# Sex-Specific Differences in Outcomes Following Surgery for Anterior Shoulder Instability: A Systematic Review & Meta-Analysis

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## Introduction

- Sex-based anatomic differences have been observed in patients with anterior shoulder instability.
- However, there are few and conflicting studies regarding sex-related variations in outcomes following surgery for shoulder instability.
- The purpose of this study was to examine sex-based disparities in outcomes following surgery for anterior shoulder instability.

## Methods

- This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.
- Electronic searches were performed in June 2023 with the assistance of a librarian using PubMed, Web of Science, Embase, and Cinahl.
- Studies that collected outcomes into generic groups, or did not report them separately by patient sex, were excluded. Additionally, systematic reviews, case reports, and publication types that were not peer-reviewed journal articles were excluded.
- Outcome variables for data extraction included instability recurrence rate, reoperation rate, and rate of return-to-sport following surgery, as well as the Western Ontario Shoulder Instability (WOSI) score and the American Shoulder and Elbow Surgeons (ASES) evaluation form.
- A meta-analysis examined the following sex-specific results: recurrence rate, reoperation rate, return to sport rate, ASES score, and WOSI index.

## Results

- The initial search identified 2,958 studies, 14 of which met the inclusion criteria. There were a total of 1,262 patients (932 males, 73.9%; 330 females, 26.1%).
- The meta-analysis found no significant difference in instability recurrence between males and females following arthroscopic Bankart repair, open Bankart repair, and open Latarjet procedures (OR = 1.05; 95% CI = 0.74-1.50; P = .77).
- Additionally, there was no significant difference in reoperation rate (OR = 0.84; 95% CI = 0.69-1.02; P = .08) and RTS (OR = 1.09; 95% CI = 0.54-2.22; I2 = 0%; P = .81) between males and females.
- Mean ASES scores for males and females were 91.08 ± 13.59 SEM and 89.85 ± 16.73 SEM, respectively. Mean WOSI scores for males and females were 81.325 ± 19.23 SEM and 87.26 ± 14.09 SEM, respectively.
- No significant gender difference was found in reported ASES (MD = -1.20, CI = -4.28-1.88; I2 = 0%; P = .45) or WOSI scores (MD = 4.94, CI = -0.31-10.00; I2 = 0%; P = .06).

**Figure 1:** Forest Plot of Instability Recurrence Rates Reported as An Odds Ratio For All Procedures by Patient Sex (SD, standard deviation; CI, confidence interval)

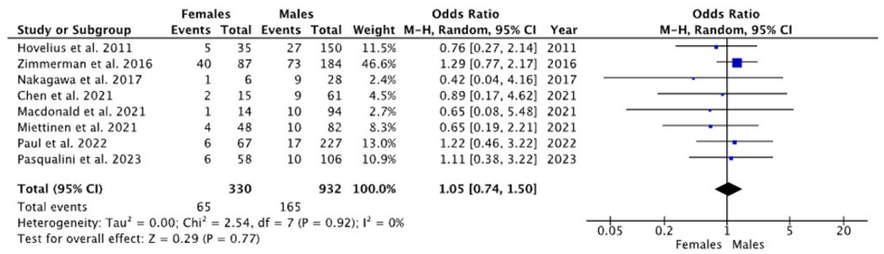
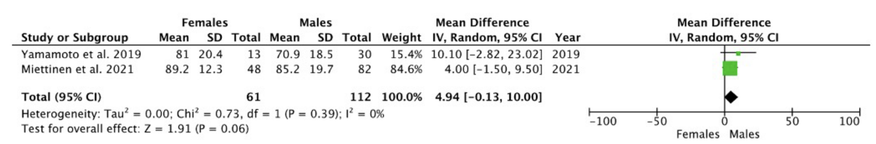



**Figure 2:** Forest Plot of Western Ontario Shoulder Instability Scores Reported as a Mean Difference for All Procedures (CI, confidence interval)




## Limitations

- Differences in outcomes between surgical approaches for anterior shoulder instability were not examined.
- Surgeon experience may also impact outcomes, but this was not measured or used for comparison.
- In terms of finding differences between sexes, our study may have been limited by the majority of patients being male (62.8% [2254/5898]). This could have limited the ability to identify potential differences between males and females.

## Conclusion

- The rate of recurrence, return to sport, and reoperation rates were statistically similar between males and females. Male and female patients also displayed no significant difference in postoperative ASES and WOSI scores following these procedures.
- This study demonstrates that surgical outcomes for anterior shoulder instability are comparable between male and female patients, as evidenced by multiple parameters, aiding in informed decision-making.

## References

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