# **G A K**<sup>°</sup> SPHERIKA

THE FIRST KA-OPTIMIZED IMPLANT



## Brochure

Joint

Sports



# **GAAK**<sup>°</sup> SPHERIKA

Flexion axis of the knee

#### **KINEMATIC ALIGNMENT**

Kinematic Alignment (KA) aims at restoring the native pre-arthritic alignment through true anatomic resurfacing without ligament releases, allowing for more natural knee kinematics.

In recent years **Kinematic Alignment** has been shown to provide **better functional scores** and **patient outcomes** in different comparative studies<sup>[1-3]</sup>.

However, femoral implants currently on the market are mainly designed for the Mechanical Alignment (MA) technique. This could potentially represent a limitation to the KA technique<sup>[4,5]</sup>.

#### **GMK SPHERE: A SOLID FOUNDATION**

Medacta's GMK Sphere has been proven to be a particularly suitable implant for KA<sup>[6-10]</sup>, as it provides stability with its Ball-in-Socket design, while allowing patient-specific kinematic patterns with its unconstrained lateral compartment<sup>[11-14]</sup>.



When combined with the KA technique, the GMK Sphere has been shown to provide **better** functional scores and improve patient outcomes compared to other designs<sup>[6-10]</sup>.



# THE FIRST KA-OPTIMIZED IMPLANT

To potentially further improve KA results and ultimately patient satisfaction, Medacta has developed GMK SpheriKA, the first KA-optimized implant. GMK SpheriKA was developed starting from the strong heritage of GMK Sphere, with a particular focus on the **anterior aspect** of the femur.

#### MEDIAL BALL-IN-SOCKET STABILITY

- Inherent stability with medial Ball-in-Socket<sup>[12,15,16]</sup>
- Unconstrained lateral compartment for patientspecific kinematics<sup>[12,16]</sup>

#### **KA-OPTIMIZED ANTERIOR ASPECT**

- Funnel design of the trochlea groove to accommodate a wider range of Q-angles for a patient-specific PFJ tracking
- Optimized bone coverage for the KA technique

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### **MEDIAL BALL-IN-SOCKET STABILITY**

Patients who receive a total knee replacement prefer a feeling of "stability"<sup>[17]</sup>.

Over the years, GMK Sphere has been proven to:

- Provide functional stability while allowing for patient specific kinematics<sup>[11-14]</sup>.
- Improve patient satisfaction even when compared to other implant designs<sup>[18]</sup>.



MEDIAL BALL-IN-SOCKET

A 1:1 congruent medial compartment provides high functional stability during the most demanding activities throughout the whole Range of Motion<sup>[12,15,16]</sup>

MEDIAL CONGRUENT IS NOT BALL-IN-SOCKET



J-Curve Medial Congruent Knee System



Only a true Ball-in-Socket design provides **full conformity** between femur and insert throughout the range of motion, maximizing **antero-posterior stability** and allowing for an **unconstrained lateral compartment**<sup>[11-14]</sup>.



# THE FIRST KA-OPTIMIZED IMPLANT

### **KA-OPTIMIZED ANTERIOR ASPECT**

The GMK SpheriKA design is based on an extensive anthropometric research project using the MyBody database\* containing more than 150,000 CT and MRI scans.

This study was conducted to characterize **the anterior aspect of the femur** and potentially **correlate it with** different **phenotypes** or **demographic parameters**.

The result of the analysis is in line with other clinical publications, indicating that there is a high degree of variability in the native trochlea orientation among patients<sup>[19]</sup>.





The antero-lateral ridge is designed to **better accomodate the valgus femoral cuts** applied in the KA technique and **reduce the risk of bony uncoverage**.

### **ANATOMICAL FIT**

An extensive anthropometric research performed in the MyBody database\* containing more than 150,000 CT and MRI scans of knees has led to the validation of the following<sup>[19]</sup>:

- Range of 13 femoral sizes with 2 mm increments that best fit a broad spectrum of anatomic profiles
- Anatomically shaped tibial baseplate
- Range of inserts with 1 mm increments

The combination of 13 femoral sizes and inserts with 1 mm increments allows the surgeon to "fine tune" ligament balance and improve stability throughout the range of motion.



#### **ADVANCED MATERIALS**





# THE FIRST KA-OPTIMIZED IMPLANT

### **ADVANCED TECHNOLOGIES**

GMK SpheriKA is supported by advanced enabling technologies, part of Medacta's MySolutions Personalized Ecosystem and supporting both MA and KA alignments.



MyKnee is a set patient-specific blocks, allowing the surgeon to reproduce their 3D preoperative planning, based on CT or MRI images of the patient's knee.



NextAR Knee delivers intraoperative guidance within the surgeon's operative field, through a compact disposable tracking system and augmented reality glasses.

# GAAK<sup>®</sup> Efficiency

GMK Efficiency is a complete single-use instrument solution designed to simplify inventory management, back table setup, and reduce facilities' reliance on decontamination practices for metal instrumentation.

GMK Efficiency can be used as a stand-alone solution or in combination with MyKnee or NextAR.



#### SYNERGIES WITH REVISION PORTFOLIO



### **GAAK**<sup>°</sup> REVISION SYSTEM

A complete and efficient system

- Full compatibility across the system
- Complete range of revision options
- Off-the-shelf SensiTiN option
- Dedicated MyKnee blocks







GMK SpheriKA

GMK Revision

GMK Hinge



# **G A A K**<sup>\*</sup> SPHERIKA



GMK SpheriKA is supported by MyKA, a comprehensive platform for Kinematic Alignment, that features dedicated instruments and technologies and a tailored M.O.R.E. Education Program.

Medacta has been a pioneer of this technique, in line with its pillar of responsible innovation to improve patient satisfaction.

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\* The CT and MRI scans contained in the "MyBody" database are anonymous and do not permit in any way the identification of patients. Medacta recognizes the importance of personal data protection and considers that preserving the confidentiality of personal data is one of the main objectives of its activity, in compliance with any applicable privacy law and regulation.

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Medacta International Strada Regina, 34 - 6874 Castel San Pietro - Switzerland Phone +41 91 696 60 60 - Fax + 41 91 696 60 66 Info@medacta.ch - www.medacta.com GMK<sup>®</sup> SpheriKA Brochure ref: 99.26SPHERIKA.11 rev. 01 Last update: March 2024

