

Triathlon® Tritanium®

The coupling of the Triathlon design and the latest in highly porous biologic fixation technology led to the Triathlon Tritanium TKA.

Studies have shown strong survivorship with cementless TKA.^{1,2} Since the introduction of Triathlon Tritanium TKA, clinical data from multiple centers have shown favorable early results.³⁻⁵

Triathlon Tritanium 2-year survivorship

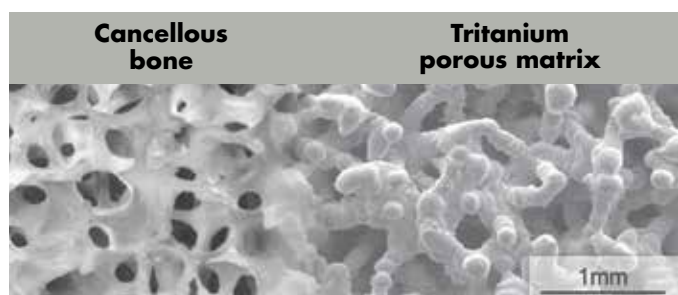
Outcome	Source
99.95% at 2 years	Miller et al. 2017 ³
99.5% at 2 years	Harwin et al. 2017 ⁴
100% at 2 years	Buzhardt et al. 2017 ⁵

Clinical survivorship in Stryker cementless TKAs with over 10 years of follow-up

Outcome	Source
100% at 10 years and 96.7% at 13 years with Osteonics Series 3000	Watanabe et al. 2004 ¹
97.1% at 20 years with Stryker HA Omnifit (Series 3000 and 7000)	Epinette et al. 2014 ²

Biologic fixation

Tritanium is a highly porous biologic fixation surface, which closely resembles the structure of cancellous bone.¹³ This technology is used on the baseplate and metal-backed patella.



Initial stability

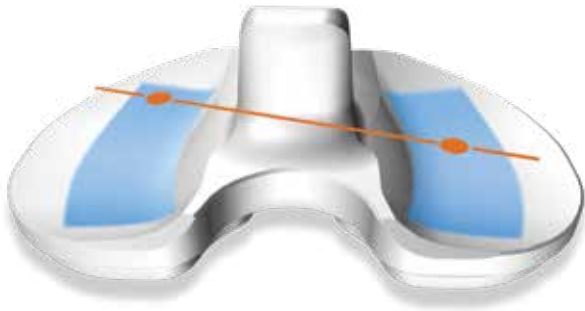
Given the importance of stable primary fixation,⁶ the keel and four bullet cruciform pegs on the Tritanium baseplate were designed to reduce micromotion and lift off.^{7,8} The SOMA database of bone morphology was used to optimize the depth and placement of the pegs.⁹



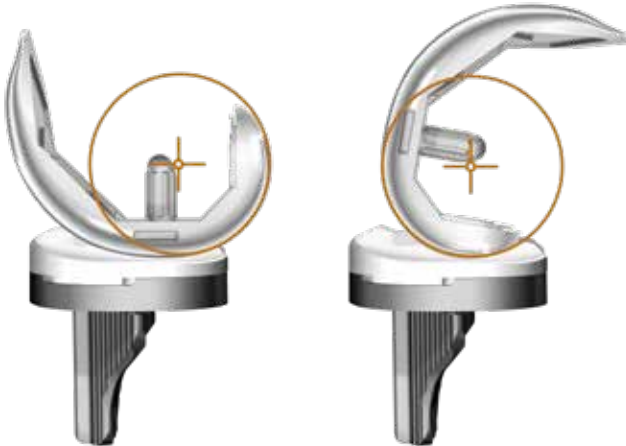
SOMA designed

Triathlon design

Stable primary fixation of the implant is a prerequisite for biologic fixation.⁶ Triathlon CR and PS systems are designed to minimize dynamic stress transfer to the tibial fixation interface by providing minimal resistance to rotation.⁹



Triathlon and the single radius help to reduce sagittal rocking during ambulation by locating the bearing sulcus directly over the tibial keel.¹⁰



References:

1. Watanabe H et al. Survival analysis of a cementless, cruciate-retaining total knee arthroplasty. Clinical and radiographic assessment 10 to 13 years after surgery. *J Bone Joint Surg Br.* 2004;86:824-829.
2. Epinette J. Long lasting outcome of hydroxyapatite-coated implants in primary knee arthroplasty: a continuous series of two hundred and seventy total knee arthroplasties at fifteen to twenty two years of clinical follow-up. *International Orthopaedics (SICOT)*, 2014;38:305-311.
3. Miller, Adam J., et al. "Results of Cemented vs Cementless Primary Total Knee Arthroplasty Using the Same Implant Design" *The Journal of Arthroplasty*, 2017. <https://doi.org/10.1016/j.arth.2017.11.048>
4. Harwin, Steven F, et al " Outcomes of Newer Generation Cementless Total Knee Arthroplasty: Beaded Periapatite-Coated vs Highly Porous Titanium-Coated Implants" *The Journal of Arthroplasty*, VOL. 32, NO.7, 2017, PP.
5. Buzhardt, P et al. "Clinical and radiographic results of a highly porous titanium cementless tibial baseplate in TKA." *Bone Joint J* 99-B.SUPP 3 (2017): 56. Web. 13 Mar. 2017."
6. Nilsson K et al. Evaluation of Micromotion in Cemented vs Uncemented Knee Arthroplasty in Osteoarthritis and Rheumatoid Arthritis. *Journal of Arthroplasty*. Vol 6. No 3. September 1991. 265-278.
7. Bhimji et al. The effect of fixation design on micromotion of cementless tibial baseplates. *ORS* 2012. Poster 1977.
8. Stryker Test Report RD-13-107.
9. Stryker Test Protocol 92911.
10. Harwin S, Kester M, Malkani A, Manley M. Excellent Fixation Achieved With Cementless Posteriorly Stabilized Total Knee Arthroplasty. *The Journal of Arthroplasty*. 2013;28(1).
11. Stryker Test Report RD-12-044.

Tritanium metal-backed patella

The Tritanium metal-backed symmetric and asymmetric patellas allow for the following:



Biologic fixation

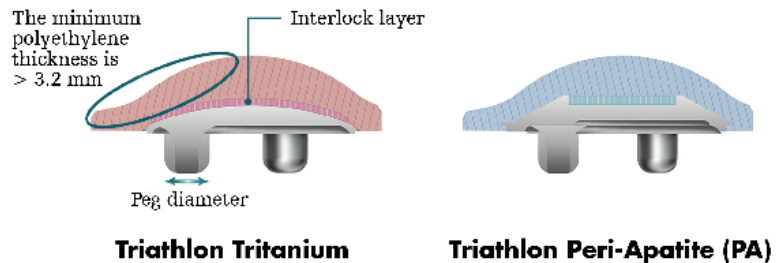
The bone-facing architecture and increased peg diameter have been designed to encourage biologic fixation.¹¹

Enhanced association

Direct compression molding allows the polyethylene to penetrate the 3D-printed porous metal surface to minimize dissociation.¹¹

Greater polyethylene thickness

A solid barrier layer between the porous surfaces can allow for a smaller metal backing and greater polyethylene thickness.¹²



stryker

325 Corporate Drive
Mahwah, NJ 07430
t: 201.831.5000
www.stryker.com

12. Bayley JC et al. Failure of the metal-backed patellar component after total knee replacement. *J Bone Joint Surg Am.* June 1988;70(5):688-74.
13. Hildebrand T et al. Direct three-dimensional morphometric analysis of human cancellous bone. *Journal of Bone and Mineral Research*; Vol. Number 7, 1999.

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery. The information presented is intended to demonstrate the breadth of Stryker's product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any of Stryker's products. The products depicted are CE marked according to the Medical Device Directive 93/42/EEC. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your sales representative if you have questions about the availability of products in your area. Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or service marks: Stryker, Triathlon, Tritanium. All other trademarks are trademarks of their respective owners or holders.