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## **KINEMATICS OF HIPs WITH CAM FEMOROACETABULAR IMPINGEMENT SYNDROME**

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Cam femoroacetabular impingement syndrome (cam FAIS) is characterized by a bony growth that develops on the head of the femur, and is a common precursor to hip osteoarthritis. Cam FAIS may cause abnormal hip kinematics during joint articulation. The purpose of this study was to use a combination of dual fluoroscopy and model based tracking to quantify differences in joint angles and translations in patients with cam FAIS, and compare them with morphologically normal controls. Ten asymptomatic controls and six cam FAIS patients had their hips imaged with dual fluoroscopy while a functional star pattern maneuver was performed. Hip kinematics were obtained by registering a 3D model from CT scans with the dual fluoroscopy images over the course of the activity. During hip abduction, cam FAIS patients had significantly more femoral head translation than controls ( $p = 0.039$ ). Cam FAIS patients had an increased flexion angle during flexion ( $p = 0.047$ ), flexion-abduction ( $p = 0.038$ ), and extension ( $p = 0.021$ ) compared with controls. Cam FAIS patients also had increased abduction angle during abduction ( $p = 0.010$ ). The results from the study indicate that there are significant differences in hip kinematics between healthy subjects and patients with cam FAIS.