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A Prospective Study Exploring the Relationship Between Hip Capsular Thickness and Joint Hypermobility: Forewarned is Forearmed

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Summary:
The measurement of generalised joint hypermobility is highly predictive of hip capsular thickness.

Abstract:
Background:
The pathomechanics of hip microinstability is not clearly defined but is thought to involve anatomical abnormalities, repetitive forces across the hip and ligamentous laxity.

Purpose/Hypothesis: The aim of this study was to explore the relationship between generalized joint hypermobility (GJH) and hip capsular thickness. The hypothesis was that patients with GJH would have thinner capsules compared to patients without.

Study design: Cross-Sectional Study

Methods:
A prospective study was performed on 100 consecutive patients undergoing a primary hip arthroscopy for the treatment of hip pain. A Beighton test score (BTS) was performed prior to each procedure - The maximum score was 9, and a score of =4 was defined as hypermobile. Capsular thickness at the level of the anterior portal, corresponding to the location of the iliofemoral ligament, was measured arthroscopically using a calibrated probe. The presence of ligamentum teres (LT) pathology was also recorded.

Results:
55 women and 45 men were included in the study. The average age was 32 years (range: 18 – 45 years). The median hip capsule thickness was statistically greater in men than women, 12.5 mm and 7.5 mm respectively The median BTS for men was 1 versus 4 for women ($p<0.001$). A statistically significant association was found between BTS and capsular thickness; a BTS of <4 is strongly predictive of having a capsular thickness of =10 mm, while a BTS =4 correlates with a capsular thickness of < 10 mm. There was a statistically greater incidence of LT tears in patients with a capsular thickness of =7.5 mm and a BTS of =4 ($p<0.001$).

Conclusion:
The measurement of GJH is highly predictive of hip capsular thickness. A BTS of <4 correlates significantly with a capsular thickness of =10 mm, while a BTS =4 correlates significantly with a thickness of < 10 mm.

Clinical relevance:
The BTS is a simple preoperative assessment, which can assist in predicting hip capsular thickness and may influence intraoperative capsular management.