

Prevalence of Radiographic Abnormalities in Senior Athletes with Well-Functioning Hips

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Introduction: It is not known whether morphological abnormalities of the hip are compatible with life-long hip function and avoidance of osteoarthritis (OA). Our purpose was to investigate the prevalence of dysplasia and femoroacetabular impingement (FAI) in senior athletes with well-functioning hips.

Methods: 517 senior athletes (57% male), average 67-years-old (range 50-91; SD:8) participated in this IRB approved study. 1024 native hips were evaluated for radiographic signs of FAI and dysplasia and OA on anteroposterior and frog lateral radiographs.

Cam FAI was noted if alpha-angle (AA) was $>50^\circ$, pincer FAI if center-edge-angle (CEA) was $>39^\circ$ or acetabular index (AI) was $<0^\circ$, or a cross-over sign was detected. Dysplasia was noted if CEA was $<20^\circ$ or AI was $>10^\circ$.

Results: 29% of hips (n=302) had radiographic evidence for dysplasia; 4% had a CEA that was $<20^\circ$ and 29% had an AI that was $>10^\circ$.

76% of hips had radiographic evidence of FAI (n=775) and was more prevalent in males (OR=16.4, 95% CI 7.99 – 33.72, $p<0.001$). 68% had at least one sign of cam and 21% had at least one sign of pincer impingement. 14% of hips (n=146) had both cam and pincer.

Radiographic OA (Tönnis grade 2-3) was present in 263 hips (26%); 84% of 263 hips with OA had evidence of FAI (n=220) and 19% had evidence of dysplasia (n=50). OA was not associated with dysplasia ($p=0.38$). Hips with FAI were more likely to have OA (OR=2.79, 95% CI 1.45 – 5.37, $p=0.002$), though 72% of FAI hips (n=555) showed little to no evidence of OA (Tönnis grade 0-1) despite the athletes' age and lifelong activity levels.

Conclusions: Morphologic abnormalities associated with dysplasia and FAI were more prevalent than anticipated in these senior athletes though osteoarthritis rates were relatively low. This study suggests that factors other than morphology, possibly genetics or cartilotype, may play a joint preserving role in this series of high functioning senior athletes.

