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Scientific Award First Place Winner

Screening for Femoroacetabular Impingement in Asymptomatic Adolescent Athletes

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Summary:
Screening for FAI may help detect patients at risk for early hip damage and provide recommendations regarding activity modification or sports participation.

Abstract:
The prevalence of femoroacetabular impingement (FAI) in the general population is not known. Screening exams for young patients, similar to those used for scoliosis, are not currently available. The purpose of this study was to determine the prevalence of abnormal hip examinations indicative of FAI in a population of young, asymptomatic athletes and to correlate physical exam findings with radiographic signs of FAI.

We examined 226 high school athletes age 12 to 18 presenting for state-mandated pre-participation athletic physicals. Nineteen patients (37 hips, 8 percent) had internal rotation of less than 10 degrees with the hip in 90 degrees of flexion (Group 1). Six of these patients (10 hips, 2 percent) had a positive anterior impingement sign. A repeat examination was scheduled with a surgeon and patients underwent standard radiographs and MRI of both hips. MRI findings were compared to age-matched asymptomatic controls with normal range of motion, also recruited from the screening (Group 2). A blinded musculoskeletal radiologist reviewed all MRIs.

Twenty-one patients (11 in Group 1, 10 in Group 2) have returned for clinical and radiographic examination. In Group 1, 4 patients (7 hips, 32 percent) had positive radiographic crossover sign and 7 patients (14 hips, 64 percent) had cam lesions on plain radiographs. The mean alpha angle measured from radial MRI sequences was 58.1 degrees versus 45.1 degrees in Group 2 (p-value = 0.0003). Signal changes were also noted within the labrum on MRI in 13 hips from Group 1 (59%) and 10 hips from Group 2 (50%).

Eight percent of normal teens had abnormal hip exams, and 64 percent had radiographic abnormalities consistent with FAI. Labral pathology was evident on MRI in both groups, however analysis is ongoing to determine the clinical relevance of these findings. Screening for FAI may help detect patients at risk for early hip damage and provide recommendations regarding activity modification or sports participation.