

Exeter[®] clinical compendium

Exeter
50
years

Executive summary

Since its development in 1970, the Exeter stem has been implanted in over **2,000,000 patients worldwide** and is one of the most used cemented stems in the world. ^{1,2,3,4}

This clinical summary will review the design principals and clinical evidence of the Exeter stem.

Product design

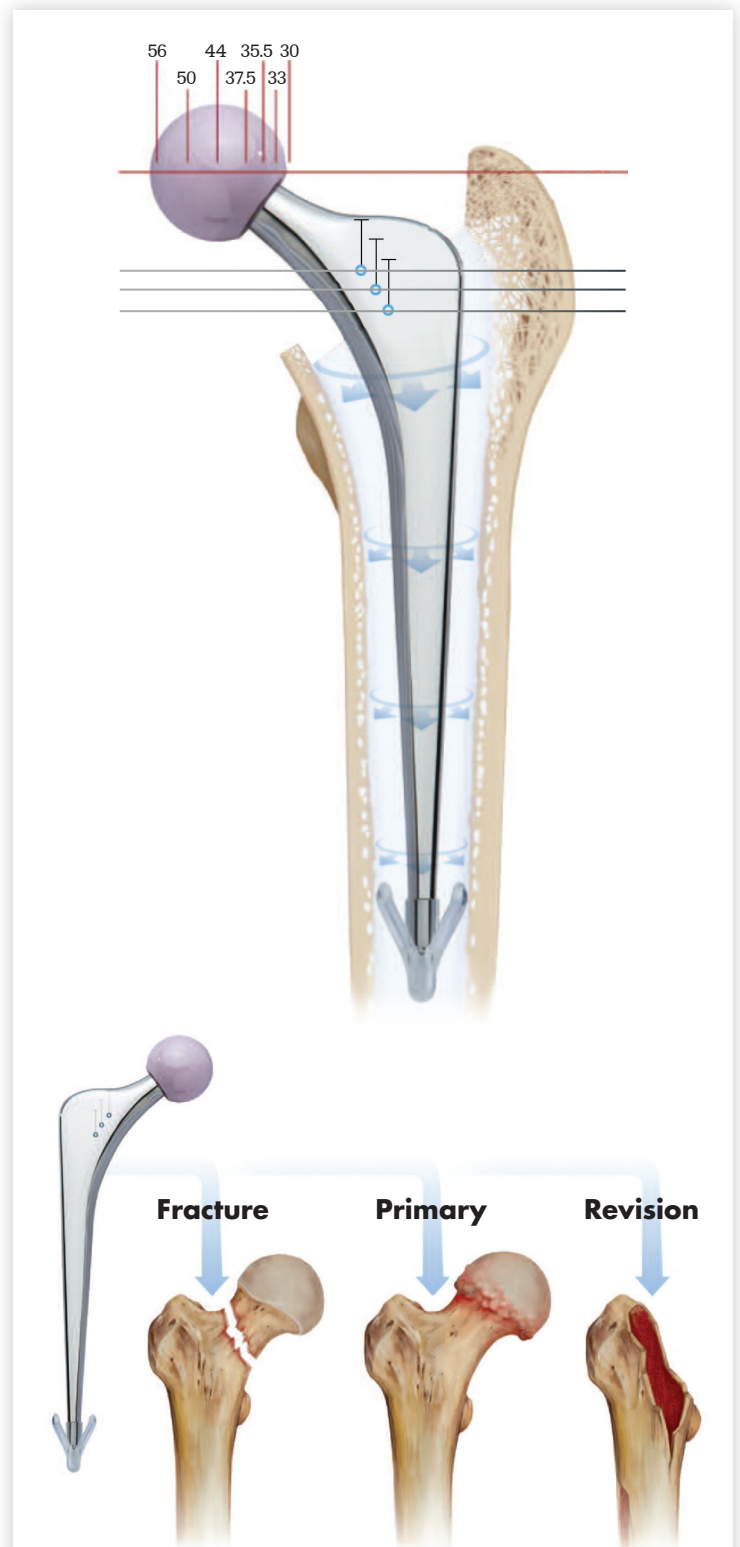
Polished, collarless, double-tapered

The Exeter stem's polished, collarless, and double-tapered design allows the stem to subside within the cement mantle for mechanical lock while transmitting load via compression. ⁵

Comprehensive size variation

The Exeter stem offers a wide range of offsets (30, 33, 35.5, 37.5, 44, 50, 56mm) with multiple body sizes. The multiple offset options allow fine-tuning of restoring the head centre, **independent of leg length and canal size.**

The Exeter cemented femoral hip system accommodates primary, revision and hip fracture cases with one implant and instrument system.



Clinical evidence



The Exeter universal cemented femoral stem at 20 to 25 years⁶

Authors: Petheram TG, Whitehouse SL, Kazi HA, Hubble MJ, Timperley AJ, Wilson MJ, Howell JR

Conclusion: The Exeter femoral stem continues to perform well beyond 20 years.

Minimum 20yr follow-up study of 382 cemented Exeter Universal total hip arthroplasties with the mean patient age of 66.3 years. "With an endpoint of revision for aseptic loosening or lysis, survivorship of the stem at **22.8yrs** was **99.0%**."

The Exeter V40 cemented femoral component at minimum 10-year follow-up – the first 540 cases⁷

Authors: Westerman RW, Whitehouse SL, Hubble MJ, Timperley AJ, Howell JR, Wilson MJ

Conclusion: No stem was revised for aseptic loosening in this series. The contemporary Exeter V40 stem continues to perform well, and survival has remained comparable with that of the Exeter Universal stem.

Long-term survival of the cemented Exeter Universal Stem in patients 50-years and under – an update on 130 hips⁸

Authors: Keeling P, Howell JR, Kassam AM, Timperley AJ, Hubble MJ, Wilson MJ, Whitehouse RW

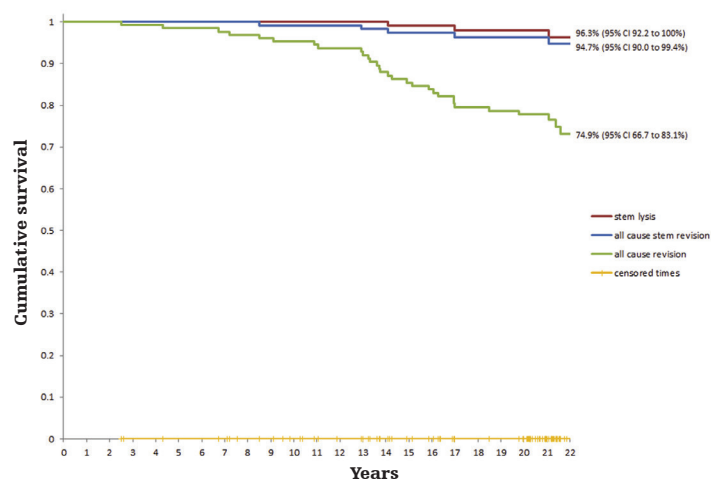
Conclusion: The Exeter cemented stem has excellent survivorship at **minimum 20 years** in young patients. Acetabular component survivorship was less favorable, but the advent of highly cross-linked polyethylene may improve this in the long term.

Functional outcome, revision rates and mortality after primary total hip replacement – a national comparison of nine prosthesis brands in England⁹

Authors: Pennington M, Grieve R, Black N, Meulen JH

Conclusion: Functional outcomes were better with cementless cups and revision rates were lower with cemented stems, which underlies the good overall performance of hybrids. **"The hybrid Exeter V40 Trident seemed to produce the best overall results."** This brand should be considered as a benchmark in randomized trials.

Kaplan-Meier survival



Kaplan-Meier survival curves for each endpoint. CI, confidence interval.⁹

National Joint Registry 18th Annual report, 2021 (United Kingdom)

The revision rate for the hybrid construct with the Exeter V40 stem and Trident shell was **4.06%** at **17 years**.¹

Stem: cup brand	N	Median (QR) age at primary	Percentage (%) males	Time since primary					
				1 year	3 years	5 years	10 years	15 years	17 years
Exeter V40 (ST)	110,306	69 (61-76)	40	.62	1.07	1.41	2.43	3.56	4.06
Trident (SL)				(0.58-0.67)	(1.01-1.14)	(1.33-1.49)	(2.28-2.59)	(3.25-3.89)	(3.34-4.93)

Factors associated with implant survival following total hip replacement surgery: A registry study of data from the National Joint Registry of England, Wales, Northern Ireland and the Isle of Man¹⁰

Authors: Evans JT, Blom AW, Timperley AJ, Dieppe P, Wilson MJ, Whitehouse MR

In England and Wales, in 2017, over 822 different types of hip replacement were used. Different brands of hip replacement have shown to have varying survival rates. Results from a large registry study including 666,761 THRs from the NJR suggest that the results from the Exeter Hip Unit were “better than expected” compared with the national average. Improved results were associated with the use of the **Exeter** hip stem.

AOANJRR 2021 Annual report (Australia)

“The **Exeter V40**, **CORAIL**, and **Accolade II** are the most used femoral stems for primary total conventional hip replacement.”² Exeter V40/Trident construct had a revision rate of **5.4% at 15-years**.

Femoral component	Acetabular component	Type of revision								
		N revised	N total	THR	Femoral	Acetabular	Other	5 years	10 years	15 years
Exeter V40	Trident (shell)	1,804	64,640	253	557	244	750	2.3 (2.2, 2.4)	3.6 (3.5, 3.8)	5.4 (5.0, 5.7)

Is cemented or cementless femoral stem fixation more durable in patients older than 75 years of age? A comparison of the best-performing stems¹¹

Authors: Michael Tanzer MD, FRCSC, Stephen E. Graves MBBS, DPhil, FRACS, FAOrthA, Andrea Peng MMed, Andrew J. Shimmin MBBS, FRACS, FAOrthA

Overview: This study compared the best three cemented femoral stems with the best three cementless femoral stems in patients 75 years or older undergoing primary THA in the AAONAJRR. The “best three” were defined as the three cemented and cementless femoral stems in which each was used in >1000 procedures and with the lowest cumulative percent revision (CPR) at 10 years, regardless of primary diagnosis. All procedures were performed between September 1, 1999, and December 31, 2015. Only THAs with crosslinked polyethylene were included in this study to ensure uniformity of bearing surface between

groups and essentially excluding osteolysis as a reason for revision. Of the 214,800 primary THAs with polyethylene in the registry during this time period, 174,409 had crosslinked polyethylene.

Results: “Early revision was **9.14** times more common in the best three cementless stems than- in the best three cemented stems (95% CI, 5.54-15.06, p = 0.001). ...revision surgery for fracture and loosening in the best three cementless stems was at least double that for the best three cemented stems.”

The three best-performing cemented stems were **Exeter V40 (Stryker)** stem, Composite I beam **Omnifit (Stryker)** stem, and tapered MS-30 stem (Zimmer Biomet).

References:

- National Joint Registry for England and Wales. 18th Annual Report 2021. p.95.
- Australian Joint Replacement Registry Annual Report 2021. P.77.
- Swedish Hip Arthroplasty Register 2016.
- Stryker Sales Data 1970-2021
- The Exeter Hip 40 years of Innovation in Total Hip Arthroplasty. Issue 1. Chapter 1.3 “Geometry, surface finish and load transmission” Howell et al. Exeter Hip Publishing 2010
- Petheram TG, Whitehouse SL, Kazi HA, Hubble MJ, Timperley AJ, Wilson MJ, Howell JR. The Exeter Universal cemented femoral stem at 20 to 25 years: A report of 382 hips. Bone Joint J. 2016 Nov;98-B(11):1441-1449. doi: 10.1302/0301-620X.98B11.37668.
- Westerman RW, Whitehouse SL, Hubble MJW, Timperley AJ, Howell JR, Wilson MJ. The Exeter V40 cemented femoral component at a minimum 10-year follow-up: the first 540 cases. Bone Joint J. 2018 Aug;100-B(8):1002-1009. doi: 10.1302/0301-620X.100B8.BJJ-2017-1535.R1.
- Keeling P, Howell JR, Kassam AM, Sathu A, Timperley AJ, Hubble MJW, Wilson MJ, Whitehouse SL. Long-Term Survival of the Cemented Exeter Universal Stem in Patients 50 Years and Younger: An Update on 130 Hips. J Arthroplasty. 2020 Apr;35(4):1042-1047. doi: 10.1016/j.arth.2019.11.009. Epub 2019 Nov 14.
- Pennington M, Grieve R, Black N, van der Meulen JH. Functional outcome, revision rates and mortality after primary total hip replacement--a national comparison of nine prosthesis brands in England. PLoS One. 2013 Sep 4;8(9):e73228. doi: 10.1371/journal.pone.0073228.
- Evans JT, Blom AW, Timperley AJ, Dieppe P, Wilson MJ, Sayers A, Whitehouse MR. Factors associated with implant survival following total hip replacement surgery: A registry study of data from the National Joint Registry of England, Wales, Northern Ireland and the Isle of Man. PLoS Med. 2020 Aug 31;17(8):e1003291. doi: 10.1371/journal.pmed.1003291.
- Tanzer M, Graves SE, Peng A, Shimmin AJ. Is Cemented or Cementless Femoral Stem Fixation More Durable in Patients Older Than 75 Years of Age? A Comparison of the Best performing Stems. Clin Orthop Relat Res. 2018 Jul;476(7):1428-1437. doi: 10.1097/01.bl.0000533621.57561.a4. Erratum in: Clin

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