OPTETRAK®

A COMPREHENSIVE KNEE SYSTEM



CONSTRAINED CONDYLAR

The Right Track

It's not just a road we're on,
it's a trail we're blazing.

INTRODUCTION

In the late 1980s, Dr. Albert Burstein of Hospital for Special Surgery, New York, NY, and Dr. Donald Bartel, a colleague from Cornell University, reviewed the clinical performance of total knee replacements and studied the appearance of retrieved prosthesis specimens. This analysis led them to develop an improved articular design that results in very low Ultra High Molecular Weight Polyethylene (UHMWPE) stresses.

The resulting bi-concave contour of Optetrak® results in reduced polyethylene stress in all loading modes. The condylar radii have been precisely machined and matched to reduce stress further, while maintaining proven kinematics.

Optetrak is a comprehensive knee system, based on over 30 years of clinical results from Hospital for Special Surgery, that addresses your concerns for contact stress, patellar tracking, polyethylene wear, joint stability and bone preservation with streamlined instrumentation that lets you work quickly and efficiently.

The Optetrak Comprehensive Total Knee system offers total flexibility among its different components. Both Cruciate Retaining (CR) and Posterior Stabilized (PS) prostheses are compatible with and may be upgraded to the Non-Modular Constrained or Constrained Condylar implants if collateral ligament stability is affected.

DESIGN RATIONALE

The Optetrak total knee system design team, clinical evaluators and Exactech engineers have collaborated to provide the Optetrak Constrained Condylar knee, a system of implants and instruments that addresses a wide variety of primary and revision knee surgeries. The design includes all the features and benefits of the Optetrak Posterior Stabilized Knee and the heritage of the Total Condylar and Insall/Burstein knee prostheses.

The primary long-term survivorship of these systems has been excellent, with over 90 percent of these knees functioning after 30 years.

The enhancements over other systems are as follows:

- The femoral flange edges of the Optetrak Constrained Condylar knee are beveled to allow a more centralized patellar tracking. The patellar groove is also deeper and additional material has been removed from the extension/flexion transition point to reduce the incidence of "patellar clunk."
- The Optetrak Constrained Condylar stem position is more anterior than other constrained condylar designs. This provides proper positioning of the femoral prosthesis in the sagittal plane. The stem boss has been shortened and designed to allow for a right and left stem position with multiple valgus angle settings.
- The femoral augmentation options of the Optetrak Constrained Condylar knee accommodate independent posterior and distal thicknesses. The femoral augmentation blocks come pre-assembled with a screw. This facilitates attachment to the femoral component.
- The femoral component size is always matched exactly with the corresponding tibial insert to minimize articular stresses and reduce polyethylene wear. The tibial tray design provides for up and down sizing so that the surgeon can optimally fit the tray to the tibial bone.
- The tibial spine fit in the femoral box provides excellent stability to augment deficient medial or lateral collateral soft tissues. The spine provides 1 1/2 degrees of varus/valgus freedom and two degrees of rotation.
- Instrumentation for the Optetrak Constrained Condylar knee provides reference points for establishing both joint line level and appropriate alignment. A joint line reference instrument can be used to determine the level of distal femoral resection, which positions the joint line anatomically.
- To simplify trial assembly and instrument selection, the CC system uses the same color code scheme as the Optetrak primary system.
- The augmentation trials for the tibial and femoral components have magnets to afford easy assembly.

INSTRUMENT LISTING

Catalog Number	Part Description	
101-14-00	Quick Release T-Handle	
201-44-00	Mauldin Multi-Tool	
201-57-20	Tibial Resection Guide, Augmentation Block	
201-64-00	Femoral Impactor, Non-Locking	
201-73-00	Tibial Tamp, Trapezoid	
201-74-00	Tibial Tamp Guide	
201-90-01	CC Tibial Insert Impactor	
205-75-01 205-75-02 205-75-03 205-75-04 205-75-05	Tibial Augment Block Template, Size 1 Tibial Augment Block Template, Size 2 Tibial Augment Block Template, Size 3 Tibial Augment Block Template, Size 4 Tibial Augment Block Template, Size 5	
209-30-00	Torque-Limiting Driver Handle	
209-43-00	CC Distal Femoral Resection Guide	
209-44-00	CC Femoral Reference Coupler	

Catalog Number	Part Description	
209-45-05	CC Femoral Valgus Angle Adaptor, 5 Degrees	
209-45-07	CC Femoral Valgus Angle Adaptor, 7 Degrees	
209-46-05	CC Femoral Finishing Guide Bushing, 5 Degrees	
209-46-07	CC Femoral Finishing Guide Bushing, 7 Degrees	
209-47-01	CC Femoral Lateral Template, Size 1	
209-47-02	CC Femoral Lateral Template, Size 2	
209-47-03	CC Femoral Lateral Template, Size 3	
209-47-04	CC Femoral Lateral Template, Size 4	
209-47-05	CC Femoral Lateral Template, Size 5	
209-51-01	CC Femoral Finishing Guide, Size 1	
209-51-02	CC Femoral Finishing Guide, Size 2	
209-51-03	CC Femoral Finishing Guide, Size 3	
209-51-04	CC Femoral Finishing Guide, Size 4	
209-51-05	CC Femoral Finishing Guide, Size 5	
209-53-01	CC Femoral Notch Guide, Size 1	
209-53-02	CC Femoral Notch Guide, Size 2	
209-53-03	CC Femoral Notch Guide, Size 3	
209-53-04	CC Femoral Notch Guide, Size 4	
209-53-05	CC Femoral Notch Guide, Size 5	
209-56-10	Stem Extension Reamer, 10mm	
209-56-12	Stem Extension Reamer, 12mm	
209-56-14	Stem Extension Reamer, 14mm	
209-56-16	Stem Extension Reamer, 16mm	
209-56-18	Stem Extension Reamer, 18mm	
209-56-20	Stem Extension Reamer, 20mm	
209-56-22	Stem Extension Reamer, 22mm	
209-56-24	Stem Extension Reamer, 24mm	
209-57-00	Hex Spherical Tip Driver	
209-69-00	Pin Inserter/Extractor	
209-71-10	Tibial Stem Extension Drill Guide, 10mm	
209-71-12	Tibial Stem Extension Drill Guide, 12mm	
209-71-14	Tibial Stem Extension Drill Guide, 14mm	
209-71-16	Tibial Stem Extension Drill Guide, 16mm	
209-71-18	Tibial Stem Extension Drill Guide, 18mm	

INSTRUMENT LISTING

Catalog Number	Part Description	
209-78-11	CC Pins	
209-89-00	Tibial Intra-medullary Resector, Fixed, Zero-Degree Slope	
209-89-05	Tibial Intra-medullary Reamer Coupler	
209-04-71	Offset Tibial Bushing, Size 1	
209-04-72	Offset Tibial Bushing, Size 2	
209-04-73	Offset Tibial Bushing, Size 3	
209-04-74	Offset Tibial Bushing, Size 4	
209-04-75	Offset Tibial Bushing, Size 5	
209-04-90	Offset Tibial Impactor/Slap Hammer	
213-77-00	Cut Line Predictor	
201-03-26	One-Peg Patella Trial, Size 26	
201-03-29	One-Peg Patella Trial, Size 29	
201-03-32	One-Peg Patella Trial, Size 32	
201-03-35	One-Peg Patella Trial, Size 35	
201-03-38	One-Peg Patella Trial, Size 38	
201-03-41	One-Peg Patella Trial, Size 41	
201-21-22	Tibial Trial, Modular Insert, Size 1, 22mm†	
201-21-26	Tibial Trial, Modular Insert, Size 1, 26mm†	
201-21-30	Tibial Trial, Modular Insert, Size 1, 30mm†	
201-22-22	Tibial Trial, Modular Insert, Size 2, 22mm	
201-22-26	Tibial Trial, Modular Insert, Size 2, 26mm	
201-22-30	Tibial Trial, Modular Insert, Size 2, 30mm	
201-23-22	Tibial Trial, Modular Insert, Size 3, 22mm	
201-23-26	Tibial Trial, Modular Insert, Size 3, 26mm	
201-23-30	Tibial Trial, Modular Insert, Size 3, 30mm	
201-24-22	Tibial Trial, Modular Insert, Size 4, 22mm	
201-24-26	Tibial Trial, Modular Insert, Size 4, 26mm	
201-24-30	Tibial Trial, Modular Insert, Size 4, 30mm	
201-25-22	Tibial Trial, Modular Insert, Size 5, 22mm	
201-25-26	Tibial Trial, Modular Insert, Size 5, 26mm	
201-25-30	Tibial Trial, Modular Insert, Size 5, 30mm	

†*Special order*

Catalog Number	Part Description
205-30-08	Stem Extension Trial, 10mm X 80mm
205-30-12	Stem Extension Trial, 10mm X 120mm
205-32-01	Stem Extension Trial, 12mm X 11mm
205-32-08	Stem Extension Trial, 12mm X 80mm
205-32-12	Stem Extension Trial, 12mm X 120mm
205-34-02	Stem Extension Trial, 14mm X 25mm
205-34-04	Stem Extension Trial, 14mm X 40mm
205-34-08	Stem Extension Trial, 14mm X 80mm
205-34-12	Stem Extension Trial, 14mm X 120mm
205-36-08	Stem Extension Trial, 16mm X 80mm
205-36-12	Stem Extension Trial, 16mm X 120mm
205-38-08	Stem Extension Trial, 18mm X 80mm
205-38-12	Stem Extension Trial, 18mm X 120mm
205-40-08	Stem Extension Trial, 20mm X 80mm
205-40-12	Stem Extension Trial, 20mm X 120mm
205-46-08	Stem Extension Trial, 22mm X 80mm
205-48-08	Stem Extension Trial, 24mm X 80mm



205-41-05	1/3 Block Tibial Augment Trial, Size 1, 5mm
205-41-08	1/3 Block Tibial Augment Trial, Size 1, 8mm
205-41-88	1/3 Block Tibial Augment Trial, Size 1, 11mm Right Lateral/ Left Medial
205-41-89	1/3 Block Tibial Augment Trial, Size 1, 11mm Right Medial/ Left Lateral
205-42-05	1/3 Block Tibial Augment Trial, Size 2, 5mm
205-42-08	1/3 Block Tibial Augment Trial, Size 2, 8mm
205-42-88	1/3 Block Tibial Augment Trial, Size 2, 11mm Right Lateral/ Left Medial
205-42-89	1/3 Block Tibial Augment Trial, Size 2, 11mm Right Medial/ Left Lateral
205-43-05	1/3 Block Tibial Augment Trial, Size 3, 5mm
205-43-08	1/3 Block Tibial Augment Trial, Size 3, 8mm
205-43-88	1/3 Block Tibial Augment Trial, Size 3, 11mm Right Lateral/ Left Medial
205-43-89	1/3 Block Tibial Augment Trial, Size 3, 11mm Right Medial/ Left Lateral
205-44-05	1/3 Block Tibial Augment Trial, Size 4, 5mm
205-44-08	1/3 Block Tibial Augment Trial, Size 4, 8mm
205-44-88	1/3 Block Tibial Augment Trial, Size 4, 11mm Right Lateral/ Left Medial
205-44-89	1/3 Block Tibial Augment Trial, Size 4, 11mm Right Medial/ Left Lateral
205-45-05	1/3 Block Tibial Augment Trial, Size 5, 5mm
205-45-08	1/3 Block Tibial Augment Trial, Size 5, 8mm
205-45-88	1/3 Block Tibial Augment Trial, Size 5, 11mm Right Lateral/ Left Medial
205-45-89	1/3 Block Tibial Augment Trial, Size 5, 11mm Right Medial/ Left Lateral



INSTRUMENT LISTING

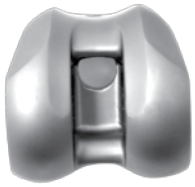
Catalog Number	Part Description
205-61-05	1/2 Block Tibial Augment Trial, Size 1, 5mm
205-61-08	1/2 Block Tibial Augment Trial, Size 1, 8mm
205-61-88	1/2 Block Tibial Augment Trial, Size 1, 11mm Right Lateral/ Left Medial
205-61-89	1/2 Block Tibial Augment Trial, Size 1, 11mm Right Medial/ Left Lateral
205-62-05	1/2 Block Tibial Augment Trial, Size 2, 5mm
205-62-08	1/2 Block Tibial Augment Trial, Size 2, 8mm
205-62-88	1/2 Block Tibial Augment Trial, Size 2, 11mm Right Lateral/ Left Medial
205-62-89	1/2 Block Tibial Augment Trial, Size 2, 11mm Right Medial/ Left Lateral
205-63-05	1/2 Block Tibial Augment Trial, Size 3, 5mm
205-63-08	1/2 Block Tibial Augment Trial, Size 3, 8mm
205-63-88	1/2 Block Tibial Augment Trial, Size 3, 11mm Right Lateral/ Left Medial
205-63-89	1/2 Block Tibial Augment Trial, Size 3, 11mm Right Medial/ Left Lateral



205-64-05	1/2 Block Tibial Augment Trial, Size 4, 5mm
205-64-08	1/2 Block Tibial Augment Trial, Size 4, 8mm
205-64-88	1/2 Block Tibial Augment Trial, Size 4, 11mm Right Lateral/ Left Medial
205-64-89	1/2 Block Tibial Augment Trial, Size 4, 11mm Right Medial/ Left Lateral
205-65-05	1/2 Block Tibial Augment Trial, Size 5, 5mm
205-65-08	1/2 Block Tibial Augment Trial, Size 5, 8mm
205-65-88	1/2 Block Tibial Augment Trial, Size 5, 11mm Right Lateral/ Left Medial
205-65-89	1/2 Block Tibial Augment Trial, Size 5, 11mm Right Medial/ Left Lateral
205-70-01	Tibial Tray Trial, Trapezoid, Size 1
205-70-02	Tibial Tray Trial, Trapezoid, Size 2
205-70-03	Tibial Tray Trial, Trapezoid, Size 3
205-70-04	Tibial Tray Trial, Trapezoid, Size 4
205-70-05	Tibial Tray Trial, Trapezoid, Size 5
205-70-06	Tibial Tray Trial, Trapezoid, Size 6



209-01-01	CC Femoral Trial, Size 1
209-01-02	CC Femoral Trial, Size 2
209-01-03	CC Femoral Trial, Size 3
209-01-04	CC Femoral Trial, Size 4
209-01-05	CC Femoral Trial, Size 5



209-04-11	Offset Broach Trial, Alpha, Size 1
209-04-12	Offset Broach Trial, Beta, Size 1
209-04-21	Offset Broach Trial, Alpha, Size 2
209-04-22	Offset Broach Trial, Beta, Size 2
209-04-31	Offset Broach Trial, Alpha, Size 3
209-04-32	Offset Broach Trial, Beta, Size 3
209-04-41	Offset Broach Trial, Alpha, Size 4
209-04-42	Offset Broach Trial,, Beta, Size 4
209-04-51	Offset Broach Trial, Alpha, Size 5
209-04-52	Offset Broach Trial, Beta, Size 5



209-05-01	Femoral Augment Block Trial, Distal, 5mm, Size 1
209-05-02	Femoral Augment Block Trial, Distal, 5mm, Size 2
209-05-03	Femoral Augment Block Trial, Distal, 5mm, Size 3
209-05-04	Femoral Augment Block Trial, Distal, 5mm, Size 4
209-05-05	Femoral Augment Block Trial, Distal, 5mm, Size 5



209-06-01	Femoral Augment Block Trial, Distal, 10mm, Size 1
209-06-02	Femoral Augment Block Trial, Distal, 10mm, Size 2
209-06-03	Femoral Augment Block Trial, Distal, 10mm, Size 3
209-06-04	Femoral Augment Block Trial, Distal, 10mm, Size 4
209-06-05	Femoral Augment Block Trial, Distal, 10mm, Size 5



209-07-01	Femoral Augment Block Trial, Posterior, 5mm, Size 1
209-07-02	Femoral Augment Block Trial, Posterior, 5mm, Size 2
209-07-03	Femoral Augment Block Trial, Posterior, 5mm, Size 3
209-07-04	Femoral Augment Block Trial, Posterior, 5mm, Size 4
209-07-05	Femoral Augment Block Trial, Posterior, 5mm, Size 5



209-08-01	Femoral Augment Block Trial, Posterior, 10mm, Size 1
209-08-02	Femoral Augment Block Trial, Posterior, 10mm, Size 2
209-08-03	Femoral Augment Block Trial, Posterior, 10mm, Size 3
209-08-04	Femoral Augment Block Trial, Posterior, 10mm, Size 4
209-08-05	Femoral Augment Block Trial, Posterior, 10mm, Size 5



209-09-05	CC Taper Adaptor Trial, 5 Degrees
209-09-07	CC Taper Adaptor Trial, 7 Degrees



209-52-01	CC Tibial Spine Trial, Size 1
209-52-02	CC Tibial Spine Trial, Size 2
209-52-03	CC Tibial Spine Trial, Size 3
209-52-04	CC Tibial Spine Trial, Size 4
209-52-05	CC Tibial Spine Trial, Size 5



209-58-00	CC Tibial Stem Extension Screw Trial



REFERENCES

1. **Scuderi GR, Insall JN, Windsor RE, Moran MC.** Survivorship of cemented knee replacements. *J Bone Joint Surg Br.* 1989 Nov;71(5):798-803.
2. **Stern SH, Insall JN.** Posterior stabilized prosthesis. Results after follow-up of nine to twelve years. *J Bone Joint Surg Am.* 1992 Aug;74(7):980-6.
3. **Ranawat CS, Boachie-Adjei O.** Survivorship analysis and results of total condylar knee arthroplasty. Eight- to 11-year follow-up period. *Clin Orthop Relat Res.* 1988 Jan;(226):6-13.
4. **Bartel DL, Bicknell VL, Wright TM.** The effect of conformity, thickness, and material on stresses in ultra-high molecular weight components for total joint replacement. *J Bone Joint Surg Am.* 1986 Sep;68(7):1041-51.
5. **Bartel DL, Rawlinson JJ, Burstein AH, Ranawat CS, Flynn WF Jr.** Stresses in polyethylene components of contemporary total knee replacements. *Clin Orthop Relat Res.* 1995 Aug;(317):76-82.
6. Patello-femoral resistance to lateral subluxation, contact areas and surface stress of the Exactech total knee system. A pre-market analysis. Mt. Sinai Medical Center. Orthopaedic Research Laboratories. 1994.
7. **Miller GJ.** The effect of TKA congruity and alignment on contact pressure. Proceedings of the 59th Annual Current Concepts in Joint Replacement Meeting. Orlando, FL. 1994.
8. **Petty RW.** Caveats in patello-femoral design. Proceedings of the 10th Annual Current Concepts in Joint Replacement Meeting. Orlando, FL. 1994.
9. **Ray JD.** Comparison of tibial tray shape coverage of proximal tibia. Poster presentation, 61st Annual American Academy of Orthopaedic Surgeons Meeting. New Orleans, LA. 1994.
10. **Robinson R.** Five-year follow-up of primary Optetrak Posterior Stabilized total knee arthroplasties in osteoarthritis. *J Arthroplasty.* 2005 Oct;20(7):927-31.

Credits

Exactech is grateful to all Optetrak Clinical Evaluators. This group offered many valuable suggestions for the refinement of instrumentation. In addition, Exactech appreciates the original concepts and initial design direction for specific instruments contributed by the following surgeons:

Andrew R Bishop, MD
Michael J Christie, MD
Ivan A Gradisar, MD
Edwin A Hissa, MD
Michael Levine, MD
Sam S Messieh, MD
Wayne A Moody, MD
William R Murray, MD
Calvin Oishi, MD
Kenneth P Pohl, MD
Albert A Reff, MD
Raymond P Robinson, MD

US Patents 5,732,992; 5,688,281; 5,910,143; 6,193,723B1; 5,725,580; 4,298,992; 5,702,458.
Other US and foreign patents pending.

Optretrak® A Comprehensive Knee System designed in consultation with:

Albert Burstein, PhD
Donald Bartel, PhD
Ivan Gradisar, MD
Gary Miller, PhD
William Murray, MD
William Petty, MD

in cooperation with Hospital for Special Surgery, New York.