Smith+Nephew

+ Evidence in focus

REDAPT◊ Revision Femoral Stem – stable fixation with low subsidence at 1 year

Revision total hip arthroplasties (rTHAs) are set to increase as younger, more active patients, outlive their implants[1,2]

In a recent study, survivorship of primary THA was

86%

at 15 years[4]

“Despite the success of primary THA, failure and revision continue to pose a major challenge for orthopedists while persisting as a significant economic burden on the healthcare system.”[3]

Compared to primary THA, rTHA is associated with:

52 minutes
longer operative time[5]

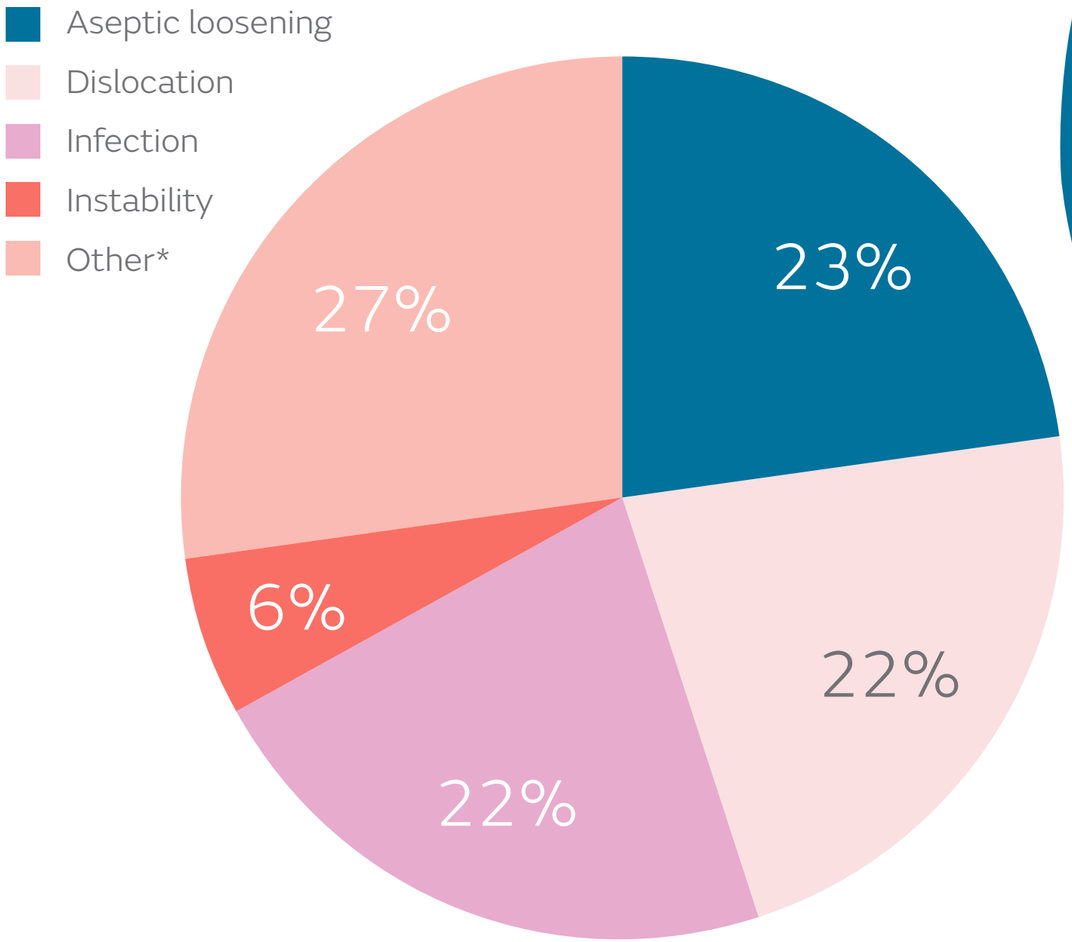
4 days
increased length of stay[5]

76%
increased costs[5]

6.8%
more infections[5]

Less impact
on patient-reported outcomes[5]

Key reasons for rTHA failure[6]



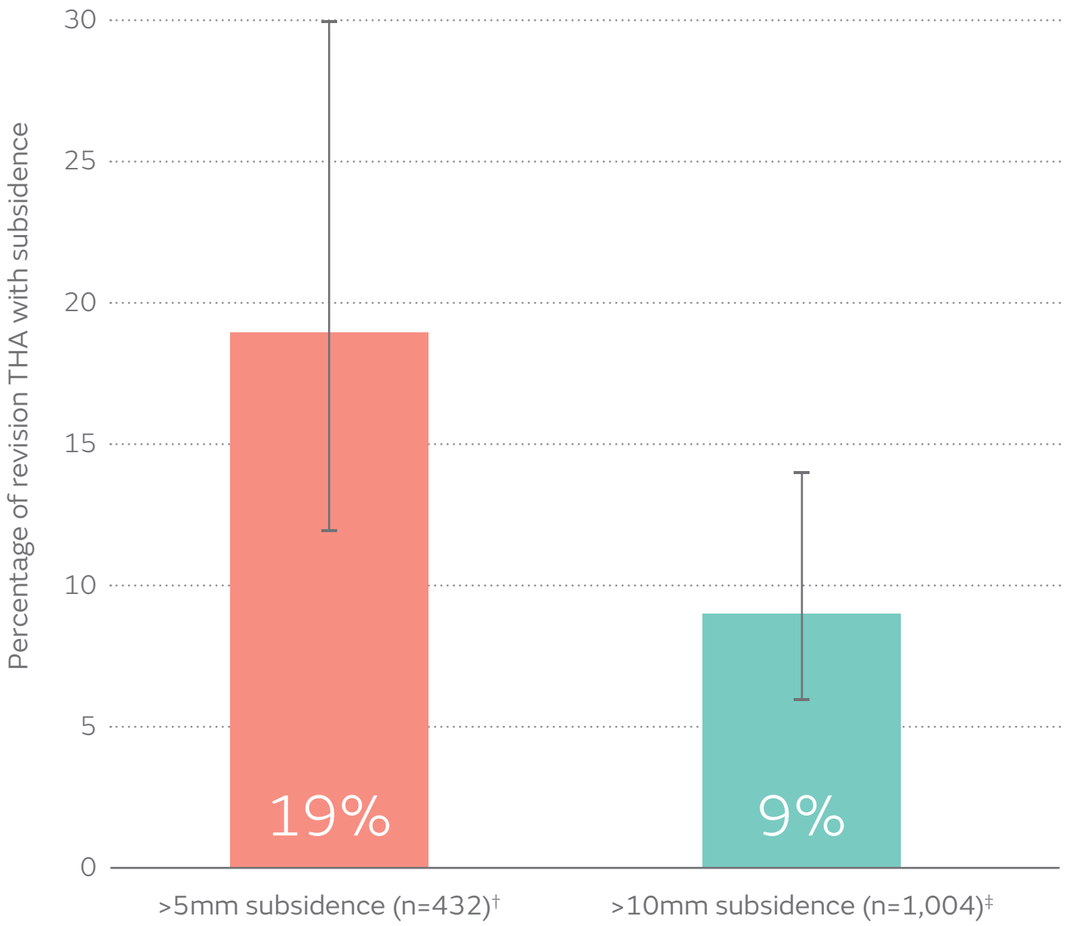
Aseptic loosening is linked to subsidence in rTHA[7,8]

*Includes mechanical complications, bone fracture, component fracture, pain, and wear.

Subsidence rates with a frequently used nonmodular revision stem

- Subsidence ≥10mm has been shown to be a risk factor for re-revision of the femoral component[8]
- A recent systematic literature review and meta-analysis determined subsidence rates for the Wagner SL Revision™ stem (Zimmer Biomet, Warsaw, IN, USA)[9*]
  - Search performed on March 27, 2020
  - Search term: ‘Wagner SL’
  - Peer-reviewed manuscripts published from 2000
  - Mean follow-up ranged from 2.0 to 15.7 years
  - English language studies
- Wagner SL stem subsided >5mm in ~19% of patients and >10mm in ~9% of patients[9]

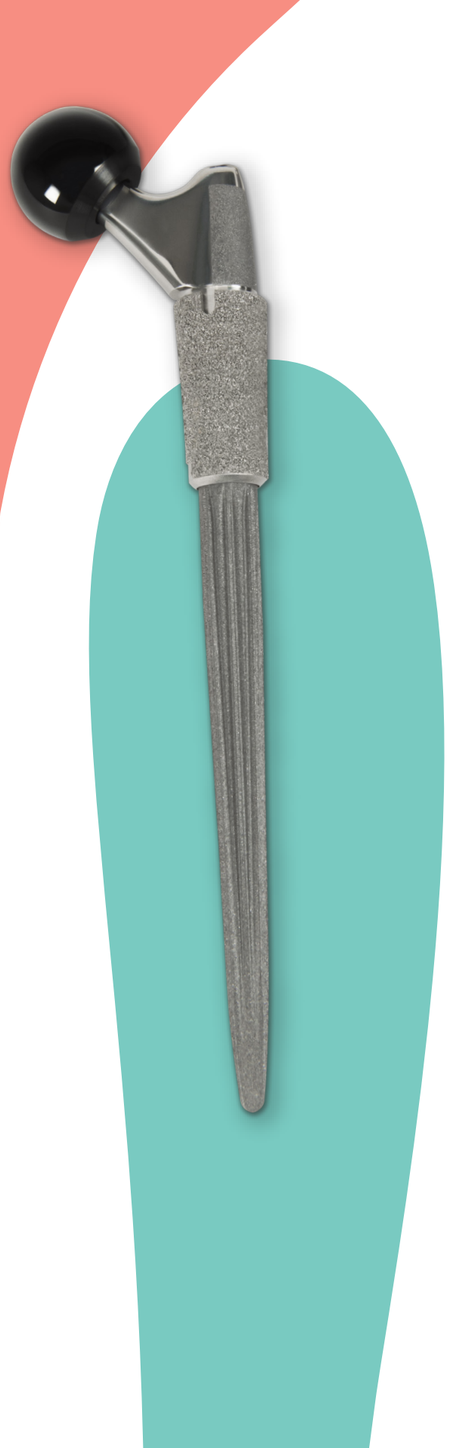
Subsidence rates (95% CI) associated with Wagner SL Revision Stem[9]



*See Appendix for studies included. †Number of studies, 8 (mean follow-up: 2.1–13.9 years). ‡Number of studies, 16 (mean follow-up: 2.0–15.7 years).

REDAPT◊ Revision Femoral Stem

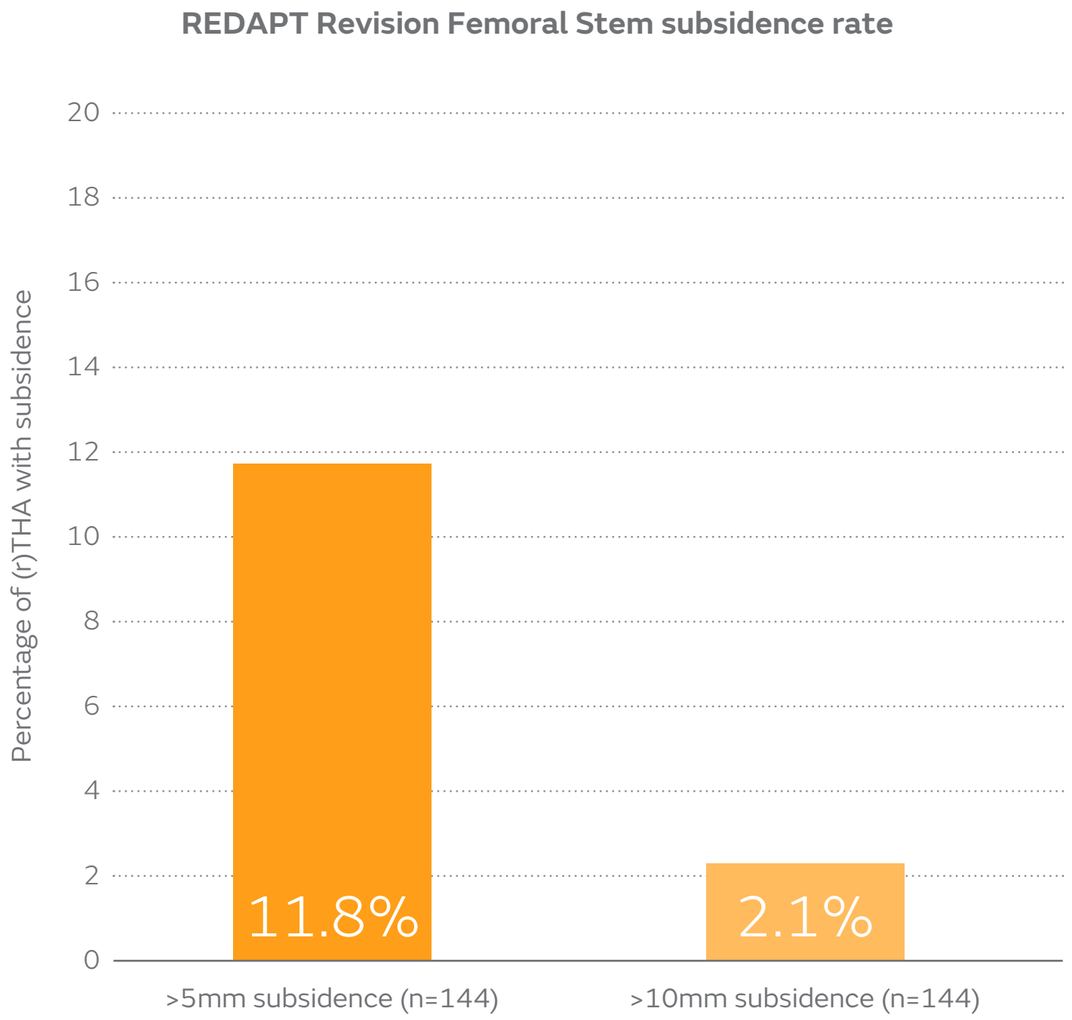
Stability without compromise



REDAPT◊ Revision Femoral Stem: 1-year results from a multicentre, retrospective study[10]*

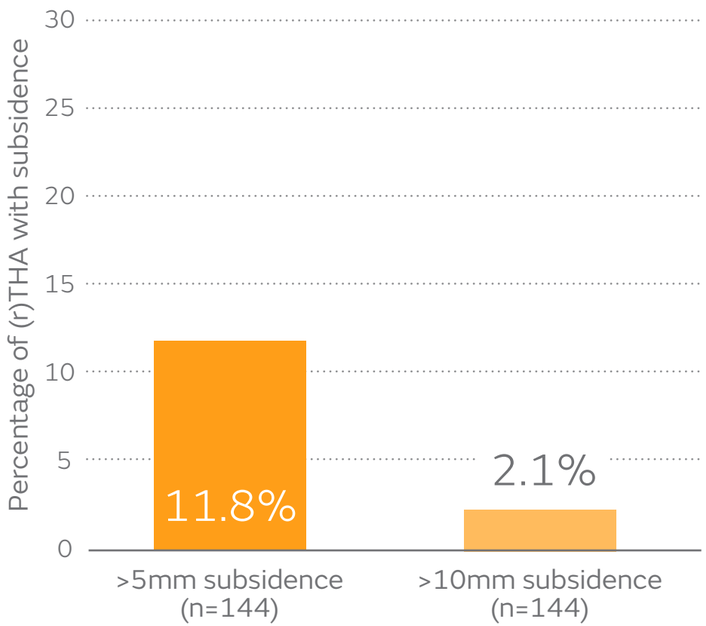
- Mean total subsidence at latest follow-up was 1.64mm and was minimal beyond 3 months
- Stem subsidence >5mm and >10mm was 11.8% (17/144) and 2.1% (3/144) respectively
- No revisions due to subsidence†
- All patients achieved stable fixation on last follow-up evaluation

*157 (r)THAs using REDAPT Revision Femoral Stems in 153 patients; surgeries performed by 10 fellowship-trained surgeons at 4 US centres. †Six re-revisions (3.7%): one stem revision, due to infection.

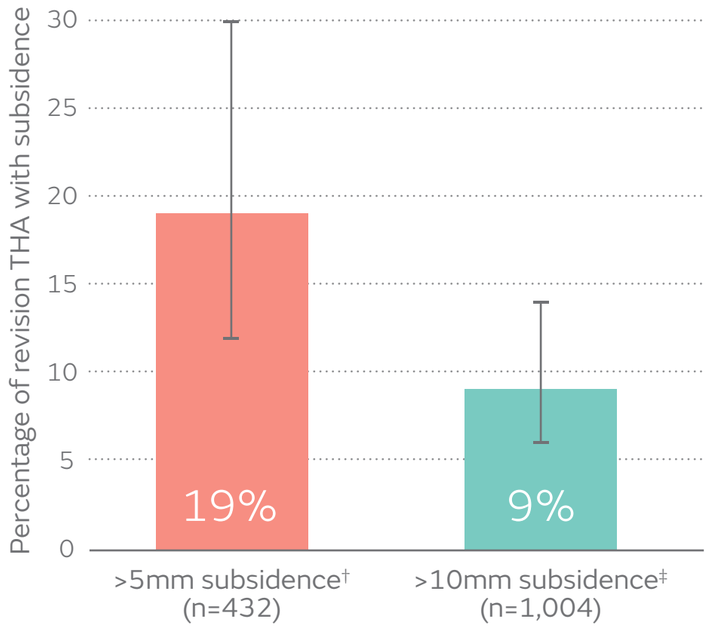


REDAPT◊ Revision Femoral Stem may result in lower subsidence rates than Wagner SL Revision™ Stem

REDAPT Revision Femoral Stem subsidence rate: results of a single study[10*]



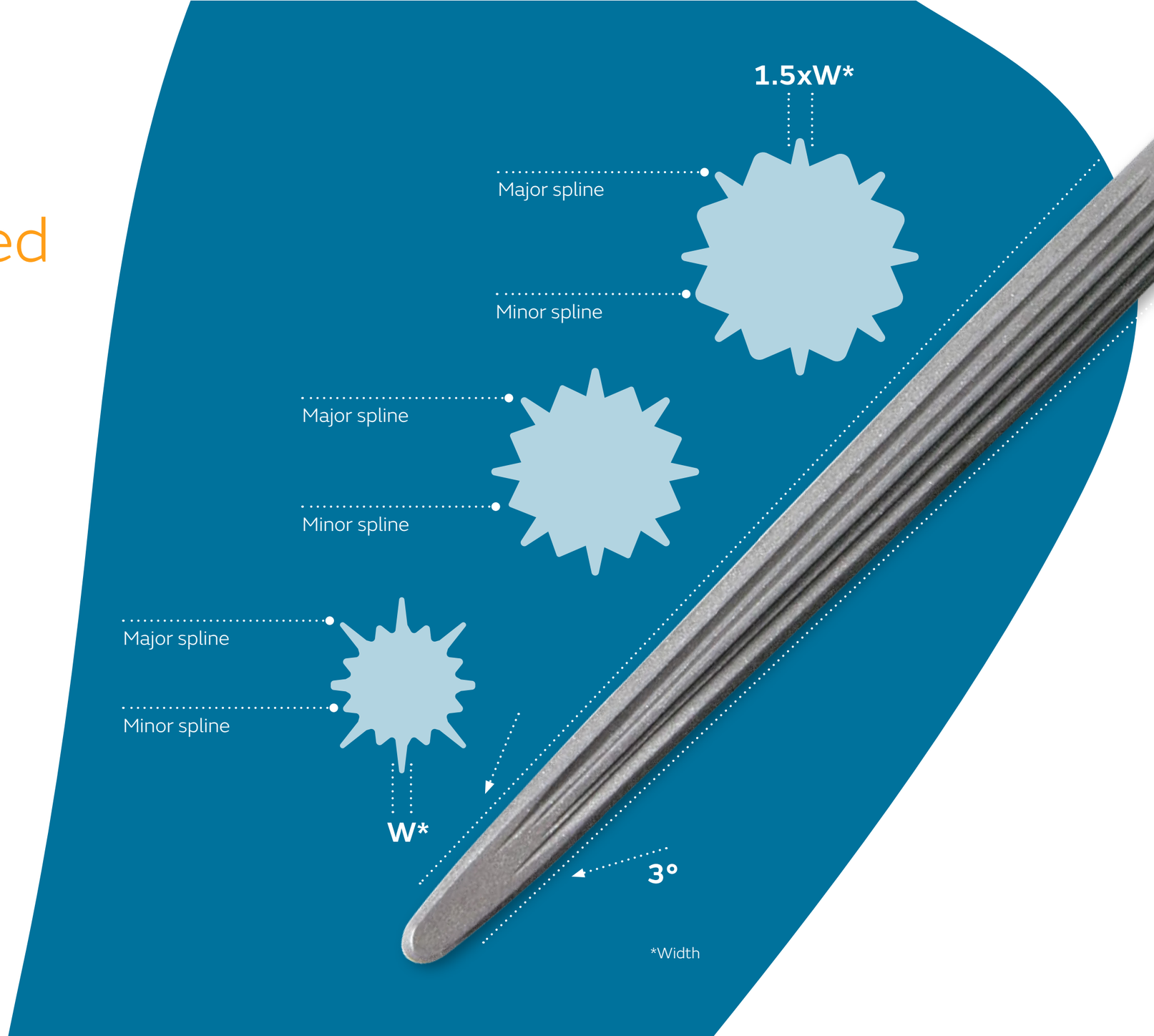
Wagner SL Revision Stem subsidence rate (95% CI): results of a systematic literature review and meta-analysis[9]



*A multicentre, retrospective study of 157 (r)THAs using REDAPT Revision Femoral Stems (mean follow-up: 11.6 months).
†Number of studies, 8 (mean follow-up: 2.1–13.9 years). ‡Number of studies, 16 (mean follow-up: 2.0–15.7 years).

REDAPT◊ Revision Femoral Stem patented ROCKTITE◊ Flutes are designed to deliver reliable stability

- *In vitro* and *in vivo* studies have demonstrated that ROCKTITE fixation renders REDAPT Revision Femoral Stem resistant to subsidence[11,12]
- 3° taper angle with ROCKTITE fixation[13]
- Proprietary multi-level spline pattern designed for subsidence control and axial and rotational stability[13]

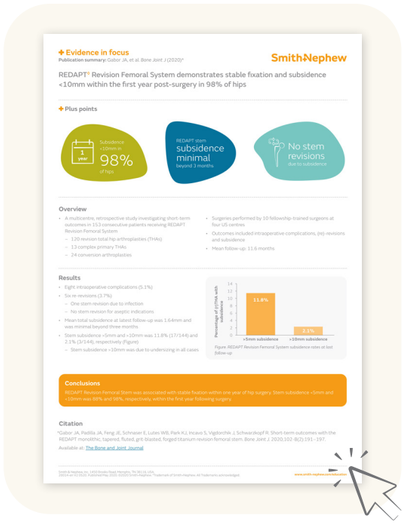


Summary

REDAPT◊ Revision Femoral Stem may result in lower rates of subsidence compared to Wagner SL Revision™ Stem. Approximately 88% of rTHA patients experienced subsidence <5mm with REDAPT Revision Femoral Stem; 2% experienced subsidence >10mm at 1 year; none required revision due to subsidence.[10]

By reducing subsidence rates, REDAPT Revision Femoral Stem may help to reduce the re-revision rate of rTHAs and the human and economic burden of rTHAs.

Click on the links to find out more about REDAPT◊ Revision Hip System

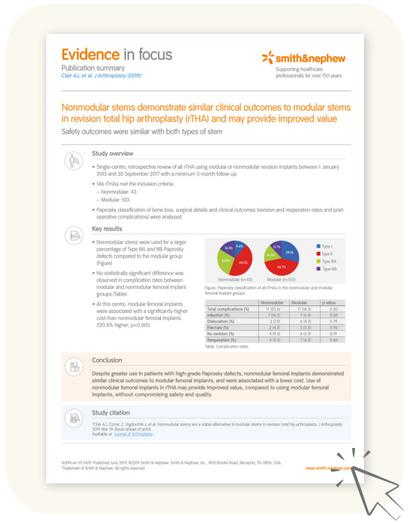


Short-term outcomes with a monolithic, tapered, fluted, grit-blasted, forged titanium revision femoral stem

Gabor JA, et al. *Bone Joint J* (2020)

Subsidence following revision total hip arthroplasty using modular and monolithic components

Clair AJ, et al. *J Arthroplasty* (2020)



Nonmodular stems are a viable alternative to modular stems in revision total hip arthroplasty

Clair AJ, et al. *J Arthroplasty* (2019)

Focus on REDAPT Revision Hip System

Hip Revision Masterclass.
May 9–10, 2019; Berlin, Germany.

Appendix: systematic literature review and meta-analysis studies*

Citation	>5mm subsidence	>10mm subsidence
Baktir A, Karaaslan F, Gencer K, Karaoglu S. Femoral revision using the Wagner SL revision stem: A single-surgeon experience featuring 11–19 years of follow-up. *J Arthroplasty*. 2015;30(5):827–834.		☑
Bohm P, Bischel O. [Cement-free diaphyseal fixation principle for hip shaft exchange in large bone defects – analysis of 12 years experience with the Wagner revision shaft]. *Z Orthop Ihre Grenzgeb*. 2001;139(3):229–239.	☑	☑
Gutierrez Del Alam Gutierrez Del Alamo J, Garcia-Cimbrelo E, Castellanos V, Gil-Garay E. Radiographic bone regeneration and clinical outcome with the Wagner SL revision stem: a 5-year to 12-year follow-up study. *J Arthroplasty*. 2007;22(4):515–524.		☑
Hellman MD, Kearns SM, Bohl DD, Haughom BD, Levine BR. Revision total hip arthroplasty with a monoblock splined tapered grit-blasted titanium stem. *J Arthroplasty*. 2017;32(12):3698–3703.		☑
Huang Y, Zhou Y, Shao H, Gu J, Tang H, Tang Q. What is the difference between modular and nonmodular tapered fluted titanium stems in revision total hip arthroplasty. *J Arthroplasty*. 2017;32(10):3108–3113.	☑	☑
Isacson J, Stark A, Wallensten R. The Wagner revision prosthesis consistently restores femoral bone structure. *Int Orthop*. 2000;24(3):139–142.	☑	☑
Ko PS, Lam JJ, Tio MK, Lee OB, Ip FK. Distal fixation with Wagner revision stem in treating Vancouver type B2 periprosthetic femur fractures in geriatric patients. *J Arthroplasty*. 2003;18(4): 446–452.	☑	☑
Lyu SR. Use of Wagner cementless self-locking stems for massive bone loss in hip arthroplasty. *J Orthop Surg (Hong Kong)*. 2003;11(1):43–47.	☑	☑
Mantelos G, Koulouvaris P, Kotsovolos H, Xenakis T. Consistent new bone formation in 95 revisions: average 9-year follow-up. *Orthopedics*. 2008;31(7):654.		☑
Negri S, Regis D, Sandri A, Bonetti I, Magnan B. Long-term outcome of the Wagner SL tapered stem in complex revisions. *HIP International*. 2018;28:70–71.	☑	
Regis D, Sandri A, Bartolozzi P. Stem modularity alone is not effective in reducing dislocation rate in hip revision surgery. *J Orthop Traumatol*. 2009;10(4):167–171.		☑
Regis D, Sandri A, Bonetti I, Braggion M, Bartolozzi P. Femoral revision with the Wagner tapered stem: a ten- to 15-year follow-up study. *J Bone Joint Surg Br*. 2011;93(10):1320–1326.	☑	☑
Sandiford NA, Garbuz DS, Masri BA, Duncan CP. Nonmodular tapered fluted titanium stems osseointegrate reliably at short term in revision THAs. *Clin Orthop Relat Res*. 2017;475(1):186–192.		☑
Singh SP, Bhalodiya HP. Results of Wagner SL revision stem with impaction bone grafting in revision total hip arthroplasty. *Indian J Orthop*. 2013;47(4):357–363.		☑
Weber M, Hempfing A, Orler R, Ganz R. Femoral revision using the Wagner stem: results at 2–9 years. *Int Orthop*. 2002;26(1):36–39.	☑	☑
Zang J, Uchiyama K, Moriya M, Fukushima K, Takahira N, Takaso M. Long-term outcomes of Wagner self-locking stem with bone allograft for Paprosky type II and III bone defects in revision total hip arthroplasty: A mean 15.7-year follow-up. *J Orthop Surg*. 2019:27(2); https://doi.org/10.1177/2309499019854156		☑
Zeng M, Xie J, Li M, Lin S, Hu Y. Cementless femoral revision in patients with a previous cemented prosthesis. *Int Orthop*. 2015;39(8):1513–1518.	☑	☑

*Most studies did not specify the generation of Wagner SL used.

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