A significant reduction in technical errors that can occur during THA can be achieved by the use of digital radiography\(^1\)

In 98% of hips, intraoperative measurements were within 5\(^\circ\) of postoperative measurements

### 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\(^\circ\) of postoperative ones
- In 90% of cases, intraoperative measurements were within 3\(^\circ\) of postoperative ones
- The mean intraoperative cup abduction angle was 40\(^\circ\) (range 23\(^\circ\) to 52\(^\circ\)) and the mean postoperative cup abduction angle was 41\(^\circ\) (range 25\(^\circ\) to 55\(^\circ\))
- 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
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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