

Equivalence of the VELYS[™] Hip Navigation Non-invasive Fluoroscopic Navigation to Computer Navigation Study and Results

Background

The purpose of this study was to show equivalence of VELYS[™] Hip Navigation to computer navigation for acetabular inclination and anteversion positioning guidance as well as femoral leg length and offset measurements.

Materials and Methods

Two cadavers were positioned supine and direct anterior approach hip replacements were performed. Each cadaver underwent multiple combinations of acetabular and femoral component sizes and positions. Computer navigation was used according to the manufacturer's surgical technique for tracker pin placement and anatomic point registration. Computer navigation results were recorded for each implant construct as well as a corresponding C-Arm fluoroscopic image of the hip. Fluoroscopic images were analyzed with VELYS Hip Navigation and results between the two technologies were compared by an independent statistical consulting firm.

Results

Analysis of 60 acetabular components (anteversion and inclination angles) and 90 femoral component combinations (leg length and offset measurements) were compared using VELYS Hip Navigation and computer navigation. Attention to detail was observed for both technologies during anatomic landmark point registration. VELYS Hip Navigation results proved to be equivalent to the computer navigation results. All data were within a low error range threshold of ± 3 degrees for acetabular angles and ± 3 mm for femoral measurements.

Conclusion

The VELYS Hip Navigation System's non-invasive ONETRIAL[®] and Cup Check intra-operative analysis tools are equivalent to computer navigation for direct anterior approach hip replacement.

Reference: 1. Computer Navigation Equivalence Study Protocol and Results. Data on File: VELYS[™] Hip Navigation, 2016.