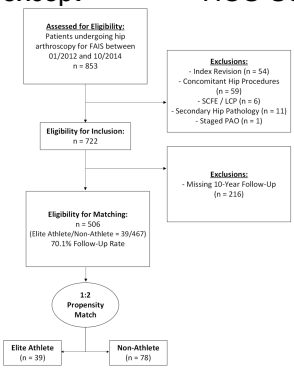
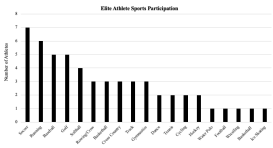
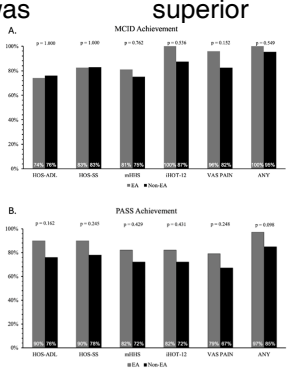
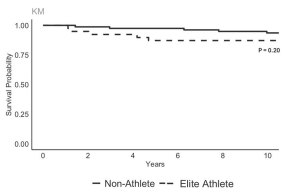
Long-Term Outcomes in Elite Athletes Following Primary Hip Arthroscopy for Femoroacetabular Impingement Syndrome: A Propensity-Matched, Sex-Based Analysis at 10-Year Follow-Up

Jesus Emanuel Cervantes, Eric Hu, Andrew Bi, Shane Jay Nho

INTRODUCTION: Elite athletes (EA), defined as collegiate or professional athletes, undergoing primary hip arthroscopy (HA) for femoroacetabular impingement syndrome (FAIS) achieve significant improvements at mid-term follow-up. However, there is a paucity of literature on long-term outcomes in this population. The purpose of this study was to (1) compare patient-reported outcome scores (PROs), clinically significant outcomes (CSOs), and reoperation-free survivorship between EAs and non-EAs (NEA) and (2) analyze sex-based differences in EAs at mean 10-year follow-up. We hypothesized that EAs would demonstrate higher PROs and CSO achievement but similar survivorship, with comparable outcomes between elite male and female athletes.

METHODS: Patients involved in collegiate or professional sports at the time of primary HA for FAIS between 1/2012-10/2014 with 10-year follow-up were propensity-matched 1:2 to NEAs controlling for age, sex, and body-mass-index. Exclusion criteria included revision HA, concomitant procedures, congenital hip disorders, non-FAIS pathologies, staged periacetabular osteotomy, Tönnis grade >1, or missing 10-year follow-up. PROs collected included Hip Outcome Score-Activities of Daily Living/Sports Subscale (HOS-ADL/HOS-SS), 12-item International Hip Outcome Tool (iHOT-12), modified Harris Hip Score (mHHS), and Visual Analog Scale (VAS) Pain/Satisfaction. Minimal clinically important difference (MCID), patient acceptable symptom state (PASS), and reoperation-free survivorship were compared.

RESULTS: Thirty-nine hips (35 EAs) were matched to 78 hips (72 NEAs). Demographics were similar (P≥0.35). Mean follow-up was 10.5±0.6 years. Preoperative PROs were comparable (P≥0.11). EAs demonstrated superior HOS-ADL (93.51±7.01 vs. 87.34±14.79, P=0.005) and iHOT-12 (78.03±19.37 vs. 65.40±25.92, P=0.047) at 2-year, VAS-Satisfaction (85.46±19.66 vs. 73.55±30.96, P=0.049) at 5-year, and HOS-ADL (94.54±6.50 vs. 89.66±16.55, P=0.045) at 10-year. MCID and PASS achievement rates were similar (P≥0.10), but trended higher amongst EAs. Reoperation-free survivorship was comparable (P=0.20). Elite male and female athletes demonstrated comparable preoperative and 10-year PROs, except 10-year HOS-SS was higher in elite males (94.10±9.50 vs. 77.03±22.28, P=0.016).

DISCUSSION AND CONCLUSION: The primary objective of the current study was to compare PRO scores, achievement of CSOs, and reoperation-free survivorship between EAs and NEAs and to further analyze sex-based differences in EAs at mean 10-year follow-up. Despite EAs demonstrating higher scores for certain PROs at 2-, 5-, and 10-years, the most significant findings of this study were that EAs and NEAs demonstrated comparable CSOs and reoperation-free survivorship at long-term follow-up. Additionally, elite male and female athletes demonstrated comparable 10-year PROs, except for HOS-SS. These differences in PROs between EAs and NEAs may be indicative of possible improved recovery facilitated by their prior experience in the training room, comfort with rehabilitation protocols, or a self-willingness to believe in their improvement when responding to PROs. In conclusion, while elite athletes demonstrate higher scores for certain PROs at 2-, 5-, and 10-years, they demonstrated comparable CSOs and reoperation-free survivorship to non-elite athletes at long-term follow-up. Additionally, elite male and female athletes demonstrated comparable 10-year PROs, except HOS-SS, which was superior in male athletes.