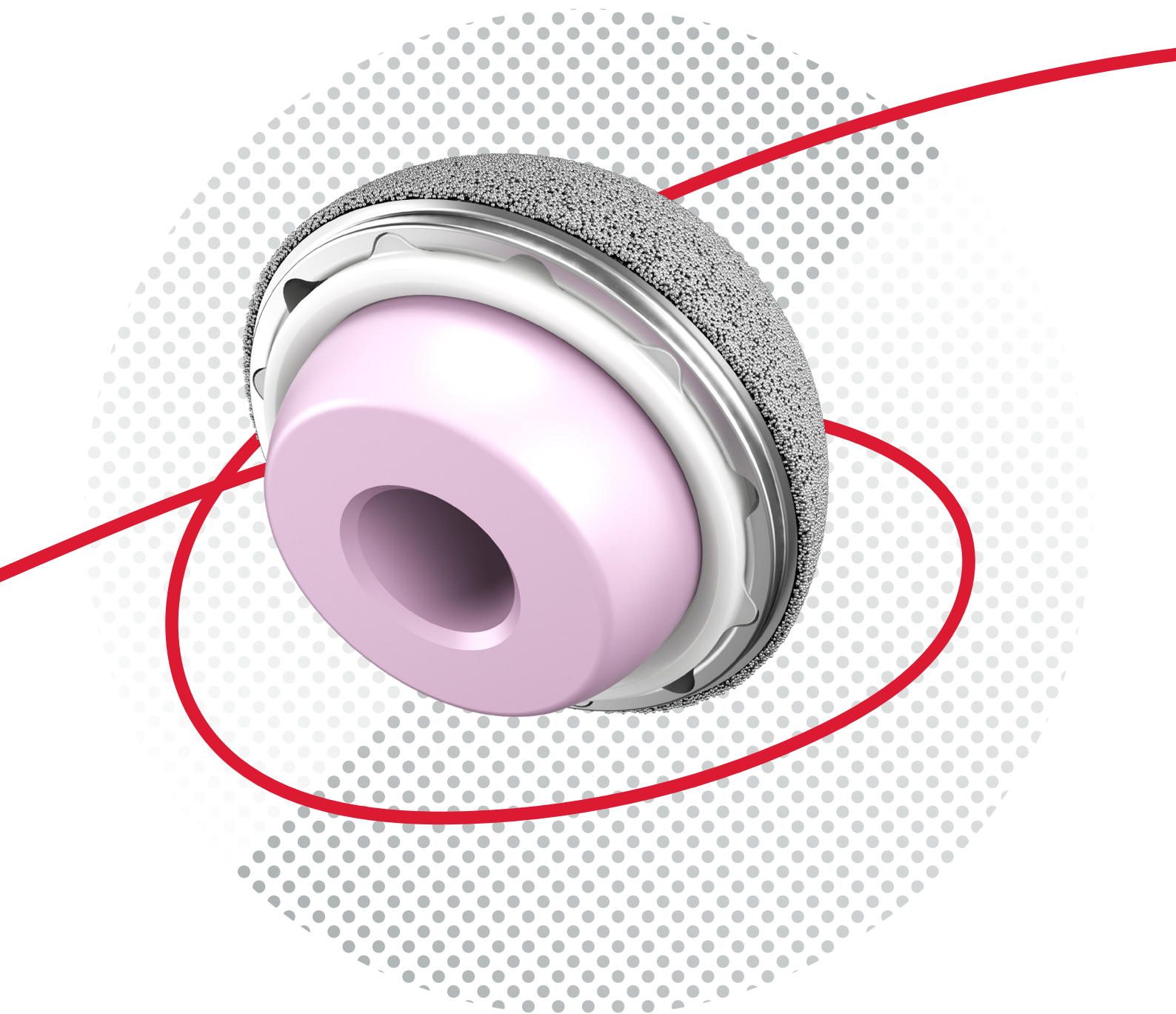


ALTRX[®]

Polyethylene Liner

Delivering a reduced risk of revision
and improved patient outcomes³



ALTRX[®]

Polyethylene Liner



ALTRX Polyethylene Liners are manufactured following the ALTRALINK™ process, a specific material enhancement that optimises the balance between wear resistance, mechanical integrity, and oxidative stability.

- RAM extrusion
- 7.5 MRads
- Heated above melting point to eliminate free radicals (Argon Convection)
- Annealed to eliminate free radicals
- Machined
- Gas plasma sterilised

Manufactured using base resin bar stock GUR 1020 and then moderately cross linked at 7.5 MRads resulting in a material that increases wear resistance while improving mechanical integrity.¹

Remelted and annealed in an Argon Convection oven to consistently eliminate free radicals and enhance mechanical properties.¹

Laboratory testing of ALTRX[®] mechanical properties and wear rates demonstrates:

- ALTRX has improved wear resistance and equivalent or improved mechanical properties compared to MARATHON[®] Cross-Linked Polyethylene.¹
- The wear behaviour is improved by 50% compared to MARATHON Cross-Linked Polyethylene and by 92% compared to conventional UHMWPE.¹

Third-Generation Medium Cross-Linked Polyethylene Demonstrates Very Low Wear in Total Hip Arthroplasty.²

Jalali O, Scudday T, Fickenscher MC, Barnett S, Gorab R
Arthroplasty Today. 2020 Jun 2;6(3):316-321.

Background: Cross-linked polyethylene (XLPE) liners have shown lower wear rates than conventional polyethylene liners in total hip arthroplasty. The primary aim of our study was to report our most recent analysis of wear rates and clinical outcomes of a third-generation XLPE liner. Secondary aims were to investigate the rate of adverse events related to mechanical failure or oxidation of this liner.

Methods: A series of 266 total hip arthroplasties using a specific XLPE liner were retrospectively reviewed. Radiographs were examined to determine linear and volumetric wear rates and presence of osteolysis. Clinical outcomes, revision rates, mechanical failures, and risk factors for accelerated polyethylene wear were additionally investigated.

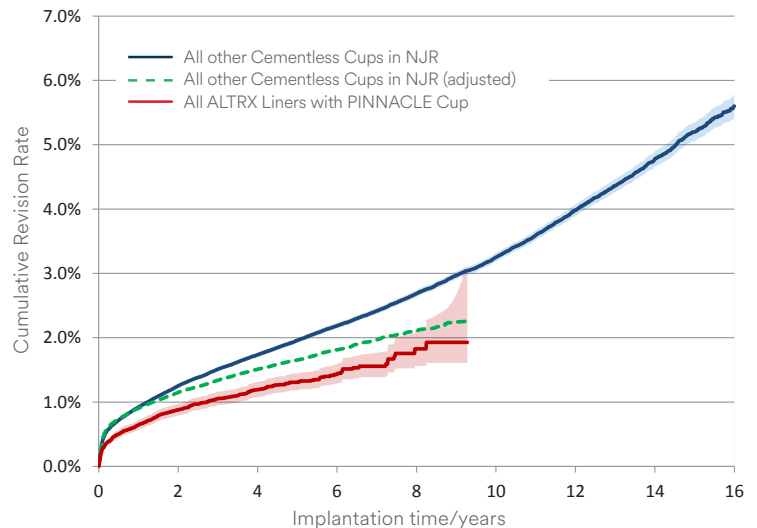
Results: The mean age at the time of surgery was 65.8 years and the mean follow up was 5.5 years. The mean linear wear rate was 0.003 mm/year and the mean volumetric wear rate was 0.42 mm³/year, and there was no evidence of osteolysis. Harris hip scores increased from 50.9 preoperatively to 96.0 at the latest follow-up. The revision rate was 0.4%, with no liner rim fractures and no liner dissociations/loosenings. Femoral head material, head size, age, body mass index, and time since implantation had no effect on wear rates.

Conclusion: Wear rates for this third-generation XLPE liner were low at mid-term follow up, and no adverse sequelae of oxidation or deleterious mechanical properties were observed. This remained true regardless of femoral head size and material or patient age and body mass index. Further analysis will be necessary to ensure continued wear resistance, oxidative stability, and mechanical strength at long-term follow up.

NJR Data Review of the ALTRX Polyethylene Liner³

A recent report completed by the UK NJR details the results on 41,223 ALTRX Polyethylene Liner implantations, compared to all other cementless cups on the NJR (N=599,826). The cumulative revision rate (CRR) for the ALTRX Polyethylene Liner is 1.9% (1.6% - 2.7%) at 9 years. This is statistically significantly lower than the 9 year CRR for all other cementless cups on the NJR of 3.0% (2.9% - 3.0%). The adjusted HR is 0.81 (0.74, 0.89) $p < 0.001$, indicating a 19% reduced risk of revision when compared to all other cementless cups on the NJR. The PROMs for the ALTRX Polyethylene Liner show a statistically significant adjusted health gain at six months as measured by the OHS, EQ-5D and EQ-VAS (all $p < 0.001$) when compared to all other cementless cups on the NJR.

Endpoint: All Reasons for Revision (Excluding Metal-on-Metal).



Key Messages

ALTRX Polyethylene Liner has shown

- **19% reduced risk** of revision (HR 0.81 (0.74, 0.89) $p < 0.001$).³
When compared to all other cementless hips on the NJR.
- A **statistically significant adjusted health gain** at six months as measured by the Oxford Hip Score, EQ-5D and EQ-VAS (all $p < 0.001$).³
When compared to all other cementless hips on the NJR.
- A **low revision rate of 0.4%** at a mean follow up of 5.5 years, with no liner rim fractures and no liner dissociations/loosenings.²

References:

1. AltrX™ AltraLinked Polyethylene for the Pinnacle Acetabular Cup System by Mark D. Hanes, Ph.D.
– DePuy Orthopaedics, Inc. and Susan G. Capps, Ph.D. BENSOL, February 2007.
2. Jalali O, Scudday T, Fickenscher MC, Barnett S, Gorab R. Third-Generation Medium Cross-Linked Polyethylene Demonstrates Very Low Wear in Total Hip Arthroplasty. *Arthroplast Today*. 2020 Jun 2;6(3):316-321.
3. Bespoke Report. All ALTRX Liners with Pinnacle Cup vs Cementless Hips. NJR. Produced 21/07/21. Report can be accessed at <https://www.jnjmedicaldevices.com/en-EMEA/corail-pinnacle/resources/njr-bespoke-reports>

The data used for this analysis was obtained from the National Joint Registry (“NJR”), part of the Healthcare Quality Improvement Partnership (“HQIP”). HQIP, the NJR and/or its contractor, Northgate Public Services (UK) Limited (“NPS”) take no responsibility (except as prohibited by law) for the accuracy, currency, reliability and correctness of any data used or referred to in this report, nor for the accuracy, currency, reliability and correctness of links or references to other information sources and disclaims all warranties in relation to such data, links and references to the maximum extent permitted by legislation including any duty of care to third party readers of the data analysis.

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