Today’s fastest growing segment of knee replacement patients is seeking a return to a more active lifestyle.¹

Traditional knee replacement options don’t meet the need for higher functionality, improved motion or long-term durability.²,³,⁴,⁵ Most significantly, these traditional systems fall short in providing a return to a normal pattern of motion. Lack of motion, both selection and kinematics, can mean less satisfaction for patients who are unable to return to the demanding activities of their active lifestyle. Surgeons are left tempering patient expectations and tolerating the limited capabilities of traditional knee replacements.
The solution is

PHYSIOLOGICAL MATCHING° Technology

Anatomic design conforms to patient anatomy and improves patella tracking

’S’ shaped trochlear groove is designed to provide optimal patella tracking

Four peg divergent design allows for superior fixation

Grit blasted undersurface has shown excellent long term fixation

For orthopaedic surgeons seeking treatment solutions beyond traditional knee replacements, JOURNEY™ PFJ has been engineered to empower patients with a renewed right to an active lifestyle by breaking through traditional knee replacement barriers and helping patients revive their Function, Motion and Durability through PHYSIOLOGICAL MATCHING Technology.
Function

Conforming

- Unlike most competitors, JOURNEY™ PFJ has an anatomically conforming implant that is tailored to a person’s native anatomy. It is designed to conform to both a left and right femur, whereas most other patellofemoral replacements (PFRs) have one implant for both hands.

- JOURNEY PFJ’s anatomic shape has optimal bone coverage, which helps to reduce stress shielding and bone resorption. Studies have shown that JOURNEY PFJ has stresses comparable to the physiological knee.¹⁶

Forgiving

- Patented S-shaped trochlear groove allows for more forgiving alignment and better patellar tracking with a much lower incidence of lateral retinaculum releases.²¹,²⁸

- JOURNEY PFJ was the first fully instrumented PFR on the market, allowing surgeons more options and better intraoperative control of preparation, alignment, and implant positioning. It is coupled with patella instrumentation that features both a resurfacing and resection based option for a surgeon’s preference.

- The same peg configurations in all sizes allow seamless trialing and more intraoperative flexibility.
Satisfaction

• Despite the prevailing perception that PFRs have a very low incidence and are uncommon, studies have shown that approximately 1/3 of people over 60 experience patellofemoral joint space narrowing, and 24.3% of women and 11.0% of men with knee pain have isolated patellofemoral compartment arthritis. Additionally, patellofemoral joint pain is the most common problem in the knee, affecting approximately 25% of the population. 8,17

• While early PFRs demonstrated poor results, second iteration designs with less constrained trochlear grooves have been shown to have excellent clinical results. 9 Beitzel et al saw exceptional results with the JOURNEY™ PFJ through statistically improved PFR post-operative clinical scores at 2-year follow-up.13

• JOURNEY PFJ was predicated from the previous Richards II PFJ, which achieved 98% survivorship with mean follow up of 17 years. 9

• Studies have shown that many arthritic patients are good candidates for PFR and that clinical outcomes tend to be excellent for these patients in the long term as a result of ligament and tissue preservation, more normal gait and kinematics, quicker recovery, increased satisfaction scores, easier and cheaper revisions, and lower healthcare costs. 18,19,20,21,22
Motion

Patellofemoral kinematics

• The patented s-shaped groove of the JOURNEY™ PFJ has shown great clinical history in both the GENESIS™ II and LEGION™ primary systems.\textsuperscript{7,10,12}

• The deepened and lateralized trochlear groove of the JOURNEY PFJ drives normal superior patella tracking and has been clinically shown to have lower lateral release rates compared to other designs.\textsuperscript{7,10,12} Lateral retinaculum release in patellofemoral joint instability has been shown to promote reoccurrence of instability, indicating PFJ releases should be avoided whenever possible.\textsuperscript{11}

• Studies have shown that PFR and combined unicompartmental and patellofemoral joint procedures produce more normal kinematics and gait patterns when compared to TKR.\textsuperscript{18,21}

• PFRs allow patients to maintain normal kinematics and gait patterns in relation to the normal physiological conditions, allowing patients to have better satisfaction and feel more normal.\textsuperscript{18,19,20,21,22}
Fixation

- JOURNEY™ PFJ utilizes four convergent pegs that have been shown to provide excellent long term fixation.\textsuperscript{13,14}

- Grit blasted underside with cement grooves have been designed to promote superior cement adhesion.\textsuperscript{13,14}

- JOURNEY PFJ has been found to have normal physiological loading patterns compared to the normal knee in flexion, reducing the chance of adverse effects from stress shielding and bone resorption, such as loosening.\textsuperscript{14}
Durability

3D surface profiles of retrieved Oxidized Zirconium and Cobalt-Chromium femoral components

Wear

- OXINIUM® Oxidized Zirconium is an advanced bearing material that combines the strength of metal with the wear resistance of ceramics.  \(^{28}\)

- OXINIUM Technology is 4,900 times more resistant to abrasion than CoCr.  \(^{23}\)

- OXINIUM Technology is more than twice as hard as CoCr.  \(^{24}\)

- OXINIUM Technology has a coefficient of friction that is up to half that of CoCr.  \(^{25}\)

- Oxidized Zirconium provides the perfect combination of toughness and excellent wear properties for younger and/or active PFR patients that will require implants to last many years. OXINIUM® alloy has been shown to have lower wear rates when compared to the same devices with CoCr.  \(^{31,32}\)

Metal sensitivity

We understand that no measurable nickel content is of immeasurable benefit to nickel-sensitive patients.

- OXINIUM Oxidized Zirconium, exclusively from Smith & Nephew, addresses the needs of nickel-sensitive patients by having \(<0.0035\%\) nickel content, compared to 0.5% in cobalt chrome and 0.1% in titanium.  \(^{26}\)

- Zirconium is a nearly inert material that has not reported to induce immune reactions.  \(^{26}\)
Flexibility

- JOURNEY® PFJ is fully integrated and interchangeable with all JOURNEY Active Knee solutions. It can be used effectively in combination with JOURNEY UNI in cases that require both compartments to be replaced. Studies have shown that this bi-compartmental replacement can be very effective in treating patients, by preserving soft tissue and achieving normal gate patterns compared to a TKA. Approximately 7% of patients could be candidates for this procedure.\textsuperscript{15,16,17,18,21}

- Unlike many other PFJ competitor implants, JOURNEY PFJ has a seamless transition to JOURNEY II CR, JOURNEY II BCS, or LEGION™ Primary TKR as a bailout or revision option.

- Unlike most TKA systems, JOURNEY PFJ and JOURNEY UNI are both minimally invasive procedures that preserve native ligaments and tissue, and as a result have much easier and less costly revisions compared to many other systems.
Patented the usage of Oxidized Zirconium with orthopaedic medical devices

The introduction of the GENESIS TKS was a significant step in the evolution of the modern knee designs. It was the first system to “Address the Unexpected.” With a single set of instruments and implants, virtually any interoperative situation could be handled. This technological advancement greatly simplified the process of TKA.

Designers: Dr. Ramon Gustilo, Dr. Jim Rand, Dr. Richard Laskin, Dr. James Howe, and Dr. Todd Swanson.

Launched as one of the first asymmetric femoral component designs, opening up the opportunity for less traditional knee designs. Over 1 million GENESIS II knees have been implanted globally.

The first OXINIUM™ alloy total knee implantation. Over the past 15 + years over 600k OXINIUM Alloy hips and knees have been implanted worldwide.

Richards Manufacturing collaborate with Dr. Leonard Marmor to commercially produce the first unicondylar knee on the market.

The GENESIS UNI was launched in collaboration with Professor Cartier and Dr. James Andrews has demonstrated to be one of the most clinically successful unicondylar knees on the market (94.5% at 10 years).41

Using advanced biomechanical modeling technologies, the JOURNEY BCS was the first TKA to accurately replicate the normal kinematic patterns of the healthy knee joint. Over 60,000 JOURNEY BCS knees have been implanted around the world. ‘Most Significant New Product at AAOS’ (2006) Designers: Prof. Johan Bellemans, Dr. Jonathan Garino, Dr. Steven Haas, Dr. Michael Ries, and Prof. Jan Victor.

The JOURNEY PFJ combines the clinically proven performance of its trochlear groove with powerful precision-the first completely instrumented JOURNEY PFJ system for greater reproducibility and ease of use. Designers: E. Lyle Cain, Jr, MD, Jeffrey R. Dugas, MD, Dr. John Neuman, FRCS, William B. Smith, MD.

The LEGION Revision Knee System was designed to strike a perfect balance by providing simple, efficient instruments specific to revision and a broad range of implant options to address even the most demanding surgeries. Combined with Oxidized Zirconium, LEGION Revision helps surgeons give their patients the potential for better outcomes with lower wear.
VERILAST Technology, a one-of-a-kind advanced bearing couple of OXINIUM™ Oxidized Zirconium with highly-crosslinked polyethylene formulation designed specifically for knees.

JOURNEY UNI knee treats isolated compartmental disease with anatomic components coupled with simple, intuitive instrumentation for a streamlined, reproducible technique. Designers: Dr. William Bugbee, Dr. Donald Polakoff, Dr. Jonathan Young, Dr. Stuart Smith, Dr. Douglas Naudie, Dr. Paul Saenger, Dr. and Jerome Rubini

Launched VERILAST™ Technology

2007 PLUS Orthopedics

Smith & Nephew purchased the Swiss company PLUS Orthopedics. This added the PLUS SOLUTION knee family to the portfolio: TC-PLUS® PRIMARY, TC-PLUS REVISION, and RT-PLUS® REVISION. The PLUS Knee family is developed and manufactured in Switzerland and offers a seamless system; from Primary – Complex Primary – Revision – Hinge Knee.

2007 JOURNEY™ DEUCE

Revolutionary approach to addressing medial femoral and patella-femoral disease in monolithic component. The lessons gained from experiences have allowed advanced kinematic evaluations. Designers: Dr. Lindsey Rolston and Dr. Gerard Engh

2009 VISIONAIRE® Patient Matched Instrumentation

In 2009 Smith & Nephew globally launched the foundation of its patient specific solutions, VISIONAIRE Patient Matched Cutting blocks. Smith & Nephew was the first company to launch patient matched technology developed and manufactured completely in house.

2009 VISIONAIRE™ Patient Matched Cutting Blocks

2008 JOURNEY UNI

JOURNEY UNI knee treats isolated compartmental disease with anatomic components coupled with simple, intuitive instrumentation for a streamlined, reproducible technique. Designers: Dr. William Bugbee, Dr. Donald Polakoff, Dr. Jonathan Young, Dr. Stuart Smith, Dr. Douglas Naudie, Dr. Paul Saenger, Dr. and Jerome Rubini

2008 Launched VERILAST™ Technology

VERILAST Technology, a one-of-a-kind advanced bearing couple of OXINIUM™ Oxidized Zirconium with highly-crosslinked polyethylene formulation designed specifically for knees.

2012 Acquisition of LifeMod

Smith & Nephew announces the acquisition of LifeModeler, Inc. (LMI), the leading provider of biomechanical human body simulation tools and services. LMI’s groundbreaking software shortens the time taken to develop new products by enabling the evaluation of innovations in a virtual model of the human body. New orthopaedic products can be tested and validated faster, more extensively, and more cost effectively prior to the production of a physical prototype.

2012 LEGION™ Hinge (HK)

LEGION Hinged Knee is launched as an extension of the clinically successful LEGION Total Knee System. Its kinematic and bone sparing design not only alleviates patients’ symptoms, but also restores an almost natural knee function. Coupled with its ease of use by allowing surgeons to seamlessly transition intraoperatively from a constrained revision implant to a hinged assembly, it makes knee salvage, knee rescue.

2012 JOURNEY II BCS

The next generation of normal function, motion and durability. More normal kinematics and function-strength, stability and higher flexion achieved through the unique features of the JOURNEY II BCS system; normal shapes, normal position and normal motion. Designers: Prof. Johan Bellemans, Dr. Jonathan Garino, Dr. Steven Haas, Dr. Michael Ries, and Prof. Jan Victor, Dr. Mark Snyder and Dr. Fred Cushner.

2012 JOURNEY™ DEUCE

2007 PLUS Orthopedics

Smith & Nephew purchased the Swiss company PLUS Orthopedics. This added the PLUS SOLUTION knee family to the portfolio: TC-PLUS® PRIMARY, TC-PLUS REVISION, and RT-PLUS® REVISION. The PLUS Knee family is developed and manufactured in Switzerland and offers a seamless system; from Primary – Complex Primary – Revision – Hinge Knee.

LEGION Hinged Knee is launched as an extension of the clinically successful LEGION Total Knee System. Its kinematic and bone sparing design not only alleviates patients’ symptoms, but also restores an almost natural knee function. Coupled with its ease of use by allowing surgeons to seamlessly transition intraoperatively from a constrained revision implant to a hinged assembly, it makes knee salvage, knee rescue.

2009 VISIONAIRE® Patient Matched Instrumentation

In 2009 Smith & Nephew globally launched the foundation of its patient specific solutions, VISIONAIRE Patient Matched Cutting blocks. Smith & Nephew was the first company to launch patient matched technology developed and manufactured completely in house.

2012 Acquisition of LifeMod

Smith & Nephew announces the acquisition of LifeModeler, Inc. (LMI), the leading provider of biomechanical human body simulation tools and services. LMI’s groundbreaking software shortens the time taken to develop new products by enabling the evaluation of innovations in a virtual model of the human body. New orthopaedic products can be tested and validated faster, more extensively, and more cost effectively prior to the production of a physical prototype.

2012 LEGION™ Hinge (HK)

LEGION Hinged Knee is launched as an extension of the clinically successful LEGION Total Knee System. Its kinematic and bone sparing design not only alleviates patients’ symptoms, but also restores an almost natural knee function. Coupled with its ease of use by allowing surgeons to seamlessly transition intraoperatively from a constrained revision implant to a hinged assembly, it makes knee salvage, knee rescue.

2012 JOURNEY II BCS

The next generation of normal function, motion and durability. More normal kinematics and function-strength, stability and higher flexion achieved through the unique features of the JOURNEY II BCS system; normal shapes, normal position and normal motion. Designers: Prof. Johan Bellemans, Dr. Jonathan Garino, Dr. Steven Haas, Dr. Michael Ries, and Prof. Jan Victor, Dr. Mark Snyder and Dr. Fred Cushner.

2012 JOURNEY II BCS

2007 PLUS Orthopedics

Smith & Nephew purchased the Swiss company PLUS Orthopedics. This added the PLUS SOLUTION knee family to the portfolio: TC-PLUS® PRIMARY, TC-PLUS REVISION, and RT-PLUS® REVISION. The PLUS Knee family is developed and manufactured in Switzerland and offers a seamless system; from Primary – Complex Primary – Revision – Hinge Knee.

2007 JOURNEY™ DEUCE

Revolutionary approach to addressing medial femoral and patella-femoral disease in monolithic component. The lessons gained from experiences have allowed advanced kinematic evaluations. Designers: Dr. Lindsey Rolston and Dr. Gerard Engh

2009 VISIONAIRE® Patient Matched Instrumentation

In 2009 Smith & Nephew globally launched the foundation of its patient specific solutions, VISIONAIRE Patient Matched Cutting blocks. Smith & Nephew was the first company to launch patient matched technology developed and manufactured completely in house.

2009 VISIONAIRE™ Patient Matched Cutting Blocks

2008 JOURNEY UNI

JOURNEY UNI knee treats isolated compartmental disease with anatomic components coupled with simple, intuitive instrumentation for a streamlined, reproducible technique. Designers: Dr. William Bugbee, Dr. Donald Polakoff, Dr. Jonathan Young, Dr. Stuart Smith, Dr. Douglas Naudie, Dr. Paul Saenger, Dr. and Jerome Rubini

2008 Launched VERILAST™ Technology

VERILAST Technology, a one-of-a-kind advanced bearing couple of OXINIUM™ Oxidized Zirconium with highly-crosslinked polyethylene formulation designed specifically for knees.

2008 Launch of VERILAST™ Technology

2007 PLUS Orthopedics

Smith & Nephew purchased the Swiss company PLUS Orthopedics. This added the PLUS SOLUTION knee family to the portfolio: TC-PLUS® PRIMARY, TC-PLUS REVISION, and RT-PLUS® REVISION. The PLUS Knee family is developed and manufactured in Switzerland and offers a seamless system; from Primary – Complex Primary – Revision – Hinge Knee.

2007 JOURNEY™ DEUCE

Revolutionary approach to addressing medial femoral and patella-femoral disease in monolithic component. The lessons gained from experiences have allowed advanced kinematic evaluations. Designers: Dr. Lindsey Rolston and Dr. Gerard Engh

2009 VISIONAIRE® Patient Matched Instrumentation

In 2009 Smith & Nephew globally launched the foundation of its patient specific solutions, VISIONAIRE Patient Matched Cutting blocks. Smith & Nephew was the first company to launch patient matched technology developed and manufactured completely in house.

2009 VISIONAIRE™ Patient Matched Cutting Blocks

2008 JOURNEY UNI

JOURNEY UNI knee treats isolated compartmental disease with anatomic components coupled with simple, intuitive instrumentation for a streamlined, reproducible technique. Designers: Dr. William Bugbee, Dr. Donald Polakoff, Dr. Jonathan Young, Dr. Stuart Smith, Dr. Douglas Naudie, Dr. Paul Saenger, Dr. and Jerome Rubini

2008 Launched VERILAST™ Technology

VERILAST Technology, a one-of-a-kind advanced bearing couple of OXINIUM™ Oxidized Zirconium with highly-crosslinked polyethylene formulation designed specifically for knees.

2008 Launch of VERILAST™ Technology

2012 Acquisition of LifeMod

Smith & Nephew announces the acquisition of LifeModeler, Inc. (LMI), the leading provider of biomechanical human body simulation tools and services. LMI’s groundbreaking software shortens the time taken to develop new products by enabling the evaluation of innovations in a virtual model of the human body. New orthopaedic products can be tested and validated faster, more extensively, and more cost effectively prior to the production of a physical prototype.

2012 LEGION™ Hinge (HK)

LEGION Hinged Knee is launched as an extension of the clinically successful LEGION Total Knee System. Its kinematic and bone sparing design not only alleviates patients’ symptoms, but also restores an almost natural knee function. Coupled with its ease of use by allowing surgeons to seamlessly transition intraoperatively from a constrained revision implant to a hinged assembly, it makes knee salvage, knee rescue.

2012 JOURNEY II BCS

The next generation of normal function, motion and durability. More normal kinematics and function-strength, stability and higher flexion achieved through the unique features of the JOURNEY II BCS system; normal shapes, normal position and normal motion. Designers: Prof. Johan Bellemans, Dr. Jonathan Garino, Dr. Steven Haas, Dr. Michael Ries, and Prof. Jan Victor, Dr. Mark Snyder and Dr. Fred Cushner.

2012 JOURNEY II BCS

2013 VISIONAIRE Technology and Patient Specific Logistics

In 2013 Smith & Nephew launched Patient Specific Logistics with Universal Instrument Trays. This industry leading initiative allows for Smith & nephew to provide “just in time logistics” where instruments specific to each patient including size and hand are provided for each surgery helping to reduce hospital costs and improve operating room efficiency.

2013 VISIONAIRE

Technology and Patient Specific Logistics

In 2013 Smith & Nephew launched Patient Specific Logistics with Universal Instrument Trays. This industry leading initiative allows for Smith & nephew to provide “just in time logistics” where instruments specific to each patient including size and hand are provided for each surgery helping to reduce hospital costs and improve operating room efficiency.

2014 JOURNEY II CR

Designed to be the first kinematically correct cruciate retaining TKA on the market designed in collaboration with Professor Johan Bellemans, Dr. David Drucker, Dr. Alois Franz, Dr. Murali Jasty, Dr. Gerald Jerry, Dr. Michael Ries, Mr. Neil Thomas, Dr. Alfred Tria, Professor Jan Victor and Dr. Ate Wymenga

2014 JOURNEY II CR

2010