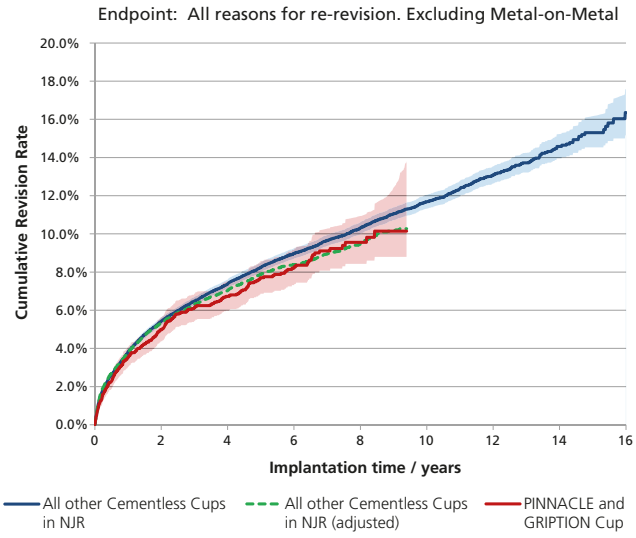
Analysis of Total Hip Replacement Using the PINNACLE® Acetabular Cup System with GRIPTION™ Coating in the National Joint Registry of England, Wales, Northern Ireland and The Isle Of Man

National Joint Registries provide valuable information on the revision rates and survivorship of orthopaedic implants. Typically they include large cohorts with data from a range of surgeons and centres, irrespective of surgeon experience level. The National Joint Registry for England, Wales, Northern Ireland and the Isle of Man (NJR) has been in operation since 2003 and in that time has collected data on over 1,000,000 primary total hip replacements (THR).[1]

The PINNACLE® Acetabular Cup System includes an acetabular option with a high friction coating. The GRIPTION™ Coating exhibits a proprietary gradient porosity which is engineered with a clinically advantageous 63% surface volume porosity designed to facilitate biological fixation[2-3] and a favorable mechanical loading environment for bone formation.[4]



The NJR has produced a new report analysing the performance of the PINNACLE Cup with GRIPTION Coating.[5] This analysis was commissioned by DePuy Synthes, but conducted and validated by the NJR. The report details a total cohort of 4,640 GRIPTION implantations in revision THR (mean age 69.1, 46.1% male), which is compared to all other cementless cups on the NJR (n=52,261). The report includes cumulative re-revision rates as well as hazard ratios (adjusted for age, gender, diagnosis and year of implantation) to compare the relative risk of re-revision. The report also includes PROMs at pre-op and 6 months using the Oxford Hip Score (OHS), EQ-5D and EQ-VAS. All metal liners were excluded. All reports can be accessed at **http://www.corailpinnacle.net/resources**

The PINNACLE Cup with GRIPTION Coating has a cumulative re-revision estimate at 9 years of 10.1% (8.8, 12.4%). This compares favorably with the cumulative re-revision for all other cementless cups at 9 years of 11.1% (10.7, 11.4%). The adjusted hazard ratio is 0.98 (0.87, 1.10) p=0.686 indicating that there is no statistically significant difference in risk of revision.[5]

The PINNACLE Cup with GRIPTION Coating used in revision THR demonstrates a low re-revision rate out to 9 years that is statistically not significantly different than all other cementless cups on the NJR.

The 6 month adjusted health gain as measured by OHS and EQ-VAS is statistically significantly greater for the PINNACLE Acetabular System with GRIPTION Coating used in revision THR.

Oxford Hip Score (0 - 48)	PINNACLE and GRIPTION Cup	All other Cementless Cups in NJR
Paired Records	935	8,826
PreOp score	21.5 (20.8 - 22.3)	21.2 (21.0 - 21.4)
6 month score (adjusted)	34.8 (34.1 - 35.4)	34.1 (33.9 - 34.3)
Health gain (adjusted)	13.7 (13.1 - 14.4)	13.1 (12.9 - 13.3)
p value (adjusted health gain)	0.032	
Score Improved	85.2%	85.9%

EQ-5D Index (-0.59 - 1.00)	PINNACLE and GRIPTION Cup	All other Cementless Cups in NJR
Paired Records	857	8,068
PreOp score	0.433 (0.410 - 0.456)	0.411 (0.403 - 0.418)
6 month score (adjusted)	0.696 (0.680 - 0.712)	0.678 (0.672 - 0.684)
Health gain (adjusted)	0.290 (0.274 - 0.307)	0.273 (0.267 - 0.278)
p value (adjusted health gain)	0.14	
Score Improved	70.6%	72.3%

EQ-VAS (0 - 100)	PINNACLE and GRIPTION Cup	All other Cementless Cups in NJR
Paired Records	839	7,786
PreOp score	65.5 (63.9 - 67.0)	65.5 (65.0 - 66.0)
6 month score (adjusted)	71.9 (70.7 - 73.1)	70.6 (70.2 - 71.0)
Health gain (adjusted)	6.6 (5.4 - 7.8)	5.3 (4.9 - 5.7)
p value (adjusted health gain)	0.034	
Score Improved	55.4%	53.1%

The PROMs are covered in the tables above. The adjusted 6-month health gain for the EQ-5D score was equivalent for the PINNACLE Cup with GRIPTION Coating when compared to all other cementless cups (p=0.14). The adjusted 6-month health gain for the OHS and EQ-VAS were statistically significantly greater for the PINNACLE Acetabular System with GRIPTION Coating when compared to all other cementless cups (OHS p=0.032, EQ-VAS P=0.034).

References

1. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, 16th Annual Report, 2019. Table 3.3. Available from: www.njrreports.org.uk
2. DePuy Internal Test Report: WR070125; 2007.
3. Karageorgiou V, et al. Porosity of 3D biomaterial scaffolds and osteogenesis. Biomaterials 2005;26:5474-91
4. Simmons, et al. Differences in osseointegration rate due to implant surface geometry can be explained by local tissue strains. J Orthop Res 2001;19:187-194
5. Bespoke Implant report PINNACLE (GRIPTION) NJR. Report can be accessed at http://www.corailpinnacle.net/resources

For full product details and precautions, please consult the Instructions For Use.

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