

Labral Width is Associated with Increased Risk of Severe Cartilage Damage on the Femoral Head

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Objectives: The objective of this study was to compare the risk of Outerbridge grade 3 or 4 defects in hips with different labrum thickness in patients undergoing primary hip arthroscopy for FAI.

Methods: Between 2005 and 2014, patients who underwent hip arthroscopy by a single surgeon and met the inclusion criteria were included in this study. The labrum was measured with an arthroscopic ruler at 3 points that corresponded with 9 o'clock, 12 o'clock and 3 o'clock during hip arthroscopy from the chondrolabral junction to the edge of the labrum. Four specific measurements were established as a parameter for the labral thickness (4, 5, 6 and 7 cm). The lower labral thickness measurement of the three performed was used as a guide for the groups classification. Patients were compared based on the labrum thickness regarding the prevalence of Outerbridge grade III and IV on the femoral head (FH) and acetabulum. Patients were excluded if they had previous arthroscopic or open hip surgery, had inmeasurement of the labrum or had insurgical data.

Results: Eight hundred forty-three patients were included on this study, the average age was 31.7 years old, regarding gender, 468 females and 367 males. There was no difference in the sample characterization variables. Hips with small labrums were more likely to have a grade 3 or 4 chondral defect on the femoral head. First, comparing patients with 7 and 6 mm of labral thickness, patients measuring 6mm had an 1.7 relative risk for severe chondral damage on the FH [1.04 to 2.7] $p=0.033$. Second, when patients with 7 and 5 mm are compared, patients with 5mm of labral thickness have a 4.3 relative risk [2.2 to 4.3] $p<0.001$. Lastly, when the comparison between 7 and 4 mm is established, patients measuring 4mm have a relative risk 4.5 for severe chondral damage on the femoral head. No difference in the prevalence of chondral damage was found between patients measuring 7 and 8 mm. There was no difference in the prevalence of grade 3 and 4 defects on the acetabulum between the all the labrum measurements evaluated. Regarding the labral procedure performed, patients with 4mm of labral width in at least one point, 28% underwent labral reconstruction. On the other hand, in patients with 7, 6 and 5 mm of labral width, 98.6, 94.9 and 85.8% underwent labral repair, respectively.

Conclusion: Patients with femoroacetabular impingement with a labrum wide measuring less than 6mm have a higher likelihood to have Grade III and IV chondral damage on the femoral head, but not on the acetabular cartilage. Patients with less than 5mm had a likelihood for labral reconstruction need.

Demographics				
	4mm	5mm	6mm	7mm
N	64	183	234	362
Age	33.9	32.1	30.7	31.5
gender Females/Males	31/35	81/102	110/124	155/207
chondral damage femoral head	25	68	44	44
chondral damage acetabulum	24	58	67	99
Labral debridement	4	11	5	2
labral Repair	42	157	222	357
Labral Recon	18	15	7	3

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