stryker

# Mako® Partial Knee

# SmartRobotics™

Manual partial knee replacement can be a demanding procedure with a restricted field of view, and surgeons cannot preoperatively create a patient-specific plan.[1] Clinical studies have shown that Mako Partial Knee has the potential to produce accurate and reproducible component placement in accordance with preoperative plans[1] and to reestablish soft tissue balance.[2]

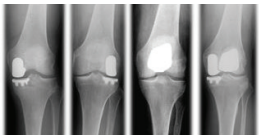
## Know more... so much more!

Mako Partial Knee 3D CT-based plan allows you to plan for each patient's unique anatomy, so you know more.

The Mako System is designed to minimize the margin of error associated with component placement and to enhance the accuracy and reproducibility of partial knee arthroplasty. Additionally, Mako Partial Knee helps enable you to dynamically balance soft tissue tensioning intraoperatively, with the goal of recreating natural knee kinematics.

## Cut less.*

Using AccuStop™ haptic technology and everything the CT scan helps you to know about your patient, you are no longer limited by cutting blocks and manual techniques. AccuStop™ haptic technology creates a virtual boundary that assists you in executing both the tibial and femoral bone resections to plan.



## Mako Partial Knee Restoris MCK

Mako Restoris MCK implant designs feature bone sparing, curved surfaces. These implant features are enabled by Mako robotic-arm assistance which allows surgeons to create anatomic, sculpted resections[3] using either the burr-only or planar workflow for bone preparation.

Mako Restoris MCK is indicated for Medial Unicompartmental, Lateral Unicompartmental, Patellofemoral and Medial Bicompartmental.

With over **100** published peer-reviewed studies,[4] there is extensive clinical evidence supporting the Mako Partial Knee application.

Clinical studies have shown that Mako Partial Knee has the potential to reproducibly deliver component placement that is accurate to the 3D patient-specific preoperative plans[1,5], reduce damage to the surrounding soft tissue through AccuStop™ haptic technology[6], and to help surgeons reestablish soft tissue balance using dynamic joint balancing.[7]

## In clinical studies, Mako Partial Knee has demonstrated:

**More accurate**
implant placement to plan and **55.4% less pain** from day 1 to week 8 postoperative compared to manual partial knees with Oxford in a randomized controlled trial[1,8]

**97% survivorship**
at 5- to 6-year follow-up, which outperformed other large cohort studies (94.2%) and annual registries (93.1%)[9]

**95.8% registry survivorship**
at 5 years in the Australian registry[10]


**98% survivorship**
at 10-year follow up[11]

**Reduced number of PT sessions**
and earlier achievement of PT goals compared to manual partial knee arthroplasty[12]

**Reduced U.S. payer costs**
compared to manual partial knee arthroplasty[13]

## That's Mako Partial Knee. That's SmartRobotics™


**References**

* For the Mako Partial Knee application, "cut less" refers to greater bone preservation as compared to manual surgery.[3,14]

1. Bell SW, Anthony I, Jones B, MacLean A, Rowe P, Blyth M. Improved accuracy of component positioning with robotic-assisted unicompartmental knee arthroplasty: data from a prospective, randomized controlled study. J Bone Joint Surg Am. 2016;98(8): 627-635. doi:10.2106/JBJS.15.00664
2. Plate JF, Mofidi A, Mannava S, et al. Achieving accurate ligament balancing using robotic-assisted unicompartmental knee arthroplasty. Adv Orthop. 2013; 2013:837167. doi:10.1155/2013/837167
3. Banks SA. Haptic robotics enable a systems approach to design of a minimally invasive modular knee arthroplasty. Am J Orthop. 2009;38 (2 Suppl): 23-27.
4. Stryker data on file; August 2021.
5. Kayani B, Konan S, Pietrzak JRT, Huq SS, Tahmassebi J, Haddad FS. The learning curve associated with robotic-arm assisted unicompartmental knee arthroplasty: a prospective cohort study. Bone Joint J. 2018;100-B(8):1033-1042. doi:10.1302/0301-620X.100B8.BJJ-2018-0040.R1
6. Catani F., Zambianchi F., Marcovigi A., Franceschi G., Nardacchione R. Component positioning and soft-tissue tensioning influence clinical outcomes of robotic-assisted medial unicompartmental knee arthroplasty: a short-term follow-up study. Orthopaedic Proceedings Vol. 100-B, No. SUPP_12. Accessed online at https://online.boneandjoint.org.uk/doi/abs/10.1302/1358-992X.2018.12.003
7. Hampp EL, Scholl L, Faizan A, Sodhi N, Mont MA, Westrich G. Comparison of Iatrogenic Soft Tissue Trauma in Robotic-Assisted versus Manual Partial Knee Arthroplasty [published online ahead of print, 2021 Aug 5]. Surg Technol Int. 2021;39:sti39/1465. doi:10.52198/21.STI.39.OS1465
8. Blyth MJG, Anthony I, Rowe P, Banger MS, MacLean A, Jones B. Robotic-arm assisted versus conventional unicompartmental knee arthroplasty: exploratory secondary analysis of a randomised controlled trial. Bone Joint Res. 2017;6(11):631-639. doi:10.1302/2046-3758.611.BJR-2017-0060.R1
9. Kleeblad LJ, Borus T, Coon TM, Dounchis J, Nguyen JT, Pearle AD. Midterm survivorship and patient satisfaction of robotic-arm-assisted medial unicompartmental knee arthroplasty: a multicenter study. J Arthroplasty. 2018;33(6):1719-1726. doi:10.1016/j.arth.2018.01.036
10. National Joint Replacement Registry. Hip, Knee & Shoulder Arthroplasty Annual Report 2021. Australian Orthopaedic Association; 2021.
11. Vakharia RM, Law TY, Roche MW. Survivorship and patient satisfaction rates of robotic-assisted unicompartmental knee arthroplasty. Presented at: American Association of Hip and Knee Surgeons (AAHKS) Annual Meeting; November 5-8, 2020; Dallas, TX.
12. Kayani B, Konan S, Tahmassebi J, Rowan FE, Haddad FS. An assessment of early functional rehabilitation and hospital discharge in conventional versus robotic-arm assisted unicompartmental knee arthroplasty: a prospective cohort study. Bone Joint J. 2019;101-B(1):24-33. doi:10.1302/0301-620X.101B1.BJJ-2018-0564.R2
13. Cool CL, Needham KA, Khlopas A, Mont MA. Revision analysis of robotic arm-assisted and manual unicompartmental knee arthroplasty. J Arthroplasty. 2019; 34(5):926-931. doi:10.1016/j.arth.2019.01.018
14. Hampp E, Chang T-C, Pearle A. Robotic partial knee arthroplasty demonstrated greater bone preservation compared to robotic total knee arthroplasty. Presented at: Orthopaedic Research Society Annual Meeting; February 2-5, 2019; Austin, TX.





MAKPKA-SS-4_31380