

Innovation in knee arthroplasty

MYKNEE

the operation tailored for the patient!



MYKNEE: THE OPERATION T

MyKnee is a very precise surgical instrument, specifically created for each patient from a radiological image of their own knee.

Therefore, MyKnee technology potentially makes Total Knee Replacement more accurate, faster and less traumatic.

It has been shown that accurate positioning of the prosthesis may lead to increased survivorship of the implant.

- **More accurate positioning of the prosthesis**^[1-10]
- **Less traumatic procedure**^[14-16]
- **Faster surgery**^[11-13, 17]

Clinical studies of reference:

[1] Anderl W et al, CTbased patient-specific vs. conventional instrumentation: Early clinical outcome and radiological accuracy in primary TKA; *Knee Surg Sports Traumatol Arthrosc.* 2014 [2] Koch P, Müller D, Pisan M, Fucetese S, Radiographic accuracy in TKA with CTbased patient-specific cutting block technique, *Knee Surg Sports Traumatol Arthrosc.* 2013 Oct;21(10):2200-5. [3] Nabavi et al, Assessment of the Accuracy of TKR's Performed Using Patient Matched Technology by Computed Tomography, Podium Presentation at the 27th ISTA congress Kyoto, Sept 24-27, 2014 [4] Leon V, Patient matched technology vs conventional instrumentation and CAS, Poster at the 13th EFORT Congress, Berlin, May 23-25 2012. [5] Dussault M, Goldberg T, Greenhow R, Hampton D, Parry S, Slimack M - Preoperative planning accuracy of MyKnee system. *M.O.R.E. Journal.* 2012 May; 2:22-25. [6] Müller D et al, CT based patient specific cutting blocks for total knee arthroplasty: technique and preliminary radiological results. Podium Presentation at the 71st Annual Congress of the SSOI, Lausanne, Switzerland, June 22-24, 2011. [7] Goldberg T et al, CTBased Patient-Specific Instrumentation Is Accurate for TKA: A Single-Surgeon Prospective Trial, *Bone Joint Journal* vol. 95-B no. SUPP 34 325, 2013 [8] Goldberg T et al, CTBased Patient-Specific Instrumentation Is Effective in Patients With Pre-Existing Hardware about the Knee, *Bone Joint Journal* vol. 95-B no. SUPP 34 326, 2013 [9] Trong M, Helmy N et al, Improved positioning of the tibial component in unicompartmental knee arthroplasty with patient-specific cutting blocks, *Knee Surg Sports Traumatol Arthrosc.* 2014 Jan, Epub ahead of print. [10] Baldo F, Boniforti B, Patient-specific cutting blocks for total knee arthroplasty: preoperative planning reliability. *J Orthopaed Traumatol* 2011; 12 (Suppl 1): S23-S88 [11] Goldberg T, MyKnee economical and clinical results. Podium Presentation at the 6th M.O.R.E. International symposium, Stresa, Italy, May 13-14, 2011. [12] Koch P, MyKnee System : A new vision in total knee replacement. Leading Opinions - *Orthopädie & Rheumatologie* 2, 2011: 32-35. [13] Gagna G, Aspects économiques de la technologie sur mesure MyKnee en chirurgie prothétique du genou, Podium Presentation at the SOFCOT Annual Meeting, Paris, November 11-14, 2012. [14] Ritter MA, et al. Postoperative alignment of total knee replacement: its effect on survival. *Clin Orthop.* 1994; 299:153-156. [15] Kalairajah Y, et al. Blood loss after total knee replacement: effects of computer-assisted surgery. *JBJS Br.* 2005 - Nov;87(11):1480-2. [16] Kalairajah Y, et al. Are systemic emboli reduced in computer-assisted knee surgery?: A prospective, randomised, clinical trial. *JBJS Br.* 2006 Feb;88(2):198-202. [17] Peersman G, et al. Prolonged Operative Time Correlates with Increased Infection Rate after Total Knee Arthroplasty, *Hospital for Special Surgery Journal* 2006 Feb;2(1):70-2. [18] Data on file: Medacta

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This brochure has been produced to help you feel safe and confident about your operation. Questions you may have regarding the surgery and post-operative recovery, are addressed.

MYKNEE: THE OPERATION T



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INTRODUCTION

The knee is the largest and most complex joint of our body. It **has a very difficult job; carrying the weight of our body with every step we take!** Therefore, it is not surprising that knees are the joints in our body that are most vulnerable to injuries or developing degenerative joint diseases, such as arthritis.

One of the consequences of any joint disease is **pain**.

Statistics show that roughly one third of the American population over the age of 45 suffers from knee pain. Knee pain may limit your daily activities, affect your fitness level, emotional health, and your **general well-being!**

You want to get rid of the pain and you can!

There are a variety of surgical and non surgical solutions to treat your disease. Your doctor will prescribe the most suitable treatment, according to your age, activity level and expectations.

Knee pain and stiffness caused by advanced arthritis is severely limiting and your physician may suggest you undergo a total knee replacement.

1 - THE KNEE AND THE



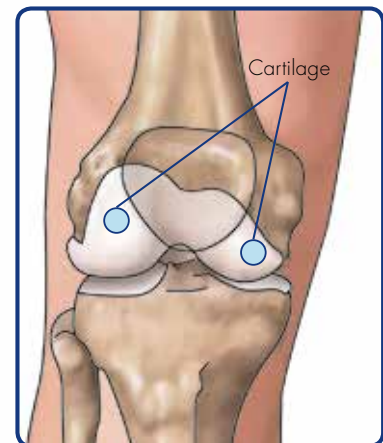
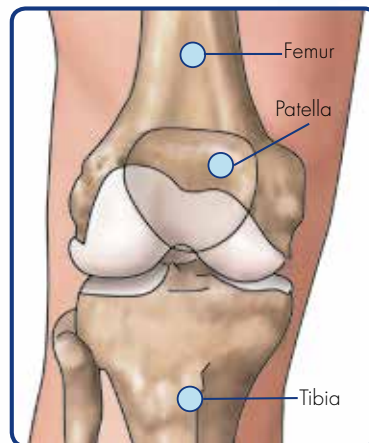
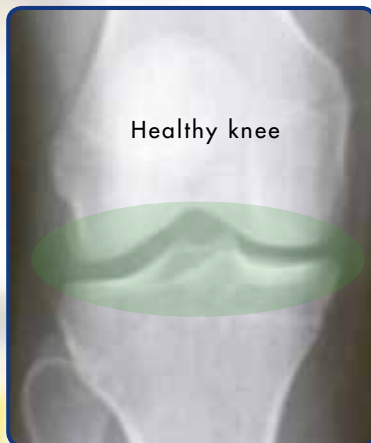
ARTHRITIS

ANATOMY OF THE KNEE

The knee joint is comprised of three bones: the thigh bone (femur), the shin bone (tibia) and the kneecap (patella). When you flex, or straighten your leg, the thigh bone turns on the shin bone, while the kneecap runs along the end of the thigh bone. The leg movement is driven by the thigh muscles, the biggest one being the quadriceps, located in the front of the thigh.

The thigh and shin bones are connected by ligaments, which give stability to the knee joint.

The surface of the kneecap, thigh bone and shin bone, where the bones come in contact, is coated with a smooth tissue called "articular cartilage". The cartilage, together with a substance called synovial fluid, prevents the bones from rubbing against each other and causing damage.

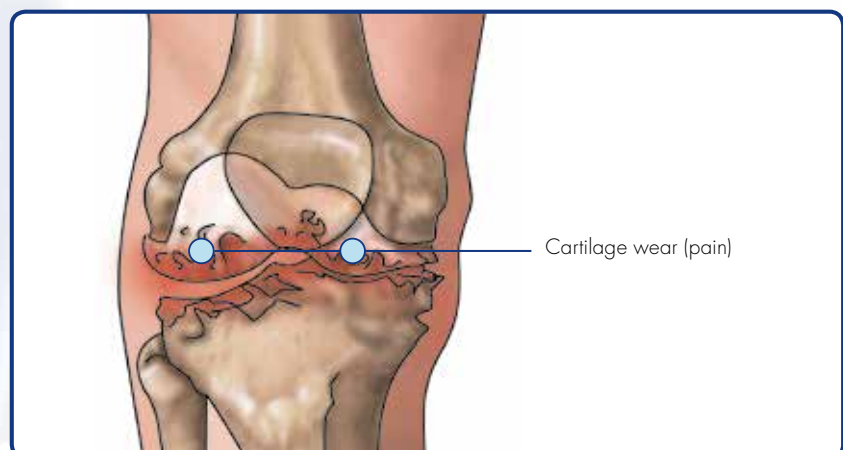


ARTHRITIS OF THE KNEE

With arthritis, the cartilage deteriorates and the bones start rubbing directly against each other. The result is joint **pain**, which can become worse over time, and limits motion.

Knee replacement is a common treatment for severe arthritis.

Successful knee replacement surgery can result in dramatic pain relief and improvement in knee joint function.



2 - TOTAL KNEE REPLACEMENT

WHAT IS TOTAL KNEE REPLACEMENT?

Total knee replacement surgery aims to substitute the bone and cartilage of the joint damaged by arthritis with metallic and plastic implants.

The surfaces of the thigh and shin bones are replaced with high-resistant metallic components, called the **femoral component** and **tibial baseplate**.

Between the femoral component and the tibial baseplate, a **plastic insert** is implanted. It replaces the cartilage function allowing the thigh and shin bone to slide on each other. All materials used in a total knee replacement are highly biocompatible.



FEMORAL COMPONENT
Metal



TIBIAL INSERT
Polyethylene



TIBIAL BASEPLATE
Metal



EMENT

WHY TOTAL KNEE REPLACEMENT?

With almost 50 years of history, total knee replacement surgery is a very common and safe procedure for the treatment of severe arthritis. Approximately 1,000,000 knee replacements are performed annually worldwide.

The main benefits of a successful total knee replacement are:

1 Reduction of knee pain

Pain may be rapidly and dramatically reduced, potentially eliminated!

2 Recovery of mobility

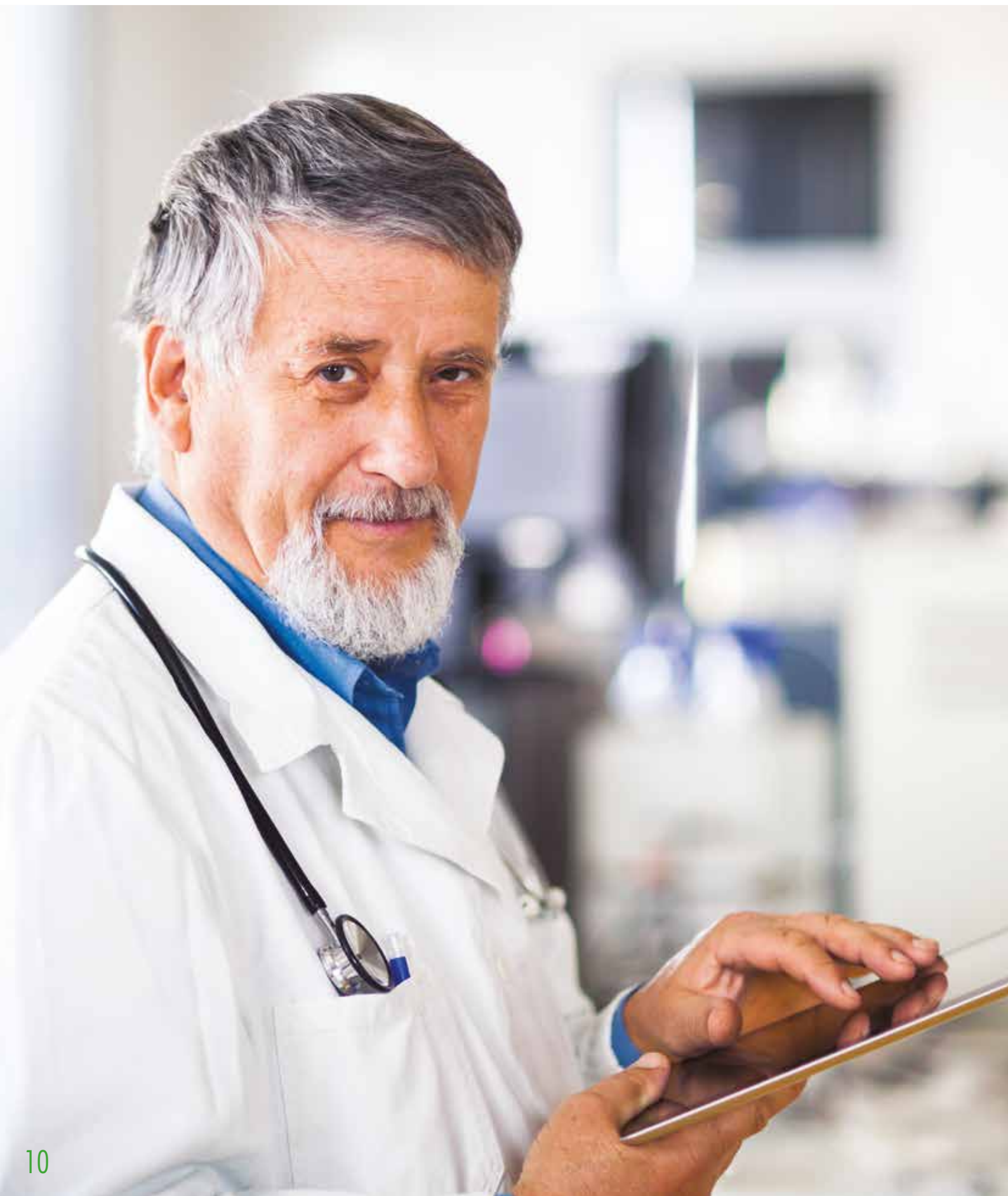
You may dramatically improve the mobility of your knee.

3 Improvement in quality of life

Your everyday activities may no longer be limited by pain and reduced mobility!



3 - CONVENTIONAL PRO



PROCEDURES AND MYKNEE

The positioning of a knee prosthesis is achieved using surgical instruments which prepare the bone for implanting the prosthesis.

CONVENTIONAL PROCEDURES

In conventional procedures
**the surgical instruments are
the same for all patients.**

Conventional instrumentation doesn't allow the surgeon to tailor the surgical procedure to the patient.

MYKNEE: INNOVATION

MyKnee is a surgical instrument which
**fits your knee accurately,
because it is created for you.**

Medacta, analyzing a diagnostic image of your leg, provides your surgeon with an instrument created specifically for your knee.

MyKnee technology allows preparation of the bones for implanting the prosthesis,
respecting your natural anatomy.



DESIGNED FOR YOU, BY YOU

4 - WHY CHOOSE A MY



KNEE?

MyKnee is an **instrument created for every patient**

beginning with an image of the knee.

MYKNEE TECHNOLOGY POTENTIALLY ASSURES THE FOLLOWING RESULTS:

1 More accurate positioning of the prosthesis

MyKnee fits the shape of the knee accurately, allowing precise preparation of the bone for implanting the prosthesis^[1,2]. Each phase of the operation is planned by the surgeon prior to the operation. The surgeon analyzes a tridimensional model of the patient's knee and is able to create a plan specifically for that patient. It has been proven clinically that accurate positioning of the implant results in increased survivorship of the prosthesis^[14].

2 Less traumatic procedure

Conventional procedures require damaging anatomic structures (e.g. medullary canal) in order to position the surgical instruments used to implant the prosthesis. MyKnee preserves these structures, allowing a dramatic decrease of blood loss and risk of embolism^[15,16].

3 Faster operation

The use of the MyKnee technology is very simple and straightforward. It potentially allows the surgeon to reduce operative time, thus decreasing the time under anesthesia and potentially reducing the risk of infection^[17].

Benefits of MyKnee

MyKnee technology allows for a **more accurate, faster and less traumatic** total knee replacement, by the use of a **surgical instrument tailored for the patient**.

5 - THE MYKNEE ADVE



MyKnee is a surgical instrument designed to **fit your knee with unmatched precision.**

1 Get an image of your knee

The surgeon will ask you to have a diagnostic scan (CT or MRI) of your leg.

2 Replication of your knee

Medacta will create a plastic 3D model of your knee using the image from the diagnostic scan in order to select the best implant for you.

3 Creation of MyKnee

Using the model of your knee, Medacta, together with your surgeon, will create your personalized surgical instruments.



4 Preparation for surgery

Prior to the surgery, your surgeon will receive the MyKnee instruments and a plastic replica of your knee. This will be analyzed by the surgeon in order to prepare accurately for your knee operation.



6 - GETTING READY FOR



TESTS & CHECKS

Before undergoing your total knee replacement, your doctor will prescribe a complete physical examination to assess your condition and to ensure that there are no factors that could interfere with your surgery.

R YOUR OPERATION

TESTS

Your doctor may ask you for blood and urine tests and possibly a cardiogram, prior to your surgery.

CHECK YOURSELF

1 Check your skin

If your knee and leg have any skin infections or irritation, contact your orthopedic surgeon prior to surgery: he or she will tell you how best to prepare your skin for surgery.

2 Check your teeth

The incidence of infection after knee replacement is very low, however infection can occur if bacteria enter your bloodstream. Therefore, you should contact your dentist to have your teeth checked before your surgery.

MEDICATIONS

Prior to surgery, provide your surgeon with a complete list of the medications you are taking, including doses and times. He or she will inform you if you need to stop or change any medications.

SPECIAL EQUIPMENT

Special equipment, such as support stockings and crutches, may be needed: you can rent or buy these in pharmacies or medical supply shops.

7 - WHILE YOU ARE IN



TAKE WITH YOU

THE HOSPITAL

THE DAY OF YOUR OPERATION

The surgical procedure usually takes 1 to 2 hours.

Surgery will begin with pre-surgical preparation and followed by monitoring in the recovery room.

The time away from your room will be longer than the operation due to time needed for your preparation for surgery, administration of anaesthesia and monitoring as you recover from the anaesthesia. Special care is taken to relieve pain after the surgery. Do not hesitate to call, even in the middle of the night, to obtain relief. Regular checks will be made by the nurses.

AFTER THE OPERATION

Doctors, nurses and therapists will take care of your recovery by defining the most suitable rehabilitation program for you and accompanying you through the gradual recovery process.

Rehabilitation may begin the day of the operation, subject to your doctor's approval. You may progress to weight bearing activities as tolerated and may discontinue assistive devices as your comfort level improves.

- 1 A complete list of your routine medications including doses and times.
- 2 Your x-rays and all papers for hospital admission including a copy of insurance cards (if requested).
- 3 Any equipment (crutches, stockings, etc.) ordered for you by your doctor.

8 - TAKING CARE OF YOU

LONG TERM CARE OF YOUR NEW KNEE

Follow your orthopedic surgeon's instructions carefully to minimize any potential complications which may affect your recovery. These complications are quite infrequent and some simple rules can dramatically reduce their likelihood.

DON'T FORGET

- 1 Lead a healthy and active life.
- 2 In case of fever, throat inflammation, pulmonary inflammation or similar, tell your physician that you have a knee implant.
- 3 Undergo regular general check-ups.

OUR NEW KNEE

If you have any concerns about your new knee, don't hesitate to contact your physician and, finally, ...

...enjoy your new knee!



My experience:



AILORED FOR THE PATIENT!



Redefining Better in Orthopaedics and Neurosurgery



PATIENT MATCHED TECHNOLOGY
IN KNEE REPLACEMENT

For further information visit the website:

myknee4me.com



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