

A significant reduction in technical errors that can occur during THA can be achieved by the use of digital radiography¹

In 98% of hips, intraoperative measurements were within 5° of postoperative measurements

Intraoperative measurement within 5° of postoperative measurement	Intraoperative measurement within 3° of postoperative measurement
98%	90%

Mean intraoperative cup abduction angle	Mean postoperative cup abduction angle
40° (range 23°-52°)	41° (range 25°-55°)

Methodology

- Consecutive prospective evaluation of 139 primary THAs employing intraoperative digital radiography
- AP radiograph with patient in the lateral decubitus position was taken after acetabular component placement and femoral trial insertion
- Implant position and sizing were adjusted according to the radiograph
- Final intraoperative film was compared to a postoperative standard radiograph in supine position at two weeks postoperatively to verify the accuracy of intraoperative digital imaging

Results

- In 98% of cases, intraoperative measurements were within 5° of postoperative ones
- In 90% of cases, intraoperative measurements were within 3° of postoperative ones
- The mean intraoperative cup abduction angle was 40° (range 23°-52°) and the mean postoperative cup abduction angle was 41° (range 25°-55°)
- Cup orientation was adjusted in 10% of cases
- Femoral component was upsized in 55% of cases
- Intraoperatively measured limb length discrepancy and offset were within 3mm of the postoperative measurement in all cases

A significant reduction in technical errors that can occur during THA can be achieved by the use of digital radiography¹

In 98% of hips, intraoperative measurements were within 5° of postoperative measurements

Conclusions

- Digital radiography provides a reliable, cost-effective guidance tool for THA.
- Digital radiography can be seamlessly integrated into the standard workflow with minimal increase in operative time.
- A significant reduction in technical errors that could occur during THA can be achieved by the use of digital radiography.
- All significant parameters related to implant placement can be addressed.

References

¹Penenberg B, Woehnl, A., Intraoperative digital radiography: An opportunity to assure, Seminars in Arthroplasty 25 (2014) 130-134.

