

# Lower Risk of Revision with 36mm Femoral Heads Compared with 28mm or 32mm in Primary Total Hip Arthroplasty: A Comparative Single-Centre Study (10,371 Hips)

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## INTRODUCTION:

we aimed to compare the clinical outcomes of 28mm, 32mm and 36mm heads in primary total hip arthroplasty (THA) at long-term follow up.

## METHODS:

retrospective consecutive single-institution study of primary THA (2003-2019). Demographic and surgical data were collected. The primary outcome measure was 'any cause revision'. Differences in patients' characteristics were assessed using the *Pearson-chi-square test* for categorical variables and ANOVA for continuous variables; *Kaplan-Meier survival curves* to estimate time to revision.

## RESULTS:

10,371 primary THAs were included [3,464 hips/28mm heads (33.40%), 4,932 hips/32mm (47.55%); 1,975 hips 36mm (19.05%)]. Median age 70 years with ~61% females., a posterior approach performed in 71.65%. Overall rate of revision was 1.69% with the lowest rate recorded for the 36mm group (2.56% vs. 1.31% vs. 1.16%), this difference was statistically significant ( $P < 0.00001$ ). Implant survivorship at 17-years was 97.3% for 28mm, 98.7% for 32mm and 98.8% for 36mm hips ( $P < 0.005$  Log-Rank test). There were no differences in the rates of infection, periprosthetic fractures or other indications for revision. However, there was a statistically significant difference in rate of revision due to dislocation in favour of 36mm group (0.92% vs. 0.44% vs. 0.15%;  $P < 0.0004$ ).

## DISCUSSION AND CONCLUSION:

we found a significantly reduced risk of revision for all causes, but particularly revision for dislocation with 36mm heads. There was no significant difference between 32mm and 36mm. We have not demonstrated any clinical concerns or additional revisions for aseptic loosening, polyethylene wear or taper corrosion with 36mm heads at up to 17 years' follow up.

