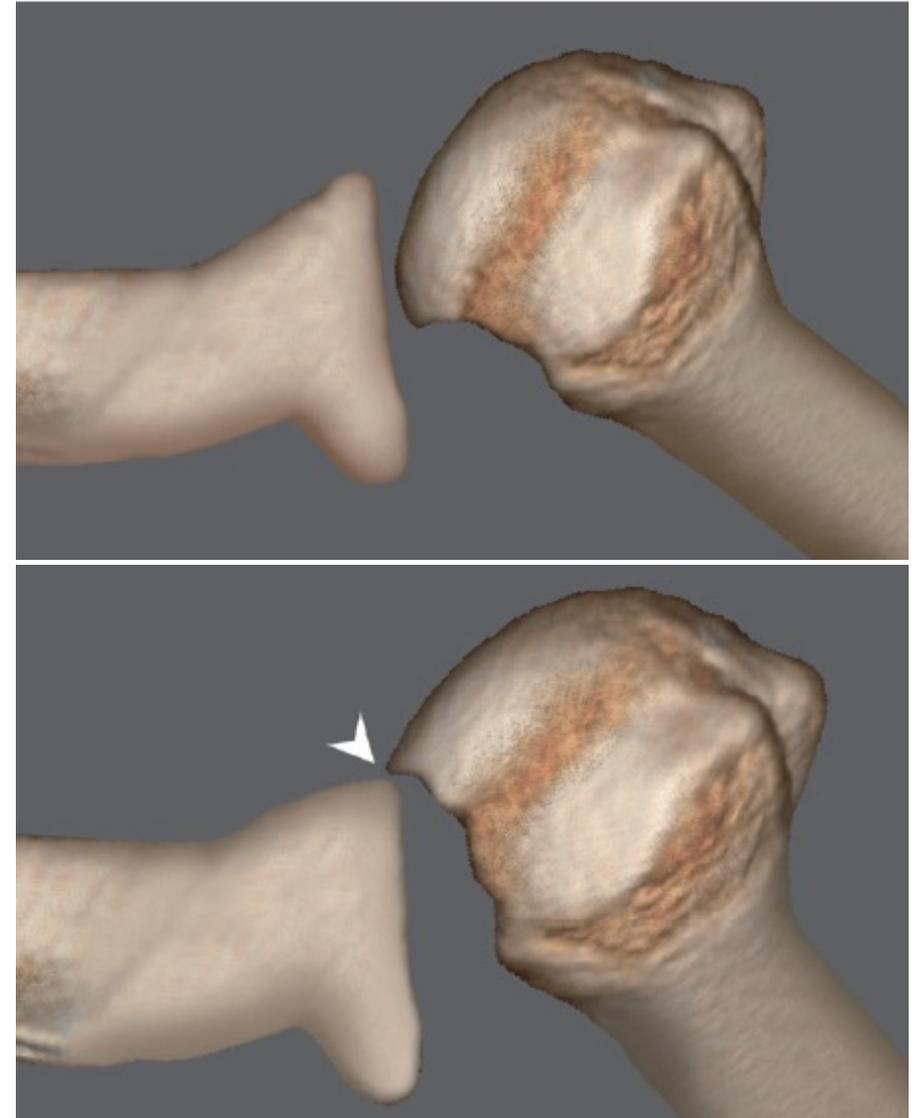
### Radiographic Analysis of the Hill-Sachs Lesion in Anteroinferior Shoulder Instability After First-Time Dislocations

Giovanni Di Giacomo, M.D., Petar Golijanin, B.S., George Sanchez, B.S., and Matthew T. Provencher, M.D., M.C., U.S.N.R.

- No relacionada con INEST en Rangos MEDIOS

VALORACION CLINICA: Load – Shift – Aprehensión TEST

- Participa mayormente en Rangos MAXIMOS (Abd-RExt) - Enganche



- TAMAÑO
  - PROFUNDIDAD
- } VOLUMEN
- LOCALIZACION
  - ORIENTACION / DIRECCION

- RADIOGRAFÍAS SIMPLES (dificultad de obtención, baja S/E)
- ECOGRAFÍA (alta S/E, poco extrapolable)
- ARTROSCOPIA (no permite planificar)

• TC 2D



• TC 3D

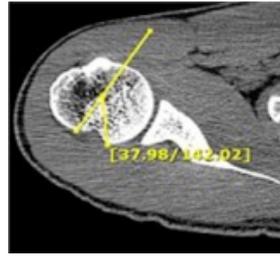
• RM

• RM3D

• IMPRESIÓN 3D

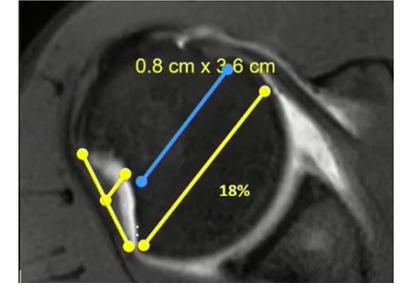
Hall (1959)<sup>24</sup>

- Axial CT/MRI
- Measure degrees of involvement in single slice (Z)
- $Z/180 \times 100$



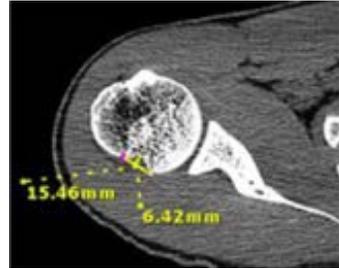
“Flatow method”:  
Flatow (1998)<sup>18</sup>

- Clinically insignificant <20%
- Variable significance: 20%-40%
- Clinically significant: >40%



Rowe (1984)<sup>52</sup>

- Axial CT/MRI
- Measure depth and width of lesion on single slice
- Mild:  $<2 \times 0.3 \text{ cm}^2$
- Moderate:  $2-4 \times 0.3-1 \text{ cm}^2$
- High:  $>4 \times 1 \text{ cm}^2$



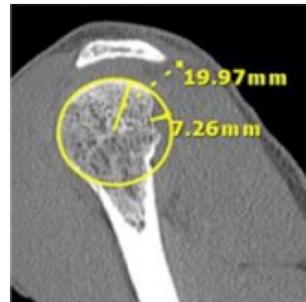
“P/R depth ratio index”: Cho (2011)<sup>11</sup>

- AP shoulder in internal rotation
- Circle created to contour humeral head
- Depth of lesion (P) as ratio of radius (R)



Charousset (2010)<sup>8</sup>

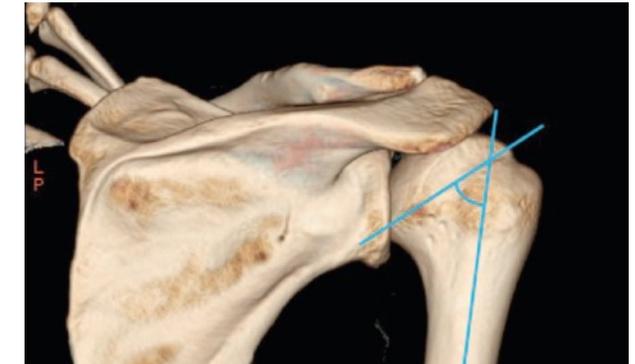
- Axial CT scan
- Circle drawn at greatest depth of lesion
- Width and depth measured
- Width/diameter and depth/diameter measured as percentage of diameter



Cho et al  
Cohort study  
(2011)

3D CT scans  
and CT scans

As indices for orientation of the Hill-Sachs lesion, the angle between the lines was measured and defined as the Hill-Sachs angle on 3D CT.



**BAJA CORRELACION CLINICO-RADIOLOGICA**

## Di Giacomo (2014)<sup>16</sup>

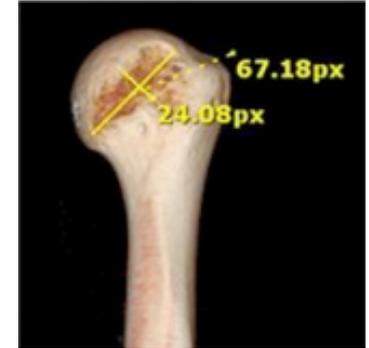
- Hill-Sachs (HS) measured from articular insertion of rotator cuff to medial margin of lesion
- HS > GT: off-track
- HS < GT: on-track



## Ozaki et al Retrospective study (2014)

### 3D CT scans

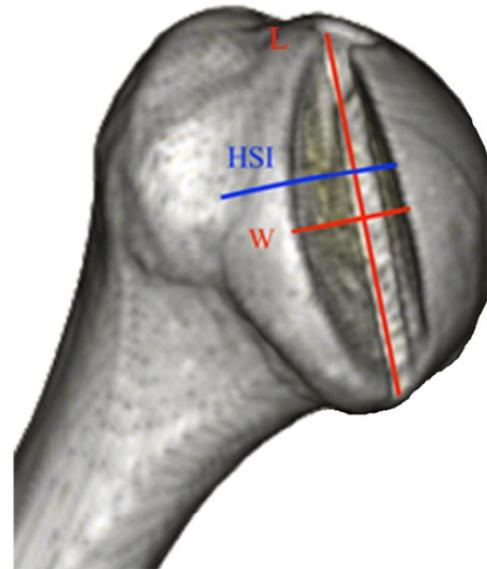
- Major axis, L, and minor axis, W, measured on reconstruction
- Depth measured on axial slice CT
- Calculated as percentage of diameter



## MEJOR CORRELACION CLINICO-RADIOLOGICA

## Gyftopoulos et al MRI scans Retrospective study (2015)

The **Hill-Sachs interval** represents the width of the HSL (mm) plus the width of the intact bone bridge (mm) between the rotator cuff attachment and the lateral margin of the HSL.



## Burns et al Laboratory study (2016)

### CT scans

Twelve cadaveric shoulders

Created a new parameter, intact articular angle defect (IAAA), defined as the angle between the anterior margin of the humeral head articular surface and the medial margin of the HSL in the axial plan.

Stillwater et al  
Prospective study  
(2017)

3D CT versus  
3D MRI

Twelve shoulders with glenohumeral  
instability or recurrent dislocations

Percentage humeral head bone loss =  
[(A-B/A)\*100]

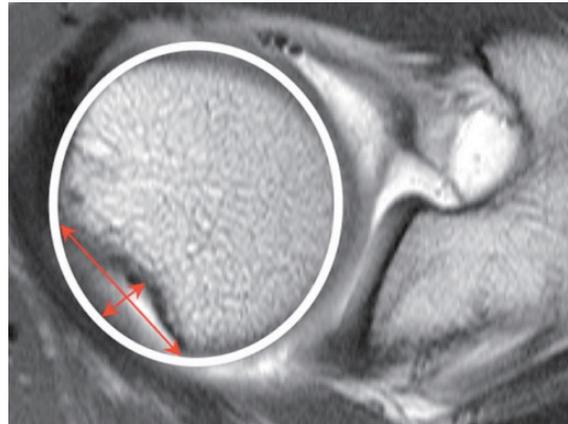
**NO DIFERENCIAS ESTADISTICAMENTE SIGNIFICATIVAS**

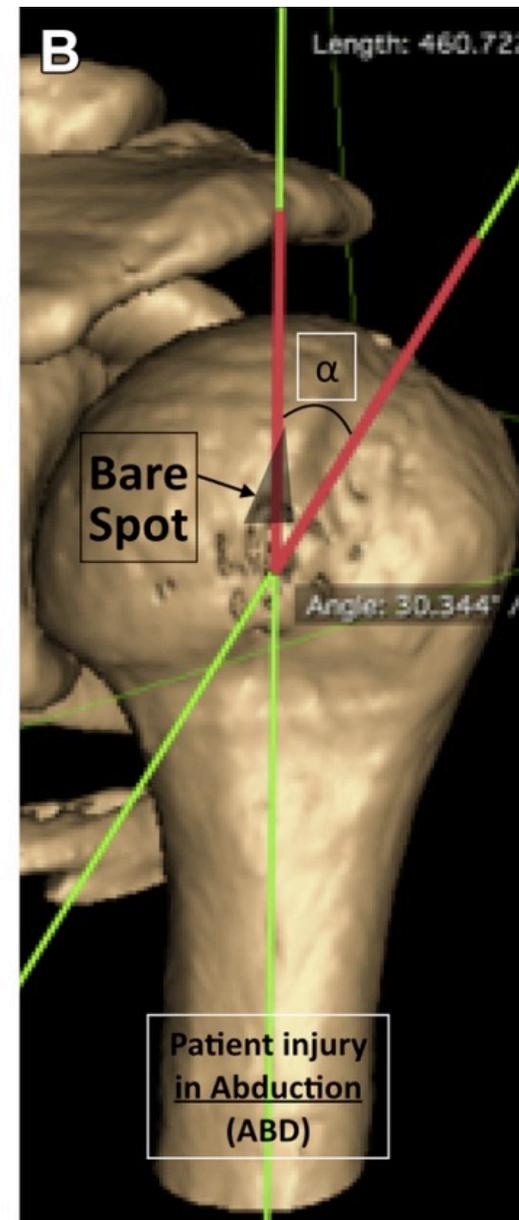
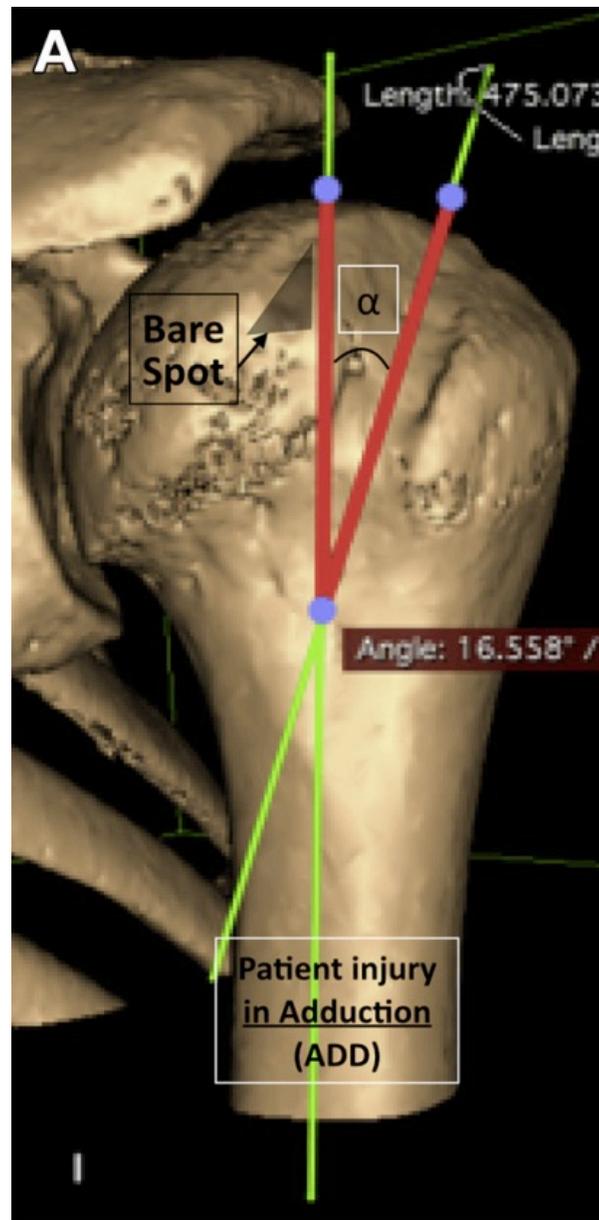
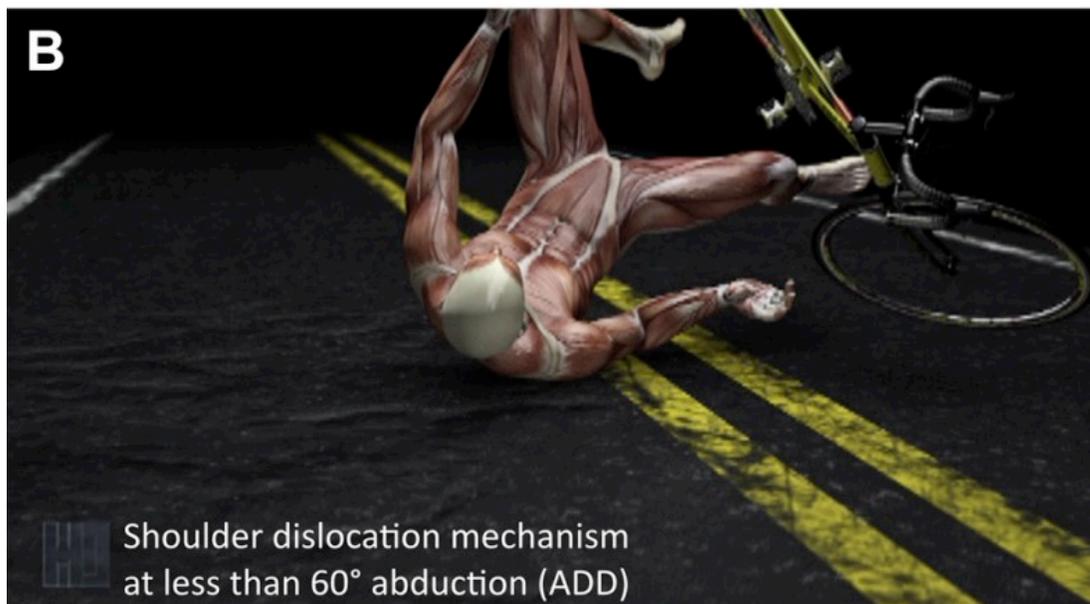
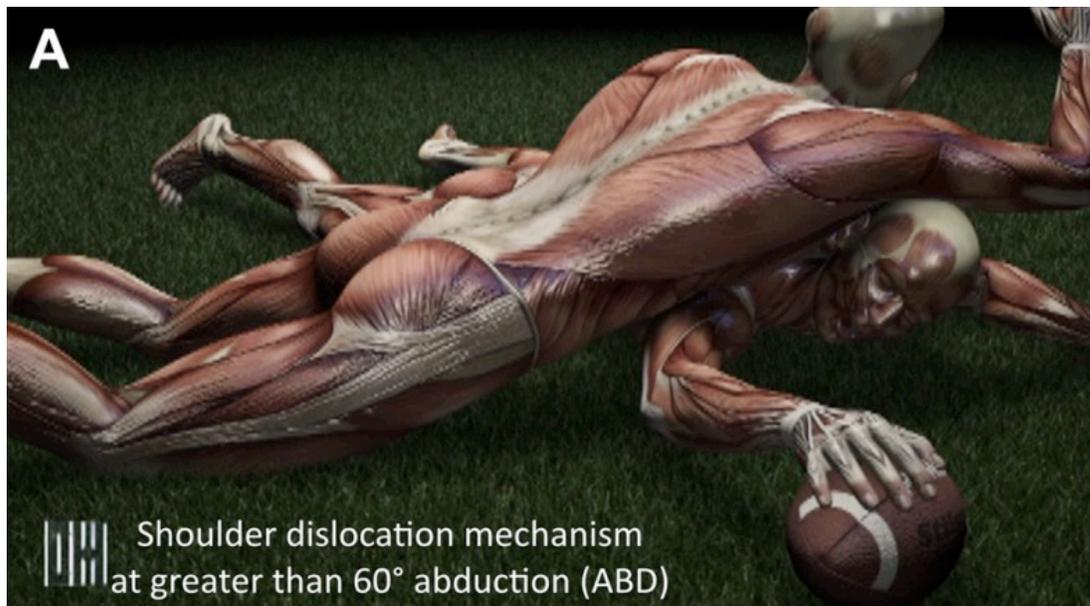
Ho et al  
Laboratory study  
(2018)

3D CT

3D CT: length (cm); width (cm)  
and Hill-Sachs interval (cm).  
2D CT: depth (mm).

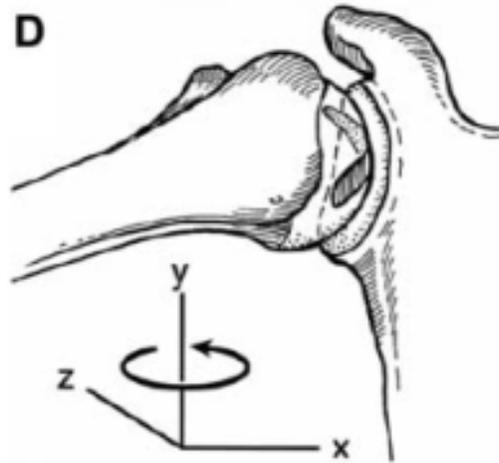
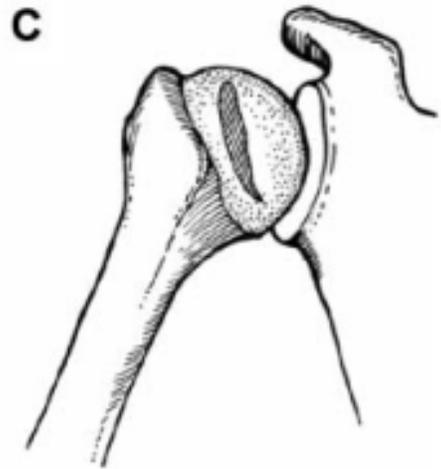
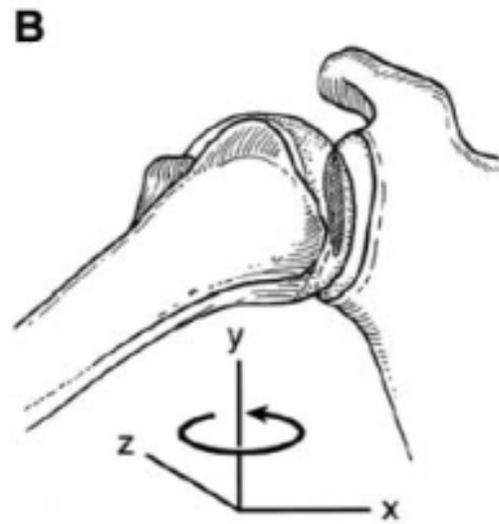
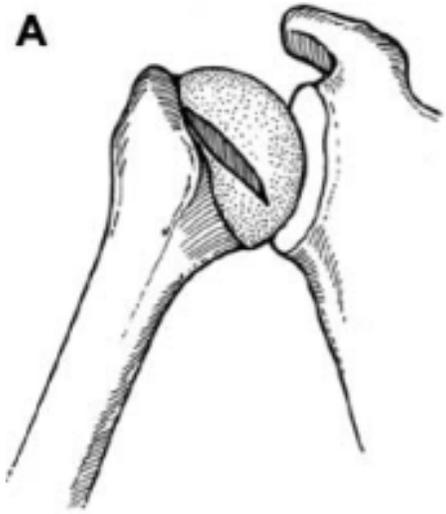
No valora ANGULO lesión





Ang HS 16°

Ang HS 30°

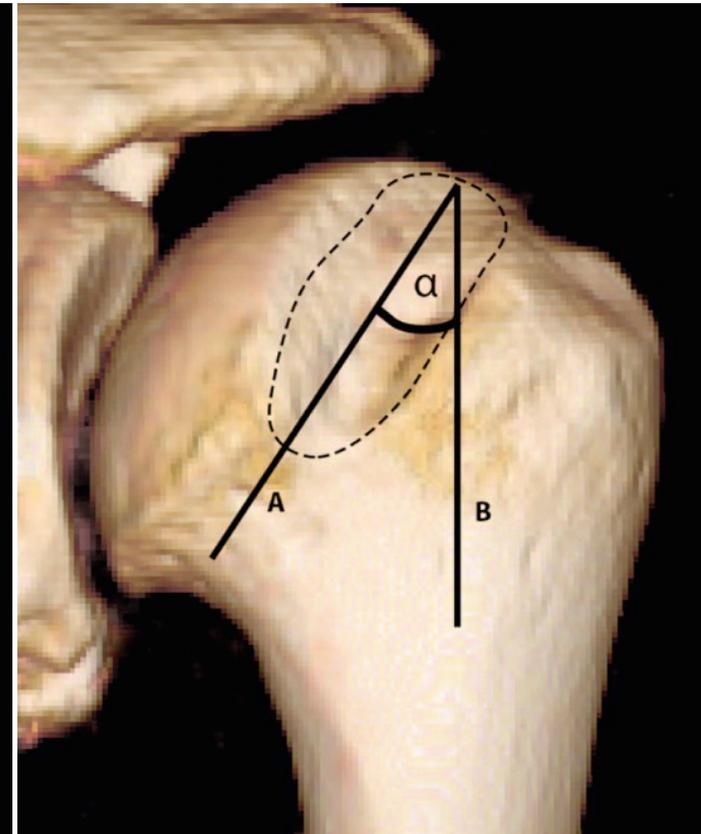
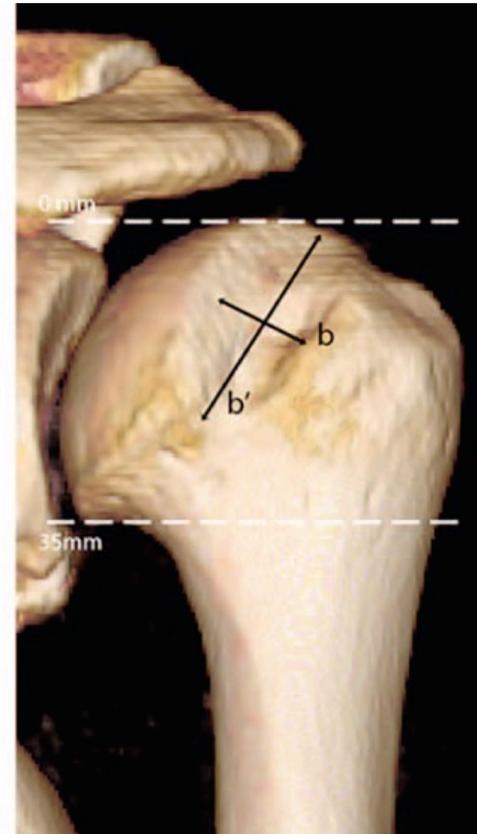
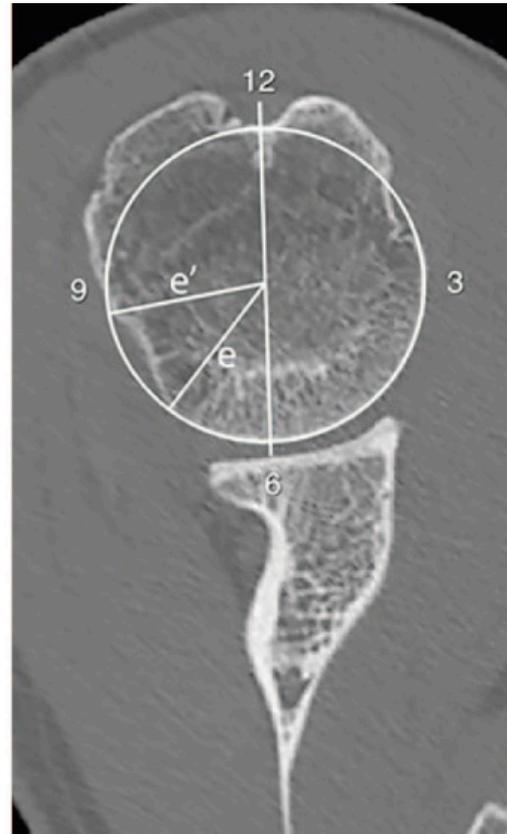
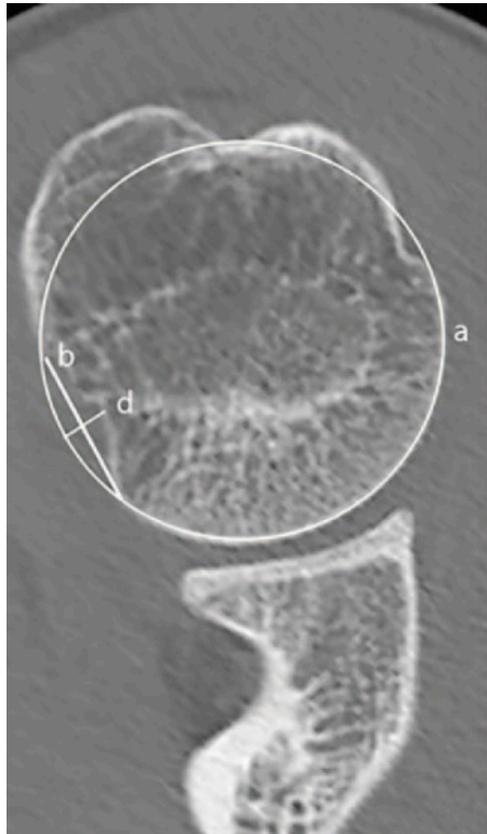


Patients whose injury occurred in the ABD position showed a higher H-S angle, leading to an increased risk of engagement, because the long axis of the H-S lesion is parallel to the glenoid in a position of function. Thus arm



## Clinical and radiological examination of bony-mediated shoulder instability

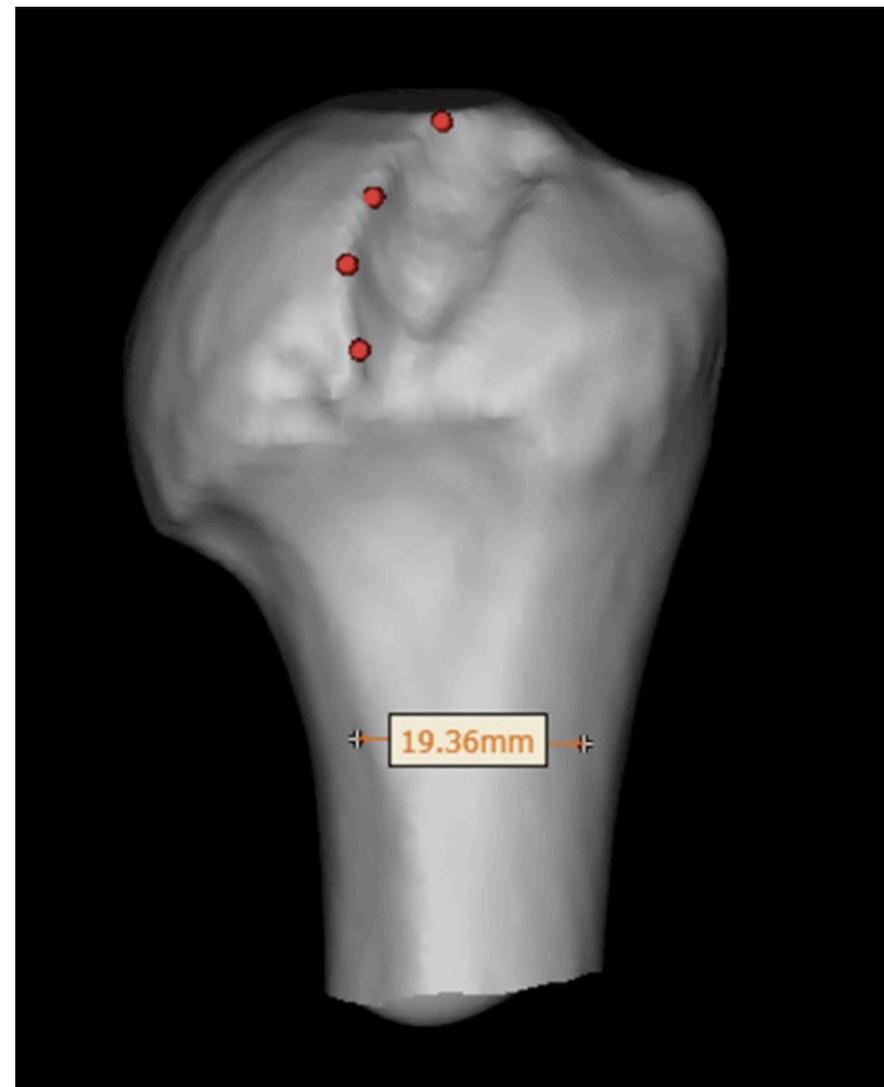
Jakub Stefaniak<sup>1,2</sup>  
Przemyslaw Lubiawski<sup>2</sup>  
Anna Maria Kubicka<sup>3</sup>  
Anna Wawrzyniak<sup>2</sup>  
Joanna Walecka<sup>2</sup>  
Leszek Romanowski<sup>1</sup>



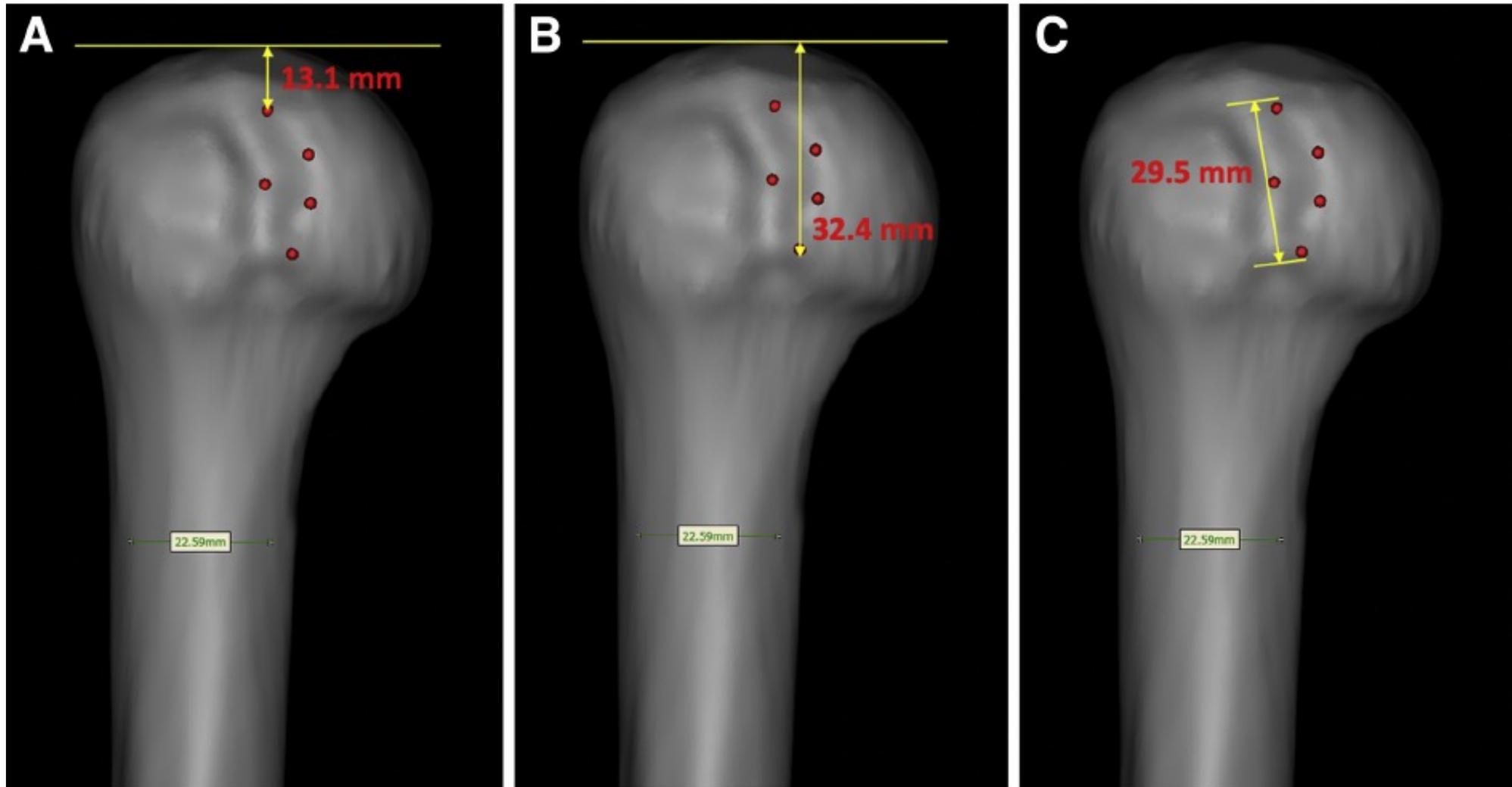
# Advanced 3-Dimensional Characterization of Hill-Sachs Lesions in 100 Anterior Shoulder Instability Patients

Petar Golijanin, M.D., M.B.A., Liam Peebles, B.S., Justin W. Arner, M.D., Brenton Douglass, M.D., Annalise Peebles, B.S., Danielle Rider, B.A., Srdjan Ninkovic, M.D. Ph.D., Kaare Midtgaard, M.D., and Matthew T. Provencher, M.D., M.B.A., CAPT MC USNR

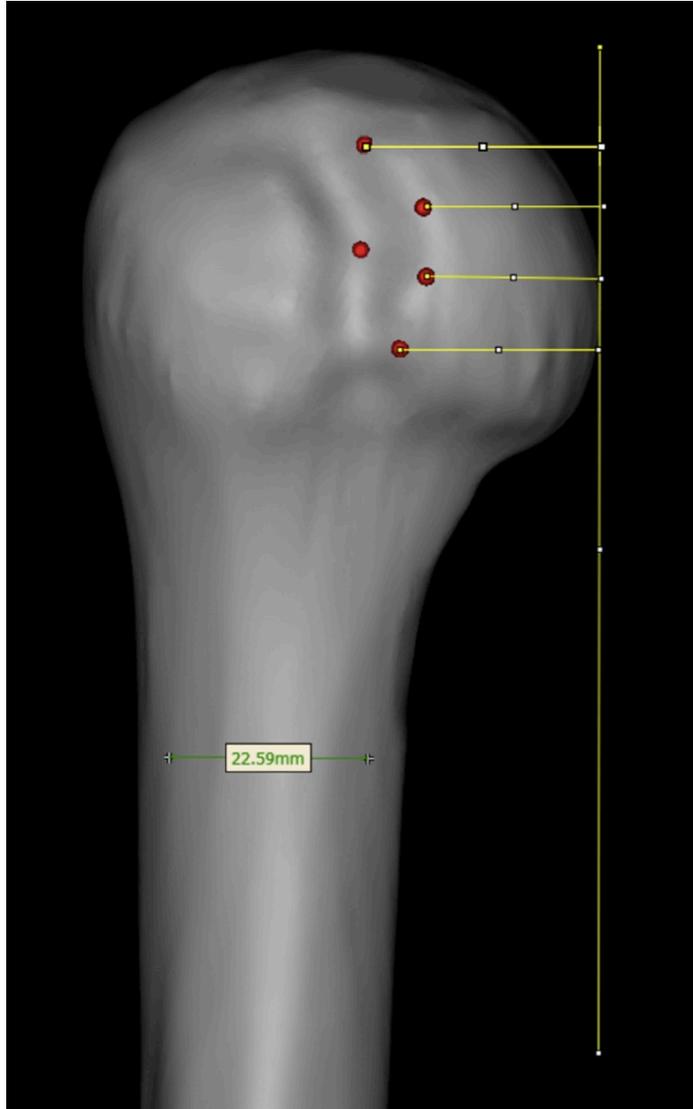
*Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol ■, No ■ (Month), 2021:*



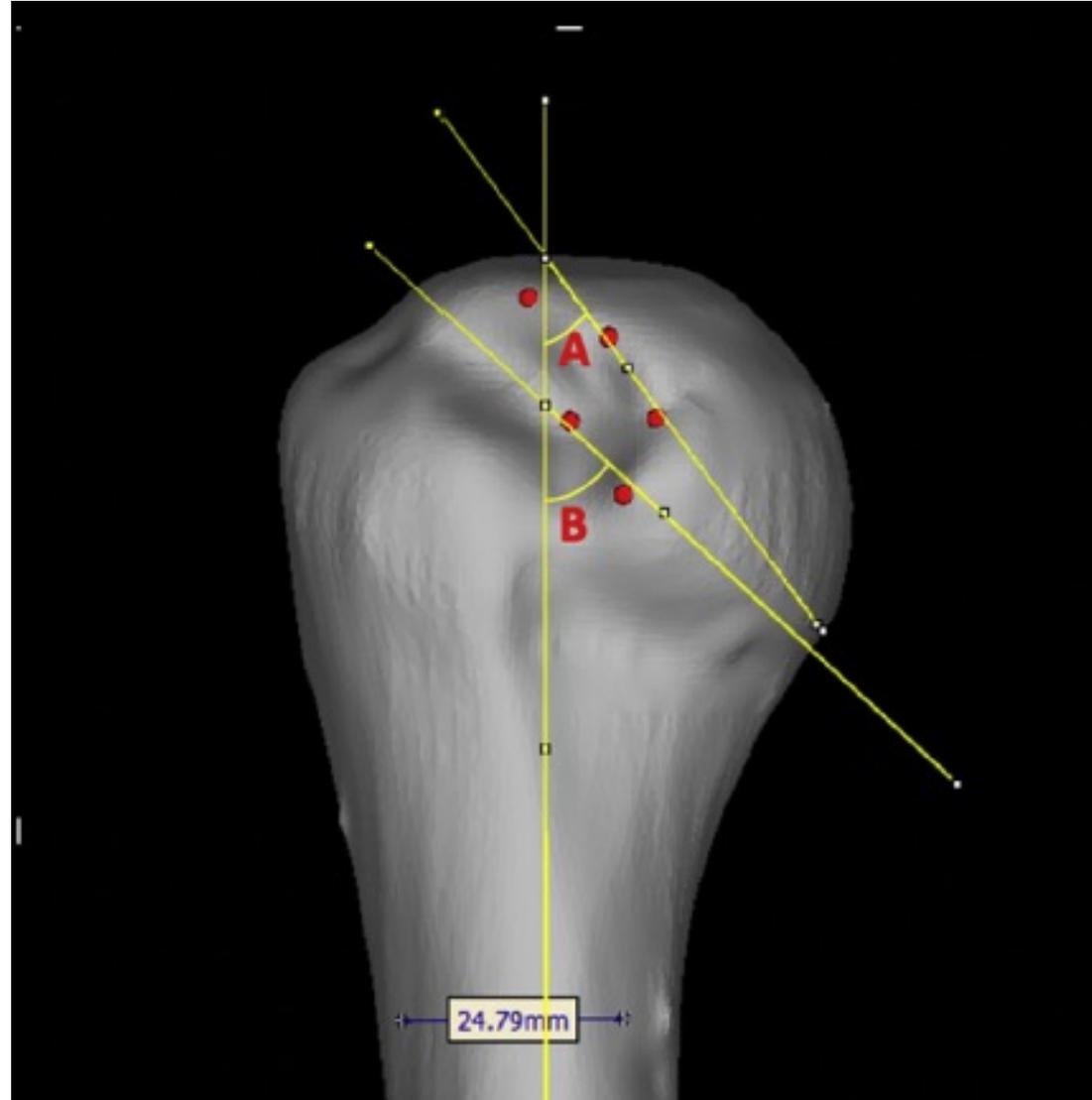
# LONGITUD VERTICAL Y LOCALIZACION



# INDICE MEDIALIZACION



# ANGULOS DEL BORDE Y CENTRICO



- Asociación significativa

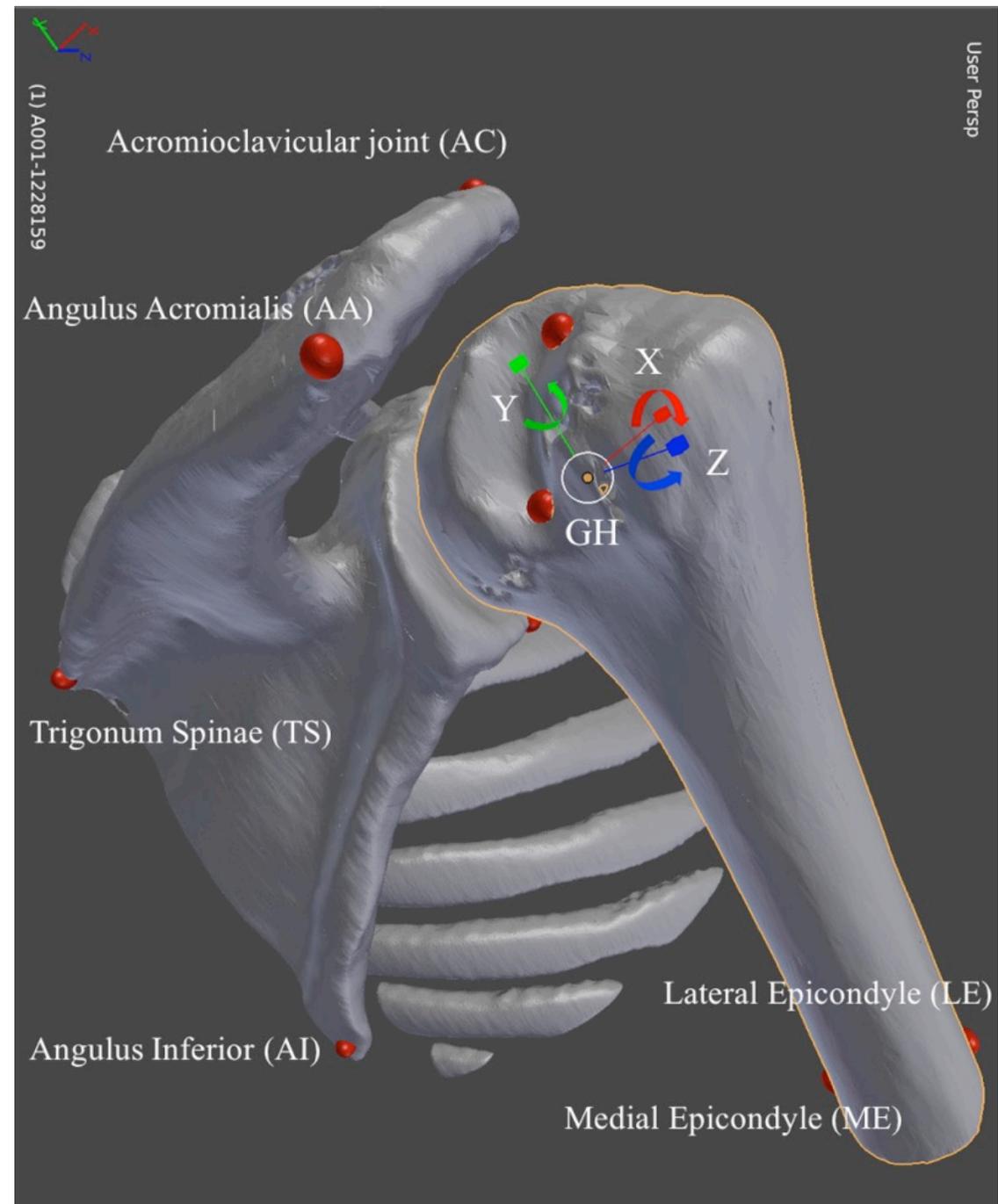
## **MEDIALIZACION y VOLUMEN/POSICION/ORIENTACION**

- **+MEDIALES** suelen tener **+VOL, +ANCHO, + PERDIDA OSEA, +ANGULO LESION** y son **+INFERIORES**
- **+MEDIALES** asociadas con **PEOR RESULTADO CLINICO**

# Three-Dimensional (3D) Animation and Calculation for the Assessment of Engaging Hill–Sachs Lesions With Computed Tomography 3D Reconstruction

Jimmy Tat, M.D., M.Sc., Jordan Crawford, Jaron Chong, M.D., Tom Powell, M.D., Thomas G. Fevens, Ph.D., Tiberiu Popa, Ph.D., and Paul A. Martineau, M.D.

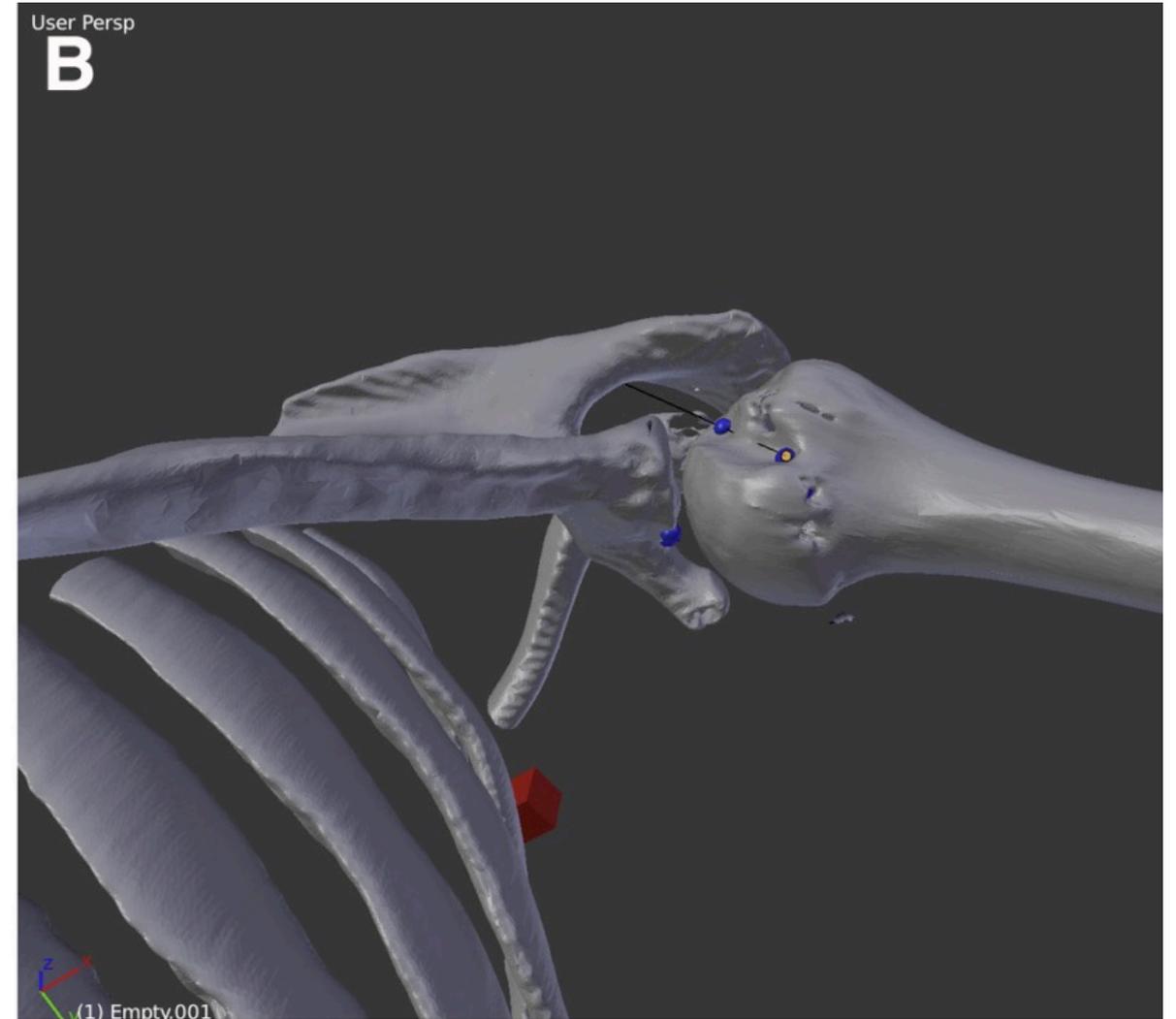
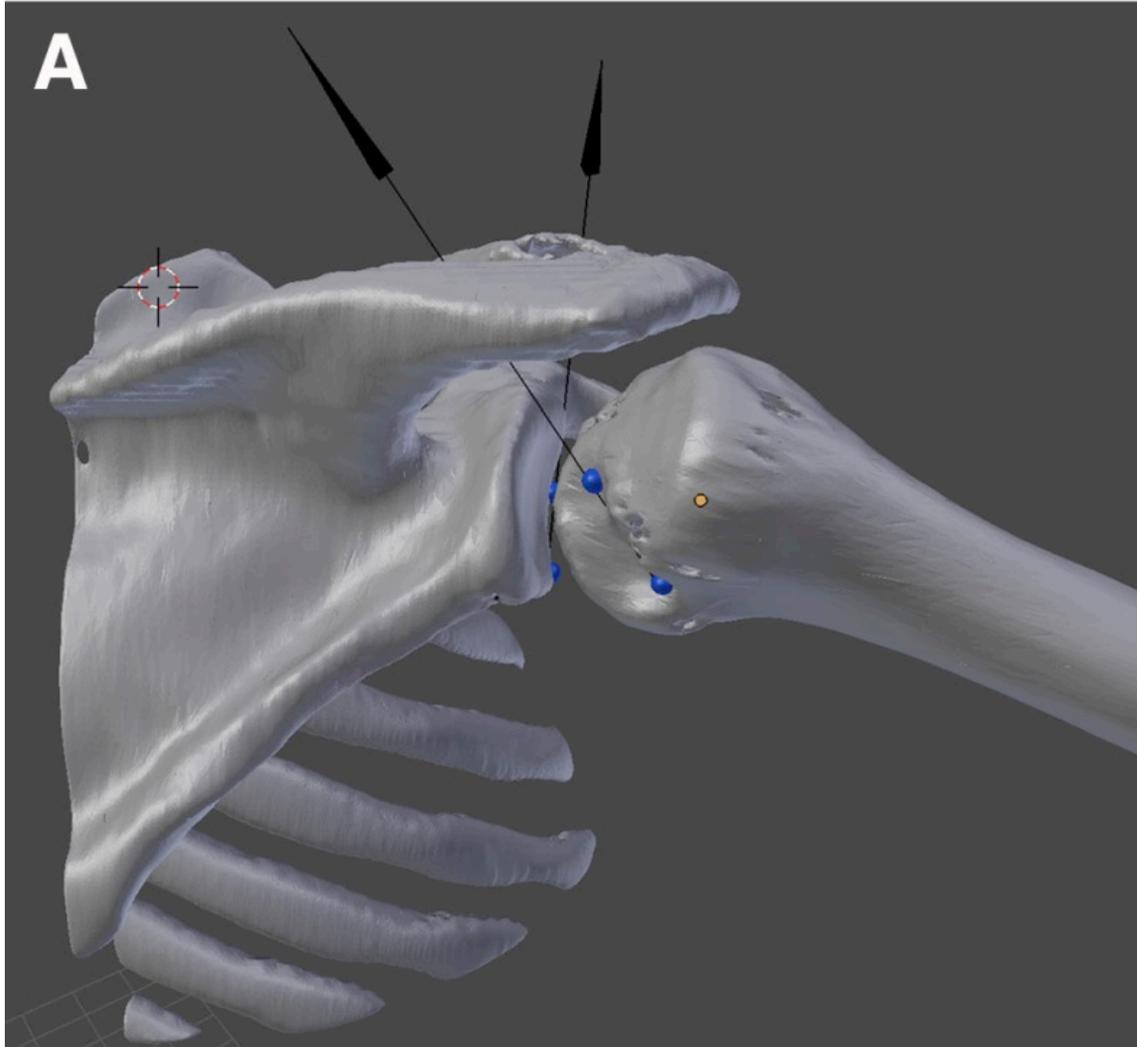
*Arthroscopy, Sports Medicine, and Rehabilitation, Vol 3, No 1 (February), 2021:*



POSTERIOR

ABD 90° / FA 30° / 135° Rot Ext

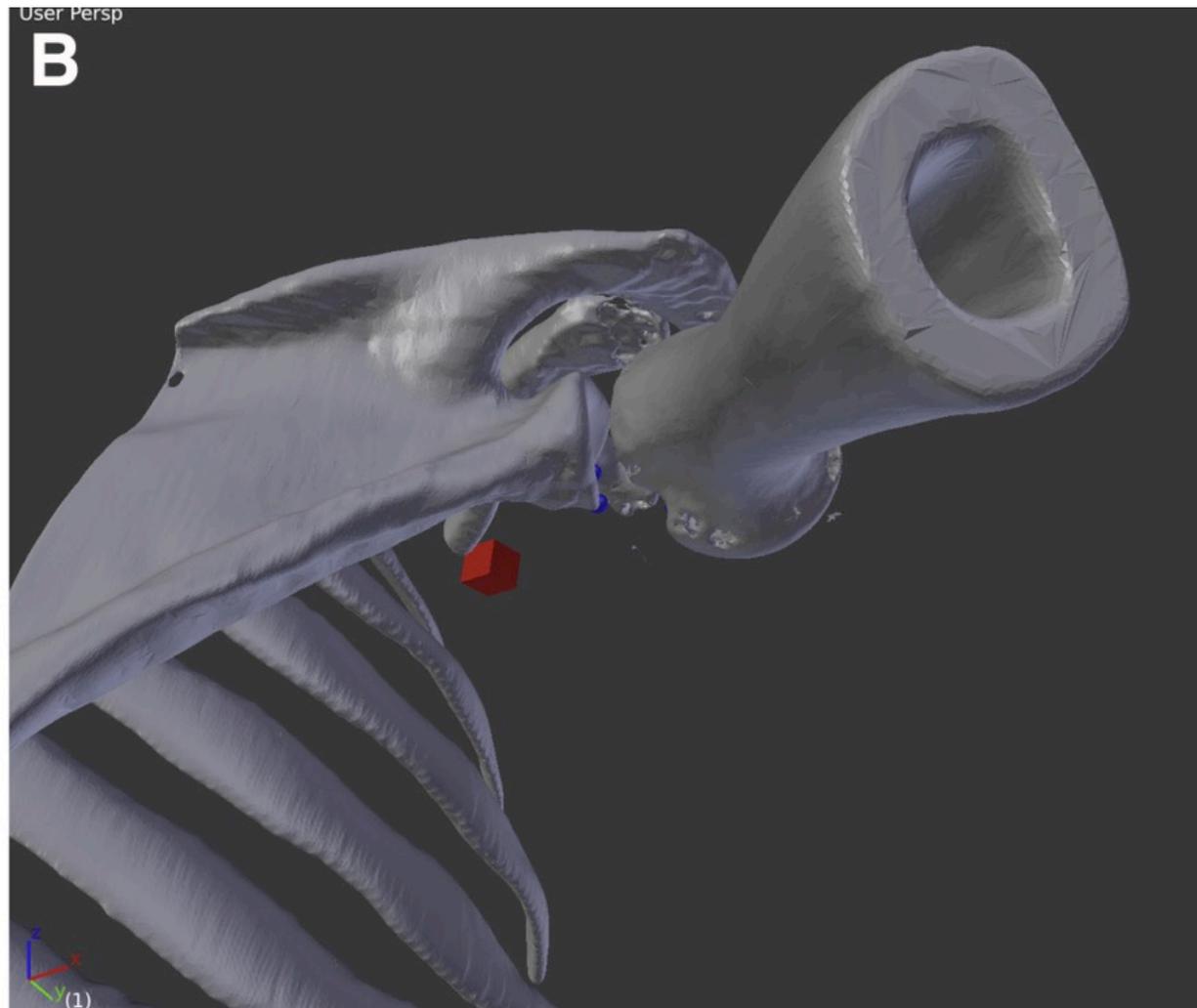
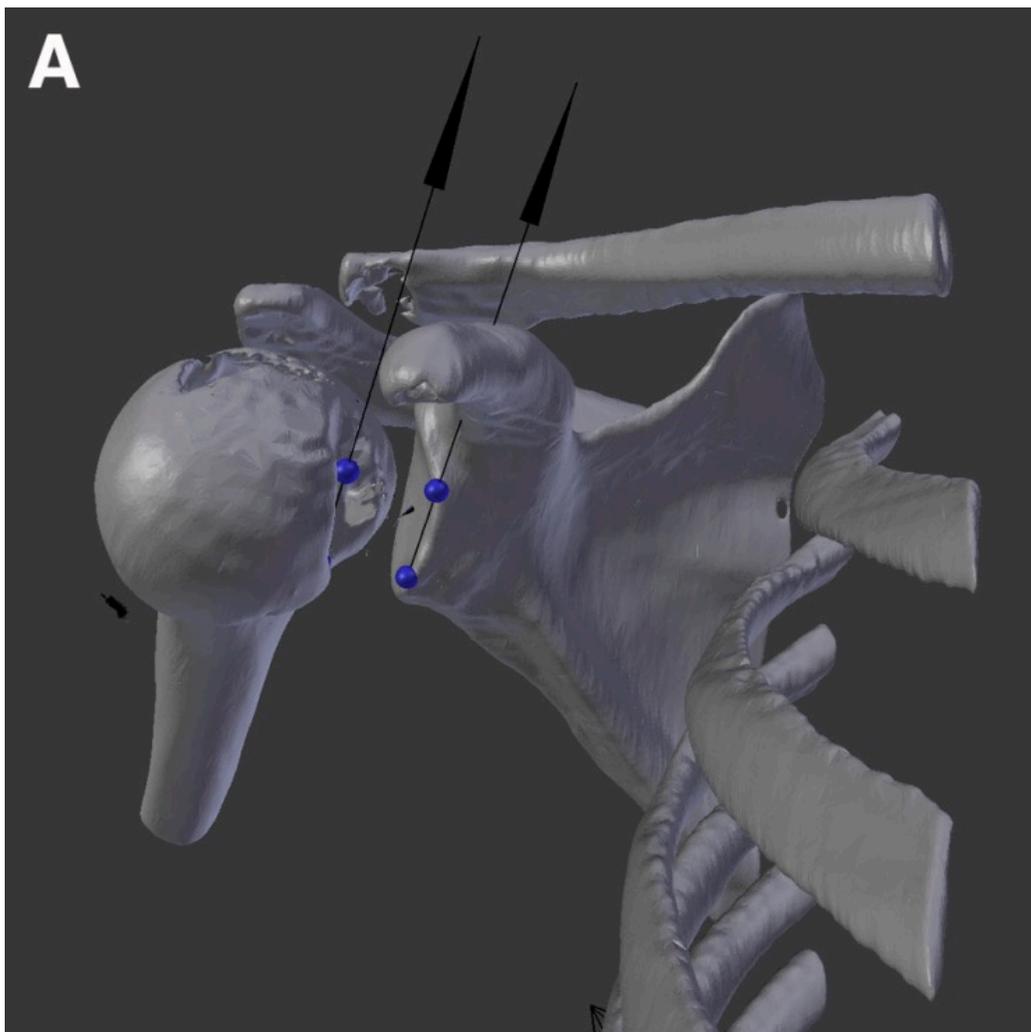
INFERIOR



ABD 40° / EXT 40° / 130° Rot Ext

ANTERIOR

INFERIOR

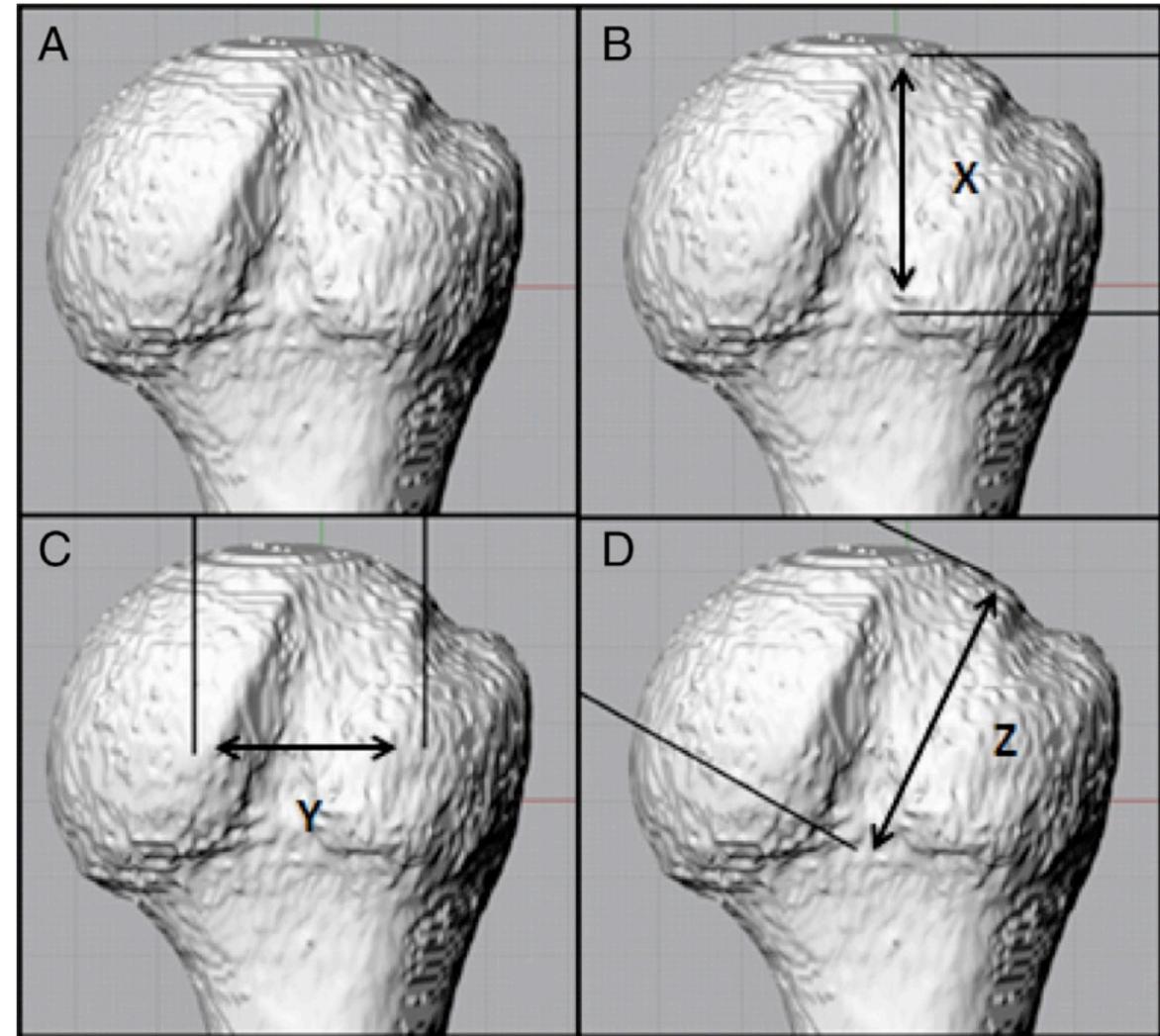


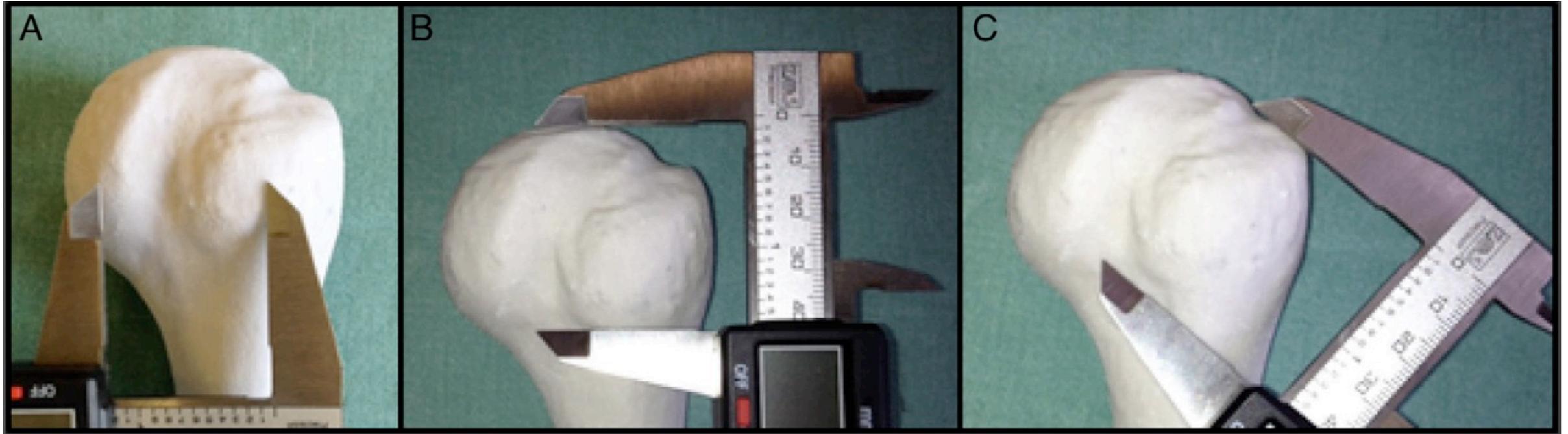
# Hill-Sachs lesion measurement with tridimensional models in anterior shoulder instability<sup>☆</sup>

Alberto Naoki Miyazaki, Luciana Andrade Silva\*, Pedro Doneux Santos, Guilherme do Val Sella, Leonardo Hideto Nagaya, Sergio Luiz Checchia

Grupo de Ombro e Cotovelo, Departamento de Ortopedia e Traumatologia, Faculdade de Ciências Médicas da Santa Casa de São Paulo, São Paulo, SP, Brazil

REV BRAS ORTOP. 2018;53(3):357-363





*Conclusion:* There was no reproducibility and repeatability for Hill-Sachs lesion measurement between plaster models and software models.

# CONCLUSIONES

- Importancia de una correcta **PLANIFICACION PREOPERATORIA**
- Adaptada a la **SELECCIÓN DE PACIENTES**
- TC 2D – TC 3D “**GOLD STANDARD**” para IDENTIFICAR y CUANTIFICAR
- RECONOCER aquellas lesiones relacionadas **MAL PRONOSTICO**



**UNIVERSITAT  
ROVIRA i VIRGILI**

**MUCHAS GRACIAS!**

Dr Diego Valdez [diegomvaldez@gmail.com](mailto:diegomvaldez@gmail.com)