



ISAKOS  
CONGRESS  
2025



MUNICH  
GERMANY  
June 8-11

جامعة بيشة  
University of Bisha



# Risk Factors For Frozen Shoulder And The Need For Intra-Articular Corticosteroid Injections

Abdulrahman J. Korkoman<sup>(1)</sup>, Abdulaziz A. Alqahtani<sup>(2)</sup>,  
Wail Abdulrahman Altreef<sup>(3)</sup>

<sup>1</sup>.Orthopedic Surgery Department at the University of Bisha, Bisha, Saudi Arabia.

<sup>2</sup>.Orthopedic Surgery Department at the Prince Sultan Military Medical City, Riyadh, Saudi Arabia.

<sup>3</sup>.Orthopedic Surgery Department at the Imam Muhammad Ibn Saud University, Riyadh, Saudi Arabia.





# Faculty Disclosure Information

- The authors declare no financial interests or relationships with any commercial companies or institutions.



ISAKOS  
CONGRESS  
2025



**MUNICH**  
**GERMANY**  
June 8–11

# Introduction

- Frozen shoulder is a condition that causes pain, stiffness, and loss of range of motion.
- There is little existing literature that has guided the need for intra-articular corticosteroid injections, and the association of the risk factors of adhesive capsulitis and the need for intra-articular corticosteroid injections. This study aimed to evaluate the relationship between the known risk factors and the need for injections.



ISAKOS  
CONGRESS  
2025



MUNICH  
GERMANY  
June 8-11



# Methods

- A retrospective cohort study was done to establish the association between risk factors of adhesive capsulitis and the need for intra-articular corticosteroid injections in patients visiting our outpatient clinics from January 2022 to the end of December 2022.
- During this period all patients diagnosed with primary adhesive capsulitis were included. To compare the participants who used steroids with those who did not, the chi-square test and linear model ANOVA were employed, depending on the type of data and the normality of its distribution. Furthermore, a binary logistic regression model was utilized to assess the predictive ability of demographic factors and comorbidities in determining the use of steroids.





# Results

- There were 138 patients diagnosed with primary adhesive capsulitis. Patients were divided into two groups according to the need for intra-articular corticosteroid injection.
- No significant differences were found between the two groups regarding laterality, age, sex, hypothyroidism, hypertension, ischemic heart disease, diabetes mellitus, or other risk factors.

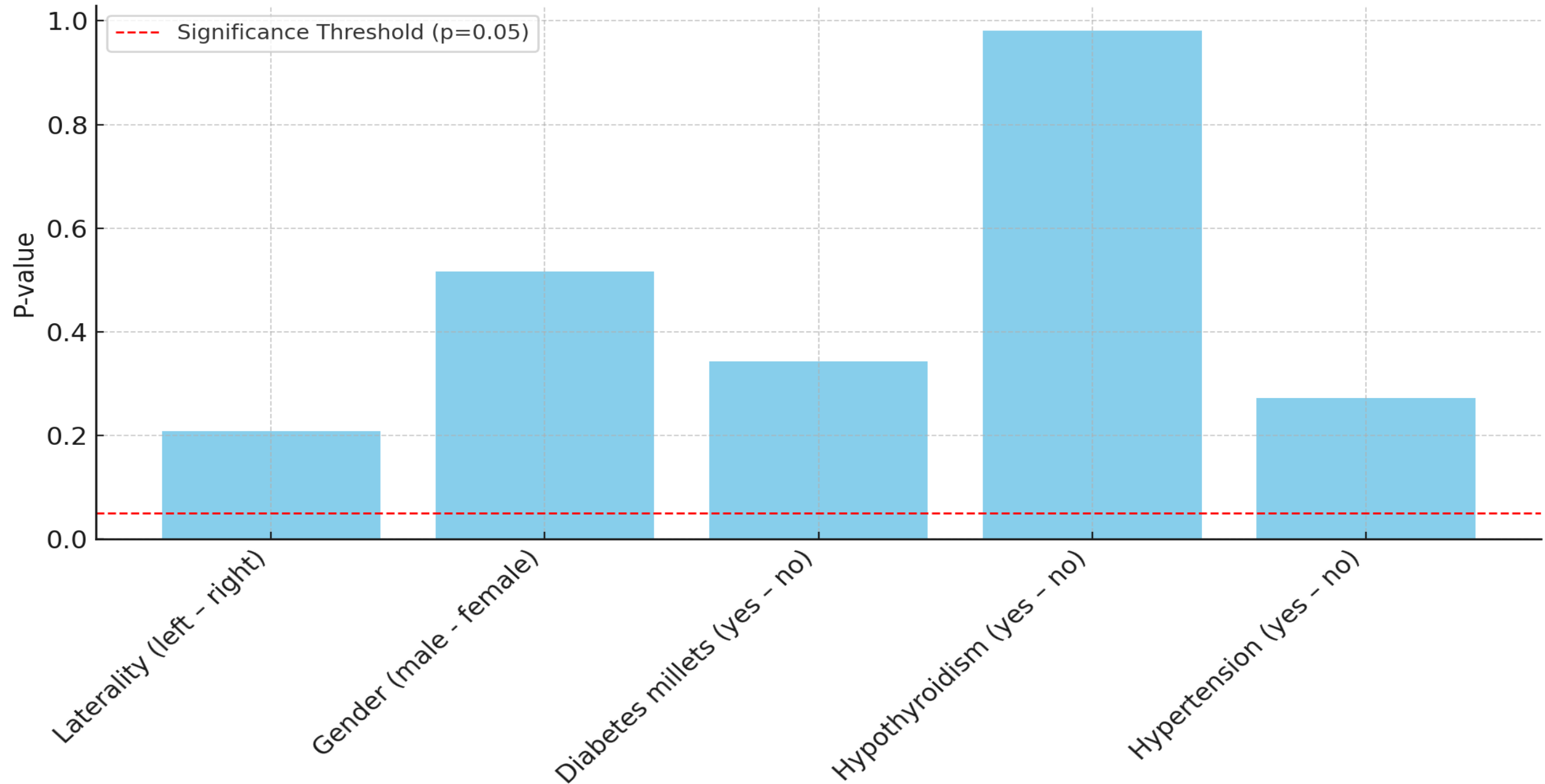


ISAKOS  
CONGRESS  
2025



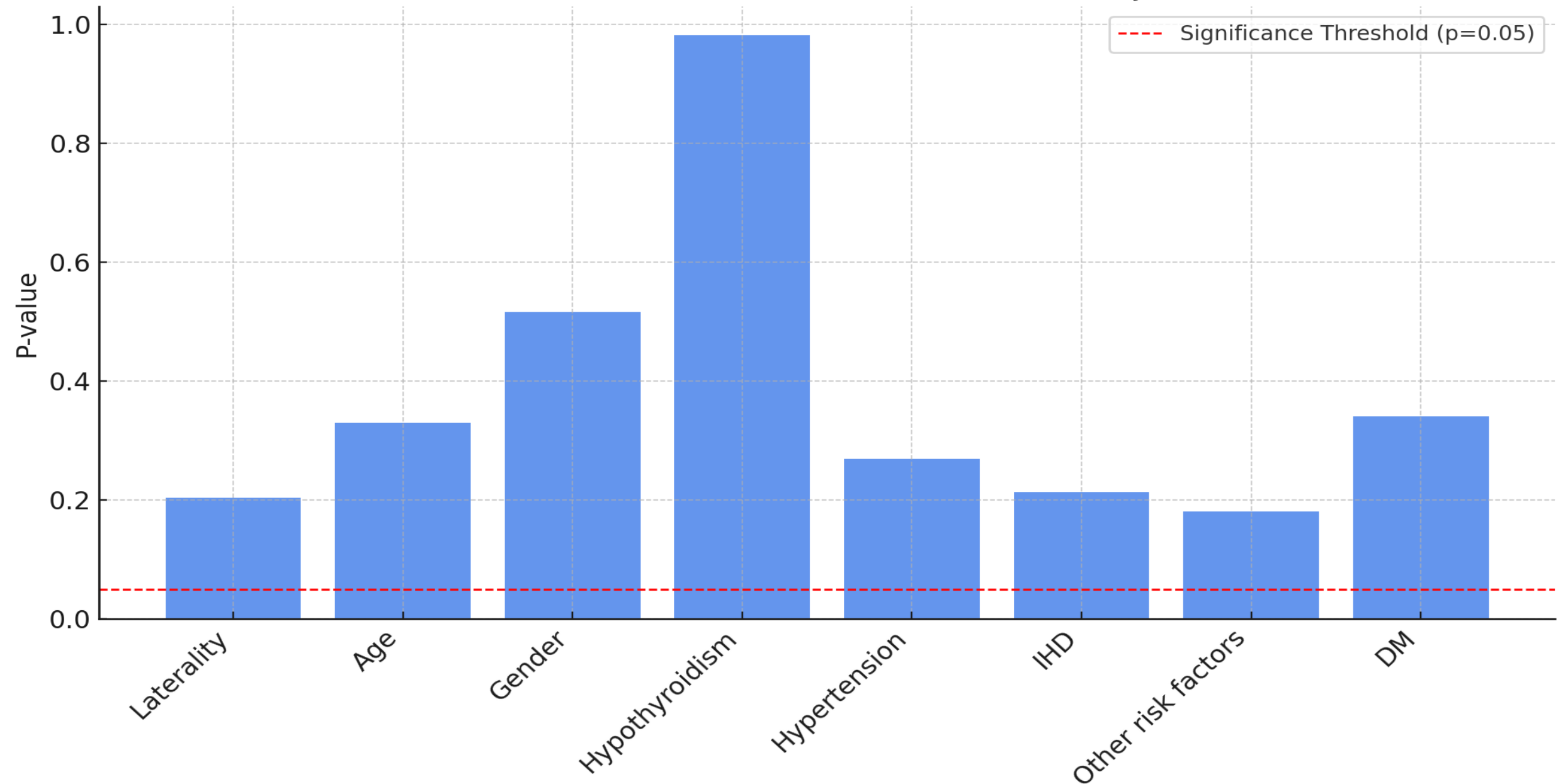
MUNICH  
GERMANY  
June 8-11

## P-values for Predictors of Steroid Injection Need





P-values from Table 2: Need for Steroid Injection



# Conclusion

- **None** of the investigated factors (laterality, age, sex, hypothyroidism, hypertension, ischemic heart disease, diabetes mellitus, or other risk factors) have predicted the need for intra-articular corticosteroid injection. Further research is still needed to evaluate the relationship between other factors and the need for such injections to help guide treatment decisions.





# References

- [1] Angelo JMS, Fabiano SE. Adhesive Capsulitis. StatPearls 2022.
- [2] Mezian K, Coffey R, Chang K-V. Frozen Shoulder. StatPearls 2022.
- [3] Chang L-R, Anand P, Varacallo M. Anatomy, Shoulder and Upper Limb, Glenohumeral Joint. StatPearls 2022.
- [4] Wong CJ, Tay MRJ, Aw HZ. Prevalence and Risk Factors of Adhesive Capsulitis in Asian Breast Cancer Patients Undergoing an Outpatient Community Cancer Rehabilitation Program. Arch Phys Med Rehabil 2021;102. <https://doi.org/10.1016/j.apmr.2020.10.105>.
- [5] Kulm S, Langhans MT, Shen TS, Kolin DA, Elemento O, Rodeo SA. Genome-Wide Association Study of Adhesive Capsulitis Suggests Significant Genetic Risk Factors. Journal of Bone and Joint Surgery 2022;104. <https://doi.org/10.2106/JBJS.21.01407>.
- [6] Jacob L, Gyasi RM, Koyanagi A, Haro JM, Smith L, Kostev K. Prevalence of and Risk Factors for Adhesive Capsulitis of the Shoulder in Older Adults from Germany. J Clin Med 2023;12. <https://doi.org/10.3390/jcm12020669>.
- [7] Le H V., Lee SJ, Nazarian A, Rodriguez EK. Adhesive capsulitis of the shoulder: review of pathophysiology and current clinical treatments. Shoulder Elbow 2017;9. <https://doi.org/10.1177/1758573216676786>.
- [8] Patel R, Urits I, Wolf J, Murthy A, Cornett EM, Jones MR, et al. A Comprehensive Update of Adhesive Capsulitis and Minimally Invasive Treatment Options. Psychopharmacol Bull 2020;50.
- [9] Date A, Rahman L. Frozen shoulder: Overview of clinical presentation and review of the current evidence base for management strategies. Future Sci OA 2020;6. <https://doi.org/10.2144/fsoa-2020-0145>.
- [10] Chan HBY, Pua PY, How CH. Physical therapy in the management of frozen shoulder. Singapore Med J 2017;58. <https://doi.org/10.11622/smedj.2017107>.
- [11] Koh KH. Corticosteroid injection for adhesive capsulitis in primary care: A systematic review of randomised clinical trials. Singapore Med J 2016;57. <https://doi.org/10.11622/smedj.2016146>.
- [12] Buchbinder R, Green S, Youd JM. Corticosteroid injections for shoulder pain. Cochrane Database of Systematic Reviews 2003. <https://doi.org/10.1002/14651858.cd004016>.
- [13] Holt TA, Mant D, Carr A, Gwilym S, Beard D, Toms C, et al. Corticosteroid injection for shoulder pain: Single-blind randomized pilot trial in primary care. Trials 2013;14. <https://doi.org/10.1186/1745-6215-14-425>.
- [14] Kelley MJ, Shaffer MA, Kuhn JE, Michener LA, Seitz AL, Uhl TL, et al. Shoulder Pain and Mobility Deficits: Adhesive Capsulitis. Journal of Orthopaedic & Sports Physical Therapy 2013;43. <https://doi.org/10.2519/jospt.2013.0302>.
- [15] Lädermann A, Piotton S, Abrassart S, Mazzolari A, Ibrahim M, Stirling P. Hydrodilatation with corticosteroids is the most effective conservative management for frozen shoulder. Knee Surgery, Sports Traumatology, Arthroscopy 2021;29. <https://doi.org/10.1007/s00167-020-06390-x>.



**ISAKOS**  
**CONGRESS**  
**2025**



**MUNICH**  
**GERMANY**  
June 8–11