User variance among three orthopaedic oncology-trained surgeons was assessed. Each surgeon completed three navigated and three non-navigated resections of periacetabular tumors. The results were compared on the basis of the distance (in millimeters) between the planned and actual cuts on both entry to bone and exit from bone. In addition, pitch and roll (in degrees) were compared between the planned and actual cuts. User variance in both entry and exit cuts was within 1 mm for all three surgeons. Navigated cuts were more accurate than non-navigated cuts were. I-bars represent the 95% confidence interval.