

NJR Analysis of Collared and Collarless Total Hip Replacement Using the CORAIL® Standard Offset Femoral Stem

National joint registries provide valuable information on the revision rates and survivorship of orthopaedic implants. Typically they include large cohorts with data from all surgeons and from all 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 890,000 primary total hip replacements (THR).¹

The standard CORAIL® Femoral Stem is available both with and without a collar. Proponents of the use of a collared prosthesis claim that it provides advantages in the early stability of the implant, allowing for earlier post-operative weight bearing, protection against subsidence, and a positive dispersion of the vertical forces via the collar into the medial calcar.²⁻³

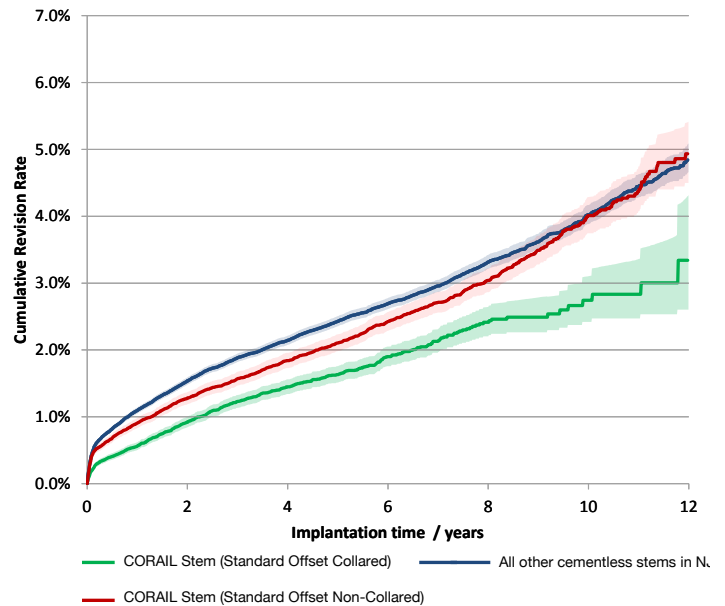
The NJR has produced new reports analyzing the performance of the CORAIL Femoral Stem, specifically the CORAIL STD Collared Stem and CORAIL STD Collarless Stem.⁴⁻⁷ This analysis was commissioned by DePuy Synthes, but conducted and validated by the NJR. The reports detail 65,545 CORAIL STD Collared Implantations (mean age 67.8, 34.2% male) and 65,729 CORAIL STD Collarless Implantations (mean age 65.3, 36.9% male). All Metal-on-Metal was excluded. All reports can be accessed at <http://www.corailpinnacle.net/supporting-evidence/overview> (EMEA) and <https://www.CORAILevidence.com> (US).

CORAIL STD Collared Femoral Stem
Reasons for revision compared to expected rates on NJR⁴

Reason for Revision	Revised*	Expected Revisions*	p Value
Pain	80	144.49	<0.001
Dislocation/Subluxation	196	249.27	<0.001
Adverse Soft Tissue Reaction	32	37.45	0.387
Infection	154	169.99	0.2
Aseptic Loosening - Stem	142	189.17	<0.001
Aseptic Loosening - Socket	72	97.61	0.005
Periprosthetic Fracture - Stem	54	179.75	<0.001
Periprosthetic Fracture - Socket	10	27.64	<0.001
Malalignment - Stem	34	45.10	0.076
Malalignment - Socket	62	76.00	0.084
Wear of Acetabular Component	45	52.85	0.274
Lysis - Stem	15	19.89	0.287
Lysis - Socket	16	15.47	0.893
Implant Fracture - Stem	7	17.78	0.005
Implant Fracture - Socket	30	25.07	0.286
Implant Fracture - Head	3	6.41	0.211
Dissociation of Liner	30	28.06	0.684
Other/Reason not Recorded	47	64.14	0.021
Total Revised	817	1133.22	<0.001

*Based on all NJR Cementless Stems (excluding Metal-on-Metal), adjusted for age group, gender and indications. †Multiple reasons may be listed for one revision procedure.

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



KEY MESSAGES

The CORAIL STD Collarless Femoral Stem cumulative revision rate at 10 years is 4.0% (95% CI 3.7, 4.3%). This is statistically equivalent to all other uncemented stems on the NJR ($p=0.175$)⁵

The CORAIL STD Collared Femoral Stem cumulative revision rate at 10 years is 2.7% (95% CI 2.4, 3.1%). This revision rate is statistically significantly lower when compared to all other uncemented stems on the NJR ($p<0.001$)⁴

Patients receiving the CORAIL STD Collared Femoral Stem are 29% less likely to be revised when compared to all other uncemented stems on the NJR (HR 0.71 (0.66, 0.76) $P<0.001$)⁴

The CORAIL STD Collared Femoral Stem has significantly lower than expected rates of revision due to pain, dislocation, aseptic loosening and periprosthetic fracture ($p<0.001$)⁴

References

1. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, 14th Annual Report, 2017. Table 3.3. Available from: www.njrreports.org.uk
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3. Demey G, Fary C, Lustig S, Neyret P, Ait si Selmi T. Does a Collar Improve the Immediate Stability of Uncemented Femoral Hip Stems in Total Hip Arthroplasty? A Bilateral Comparative Cadaver Study. *J Arthroplasty* 26 (2011), No.8, p. 1549
4. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man. Implant Bespoke Report for DePuy CORAIL Stem (Standard Offset Collared). NJR Database extract December 8, 2017. Pages 1-15. Licensed for use until December 29, 2018. Available at <https://www.CORAILevidence.com> (US) and <http://www.corailpinnacle.net/supporting-evidence/overview> (EMEA)
5. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man. Implant Bespoke Report for DePuy CORAIL Stem (Standard Offset Non-Collared). NJR Database extract December 8, 2017. Pages 1-15. Licensed for use until December 29, 2018. Available at <https://www.CORAILevidence.com> (US) and <http://www.corailpinnacle.net/supporting-evidence/overview> (EMEA)
6. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man. Implant Bespoke Report for DePuy CORAIL (Collared vs Collarless (ex MoM)). NJR Database extract December 8, 2017. Pages 1-9. Licensed for use until December 29, 2018. Available at <https://www.CORAILevidence.com> (US) and <http://www.corailpinnacle.net/supporting-evidence/overview> (EMEA)
7. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man. Implant Bespoke Report for DePuy CORAIL Stem (Standard Offset Collared & Collarless). NJR Database extract December 8, 2017. Pages 1-15. Licensed for use until December 29, 2018. Available at <https://www.CORAILevidence.com> (US) and <http://www.corailpinnacle.net/supporting-evidence/overview> (EMEA)

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