

## **FAI Surgery in the Adolescent Patient Population: Mild Deformities and Lack of Sports Participation are Associated with an Increased Risk of Treatment Failure**

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**INTRODUCTION:** The purpose of this study was to determine the clinical outcomes of FAI surgery in adolescent patients and to identify predictors of treatment failure.

**METHODS:** A cohort of 126 adolescent patients (<18 years) undergoing surgery for symptomatic FAI were prospectively assessed among a larger multicenter cohort. The adolescent subgroup included 74 (58.7%) males and 52 (41.3%) females, mean age of 16.1 years (range 11.3-18.0), and mean follow-up of 3.7 years. Mild cam FAI was defined as alpha angle < 55°. Clinical outcomes were the mHHS, HOOS (5 domains), and UCLA activity score. Failure defined as revision surgery or clinical failure (failure to reach MCID (minimally clinically important difference) or PASS (patient acceptable symptoms state) for mHHS. Statistical analysis identified factors significantly associated with failure.

**RESULTS:** There was clinically important improvement in all PROs (mHHS, HOOS) for the overall cohort and 81% of patients met criteria for successful outcome. Failure rate (revision surgery or clinical failure) of the overall cohort was 19%, including revision surgery in 8.7%. Females were significantly more likely than males to be classified as a failure (25.7% vs. 9.1%,  $p=0.017$ , OR 2.6), in part because of lower preoperative mHHS (59.1 vs. 67.0,  $p<0.001$ ). Mild cam FAI (alpha <55°) was present in 31.5% of cases including 39.1% of females and 14.5% of males. Maximal alpha angle was significantly inversely associated with the failure rate (37.5% for alpha<55, 19.2% for alpha 55-63, and 6.8% for alpha>63,  $p<0.005$ ). Non-athletes were at a significantly greater risk of failure compared to athletes (26.5% vs. 10.3%,  $p=0.043$ , OR 2.3). Multivariable logistic regression identified mild cam FAI and lack of participation in sports as predictive of failure ( $p=0.005$  and  $p=0.04$ ). Gender was no longer significantly associated with failure after controlling for other variables.

**DISCUSSION AND CONCLUSION:** Adolescent patients, independent of gender, undergoing surgical treatment of FAI demonstrate significant improvement at early follow-up. Mild cam FAI deformities and lack of sports participation are independently associated with higher rates of treatment failure.