

Journal of Pediatric Orthopedics. 2003 Nov-Dec;23(6):699-702.

Acetabular depth and race in young adults: a potential explanation of the differences in the prevalence of slipped capital femoral epiphysis between different racial groups?

Loder RT, Mehbod AA, **Meyer C**, Meisterling M.

Shriners Hospital for Children/Twin Cities, Minneapolis, Minnesota, USA.

Slipped capital femoral epiphysis (SCFE) is known to have a higher prevalence in blacks and Polynesians. It has been postulated that a deeper acetabulum increases the shearing forces on the proximal femoral physis, resulting in a higher incidence of SCFE. It was the purpose of this study to investigate acetabular depth in the normal adult population as a function of race. Anteroposterior pelvis radiographs from young polytrauma adults (<35 years) were identified. Race was classified according as white, black, Amerindian (Hispanic and Native American), and Asian. Acetabular depth was measured by Visser's modification of the center-edge (CE) angle and Sharp's angle. All measurements were made by one observer with the same goniometer and Mose circle. There were 167 patients with an average age of 24 +/- 4 years; there were 65 female (39%) and 102 male (61%) patients. There were 57 (34%) Amerindian, 50 (30%) white, 47 (28%) black, and 13 (8%) Asian people. The CE angle was 30.6 +/- 4.8 degrees for the Asian, 28.7 +/- 5.7 degrees for the black, 30.3 +/- 5.1 degrees for the Amerindian, and 28.0 +/- 4.3 degrees for the white racial groups. Sharp's angle was 39.8 +/- 3.0 degrees for the Asian, 39.9 +/- 3.6 degrees for the black, 37.4 +/- 3.4 degrees for the Amerindian, and 39.2 +/- 3.2 degrees for the white racial groups. These differences by race were statistically significant for both Sharp's and Visser's angles. If racial variation in acetabular depth is an explanation for the racial variability of SCFE, then the CE and Sharp's angle should vary by race. In this study of healthy adults without any underlying hip pathology, racial variability in the CE or Sharp's angle did not follow the racial prevalence of SCFE.



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