

knee system solutions



WRIGHT.

ADVANCE[®]

Posterior Stabilized Knee System

Setting New Standards in Posterior Stabilized Knees



**The ADVANCE®
Posterior Stabilized Knee System**

The New Standard From HSS, the Leader in PS design.

The ADVANCE[®] Posterior Stabilized Knee System

Built on 20 years of clinical success.

For nearly two decades, the major innovations in posterior stabilized (PS) knee designs have taken place at the Hospital for Special Surgery (HSS) in New York City.

These innovations included the Insall/Burstein[®] I and II, for years the most widely accepted PS knee systems in the world.⁸ Yet despite the successful clinical history of these designs, problems such as “patellar clunk” and dislocation continue to be reported.^{2,3,4} By addressing these problems, creating a higher standard is well within reach.

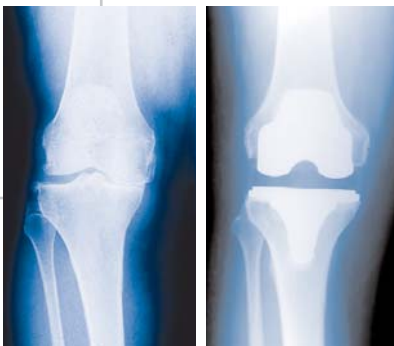
Evolutionary, not revolutionary

With a new standard in mind, Wright, in cooperation with Albert Burstein, PhD, Donald Bartel, PhD, Timothy Wright, PhD and Bruce Robie, PhD of the Hospital for Special Surgery, New York, designed the ADVANCE[®] PS Total Knee System. This third generation in PS design builds on the clinical success of the I/B[®] systems. And by addressing the reported concerns, the ADVANCE[®] PS Total Knee System doesn't change PS principles, it improves upon them.

Advancing the standard

The ADVANCE[®] PS Total Knee System was designed by a team of experienced physicians and engineers...specialists in knee arthroplasty, analysis, materials science and knee design. With improvement as the focal point of their mission, the team, led by HSS, collected and analyzed retrieved prostheses, reviewed literature and questioned key physicians to determine where improvements could be made. As a result, five measurable and enforceable design goals were established:

- 1 Improve patellofemoral kinematics,**
- 2 Reduce wear rate potential,**
- 3 Increase resistance to posterior tibial dislocation,**
- 4 Achieve at least 120° flexion in all sizes,**
- 5 Improve femoral fit.**



Pre-Op

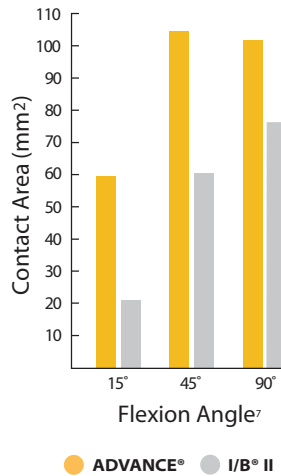
Post-Op





Improving patellofemoral performance

Patellofemoral problems represent about 86% of implant related complications associated with the I/B design.⁵ The patellofemoral design of the ADVANCE® PS Knee addresses these issues.

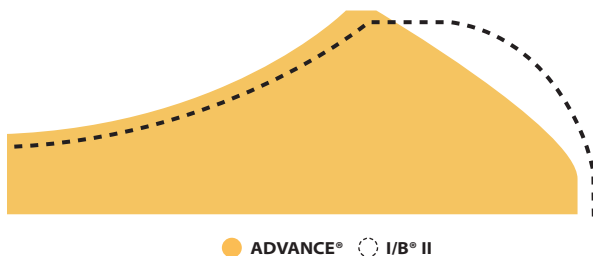
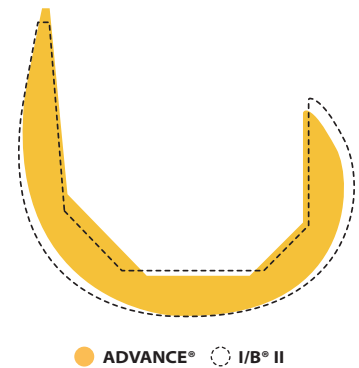


Increased patellar contact

The deepened and posteriorly extended trochlear groove of the ADVANCE® Femoral Component increases patellar contact and maximizes contact throughout greater flexion angles.¹ This aids in patellar tracking and reduces contact stress.

Rounder J-Curve

A rounder J-curve and smooth transition radius within the trochlear groove further reduce the potential for “patellar clunk” syndrome. In addition, by removing material from the anterior chamfer region, stresses on the patellar mechanism are reduced.



Lower profile anterior flange

The narrow and low profile anterior flange decreases medial overhang, minimizing the risk of soft tissue irritation. Reducing the amount of metal in the anterior capsule reduces soft tissue tension, potentially decreasing the need for retinacular release.



Reducing polyethylene contact stresses and wear potential

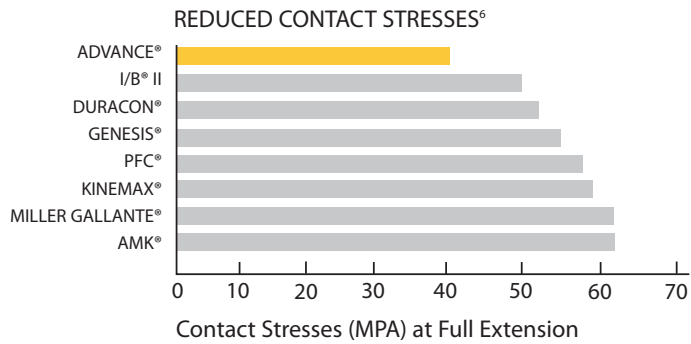
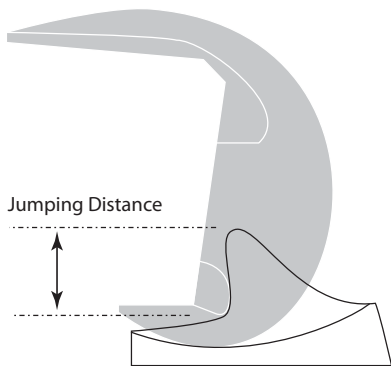
Research shows that increased conformity reduces contact stresses¹¹ Traditionally, however, conformity has led to decreased rotational freedom. The ADVANCE[®] tibiofemoral design optimizes contact where it is most beneficial, and reduces it where normal kinematics may be impeded.

Increased conformity

By adjusting the magnitude of interfacial radii, the ADVANCE[®] tibiofemoral design has increased M/L conformity and decreased A/P conformity. The result is a 10% reduction in contact stresses as compared to the I/B[®] II, while still maintaining rotational freedom of $\pm 7^\circ$.¹ Cam/spine congruency has also been optimized (even in hyperextension) to more uniformly distribute force to the polyethylene.

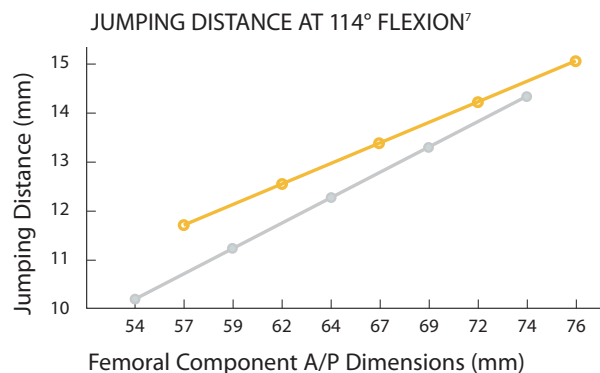
Increasing dislocation resistance

With reports of a small number of posterior tibial dislocation occurrences with the I/B[®] II design,⁴ enhancements were made to the ADVANCE[®] Knee to increase the “jumping distance”.¹⁴ A greater jumping distance for all sizes reduces the risk of femoral component dislocation.



Duramer[®] and ETO Sterilization

Wright's DURAMER[™] polyethylene is manufactured using techniques unequalled in the industry. Products produced from this material exceed all current industry standards. To further reduce wear, Wright's DURAMER[®] polyethylene is EtO sterilized to eliminate the incidence of gamma-induced oxidation and associated polyethylene wear.



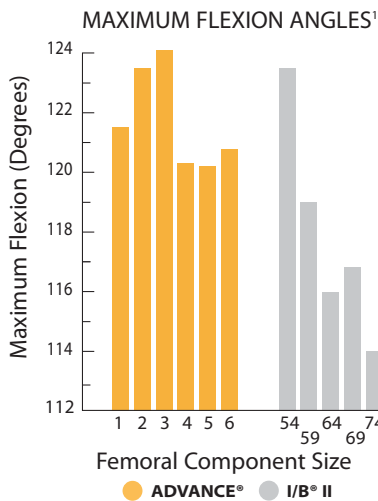


A more uniform range of motion

Femoral cam and tibial spine locations play a critical role in determining flexion potential. The ADVANCE® Knee's cam/spine locations maximize and standardize flexion across all sizes.

Improved spine/cam mechanism

The spine of the ADVANCE® Knee has been moved posteriorly and engages the cam at 70° flexion. The result is a designed flexion of over 120°, with only a 5° variation across all sizes.¹

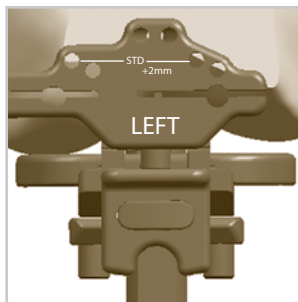


Better femoral component fit

Although advances in instrumentation may allow more precise bone cuts, varied implant manufacturing tolerances can potentially compromise surgical precision. Wright's engineers have reduced the allowable manufacturing variations, resulting in more reproducible implant fit of the femoral component. Improved fit can mean improved fixation and a more predictable joint function.

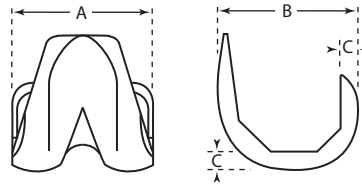
Easy transition from other systems

Implant fit and performance is also aided by a straightforward surgical protocol. The ADVANCE® Instrumentation System offers simple techniques depending on surgeon preference and familiarity. By employing simplified tools, O.R. time can be reduced and easy transitions from other systems can be made smoothly and efficiently.



FEMORAL COMPONENT

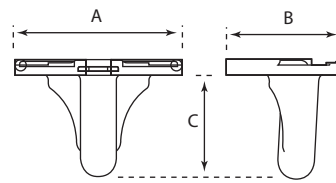
The Universal Nonporous Coated CoCr Femoral Components are available in 6 sizes to accommodate patient anatomy, restore natural patellofemoral function, maximize fixation and enhance stress distribution. A divergent anterior resection minimizes the potential for notching and eases implant insertion.



SIZE	A	B	C
1	55	53	8
2	60	58	8
3	65	62	8
4	70	67	8
5	75	72	8
6	80	76	9

METAL-BACKED TIBIAL COMPONENT

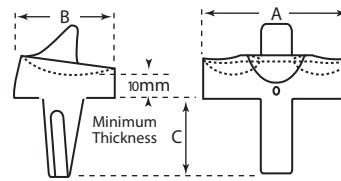
The CoCr Tibial Trays are available in 11 sizes (6 regular sizes, 5 "plus" sizes). The 3° posteriorly inclined keel is proportional by size and offers improved rotational control and fixation with less compromise of proximal tibial bone stock.¹



TRAY SIZE	A	B	C	D	INSERT SIZE
1	60	41	35	4	1
1+	65	44	35	4	1
2	65	44	35	4	2
2+	70	48	43	4	2
3	70	48	43	4	3
3+	75	51	43	4	3
4	75	51	43	4	4
4+	80	54	50	4	4
5	80	54	50	4	5
5+	85	58	50	4	5
6	85	58	50	4	6

ALL-POLY TIBIAL COMPONENT

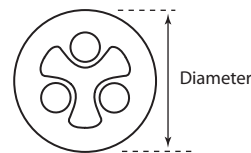
Available in 6 sizes and 5 thicknesses, the All-Poly Tibial Component incorporates a 7° declining articular surface, a 3° posteriorly inclined stem, a peripheral dovetail for cement interlock, cement fixation grooves and generous patellar tendon relief.



SIZE	A	B	C
1	60	41	29
2	65	44	29
3	70	48	29
4	75	51	39
5	80	54	39
6	85	58	39

PATELLAR COMPONENTS

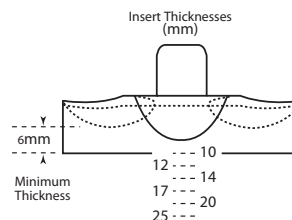
All-Poly Patellar Components are offered in both single and tri-peg configurations. Patellar components are completely interchangeable with any size femoral component, improving the flexibility required to match patient anatomy and available bone with implant size. Both designs incorporate cement interlock features. The tri-peg design maintains a constant peg pattern easing intraoperative size changes.



DIAMETER	SINGLE PEG	TRIPEG	THICKNESS (MM)
25	●	N/A	7 OR 9
26	N/A	●	8
28	●	N/A	7 OR 9
29	N/A	●	8
32	●	●	8
35	●	●	8
38	●	●	10
41	●	●	11

TIBIAL INSERT

The ADVANCE® Tibial Inserts incorporate a 7° declining articular surface. Each tibial insert size can be used with either its corresponding "regular size" or corresponding "plus size" tray. (Example: a Size 1 insert can be used with a Size 1 tray or a slightly larger Size 1+ tray.) To maximize load distribution and contact area, femoral components are matched to the corresponding insert size.



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Wright Medical Technology, Inc.

5677 Airline Road
Arlington, TN USA 38002
901.867.9971 phone
800.238.7188 toll-free
www.wmt.com

Wright Medical EMEA

Krijgsman
1186 DM Amstelveen
The Netherlands
011.31.20.545.0100
www.wmt-emea.com

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