

## **Abstract**

The purpose of this study was to determine the effects of demographic and anatomic factors on traction force required during postless hip arthroscopy. The amount of traction force required to successfully distract the hip is a known cause of postoperative complications. A prospectively collected database was retrospectively analyzed on patients undergoing hip arthroscopy by the senior author, including patient sex, age, body mass index (BMI), Beighton Hypermobility Score, hip range of motion in clinic and under anesthesia, hip dysplasia, acetabular version, and femoral version. All patients underwent postless hip arthroscopy under general anesthesia. At the initiation of hip arthroscopy, the traction force required to distract the hip joint was measured before and following interportal capsulotomy. Multiple regression analysis was performed to determine the effects of demographic and anatomic factors on measured distraction force. Results: In total, 352 hips (114 male, 238 female) were included with a mean age of 32.6 years and a mean BMI of 24.1 kg/m<sup>2</sup>. The mean initial traction force was 109 lbs, which decreased to 94.3 lbs following capsulotomy ( $P < .0001$ ). The starting traction force was significantly greater in male patients ( $P < .001$ ), patients with a lack of hypermobility (Beighton Hypermobility Score of 0- 2) ( $p=0.026$ ), and in patients with lower abduction ( $P < .001$ ), lower internal rotation ( $p=0.002$ ), and lower external rotation ( $p=0.012$ ) on multiple regression analysis. When performing a subanalysis divided by sex, male patients with elevated BMI required significantly greater starting traction force ( $p=0.014$ ). Lateral center edge angle, sourcil angle, and the presence of hip dysplasia did not demonstrate a significant correlation with traction force. In conclusion, male patients, patients with reduced preoperative hip range of motion, patients with a lack of joint hypermobility, and male patients with an elevated BMI require greater initial traction force during postless hip arthroscopy.