

Construction of the anterior pelvic plane during computer-assisted hip arthroplasty.

200 pelvic CT scans were used to validate a new methodology to construct the Anterior Pelvic Plane (APP), using anatomical landmarks easily palpated in the lateral decubitus position. Scans were also analyzed to simulate inaccuracies of obtaining the APP through soft tissue.

Comparing the new methodology to the APP, error in acetabular inclination was 0.69° (SD=2.96) and anteversion was 1.17° (SD=3.53). This compared favorably to the error when the APP was registered through soft tissue; error in inclination of -0.92° (SD=0.26), anteversion of -5.24° (SD=2.09). Using this new methodology, acetabular placement was within the 'safe zone' >99.6% of cases. This study appears to show that by identifying anatomical constants the APP can be constructed using this new methodology and provide more accurate acetabular component placement.