# Evidence in focus

Publication summary

de Steiger R, et al. *J Bone Joint Surg Am* (2018)*

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## Cross-linked polyethylene (XLPE) is associated with lower revision rates than conventional non-cross-linked polyethylene (CPE) in patients undergoing total hip arthroplasty (THA)

In all primary THAs with polyethylene, the use of XLPE increased from 9.2% in 2000 to 97.1% in 2016

### Study overview

- An analysis of 240,302 THAs performed for osteoarthritis registered in the Australian Orthopaedic Association National Joint Replacement Registry between 1999–2016, with up to 16-year follow-up
- The rates of revision for bearings with XLPE (n=199,131) were compared to CPE (n=41,171), adjusting for age, sex, fixation and femoral head size

### Key results

- The rate of revision was significantly lower for XLPE than CPE from nine months after THA onwards ($p<0.0001$)
- The 16-year cumulative percentages of revisions were 6.2% and 11.7% for XLPE and CPE, respectively
- Revision due to polyethylene wear-related issues was considerably less frequent for XLPE (0.05%) compared with CPE (0.81%)
- The revision rate for XLPE versus CPE was lower regardless of femoral head bearing surface (ceramic, metal or OXINIUM®)
- Of six acetabular prosthesis brands combined with either XLPE or CPE used in ≥800 procedures each and with ≥8 years follow-up, five showed a significantly lower rate of revision with XLPE compared to CPE at various time points
- Revision rates for the ten most commonly used cementless prostheses with XLPE and ≥7-year follow-up were also reported (Figure)

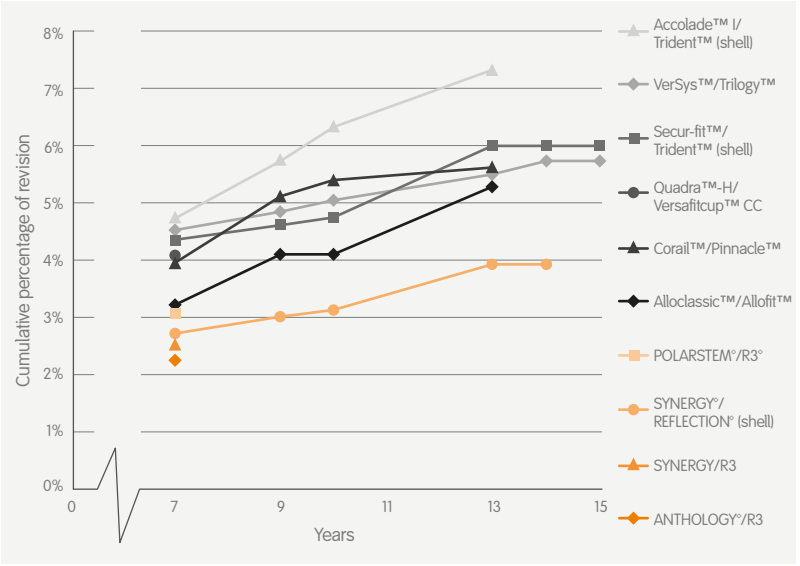


Figure. Cumulative revision rates by cementless prostheses with XLPE with a minimum 7-year follow-up.

### Conclusion

**Compared to CPE, the use of XLPE significantly reduced the rate of revision at long-term follow-up (16 years) following THA for osteoarthritis.**

### Study citation


*de Steiger R, Lorimer M, Graves SE. Cross-linked polyethylene for total hip arthroplasty markedly reduces revision surgery at 16 years. *J Bone Joint Surg Am*. 2018:100;1281–1281.

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