Traction Force During Hip Arthroscopy is Affected by Multiple Demographic and Anatomic Factors

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Disclosures

I (and my co-authors) have nothing to disclose.

Introduction

- During hip arthroscopy, traction is required to distract the hip joint for safe introduction of instrumentation
- Maximum traction intensity is the greatest risk factor for postoperative neurapraxia

Risk of Sciatic Nerve Traction Injury During Hip Arthroscopy—Is It the Amount or Duration?

An Intraoperative Nerve Monitoring Study

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Introduction

- Neurapraxia after hip arthroscopy may include sciatic, pudendal, and/or common peroneal nerves
- Other complications related to traction: skin tears/skin necrosis, erectile dysfunction

A Prospective Comparison of Groin-Related Complications After Hip Arthroscopy With and Without a Perineal Post

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Introduction

- Previous studies have demonstrated that male sex and elevated BMI are risk factors for needing increased traction during hip arthroscopy
- Further research into other demographic/anatomic factors can provide the surgeon with insight into how much traction force should be required during hip arthroscopy

Patient-Specific Parameters Associated With Traction in Primary and Revision Hip Arthroscopic Surgery

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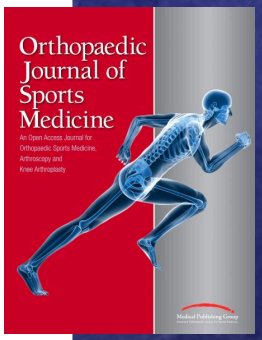


Purpose

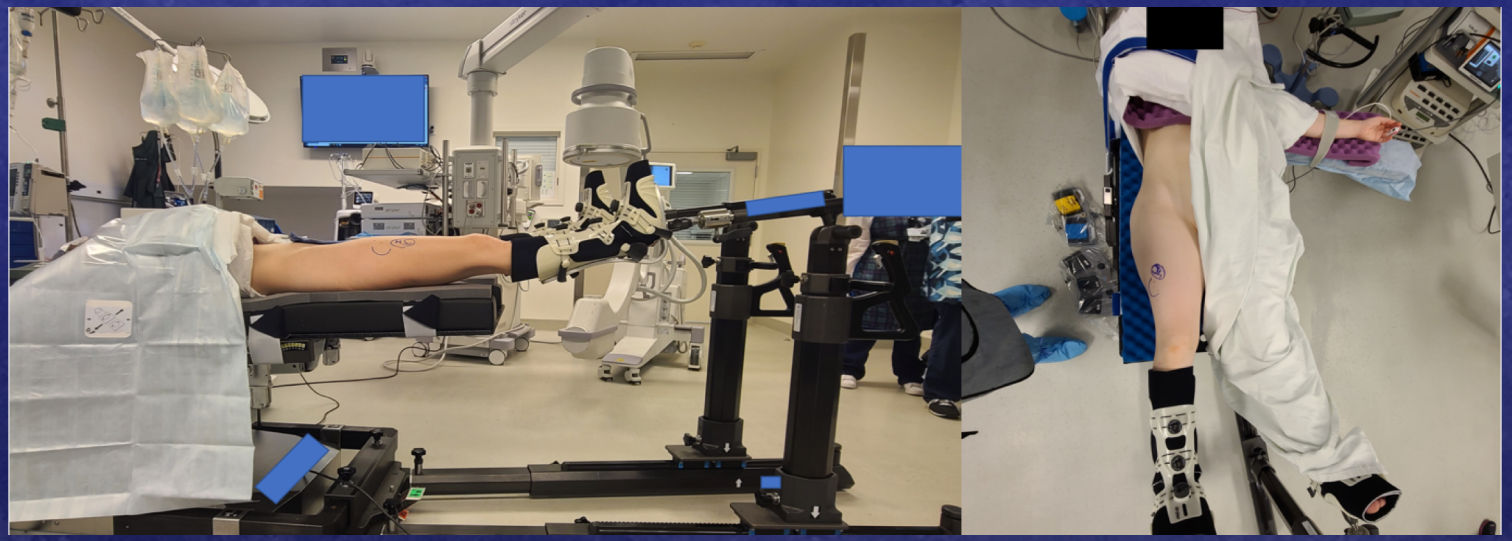
- To determine the effects of demographic and anatomic factors on initial traction force required during hip arthroscopy

Methods

- Retrospective analysis of prospectively collected data
- All patients undergoing hip arthroscopy by senior author between May 2019 and March 2022
- Variables measured included:
  - Sex
  - BMI
  - Age
  - Beighton Hypermobility Score (BHS)
  - Hip ROM in clinic
  - LCEA
  - Formal torsion-acetabular version (COTAV)

Methods

- All patients underwent postless hip arthroscopy
- Initial traction force and traction force following interportal capsulotomy measured using force gauge built into bed



Methods

- Two multiple regression analyses were performed to determine the effects of demographic and anatomic factors on initial traction force and traction force following capsulotomy
- A sub-analysis was performed with separate male and female cohorts

Results

Patient Demographics	Values (N=352)
Age, y	32.6 (± 11.0)
Sex (male/female)	112/233
BMI, kg/m^2	24.1 (± 4.32)
Beighton Hypermobility Score	2.42 (± 2.27)

Hip Pathology	% with Condition (N=352)
No Dysplasia	48%
Borderline Dysplasia	20%
Dysplasia	32%

Results

- 352 hips
- Initial traction force 109 lbs → 94 lbs following capsulotomy
- Initial traction force for males 136 lbs → 117 lbs following capsulotomy
- Initial traction force for females 96.2 lbs → 83.2 lbs following capsulotomy

Results

Multilinear regression analysis

- **Negatively correlated with initial traction force:**
  - **Abduction, external rotation, internal rotation, female sex, and mild laxity (BHS 3-5) vs no laxity (BHS 0-2)**
- **Positively Associated with traction force after capsulotomy:**
  - **BMI**
- No significant correlation:
  - Flexion, COTAV, LCEA, sourcil angle, age, borderline dysplasia vs no dysplasia, and dysplasia vs no dysplasia

Results

Male cohort multilinear regression analysis

- Negatively associated with initial traction force:
  - Internal rotation, mild laxity (BHS 3-5) vs no laxity (0-2)
- Positively associated with initial traction force:
  - BMI
- Positively associated with traction force after capsulotomy:
  - BMI

Results

Female cohort multilinear regression analysis

- Positively associated with initial traction force:
  - Abduction
- There were no significant variables for traction force following capsulotomy in the female cohort

Conclusions

- Some demographic and anatomic factors are associated with initial traction force during postless hip arthroscopy
- Surgeons can use this information to estimate necessary traction force and also discuss the possibility of traction-related nerve injuries with patients prior to surgery

Select References

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