

# The Role of Obesity in Bilateral Slipped Capital Femoral Epiphysis

## Abstract

### Objective

The Lack of information regarding risk factors for bilateral slipped capital femoral epiphysis (SCFE) has led to controversy surrounding prophylactic pinning of the contralateral hip in unilateral-SCFE (UL-SCFE) patients. The purpose of this study was to define potential risk factors for bilateral-SCFE (BL-SCFE).

### Patients and Methods

Review of 502 SCFE cases was performed to identify BL-SCFE patients and compare them to UL-SCFE controls. Multivariate analysis of risk factors included; gender, age, slip-stability, slip-chronicity, slip-grade, and obesity (age/gender-specific BMI >95<sup>th</sup> percentile). The incidence and impact of changes in BMI postoperatively were analyzed. Inclusion criteria encompassed;  $\geq 3$  month's post-operative follow-up, BMI recordings over the study period, and in-situ percutaneous fixation.

### Results

Of 179 patients who met inclusion criteria, 65 developed BL-SCFE - forty-five (69.2%) in staged fashion - yielding a 36.3% incidence of BL-SCFE. Gender, slip-stability, slip-chronicity, and slip-grade were not associated with BL-SCFE incidence. Patients presenting with a grade-III slip increased their BMI significantly higher than grade-I or grade-II slips ( $p=0.036$ ). Patients with post-operative obesity (OR=3.7, 95%CI: 1.5-9.5,  $p=0.003$ ), and age  $\leq 10$  years at index SCFE (OR=2.5, 95%CI: 1.3-5.7,  $p=0.023$ ) had higher risks for BL-SCFE. Obese patients who became 'non-obese' postoperatively had a significantly decreased risk of BL-SCFE compared to those who remained 'obese' (OR=0.16, 95% CI: 1.2-116.5,  $p=0.026$ ).

### Conclusion

Patients who remain or become obese postoperatively and those  $\leq 10$  years-old at presentation are at risk for BL-SCFE. Weight reduction post-SCFE surgery lowers the risk for BL-SCFE. The importance of supervised therapeutic weight management programs for patients treated for UL-SCFE should be emphasized.

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