

## Mako Total Knee

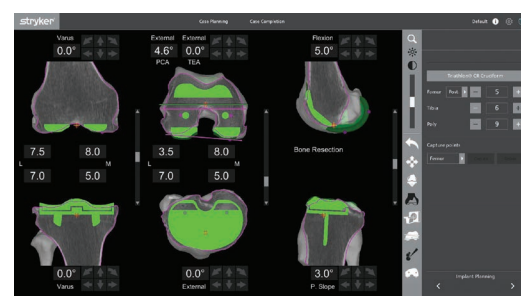
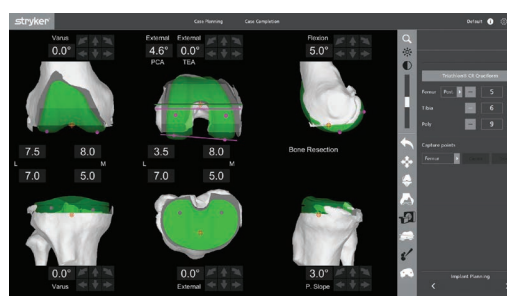
## SmartRobotics™

► **Know more**  
with 3D CT-based planning

Mako's 3D CT-based planning helps surgeons achieve their desired Triathlon component positioning in the coronal, transverse and sagittal planes. The functional planning guidelines enable the surgeon to prioritize the attributes of the knee that have the most impact on function, before and after assessing the soft tissue laxities.

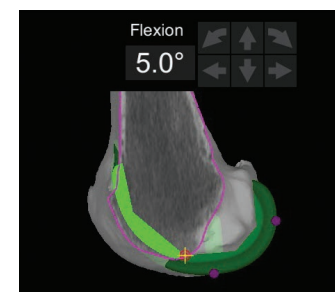
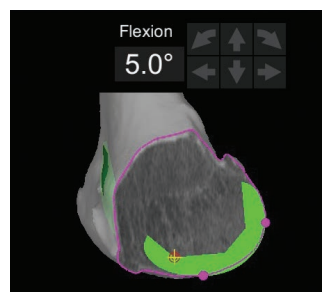
## Functional planning guidelines

Confirm femoral component size after positioning the femoral component based on the default preoperative planning guidelines in the tables on page 2.



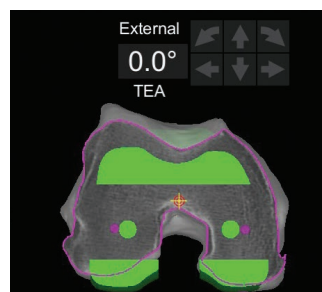
Use sagittal CT Slicer View to confirm that the femoral component's **medial condyle is concentric** with the femur medially and that the femoral component's **anterior flange** does not overhang or notch the anterior femur.

- Add additional flexion to the femoral component as needed to achieve a smooth runout to the anterior cortex.



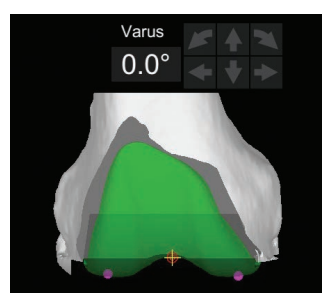
Use transverse CT Slicer View to confirm the femoral component **does not overstuff the patellofemoral compartment**.

- Rotate any 3D View or use CT Slicer View to check for overhang and overstuffing.
- Set the component to the desired size and **center the component** between the resected medial and lateral cortical edges.



In coronal plane 3D View, review the **runout of the anterior cut** relative to the anterior flange of the femoral component.

- The anterior cut should **extend just beyond the anterior flange** of the femoral component; increase the flexion or downsize the femoral component as needed.



The preoperative planning guidelines shown in the tables below provide the surgeon with a default preoperative plan. When making intraoperative implant adjustments, a surgeon may choose to place components outside the preoperative planning guidelines based on the clinical needs of the patient.

Preoperative planning positioning		
Positioning	Reference	Planning
<b>Femoral component</b>		
Varus/valgus alignment	Femoral mechanical axis	2° varus - 2° valgus
External rotation	Transepicondylar axis (TEA)	PCA < 3° from TEA <ul style="list-style-type: none"> <li>• 0-3° external from TEA PCA &gt; 3° from TEA</li> <li>• Minimum 3° external from PCA (for neutral tibia cut)*</li> </ul>
<b>Tibial component</b>		
Varus/valgus alignment	Tibial mechanical axis	2° varus - 2° valgus
<b>Combined component position</b>		
Overall limb alignment	Femoral + tibial coronal alignment	3° varus - 3° valgus
Combined tibiofemoral flexion	Femoral + tibial sagittal alignment	Tibia size ≥ Femur size**: <ul style="list-style-type: none"> <li>• Max = 10°</li> </ul> Tibia size < Femur size**: <ul style="list-style-type: none"> <li>• Max = 8°</li> </ul> Where Max = femoral flexion + tibial slope

\*If the tibial cut is placed in varus, then < 3° external rotation of the femur can be considered.

\*\*Size matching for the Triathlon Total Knee System is limited to one up, one down (e.g., size 5 femur with size 4, 5 or 6 insert/baseplate).

Femoral component		
Positioning	Reference	Planning
<b>Rotational alignment</b>		
Varus/valgus alignment	Femoral mechanical axis	0° varus
External rotation	Transepicondylar axis (TEA)	0° external
Flexion	Femoral mechanical axis	4° flexed
<b>Resection depths</b>		
Varus knee	Distal and posterior medial	8 mm bone (10 mm estimated cartilage)
	Distal and posterior lateral	Result of 0° alignment Max: 8 mm bone (10 mm estimated cartilage)
Valgus knee	Distal and posterior medial	8 mm bone (10 mm estimated cartilage)
	Distal and posterior lateral	Result of 0° alignment Max: 8 mm bone (10 mm estimated cartilage)

Tibial component		
Positioning	Reference	Planning
<b>Rotational alignment</b>		
Varus/valgus alignment	Tibial mechanical axis	0° varus
External rotation	Tibial AP axis	0° external
Posterior slope	Tibial mechanical axis	PCL retaining (CR, CS): <ul style="list-style-type: none"> <li>• 3° posterior slope</li> </ul> PCL sacrificing (CS, PS, PSR): <ul style="list-style-type: none"> <li>• 0° posterior slope</li> </ul>
<b>Resection depths</b>		
Varus knee	Medial	Result of 0° alignment Max: 7 mm bone (9 mm estimated cartilage)
	Lateral	7 mm bone (9 mm estimated cartilage)
Valgus knee	Medial	5 mm bone (7 mm estimated cartilage)
	Lateral	Result of 0° alignment Max: 7 mm bone (9 mm estimated cartilage)

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery.

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