Medial Scapular Body (MSB) Goutallier Classification: MRI-based reliability and validity of evaluation of the Goutallier classification for grading fatty infiltration of the rotator cuff

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Disclosures

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AG: Founder and CEO Akunah

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Medial scapular body (MSB) Goutallier classification: MRI-based reliability and validity of evaluation of the Goutallier classification for grading fatty infiltration of the rotator cuff

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Background

- **Degree of atrophy and fatty infiltration of rotator cuff:** one of the key predictors of repairability

- **Goutallier grade of fatty infiltration:** assessed at the Y view

- **Massive rotator cuff tears:** <u>associated with retraction</u> resulting in medialisation of the muscle bulk → standard Y view can misrepresent the region of interest

Stage 1   Stage 2   Stage 3

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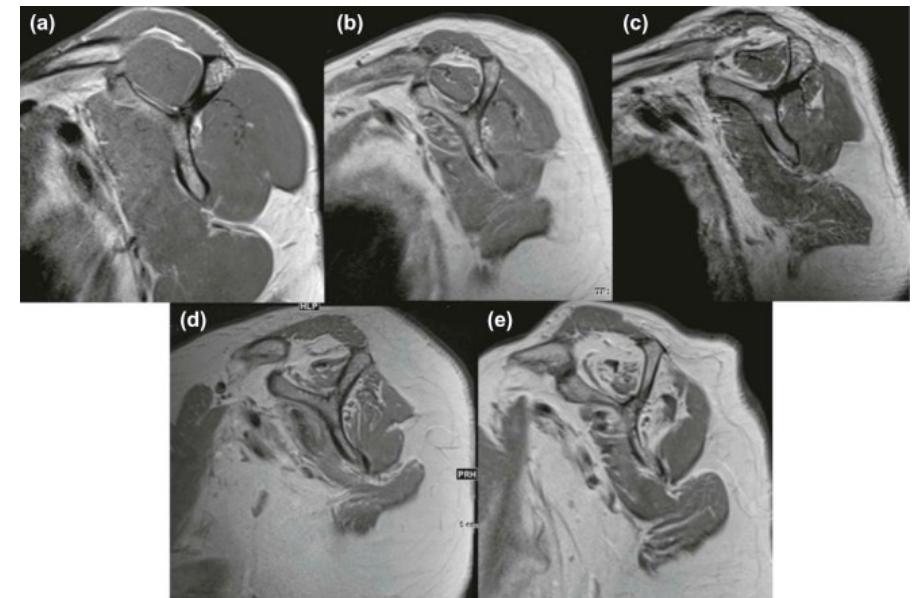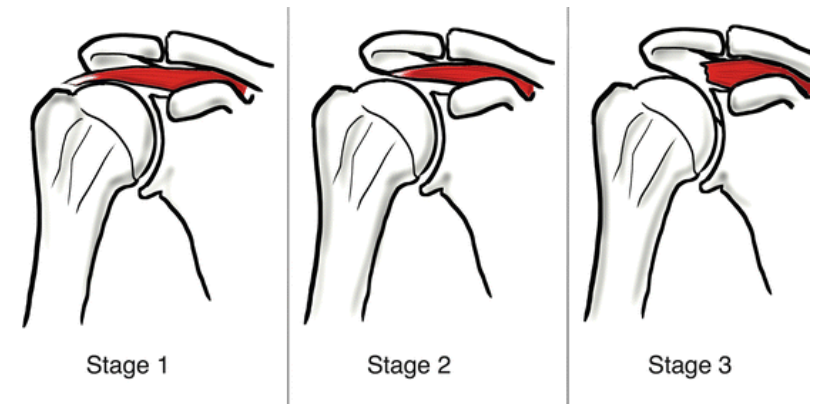
Hypothesis

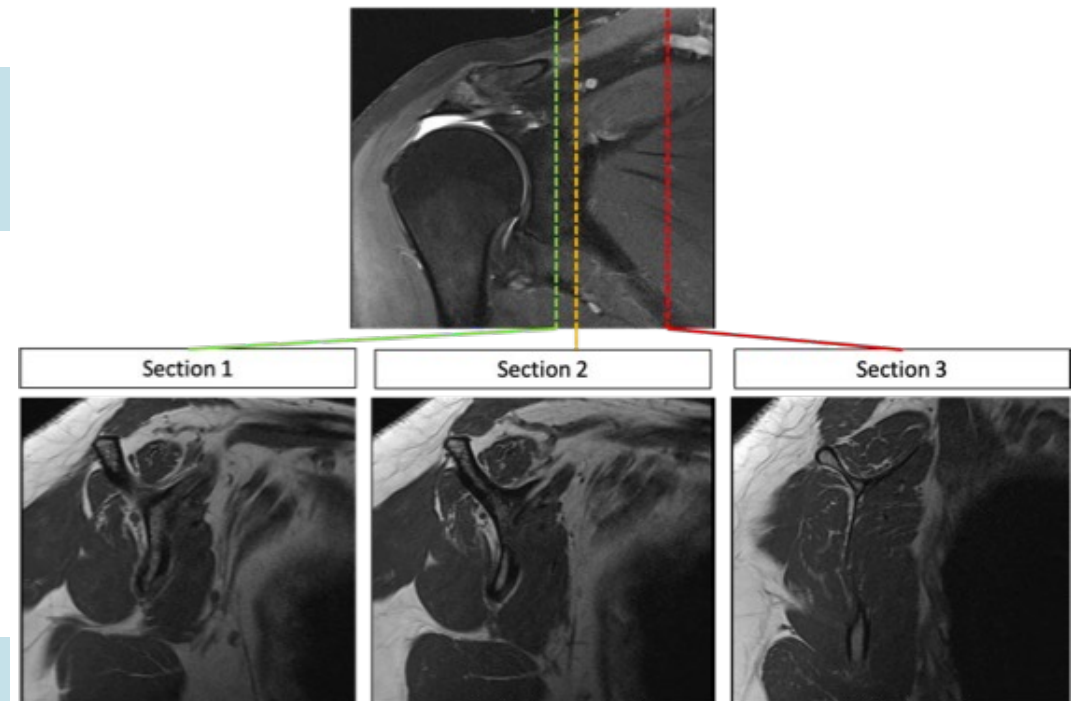**Medial Scapular Body Goutallier classification**

Scan the whole scapula to show the whole rotator cuff muscle belly
Assess the degree of fatty infiltration more medially (Section 3 - 3cm from suprascapular notch)
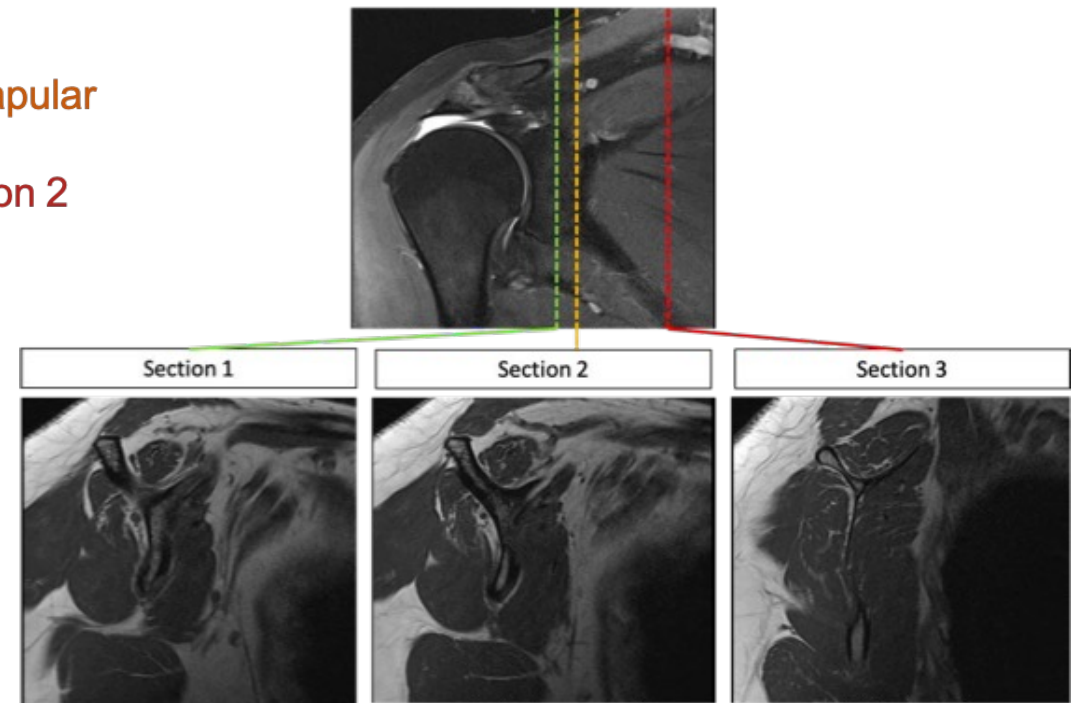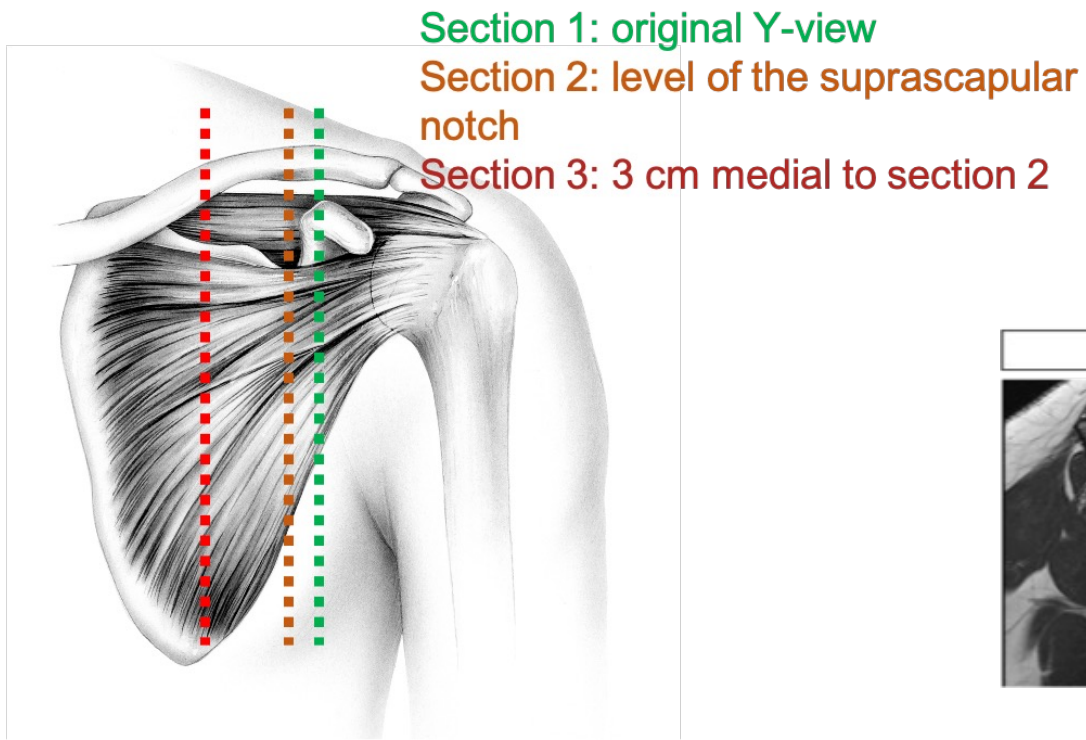
↓

Higher reliability and repeatability

↓

Better representation degree of fatty infiltration

Section 1 | Section 2 | Section 3

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Methods

- Goutallier grading was conducted at 3 sections:

Section 1: original Y-view
Section 2: level of the suprascapular notch
Section 3: 3 cm medial to section 2

Section 1 | Section 2 | Section 3

Methods

80 MRI scans cuff tear

Whole scapular body

First assessment

6 shoulder subspecialist

3 MSK radiologists

Second assessment

6 shoulder subspecialist

3 MSK radiologists
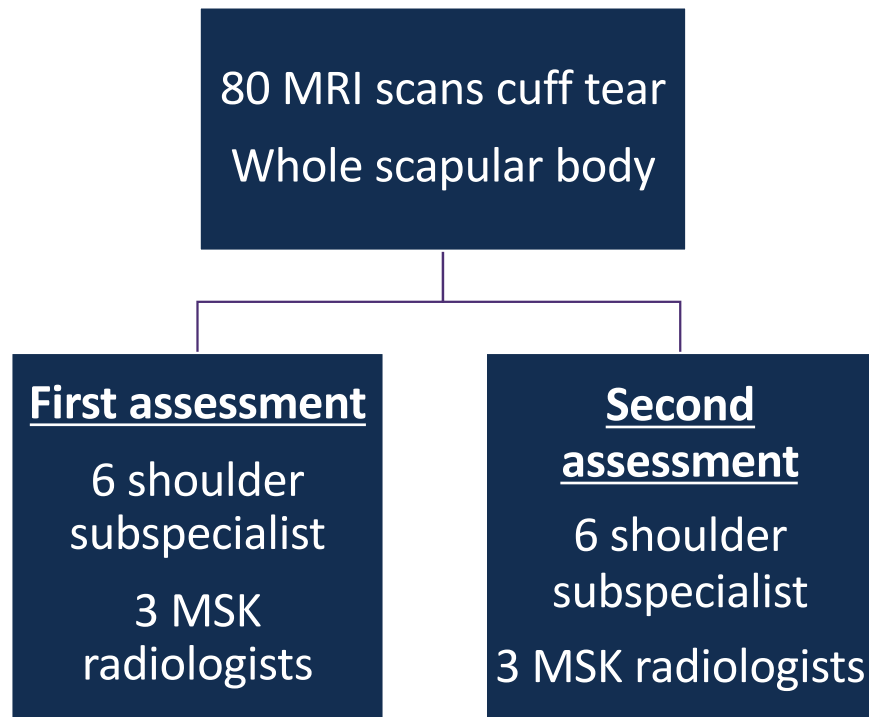
Outcomes

- Intra- and interobserver reliability

- Correlation between sections

- Fatty infiltration grading change between sections

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Methods

- **N=80**

- **Mean age** = 56 years (SD 6.5)

- 78% massive tears

- Wide range of fatty infiltration and retraction

Demographic	Results (n, %)
Tendon Involvement	
SSP	16 (20.0%)
SSC	2 (2.5%)
SSP+ISP	24 (30.0%)
SSP+SSC	9 (11.3%)
SSP+ISP+SSC	29 (36.3%)
Patte SSP	
NA	7 (8.8%)
Stage 1	26 (32.5%)
Stage 2	19 (23.8%)
Stage 3.1	17 (21.3%)
Stage 3.2	6 (7.5%)
Stage 4	5 (6.3%)
Warner SSP	
None	28 (35.0%)
Mild	24 (30.0%)
Moderate	16 (20.0%)
Severe	12 (15.0%)

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Results – Reliability and Repeatability
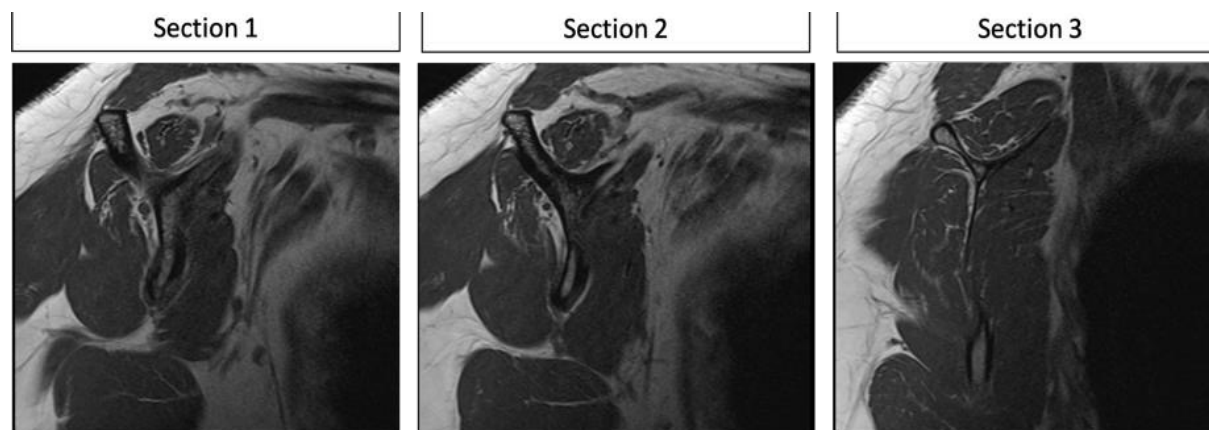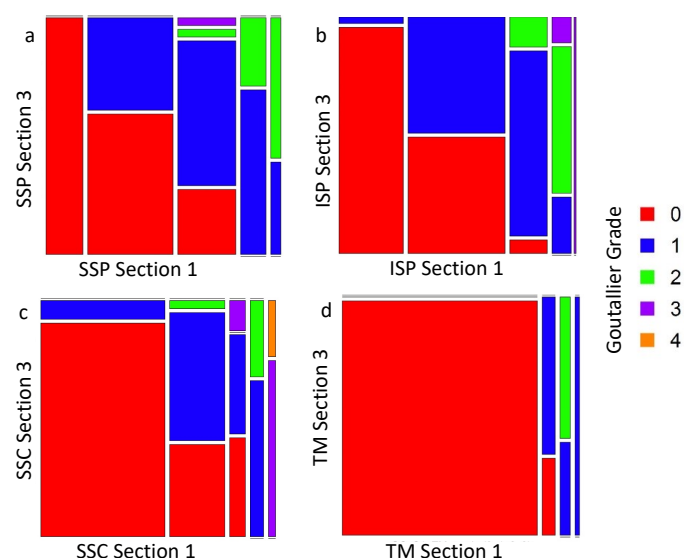
- **INTER-OBSERVER:**
  - **Excellent** for all rotator cuff muscles section 1 – 2 – 3
    - ICC range: 0.87–0.95

- **INTRA-OBSERVER:**
  - **Excellent** for all rotator cuff muscles section 1 – 2 – 3
    - ICC range: 0.83-0.97

Results – Correlation between sections

- Moderate to strong positive correlation of Goutallier grades between sections **1 and 3** and between sections **2 and 3** (p<0.001)


Overestimation of Goutallier grading in original Y-view

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Results – Grading between sections

Downgrading in severity of fatty infiltration from section 1 to 3

- **By 1 grade:** 42.5% of supraspinatus and infraspinatus

- **By 2 grades:** 20% of supraspinatus and 3.8% of infraspinatus

- **By 3 grades:** 2.5% of supraspinatus
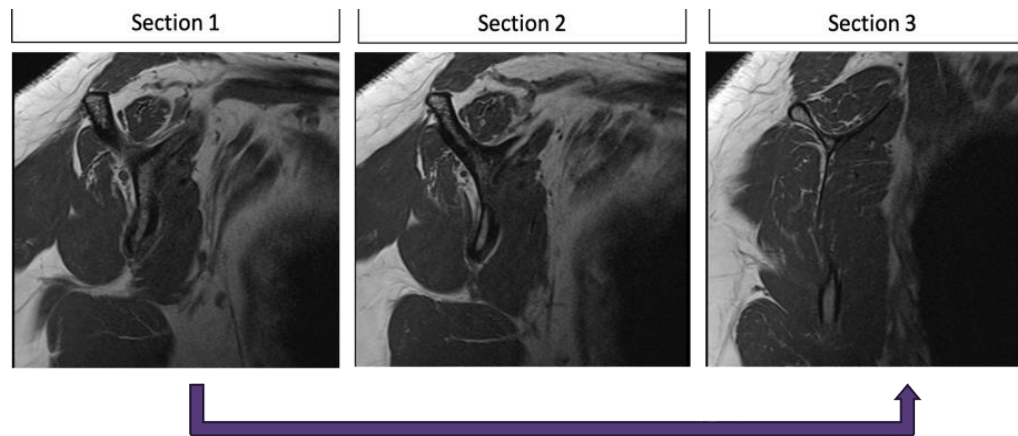
Conclusions

- **MSB – Goutallier classification** is reliable

- There is **overestimation** degree of fatty infiltration at the original Y-view

- This changes the definition of repairability

- **Recommendation:**
  - Include the whole scapular body when requesting MRI especially for large to massive cuff tears with retraction

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Conclusions

MSB – GC will change your practice!

Just fix the cuff!

Section 1: original Y-view
Section 2: level of the suprascapular notch
Section 3: 3 cm medial to section 2

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