

## Effect of Postoperative Weight Change on Patient-Reported Outcomes Following Hip Arthroscopy

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**Introduction:** Increased body mass index (BMI) has been associated with poorer outcomes and higher complication rates across various orthopedic procedures. While this relationship has been studied extensively in total joint arthroplasty, its relevance in hip arthroscopy remains less well defined. Furthermore, the effect of postoperative changes in BMI on patient-reported outcomes has not been thoroughly investigated.

**Objectives:** This study aims to evaluate how BMI changes after hip arthroscopy and how these changes relate to patient reported outcome measures.

**Methods:** Patients were included if they had complete BMI data at enrollment and two years postoperatively. Those with a Tönnis grade greater than 2 were excluded. Patient data, including height, weight, and patient-reported outcome measures (PROMs), were collected at enrollment and at 3, 6, 12, and 24 months postoperatively. Postoperative BMI changes were defined at each time point as a 5% or greater change compared to enrollment BMI, classifying patients as having weight gain, weight loss, or stable weight. Logistic regression models were used to assess predictors of postoperative weight gain and weight loss at one and two years, including Tönnis grade, sex, enrollment BMI, age, and PROM scores. Differences in PROM scores and the rates of achieving minimal clinically important difference (MCID) across BMI change groups were compared using chi-squared tests and analysis of variance as appropriate.

**Results:** A total of 137 patients were included in this study, 68 of which were male and 69 of which were female. Starting from enrollment, the proportions of patients with higher or lower BMIs evolved over time. At 3 months, 92.0% had stable BMI, 5.8% had higher BMI, and 2.2% had lower BMI; at 6 months, 77.4% remained stable, 14.6% had higher BMI, and 8.0% had lower BMI; at 12 months, 83.9% were stable, 10.9% had higher BMI, and 5.1% had lower BMI; and by 24 months, 59.9% remained stable, 26.3% had higher BMI, and 13.9% had lower BMI. There were no significant differences in postoperative patient-reported outcome measures (PROMs) between BMI change groups, and no significant differences in the rates of achieving MCID across BMI change groups for any PROM at 2-year follow-up. At two years, higher enrollment BMI was a significant predictor of BMI loss ( $\geq 5\%$  decrease;  $p < 0.001$ ). None of the other variables, including sex, Tönnis grade, Tönnis angle, CEA, or chondrolabral status, significantly predicted BMI gain ( $\geq 5\%$  increase). Less chondrolabral junction breakdown was also associated with BMI loss, but other variables were not significant predictors.

**Discussion:** This study found that postoperative weight changes are common following hip arthroscopy. Despite these changes, there were no significant differences in patient-reported outcomes across weight change groups at any time point, suggesting that BMI fluctuations after surgery do not directly impact short- to mid-term functional recovery.

**Significance/clinical relevance:** Understanding how weight changes impact outcomes after hip arthroscopy helps clinicians set realistic patient expectations. Identifying factors that predict weight gain or loss allows for targeted interventions to improve recovery and long-term joint health.

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