ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

Systematic Review Of Shoulder Imaging Abnormalities In Asymptomatic Adult Shoulders (SCRUTINY): Abnormalities Of The Glenohumeral Joint

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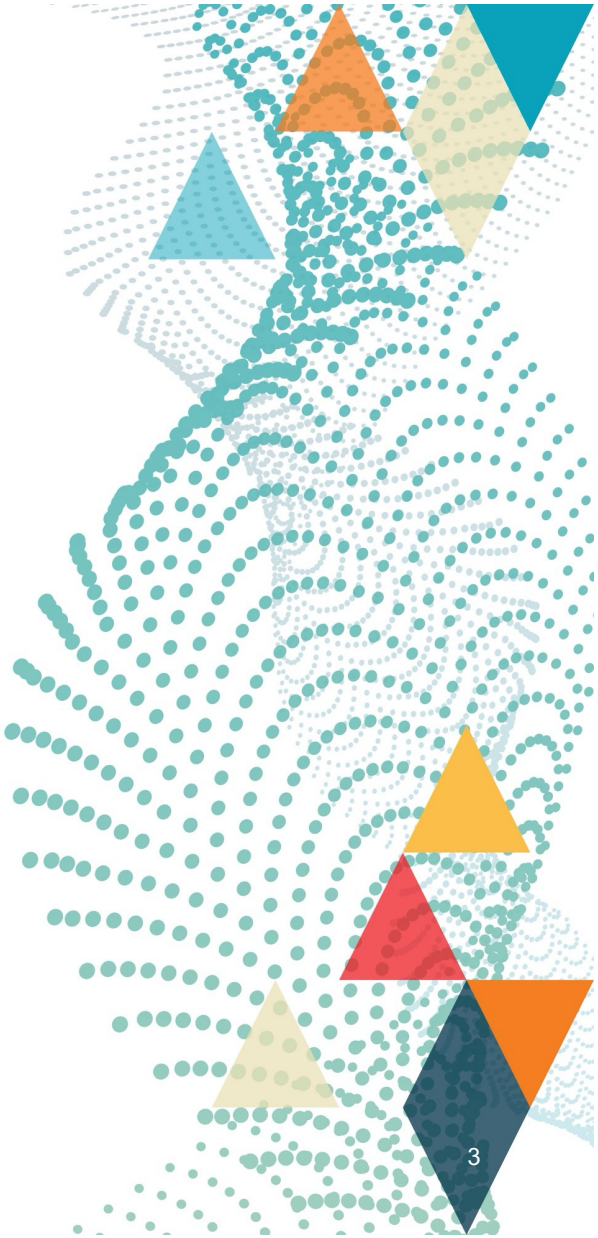
Faculty Disclosure Information

- My disclosure(s) are
  - Senior consultant in orthopaedics, Helsinki University Hospital
  - Unpaid consultant, Osgenic
  - Stocks and stock options, Osgenic
  - Board member, Finnish Society for Shoulder and Elbow Surgery

FICEBO
Finnish Centre for Evidence-Based Orthopaedics

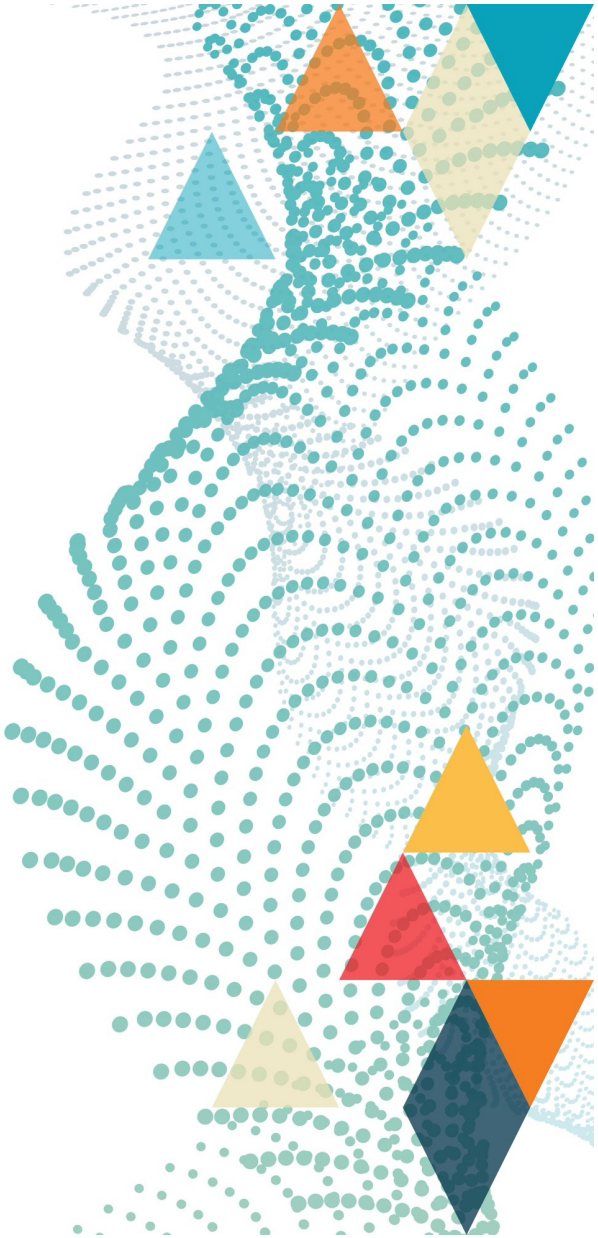
Background and rationale

- Shoulder imaging often reveals abnormalities[1]
- These findings may not correlate with symptoms[2]
- Key Question: How common are imaging abnormalities of the glenohumeral (GH) joint in **asymptomatic** individuals?



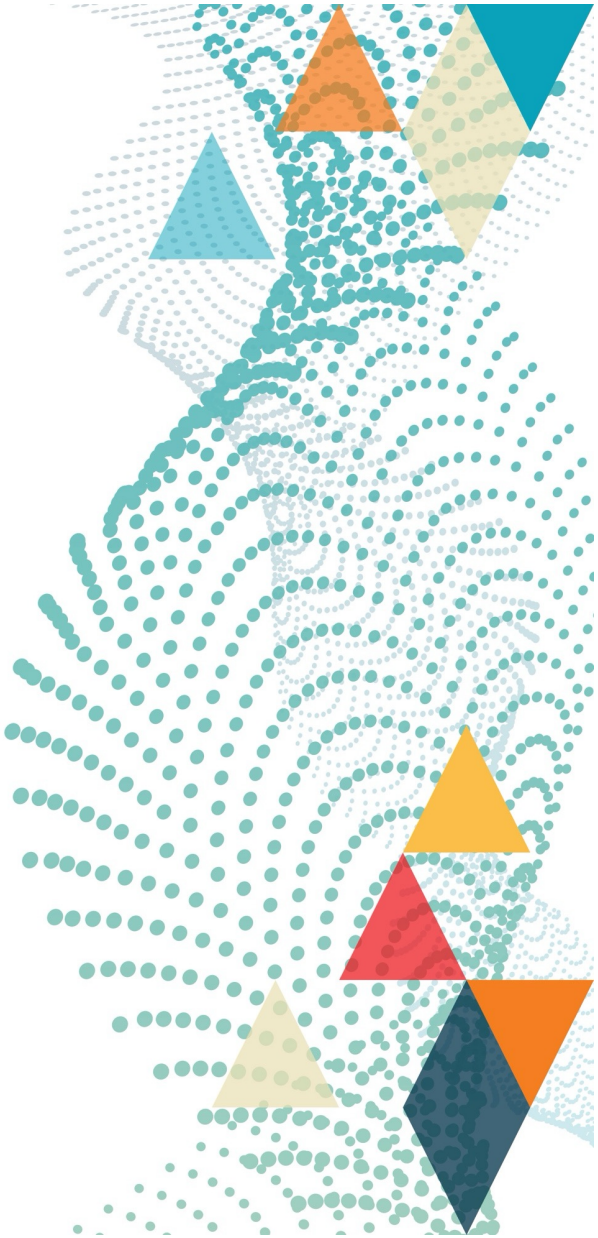
Objectives

- **Primary Objective**: Assess prevalence of GH joint abnormalities in asymptomatic adults
- **Secondary Objective**: Compare prevalence between asymptomatic and symptomatic shoulders within the same study populations

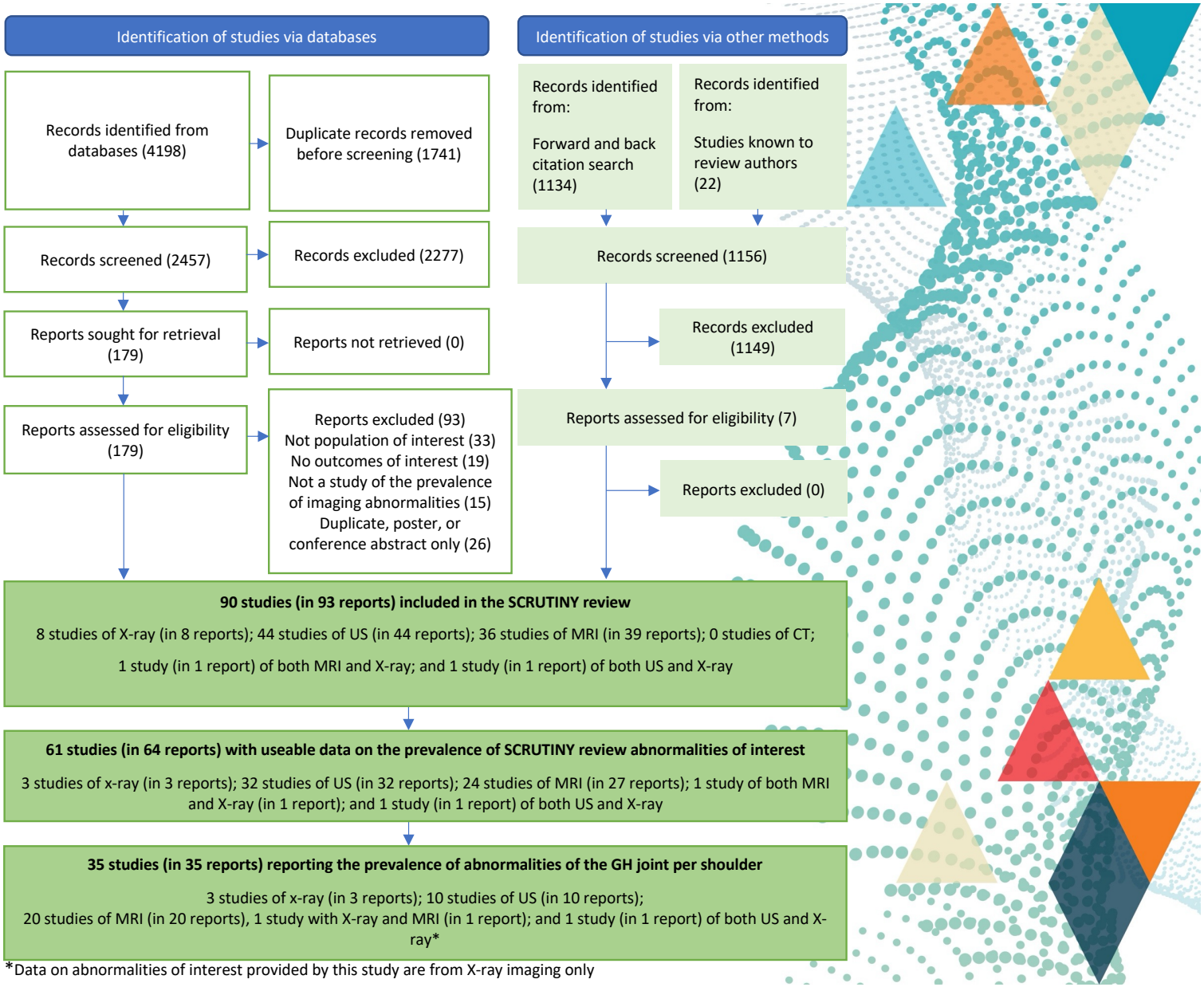


Methods

- Systematic review registered in PROSPERO: CRD42018090041
- Searched MEDLINE, Embase, CINAHL, Web of Science to June 2023
  - Included: observational studies with asymptomatic adults ≥18 years
  - Imaging modalities: X-ray, US, MRI (no CT studies found)
- PRISMA 2020 guideline followed[3]



Results



*Data on abnormalities of interest provided by this study are from X-ray imaging only

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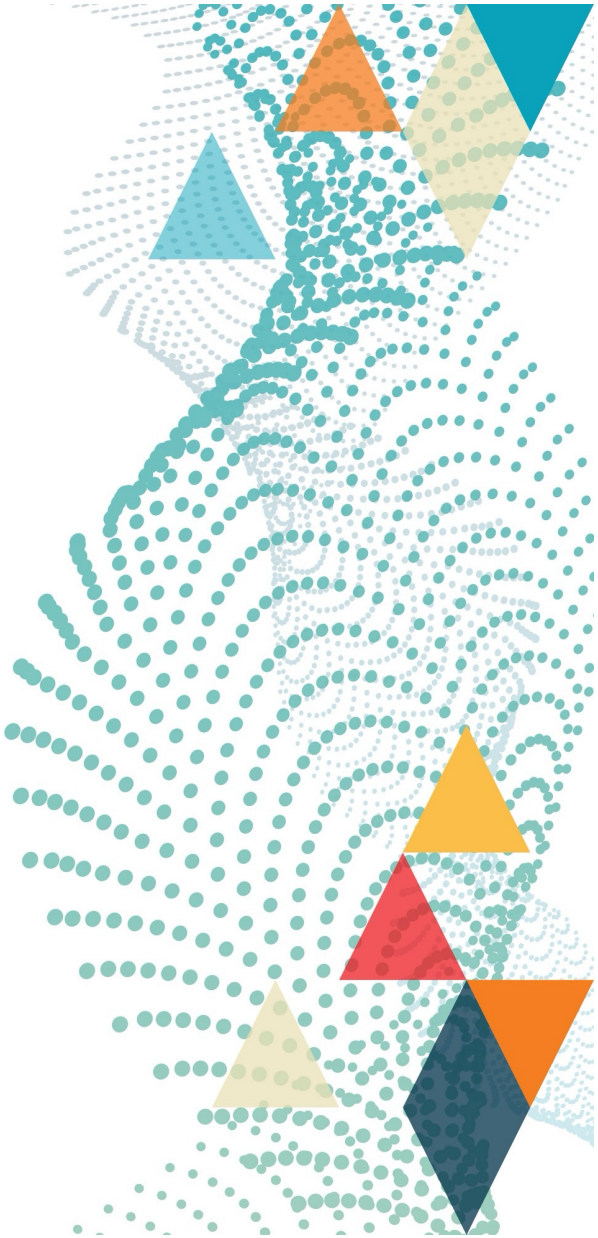
Study characteristics

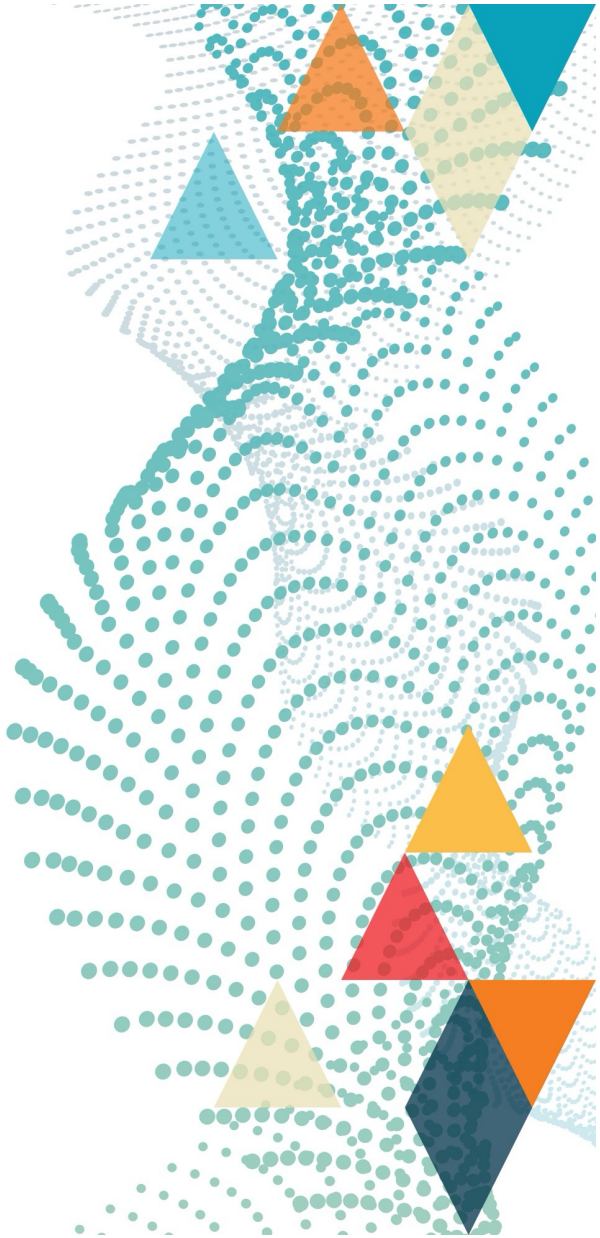
- Included studies: 35 with usable prevalence data
- Study types:
  - 2 population-based[1,4]
  - 15 miscellaneous cohorts
  - 18 athletic populations
- Total shoulders: 3,288
- Modalities: 4 X-ray, 10 US, 20 MRI, 1 both X-ray + MRI



Risk of bias – certainty of evidence

- All 35 studies had high risk of bias
  - Due to selection bias, lack of representative sampling
  - Inconsistent imaging definitions

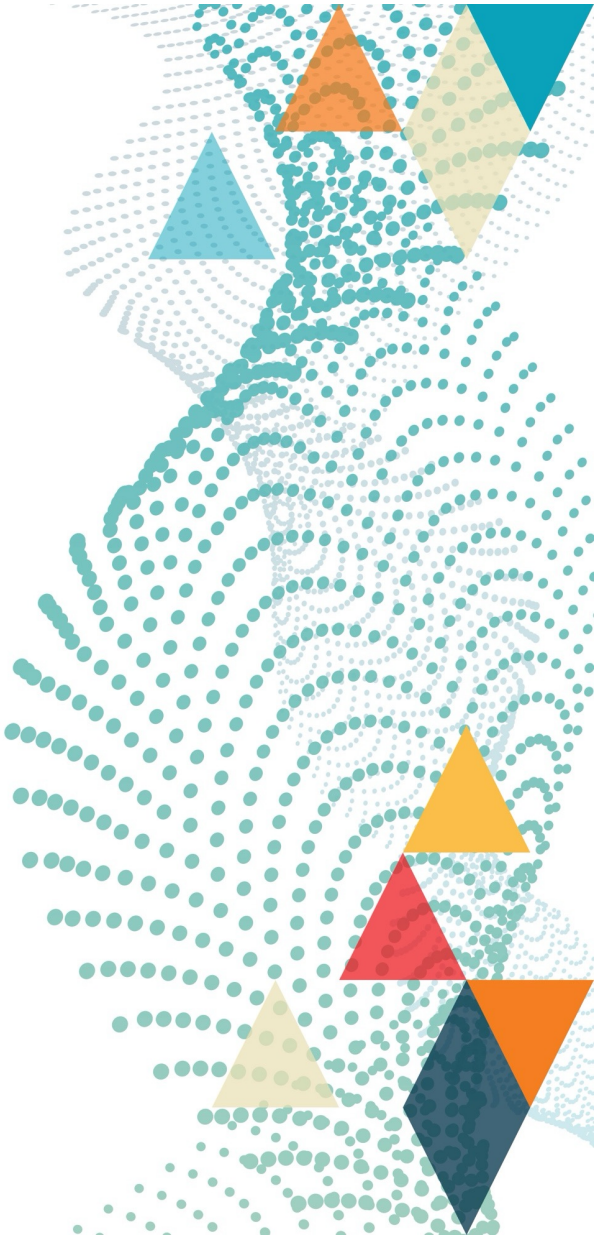
- Certainty of evidence: Low or very low, using modified GRADE for prognosis[5]



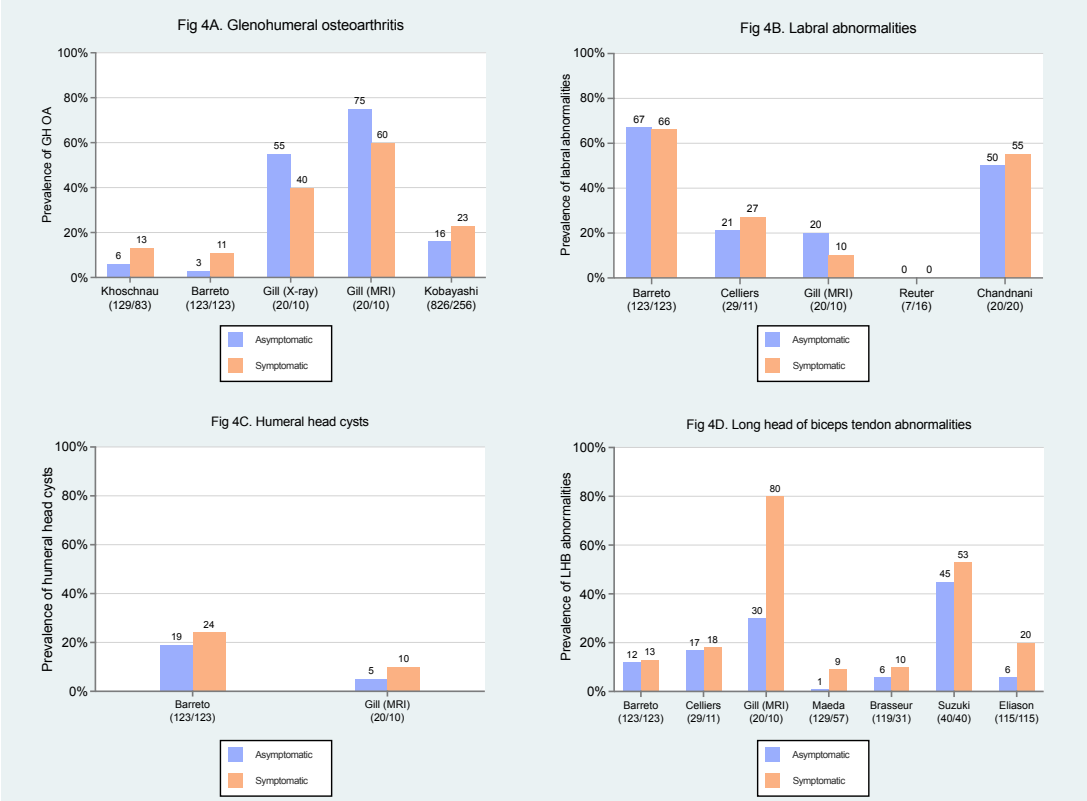
Key findings – asymptomatic shoulders

- 2 Population-based studies[1,4] showed GH joint osteoarthritis in 15-75%. 1 Population-based study[4] showed labral abnormalities in 20%, humeral head cysts in 5%, and long head of biceps (LHB) tendon abnormalities in 30%
- High variation in non-population cohorts:

Imaging Abnormality	Total Prevalence (n/N shoulders)	Prevalence Range Among Studies
GH osteoarthritis	15% (95/633)	0–75%
Labral abnormalities	43% (352/810)	0–100%
Humeral head cysts	30% (158/535)	5–63%
LHB tendon abnormalities	12% (245/1990)	0–73%



Comparison of asymptomatic and symptomatic shoulders within the same study populations



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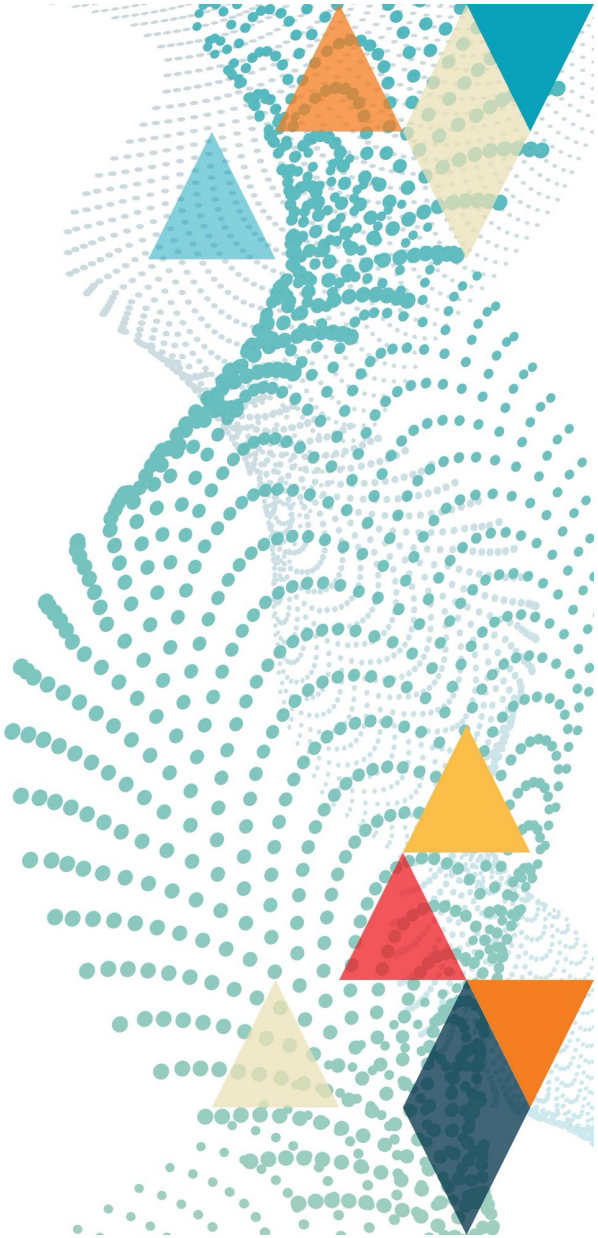
Conclusion

- **Imaging abnormalities** are common in asymptomatic shoulders (up to 100%) and **similar prevalence** of findings in symptomatic and asymptomatic shoulders
- **Caution needed** when interpreting imaging – may not reflect clinical symptoms.
- **Evidence quality** is very low due to high risk of bias and methodological issues and **heterogeneity** across studies limits comparability (populations, definitions, protocols)

- **Future research needed**: large, standardized, population-based prevalence studies



Full article

Osteoarthritis and Cartilage

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Review

Systematic Review of Shoulder Imaging Abnormalities in Asymptomatic Adult Shoulders (SCRUTINY): Abnormalities of the glenohumeral joint

Thomas Ibounig # † *, Sharon Sanders ‡, Romi Haas §, Mark Jones ‡, Teppo LN Järvinen # †, Simo Taimela # †, Sean Docking §, Lasse Rämö # †, Rachelle Buchbinder §

Scan me!

References

[1] Kobayashi et al. Prevalence of and risk factors for shoulder osteoarthritis in Japanese middle-aged and elderly populations. Journal of Shoulder & Elbow Surgery 2014; 23: 613-619.

[2] Barreto et al. Bilateral magnetic resonance imaging findings in individuals with unilateral shoulder pain. J Shoulder Elbow Surg. 2019;28(9):1699–706.

[3] Page et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71.

[4] Gill et al. Prevalence of abnormalities on shoulder MRI in symptomatic and asymptomatic older adults. Int J Rheum Dis. 2014;17(8):863–71.

[5] Iorio et al. Use of GRADE for assessment of evidence about prognosis: rating confidence in estimates of event rates in broad categories of patients. BMJ. 2015;350:h870.