

How Body Mass Index Affects Outcomes Following Hip Arthroscopy for Femoroacetabular Impingement

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Introduction and Purpose

- Little is known about the influence of body mass index on the outcome following hip arthroscopy.

Purpose: The objective of this study was to find out if BMI has any influence on 2 year outcomes after hip arthroscopy.

Methods

Patient selection

- Consecutive patients undergoing primary hip arthroscopy for FAI with a minimum of 2 year outcome were identified using our institutional hip registry between 1/2012 and 1/2014 out of 494 patients.

Outcome measures.

- Primary outcome measure: Hip Outcome Score Activities of Daily Living (HOS-ADL) questionnaire. A Patient Acceptable Symptomatic State (PASS) cutoff of 87 was used to determine a clinically significant improvement.
- Secondary outcome measures included the Hip Outcome Score Sports Subscale (HOS-SS) and modified Harris Hip Score (HHS).

Methods

BMI groups (based on preoperative BMI):

- Underweight (BMI<18.5)
- Normal (BMI 18.5-24.9)
- Overweight (25-29.9)
- Obese (30-35)
- Morbidly obese (>35)

- A multivariate logistic regression model controlling for patient demographics (age, sex) comorbidities, disease severity (tonnis grade, center edge angle, alpha angle, pincer size, cam size), dysplasia (cross-over sign), and pre-operative function (range of motion) was used to identify independent associations between BMI categories and each outcome measure.

Data Collection

- **Patient demographics:** sex, age, BMI, range of motion, and sports participation
- **Radiographic measurements:** Tonnis grade, lateral center edge angle (LCEA), alpha angle, Pincer and Cam sizes, cross-over sign.
- **Intraoperative data:** procedures performed and findings
- **Preoperative and minimum 2-year postoperative hip-specific functional outcome scores**
 - Modified Harris Hip Score (MHHS)
 - Hip Outcome Score Sport-Specific and Activities of Daily Living subscales (HOS-SS and HOS-ADL)

Complications and reoperations

Results

- Underweight 12 patients
- Normal 262 patients
- Overweight 153 patients
- Obese 47 patients
- Morbidly obese 20 patients

In the univariate analysis, patients with normal BMI had significantly higher HOS-ADL scores than overweight (88.8 ± 13.9 vs. 84.1 ± 16.7 $p=0.009$), obese (88.8 ± 13.9 vs. 78.8 ± 19.7 $p=0.0009$) and morbidly obese patients (88.8 ± 13.9 vs. 73.7 ± 24.7

Results

PASS cutoff was met at:

Normal BMI group 69%

The overweight 55% ($p=0.0081$)

Obese 48% ($p=0.03$)

- In the multivariate analysis, underweight patients had a significantly lower improvement in their HOS-ADL scores as compared to patients with normal BMI (20.0 ± 17.4 vs. 9.7 ± 11.6 $p=0.049$)
- Overweight patients had significantly fewer patients that met the PASS cutoff as compared to patients with normal BMI (75.6% vs. 60.8%, $p=0.005$).

Discussion and Limitations

- BMI has little influence on the long term outcomes following hip arthroscopy.
- Patients should be counseled to expect long term improvements in both pain and function following hip arthroscopy.
- Future studies should focus on identifying the reasons for the small, albeit significant differences between underweight and slightly overweight patients as compared to patients with normal