Johnson&Johnson
MedTech

VELYS™ Robotic-Assisted Solution for partial knee replacement

Rediscover your moving moments

VELYS™

If you're experiencing chronic knee pain, you're not alone

Arthritis, the leading cause of disability in the United States, is also the most frequent cause of chronic knee pain and discomfort.[1]

Osteoarthritis (OA), the most common form of arthritis, is a disease where cartilage covering the bones wears down over time. In the knee, this results in one bone rubbing against another bone, causing pain and reduced motion.[1]

Healthy knee

Cartilage covering the end of each bone in the joint acts as a cushion

Diseased knee (osteoarthritis)

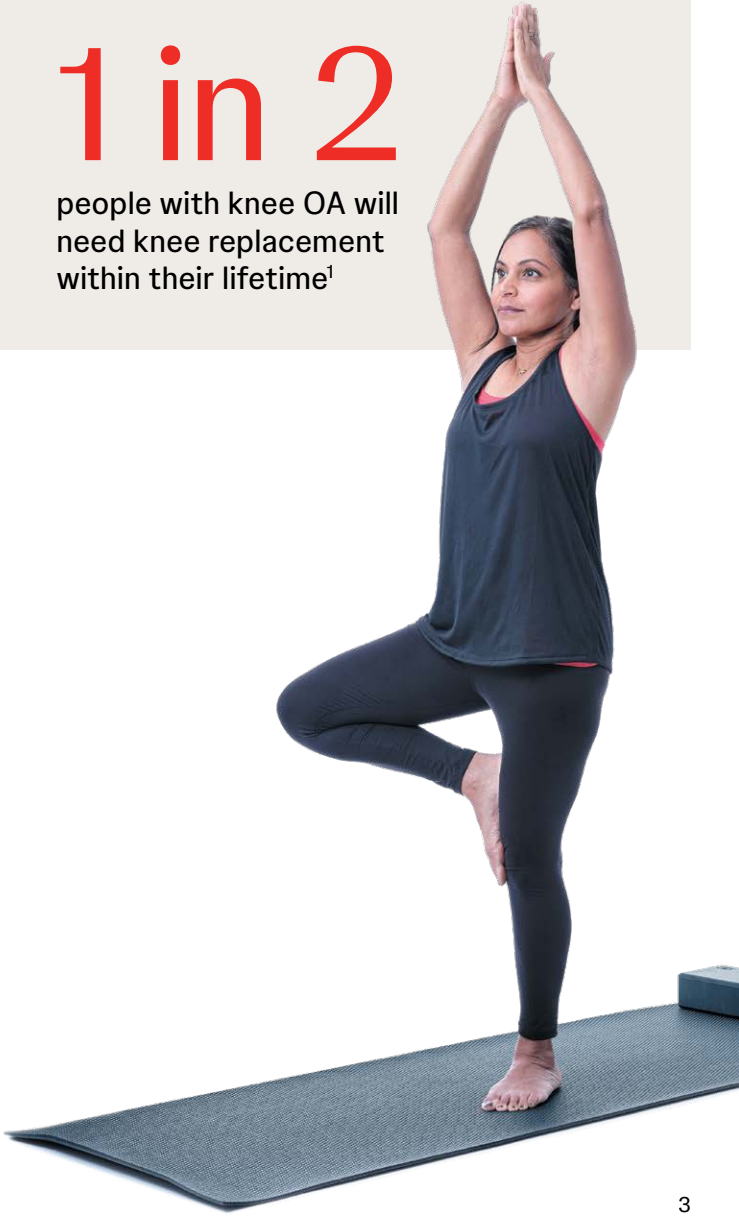
Wear and tear of the cartilage causes bone-on-bone contact, pain, and swelling

14 million

people in the US have symptomatic knee OA[1]

1 in 2

people with knee OA will need knee replacement within their lifetime[1]



What can you do about osteoarthritis?

Osteoarthritis is degenerative, meaning it only gets worse. That's why it's important to treat it as quickly and effectively as possible.

Medication, injections, water therapy (ice/hot packs), physical therapy, and other conservative methods can help manage pain and stiffness associated with osteoarthritis.

When pain becomes debilitating and is accompanied by stiffness and swelling and limited motion in your knee keeps you from your daily activities, it may be time to consider knee replacement.

50+ years

Partial knee replacements have been used to treat joint disease since 1972[2]

700,000

There are over 700,000 total and partial knee replacements performed each year in the United States[3]. While the majority are total knee replacements, an orthopaedic surgeon may suggest a partial knee replacement when the osteoarthritis only affects a portion of the knee joint, allowing patients to preserve more of their natural knee anatomy.[3]

Knee replacement surgery is a viable option that alleviates pain and improves mobility by replacing damaged bone and cartilage. Choosing an ideal knee replacement is essential to getting back to the activities that you love much sooner.

Knee replacement may help provide you[3,4]:

- Relief of arthritic pain and discomfort
- Improved mobility in your knee
- Freedom and confidence to do everyday activities

Some surgeons use robotic-assisted technology to perform knee replacement surgery. This advanced technology can help enhance and personalize your knee replacement journey so that it's designed uniquely for you.

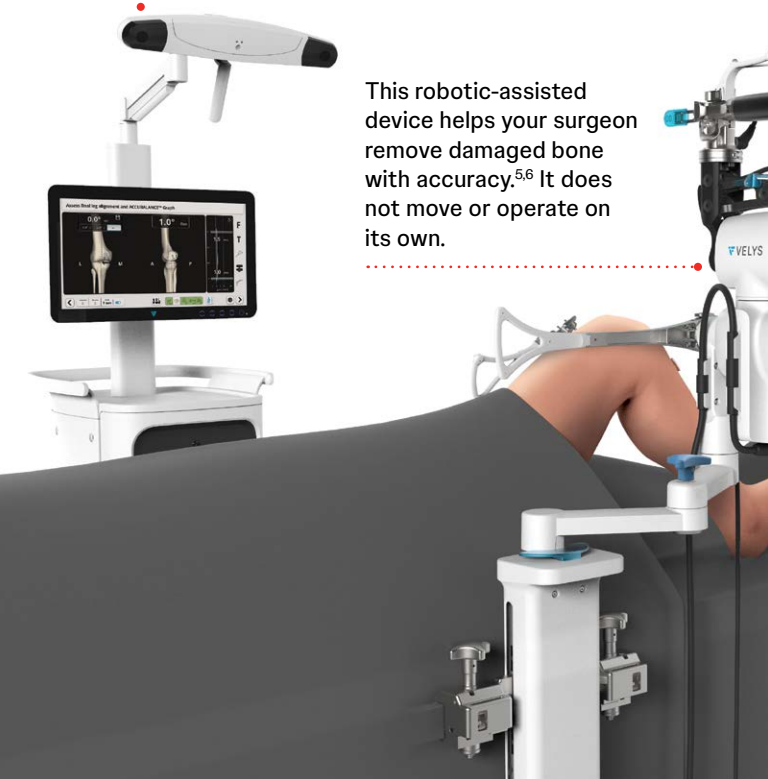
Discover how the VELYS™ Robotic-Assisted Solution works

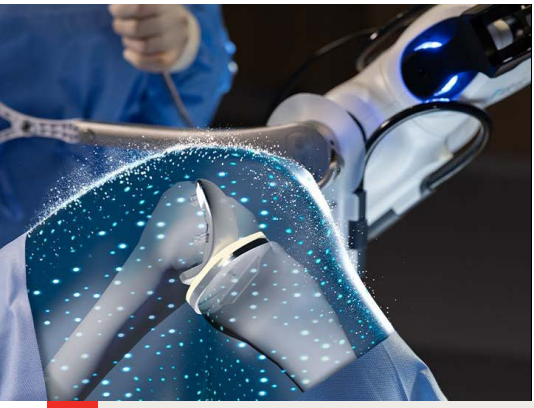
The VELYS Robotic-Assisted Solution can help your surgeon perform a precise knee replacement surgery personalized for your specific anatomy.[5,6]

Some of the advanced technologies used include:

Infrared camera and optical trackers help your surgeon gather the necessary data about your knee's anatomy.

This robotic-assisted device helps your surgeon remove damaged bone with accuracy.[5,6] It does not move or operate on its own.



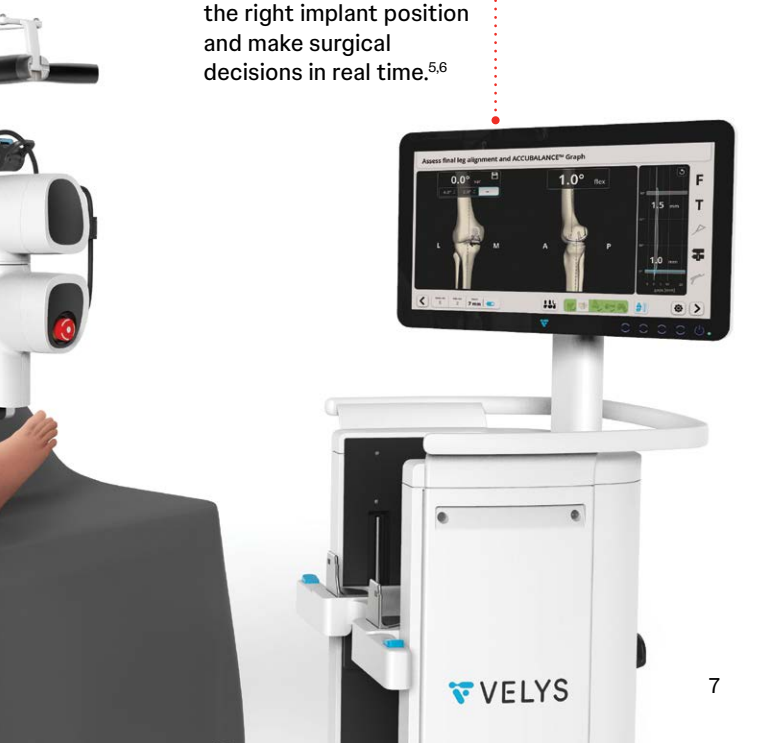


The VELYS Robotic-Assisted Solution, when used with the SIGMA™ HP Partial Knee System, is designed to help your surgeon perform an accurate partial knee replacement. [7,8] *†

* Pre-clinical test data/results may not necessarily be indicative of human clinical performance.

† Compared to conventional surgery

Important details and data related to your knee help your surgeon find the right implant position and make surgical decisions in real time.[5,6]



Learn about partial knee replacement

During a partial knee replacement, only one of the three compartments of the knee joint is replaced, either the medial (inner) or the lateral (outer). A partial knee replacement allows the healthy bone, tissue and ligaments to remain intact, and only surgically address the painful diseased side of the joint. In contrast, all three compartments are replaced in a total knee replacement.[9]

Compared to a total knee replacement, the potential benefits of having a partial knee procedure may include[10]

- Quicker recovery
- Less pain after surgery
- Less blood loss
- Lower risk of infection

Today, partial knee replacements can be performed utilizing robotic-assisted technology.

Robotic-assisted technology may deliver†:

A greater range of motion (how well you can bend and flex your knee after surgery)[11,12]

Less pain compared to traditional methods[5,11]

Faster recovery times (reduced length of hospital stay, hospital readmissions, and health visits)[5,13]

† Findings based on studies conducted across multiple robotic-assisted total knee replacement systems.
‡ (HR: 0.87, p-value < 0.001)
§ Due to lower risk of revision compared to other partial knee systems
* This data was tabulated May 2025 for worldwide sales/utilization from the time of product launch for the SIGMA™ HP Partial Knee System.

The SIGMA HP Partial Knee System works exclusively with the VELYS Robotic-Assisted Solution for partial knee replacement.

The SIGMA HP Partial Knee System has been shown to be a beneficial option for active patients with arthritis only on the inside (medial) or outside (lateral) area of their knee joint.[14‡§]

13% lower risk

Over the past 15 years, the SIGMA HP Partial Knee was found to have a significantly reduced risk of needing revision surgery compared to other partial knee systems on the market.[14‡]

130,000

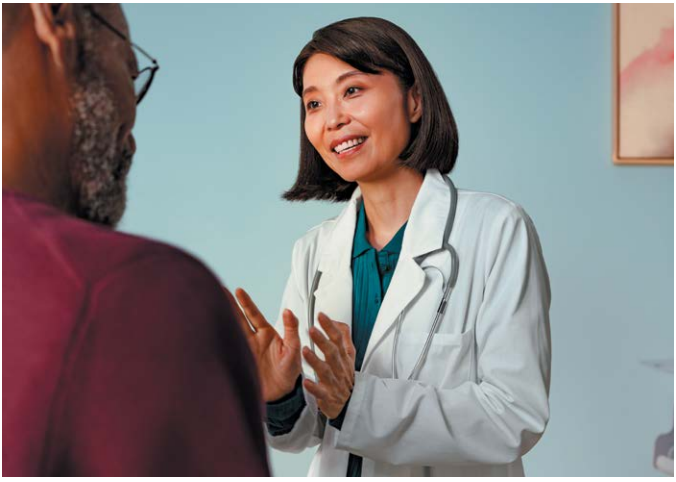
Nearly 130,000 people worldwide have received a SIGMA HP Partial Knee System since it became clinically available in 2008.[15*]

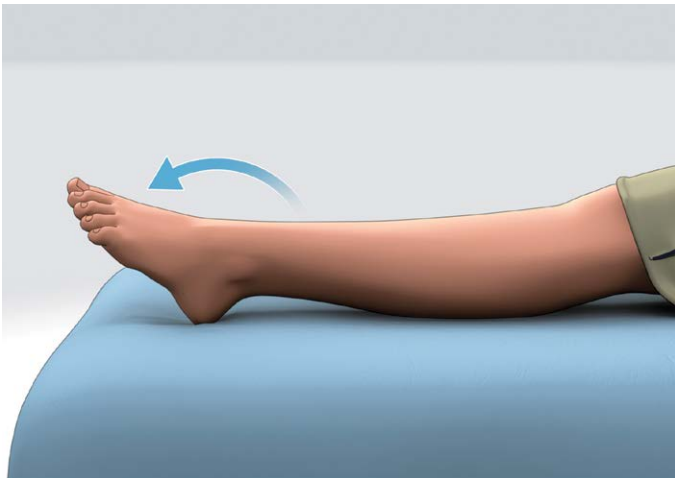
Set yourself up for a successful knee replacement

Preparing for your surgery

Preparing for knee replacement surgery can be overwhelming, but there are some things you can do to help you feel more confident leading up to your procedure.

- Inform your surgeon of any medications you may be taking, including aspirin or other over-the-counter medications
- Ask your surgeon about exercises you can do to strengthen your muscles before surgery and help with recovery after surgery
- Prepare your home for your return from the hospital
- Enlist the help of a caregiver to assist until you have recovered enough to return to normal activities





Recovering after your surgery

The hospital stay for knee replacement surgery varies depending on your specific situation. Knee rehabilitation begins right after surgery. Your physical therapist will help you:

- Begin isometric exercises (tighten muscles without moving the joint) several times per day while you are still in bed
- Move your ankle and other joints so you will remain strong
- Learn the safest methods of getting in and out of bed or a chair and on and off the toilet
- Understand the do's and don'ts of joint replacement recovery

Within a few weeks after robotic-assisted surgery you may resume regular activities of daily living.[16] It is best to get clearance from your doctor before restarting fitness and recreational activities such as golf, swimming, and cycling.

Each person is different, and the length of recovery depends on your particular situation, overall health, and rehabilitation. Taking an active participation in the healing process and following your doctor's orders can speed up your recovery.[17]

Open communication is important for your surgery and recovery

Caregivers play an important role

You can help ensure your loved one receives the best medical care possible by acting as their advocate. Your day-to-day experiences with them can provide critical information, so it is important to stay involved. Their healthcare team may rely on the feedback you share to provide appropriate care and support for your loved one.

Here are some tips for connecting with your loved one's healthcare team:

Avoid communication barriers

Talk about how your loved one communicates his/her feelings and concerns and ask questions when you or your loved one has them

Feel comfortable with the staff

Make sure your loved one's healthcare team listens and provides answers to any concerns or questions

Stay involved

Talk about who should be included in discussions about your loved one's condition, including diagnoses, test results, and treatment options

You may find it helpful to ask your healthcare team these questions:

- Can knee replacement surgery help relieve my pain and stiffness?
- What are the knee replacement techniques and technologies available?
- Is the VELYS Robotic-Assisted Solution an option for my knee replacement?
- What are the benefits and risks of knee replacement surgery?
- How long will it take to recover and rehabilitate from the different types of knee replacement?
- What is my role in recovery and rehabilitation?

Notes

About Johnson & Johnson MedTech's orthopaedic solutions

Across Johnson & Johnson, we are tackling the world's most complex and pervasive health challenges. In orthopaedics, we are on a mission to keep people moving by leveraging our deep expertise in joint reconstruction, robotics and enabling tech, spine, sports, trauma, and extremities to develop the next generation of medtech solutions. We offer one of the most comprehensive orthopaedics portfolios in the world to help heal and restore movement for the millions of patients we serve.

Important Safety Information: As with any medical treatment, individual results may vary. The performance of knee replacements depends on your age, weight, activity level and other factors. There are potential risks, and recovery takes time. People with conditions limiting rehabilitation should not have this surgery. Only an orthopaedic surgeon can determine if knee replacement is right for you. Results of surgery are contingent upon the proficiency and expertise of the performing surgeon. Variations may occur based on individual surgical skills and experience.

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1. Arthritis Foundation. Arthritis by the Numbers: Book of Trusted Facts & Figures 2020. Accessed March 5, 2025. https://www. arthritis.org/getmedia/73a9f02d-7f91-4084-91c3-0ed0b11c5814/abtn-2020-final.pdf **2.** Bruni et al. Unicompartmental knee replacement: a historical overview. JOINTS 2013;1(2):45-47. **3.** American Academy of Orthopaedic Surgeons. Total knee replacement. Accessed December 12, 2024. https://orthoinfo.aaos.org/en/treatment/total-knee-replacement/. **4.** The Mayo Clinic. Knee replacement. Accessed December 10, 2024. https://www.mayoclinic.org/testsprocedures/knee-replacement/about/pac-20385276. **5.** Clatworthy M. Patient-specific TKA with the VELYS™ Robotic-Assisted Solution. Surg Technol Int. 2022;40:315-320. **6.** Doan GW, Courtis RP, Wyss JG, Green EW, Clary CW. Image-free robotic-assisted total knee arthroplasty improves implant alignment accuracy: a cadaveric study. J Arthroplasty. 2022;37(4):795-801. **7.** Johnson & Johnson and its affiliates. VELYS Robotic-Assisted Solution for UKA Quantitative Surgeon Experience Study. 05/2024. Windchill Document # 501968816. Project # 500004781. **8.** Johnson & Johnson and its affiliates. UKA Cadaveric Accuracy and Soft Tissue Protection Report. 05/2024. Windchill Document # 501402736. Project # 500004781. **9.** Albishi W, AbuDujain NM, Aldhahri M, Alzeer M. Unicompartmental knee replacement: controversies and technical considerations. Arthroplasty. 2024;6(1):21. Published 2024 May 2. doi:10.1186/s42836-024-00242-6. **10.** American Academy of Orthopaedic Surgeons. OrthoInfo: Unicompartmental (Partial) Knee Replacement. Accessed April 4, 2025. https://orthoinfo.aaos.org/en/treatment/unicompartmental-knee-replacement/. **11.** Agarwal N, To K, McDonnell S, Khan W. Clinical and radiological outcomes in robotic-assisted total knee arthroplasty: a systematic review and meta-analysis. J Arthroplasty. 2020;35(11):3393-3409.e2. **12.** Morrisey ZS, Barra MF, Guirguis PG, Drinkwater CJ. Transition to robotic total knee arthroplasty with kinematic alignment is associated with a short learning curve and similar acute-period functional recoveries. Cureus. 2023;15(5):e38872. **13.** Alton TB, Chitnis AS, Goldstein L, et al. Resource utilization and costs for robotic-assisted and manual total knee arthroplasty—a premier healthcare database study. Expert Rev Med Devices. 2023;20(4):303-311. **14.** The National Joint Registry for England, Wales, Northern Ireland and the Isle of Man (NJR). Sigma HP (Uni) Unicondylar Implant Summary Report (from 9 January 2004 to 1 January 2025) Generated 18February2025. Report available on https://www.jnjmedtech.com/en-US/product/sigma-hp-partial-knee. **15.** Johnson & Johnson and its affiliates. TSM Report. SIGMA HP WW implantations YTD, 2007 - 2024. J&J MedTech Synthes Sales and Royalty Database. **16.** American Academy of Orthopaedic Surgeons. OrthoInfo: Robotic-assisted joint replacement. Accessed May 1, 2025. https://orthoinfo.aaos.org/en/treatment/robotic-assisted-joint-replacement/. **17.** American Academy of Orthopaedic Surgeons. OrthoInfo: after your joint replacement surgery. Accessed on December 3, 2024. https://orthoinfo.aaos.org/globalassets/pdfs/after-your-joint-replacement-surgery.pdf.

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Are you ready to take the next step?

Ask your surgeon about the potential benefits of this technology.

Learn more at VelysEnabledMoment.com

Important Information: Prior to use, refer to the instructions for use supplied with the device(s) for indications, contraindications, side effects, warnings and precautions.

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