Zimmer®
Gender Solutions™
Natural-Knee®
Flex System
Because Men and Women are Different

Two distinct shapes for men and women.
Two distinct shapes for men and women.

Industry-leading Gender Solutions technology. The proven success of the Natural-Knee System. Innovative high-flex designs. We’re putting it all together.

Zimmer was the first to recognize that when it comes to knees, men and women are different. Our ground-breaking research demonstrated that the differences are less about size—and more about shape. Now, Zimmer is applying industry-leading Gender Solutions technology to the clinically successful Natural-Knee System: The future of total knee arthroplasty is here: the all new Gender Solutions Natural-Knee Flex System.

The Gender Solutions Natural-Knee Flex System is an ideal choice for the growing number of patients who wish to return to an active lifestyle. The system is compatible with muscle-sparing Zimmer® Minimally Invasive Solutions™ procedures and offers high-flexion capability up to 155 degrees and delamination-resistant Prolong™ Highly Crosslinked Polyethylene tibial and patellar articular surfaces. The system features the proven clinical success of Zimmer’s asymmetric tibial component, CSTI™ porous coating and the Ultracongruent articular surface.

For surgeons, the Gender Solutions Natural-Knee Flex System is a flexible, comprehensive solution. For patients—both male and female—it offers the opportunity for an active and independent future.
Two distinct populations. Two distinctive implant shapes.

Zimmer’s groundbreaking research using three-dimensional CT data revealed two distinct populations with different anatomies. Data revealed that female femurs are more trapezoidal in shape and are narrower in the M/L dimension when compared to male femurs of the same A/P dimension.\(^2,3\)

**Gender Solutions Natural-Knee Flex** System male and female implants differ mediolaterally to allow for improved implant fit and fewer intraoperative adjustments.

Two distinct populations. Two distinct anterior flange designs.

Male/female differences in the anterior condyles result in bone resections that differ in both thickness and width.\(^3,8\)

**Gender Solutions Natural-Knee Flex** System implants are designed to replace the bone resection with an implant of corresponding size and shape to avoid overstuffing and overhang that may increase pain.\(^9,10\)

Two distinct populations. Two distinct patellar tracks.

Patellar maltracking has long been a concern following total knee arthroplasty—particularly in female patients.\(^4\) Research has documented that women have a statistically higher Q-angle than men\(^5,6,7\) and a distinct patellar track.
Anterior Flange Thickness

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral condyle height (mm)</td>
<td>10.9</td>
<td>10.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Medial condyle height (mm)</td>
<td>6.4</td>
<td>5.1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Asymmetric Tibial Trays

- Zimmer was first to market the innovative asymmetric baseplate design.
- Matching the asymmetric tibial shape provides cortical coverage and helps avoid overhang and soft tissue impingement.
- Deep, beveled posterior notch helps to prevent impingement of the PCL.
- Spiked keel design provides bone-sparing fixation; smooth pegs offer rotational stability.
Proven Performance Backed by Years of Clinical Success.

Cancellous-Structured Titanium™ (CSTi™) Porous Coating

- CSTi porous coating option for stable fixation in active patients
- Combines the excellent biocompatibility of titanium with an optimal structure for bone ingrowth
- Interconnected pores resemble human cancellous bone and fine micro-roughness provides enhanced fixation

**Magnified 100:1**

Human Cancellous Bone

Pore size: 400-500 µm. Pore volume: 60-77%.

CSTi Coating

Pore size: 480-560 µm. Pore volume 52-58%.

Ultracongruent Tibial Articular Surface

- Gender Solutions Natural-Knee Flex System includes an Ultracongruent tibial articular surface
- Ultracongruent’s published long-term clinical results demonstrate its viability as an alternative to traditional posterior stabilizing designs
- Allows for easy intraoperative conversion from a PCL retaining to a PCL sacrificing solution
- Maximum intraoperative flexibility with minimized bone loss

Zimmer Minimally Invasive Solutions (MIS) Posterior Referencing Procedure

- Gender Solutions Natural-Knee Flex System is compatible with the Zimmer MIS procedures
- MIS procedures are less invasive with smaller incisions, reduced blood loss, less pain and shorter hospital stays

| 4-in-1 Femoral Finishing Guide |
| Natural-Knee Flex Sizing Guide |
Advanced Technologies for Today’s More Demanding Patients.

High-Flexion Design
- Accommodates activities requiring up to 155 degrees flexion\ref{15,16,17}
- Allows contact area to remain high in deep flexion
- Reduces the potential for impingement of the femoral shaft on the tibial articular surface\ref{18}

Zimmer Prolong Highly Crosslinked Polyethylene

Prolong Highly Crosslinked Polyethylene is specifically designed to provide:
- Minimization of free radicals
- Oxidation resistance\ref{22}
- Delamination resistance\ref{15, 21}
- Significant wear reduction\ref{20, 23}

Greater Contact Area

- Reduces the potential for impingement
- Allows contact area to remain high in deep flexion
- Minimizes the potential for impingement of the femoral shaft on the tibial articular surface

Zimmer Prolong Highly Crosslinked Polyethylene

In laboratory testing, conventional polyethylene components exhibited almost 8x more wear than the Prolong polyethylene samples.

In head-to-head testing specifically designed to result in early onset of delamination, conventional polyethylene inserts repeatedly showed signs of delamination, while Prolong polyethylene showed no evidence of delamination.\ref{24}

Contact your Zimmer representative or visit us at www.zimmer.com

\begin{thebibliography}{99}
\bibitem{3} Data on file at Zimmer
\bibitem{7} Woodland LH, Francis RS. Parameters and comparisons of the quadriceps angle of college-aged men and women in the supine and standing positions. \textit{American Journal of Sports Medicine.} 1992;20:208-211.
\bibitem{19} Data on file at Zimmer.
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