

+ Kinematic Alignment Workflow Guide

Smith+Nephew

JOURNEY[◇] II
Total Knee Arthroplasty

CORI[◇]
Surgical System



Kinematic Alignment with JOURNEY[◇] II TKA and CORI[◇] Surgical System

The goal of Kinematic Alignment (KA) is to restore a patient's native, pre-arthritic alignment and joint line through anatomic resurfacing, avoiding ligament releases and supporting more natural knee kinematics.¹

KA does this by using a measured resection approach, where the distal and posterior bone cuts match the femoral implant thickness while adjusting for wear specific to each compartment.

3 Goals of KA:

1. Restore the pre-arthritic tibial-femoral articular surfaces
2. Restore the pre-arthritic knee and limb alignments
3. Restore the pre-arthritic laxities of the knee

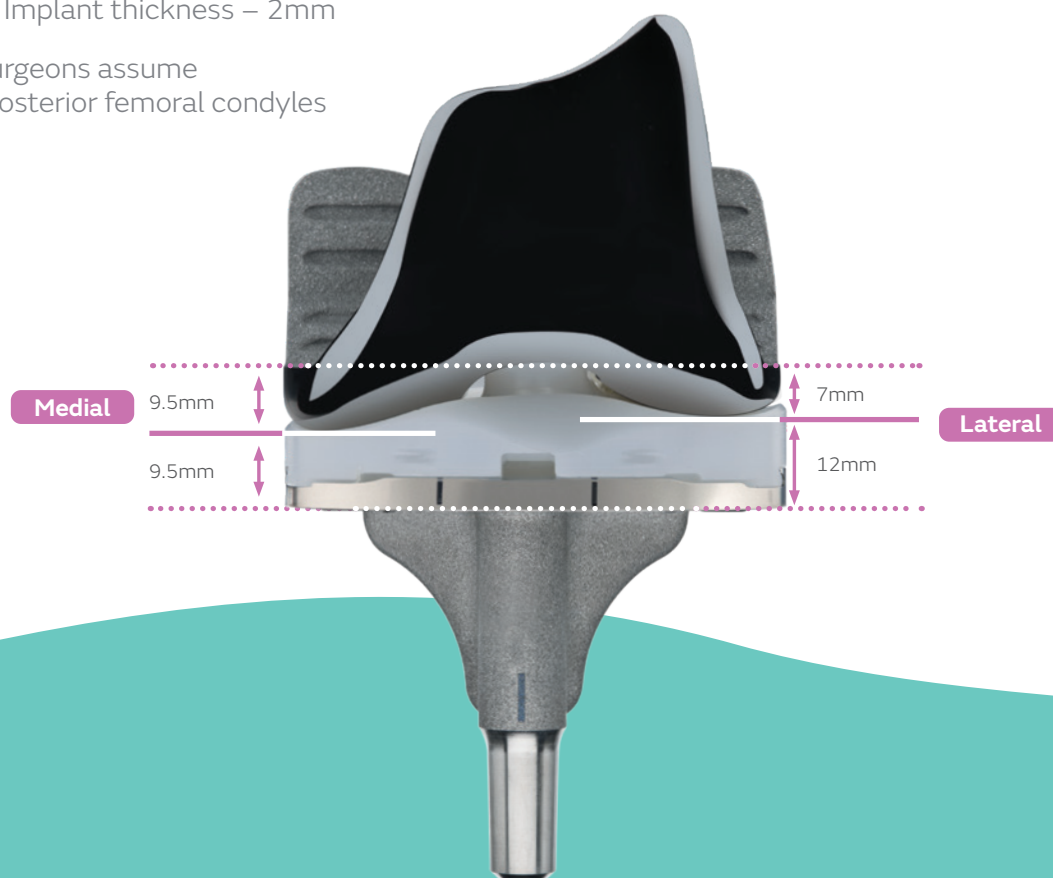
Determining resection values for KA:

Desired resection = Implant thickness – Cartilage wear (~2mm)

Healthy Condyle = Implant thickness

Worn Condyle = Implant thickness – 2mm

In most cases surgeons assume no wear in the posterior femoral condyles



Kinematic Alignment tools

CORI[®] Surgical System provides KA surgeons with multiple tools to support implant planning:



Special points for visualization of anatomic landmarks and intra-articular pathology (e.g., cartilage loss, wear patterns)



Cross Section view enables surgeons to view cross-sections of bone, planned resection, and implant position in coronal, sagittal and transverse views.



Gap planning data is available to users, providing soft tissue gap information to assist in determining tibial alignment and depth of resection.



Continuous ROM data is available by toggling the continuous graph icon. Gap assessment can be performed either manually or using the CORI Digital Tensioner.



A maximizing view option allows surgeons to expand a selected individual planning screen.



The CORI Digital Tensioner allows surgeons to achieve consistent joint laxity measurement in the knee prior to making any bone cuts.²⁻⁵



A Visualize Cut screen allows the surgeon to view the bone model cut planes. By using the Plane Visualizer tool this allows surgeons to: (1) visualize the planned bony resection through the cut blocks, and (2) view the executed cut surface depth and angle against the plan.

Executing KA with CORI[◇] Surgical System

1) Position femoral component to resurface distal and posterior femoral condyles



- Resurface distal femur in coronal plane to recreate femoral joint line, and posterior femoral condyles to restore pre-arthritic posterior condylar offset.
- Account for cartilage loss and any changes to varus/valgus of distal femoral angle to recreate constitutional joint line. Refer to JII KA reference guide for distal and posterior femoral resection values (assuming 2mm cartilage defect).

Note: Yellow dots indicate the location on the bone from which the resection depths are being measured.

Note: Cartilage and areas of cartilage loss are depicted in the 3D bone model shown on the planning screen.

- If there is no posterior cartilage wear, target 9.5mm off medial, and 7.0mm off lateral. Proceed to tibial planning.

Note: If using CORIOGRAPH[◇] pre-op planning no action required; resection depths will be preset.

Nota Bene

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2) Tibial slope determination and implant positioning

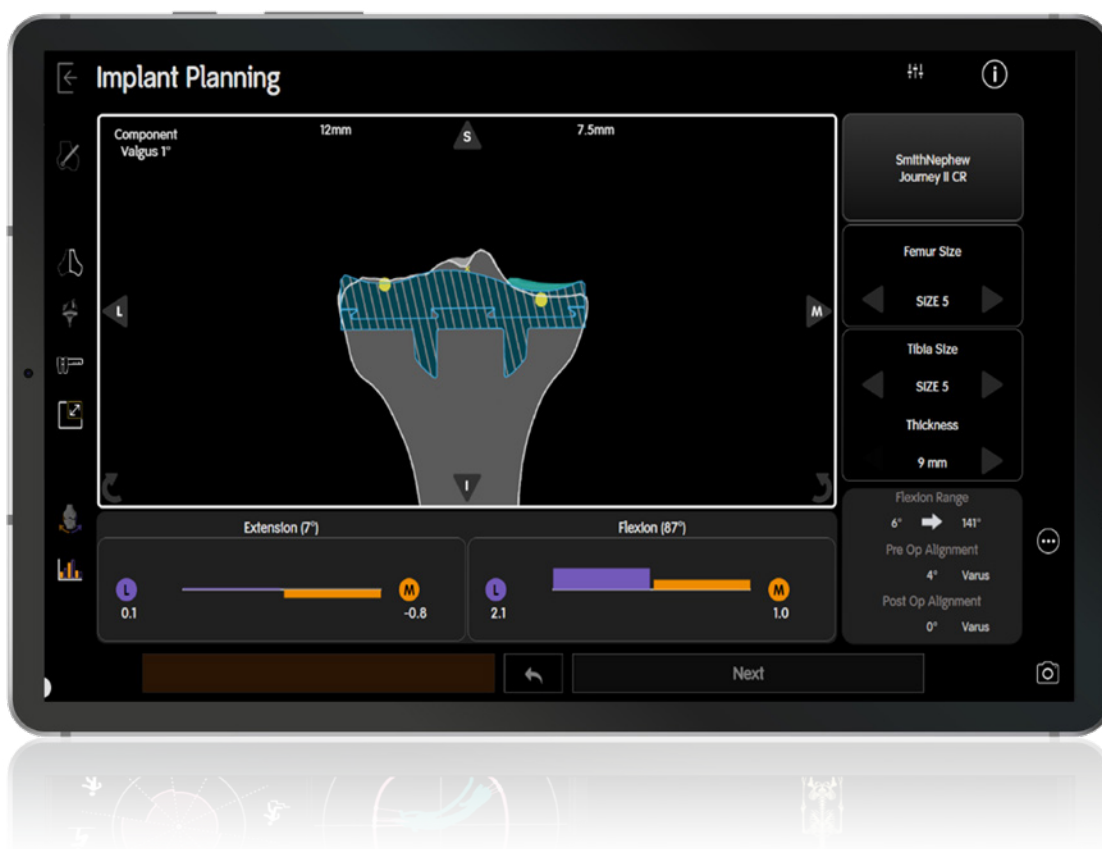


- Determine native slope by aligning implant with native joint line in sagittal, cross-sectional planning view, accounting for cartilage loss.

Note: Yellow dots indicate the location on the bone from which the resection depths are being measured.

- Choose desired slope.

3) Coronal alignment of Tibia



- Resurface proximal tibia to recreate tibial joint line.
- Account for cartilage loss and any changes to varus/valgus of medial proximal tibial angle to recreate constitutional joint line. Refer to JII KA reference guide for medial and lateral tibial resection values (assuming 2mm cartilage defect).

Note: Yellow dots indicate the location on the bone from which the resection depths are being measured.

- Gap planning data is available to aid assessment and refinement of coronal tibial alignment and resection depth.
- Proceed to bone resection.

JOURNEY[◇] II TKA Kinematic Alignment targeted resection depths

Anatomy	Wear Pattern	Distal Medial Femoral*	Distal Lateral Femoral*	Posterior Medial Femoral*	Posterior Lateral Femoral*	Proximal Medial Tibia	Proximal Lateral Tibia
Varus Knee (medial wear)	Lateral:						
	0mm wear	7.5mm	7.0mm	9.5mm	7.0mm	7.5mm	12.0mm
	Medial:	(9.5-2.0)	(7.0-0.0)	(9.5-0.0)	(7.0-0.0)	(9.5-2.0)	(12.0-0.0)
Valgus Knee (lateral wear)	2mm wear						
	Lateral:						
	2mm wear	9.5mm	5.0mm	9.5mm	7.0mm	9.5mm	10.0mm
	Medial:	(9.5-0.0)	(7.0-2.0)	(9.5-0.0)	(7.0-0.0)	(9.5-0.0)	(12.0-2.0)
	0mm wear						

Assumes no posterior femoral wear.

*(For sz. 9, 10, add 2mm)



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