



Powerful Imaging Technology Generates New Evidence on ATTUNE® Knee System

WARSAW, IN -June 15, 2017 - When it comes to evaluating a knee replacement's long-term performance, registry data is extremely important, but not the only tool. Another well-established, but less universally-known, technique is Radiostereometric Analysis (RSA), an imaging technique that precisely measures implant migration and can help predict implant survivorship.¹⁻³

Given the increasing utilization of, and demand for, RSA evidence in many countries, DePuy Synthes*, part of the Johnson & Johnson Family of Companies, made the decision in 2013 to incorporate RSA into its [ATTUNE® Knee Evidence Generation Program](#) strategy, and today announced results of the first and recently-completed two-year investigator-initiated study that evaluated the implant fixation of the ATTUNE Knee tibial base using RSA.⁴

In this study, conducted by the [Canadian RSA Network](#), tiny beads of less than 1 mm were inserted into the bone surrounding the ATTUNE Knee implant at the time of surgery. These beads, made of tantalum, a metal that is well tolerated by the body, served as markers by which X-rays were used to detect 3D changes in the position of the tibial base relative to the bone over time (implant fixation). This particular study included 30 patients, which is a statistically appropriate sample size in RSA research.

Results of this study, presented at the Canadian Orthopaedic Association Annual Meeting (June 15-18, 2017, Ottawa, CA)⁴, showed that the ATTUNE Knee tibial base migrated an average of 0.02 mm in the superior-inferior (up and down) direction over 24 months, with an average maximum total point motion of 0.21 mm. Applying published criteria which helps interpret how RSA data can help predict future revision rates^{1,3}, this study's 2-year RSA results showed that the ATTUNE Knee tibial base achieved stable fixation by demonstrating average micromotion of 0.17 mm between one and two years. This is consistent with implants that have acceptable revision rates due to aseptic loosening.¹

"These results are another component of the breadth of data that continue to be generated around the ATTUNE Knee," said Kim Dwyer, Ph.D., Clinical Research Director, Knees, DePuy Synthes Joint Reconstruction. "The importance of RSA is that it can help predict an implant's long-term performance while larger and longer survivorship studies are underway."

Dwyer added that the importance of RSA continues to move from its well-established roots in the Nordic countries of Europe to other parts of the world, including North America. RSA

Networks like the Canadian RSA Network can play a pivotal role in enhancing evidence-generation timelines, standardizing methodologies, increasing diversity by including more patients at different sites, and meeting the needs of stakeholders who value fixation evidence.

About DePuy Synthes

DePuy Synthes, part of the Johnson & Johnson Family of Companies, provides one of the most comprehensive portfolios of orthopaedic solutions in the world. DePuy Synthes solutions, in specialties including joint reconstruction, trauma, neurological, craniomaxillofacial, spinal surgery and sports medicine, are designed to advance patient care while delivering clinical and economic value to health care systems worldwide. For more information, visit www.depuysynthes.com.

*DePuy Synthes represents the products and services of DePuy Synthes, Inc. and its affiliates.

¹**Ryd L, Albrektsson BE, Carlsson L, Dansgård F, Herberts P, Lindstrand A, Regner L, Toksvig-Larsen S**, *Roentgen stereophotogrammetric analysis as a predictor of mechanical loosening of knee prostheses*. J Bone Joint Surg Br 1995;77:377-83.

²**Kärrholm, J, Gill, RHS, and Valstar,ER**, *The History and Future of Radiostereometric Analysis*. Clin Orthop Rel Res, 2006: 448, 10-21.

³**Pijls BG, Valstar ER, Nouta KA, Plevier JW, Fiocco M, Middeldorp S, Nelissen RG**, *Early migration of tibial components is associated with late revision: a systematic review and meta-analysis of 21,000 knee arthroplasties*. Acta Orthop 2012;83:614-24.

⁴**Richardson, G, Turgeon, T, Gascoyne, T, Laende, E, Bohm, E, Dunbar, M**. *Stability assessment of a new knee replacement product using radiostereometric analysis*. Poster Presentation at the Canadian Orthopaedic Association Meeting, Ottawa, Ontario, 15-18 June 2017.

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DSUS/JRC/0617/2182
June 2017