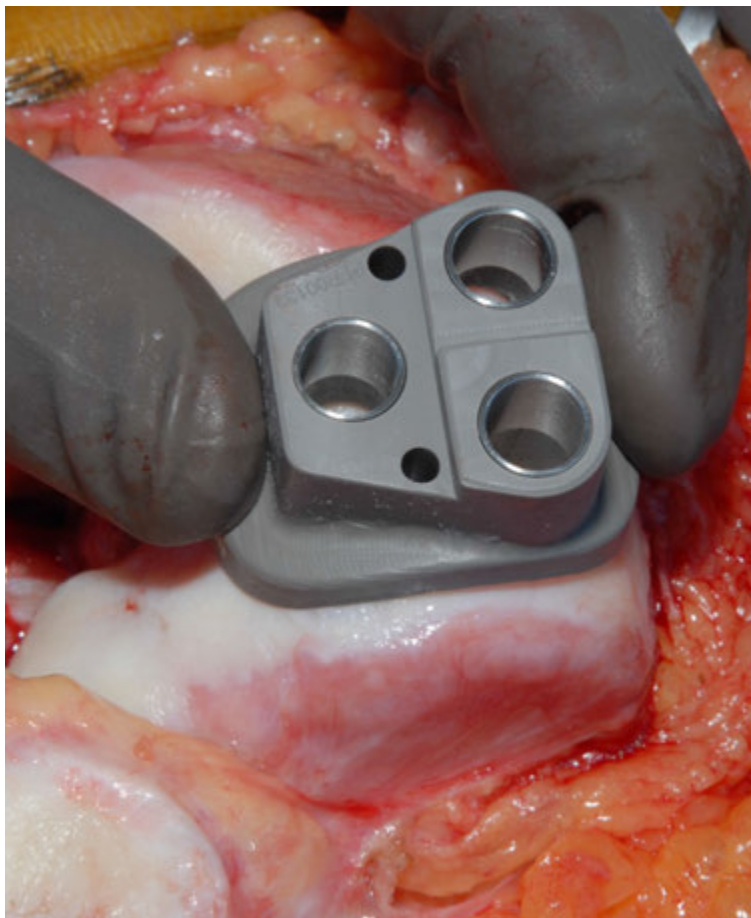


KineMatch[®] PFR

Custom Patello-Femoral Replacement



KineMatch[®]

Patello-Femoral Replacement*

Written in conjunction with **Domenick J. Sisto, MD, Sherman Oaks, CA**

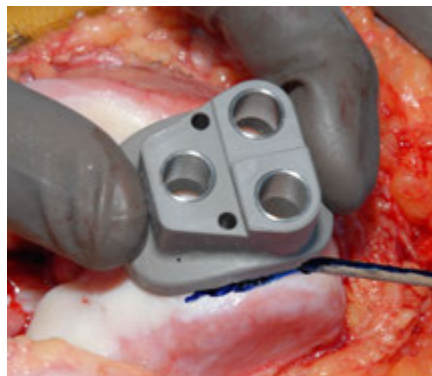
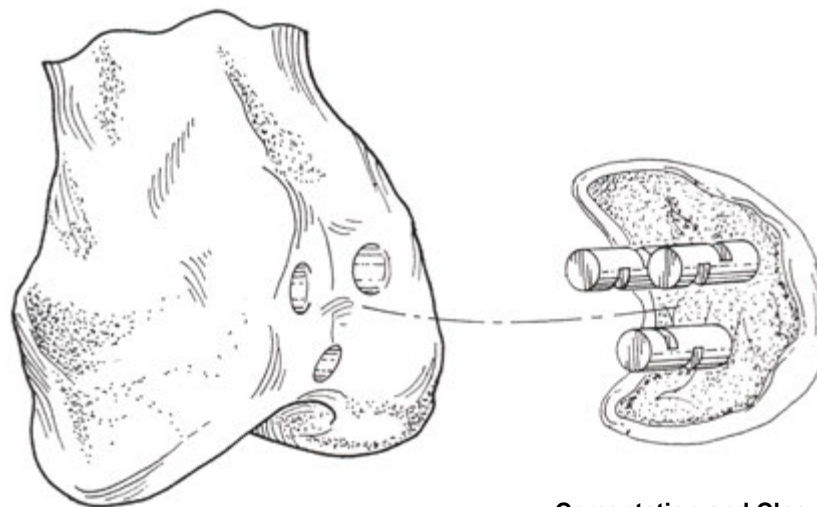
See **JBJS September 2007 Surgical Technique Supplement for further details (JBJS 89-A, Supp 2: 214-225)**

Preoperative Planning

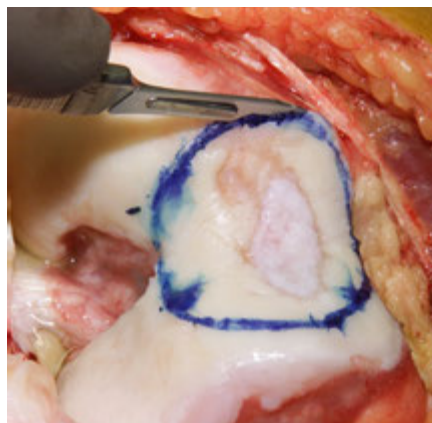
- The KineMatch Patello-Femoral Replacement (PFR) is designed to articulate with the Kinamed Domed Patella Implants (all-poly, tri-peg).
- The patient undergoes a CT-scan per specific scan instructions provided by Kinamed. The surgeon will receive a CT-bone model of the patient anatomy prior to surgery. The surgeon can use the model to determine the need for osteophyte removal at the time of surgery. If osteophyte removal is planned, this must be communicated to Kinamed by performing the planned osteophyte removal on the CT-bone model, and returning it to Kinamed prior to implant design.
- The patient-specific bone model should be available for review and reference during surgery with the custom-fit KineMatch PFR.
- The patient-specific bone model accounts for the planned removal of osteophytes during surgery. The KineMatch PFR implant is fabricated to fit this planned modified bone topography.

Femur Preparation

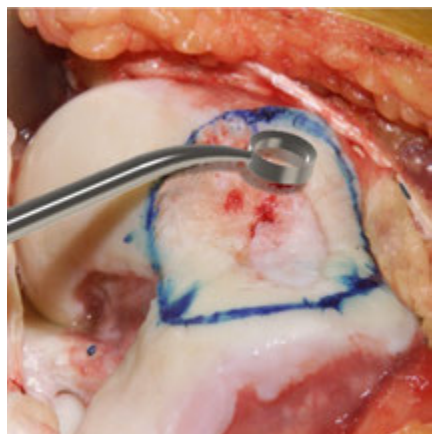
- A small, standard mid-line incision is made and a medial para-patellar arthrotomy is used to expose the patello-femoral trochlea. The patella is everted, or tipped 90 degrees.
- The custom drill guide is used to assess the approximate fit of the implant onto the distal femur. The margin of the custom drill guide is marked on the bone in methylene blue (*fig. 1*).
- A scalpel is used to define the margin of the cartilage removal (*fig. 2*).
- Ring Curettes (part nos. 22-800-2010 and 22-800-2012) are provided in the instrument set and should be used to completely remove the cartilage within this outlined margin, exposing the subchondral bone (*fig. 3*).
- The cartilage is removed down to subchondral bone in the area where the implant will sit. Since the CT data from which the implant was created models bone and not cartilage, proper fit is achieved by excision of overlying cartilage.
- If any planned osteophyte removal is necessary, the custom drill guide should be used to help replicate it anatomically. After all cartilage is carefully removed under the footprint of the drill guide, the drill guide should be placed back on the trochlea. If gapping is present around the perimeter of the drill guide, then move it slightly in order to center it. If the gapping is due to incomplete removal of trochlear osteophytes, take the osteophytes down to the planned bony surface depicted in the CT-bone model. *Kinamed advises against the use of power instruments for cartilage removal, as any unintended removal of subchondral bone will affect the final fit and proper interface between the implant and the femur.*
- The custom drill guide is now used to determine the exact fit of the custom PFR implant by moving the drill guide on the distal femur until it reaches a natural fit, as with the CT-bone model.



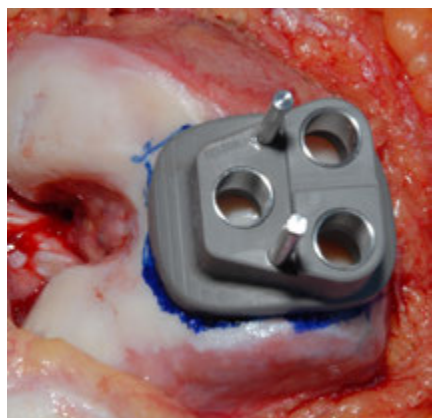
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- With the custom drill guide correctly positioned on the bone, use two headless fixation nails (22-800-2008) to stabilize the drill guide on the femur (*fig. 4*). A hole is drilled through one guide hole with the 8 mm stop-drill (22-800-2001) (*fig. 5*).
- The drill is removed from the bone and is replaced with a stabilization pin (22-800-2002). The stabilization pin stabilizes the position of the drill guide as the next two holes are prepared. The second hole is prepared and a second stabilization pin is inserted. Finally, a third hole is drilled.
- The stabilization pins and drill guide are removed from the femur.
- The bony bed of the femoral trochlea is prepared to receive bone cement (*fig. 6*). The drill holes are thoroughly irrigated and suctioned and may then be further cleaned and dried with the use of CarboJet[®] to remove fluids and fatty marrow elements from the cancellous matrix. The PFR implant is trial-fitted by placing the implant pegs into the drilled holes and finding the proper fit of the implant on the femoral trochlea.

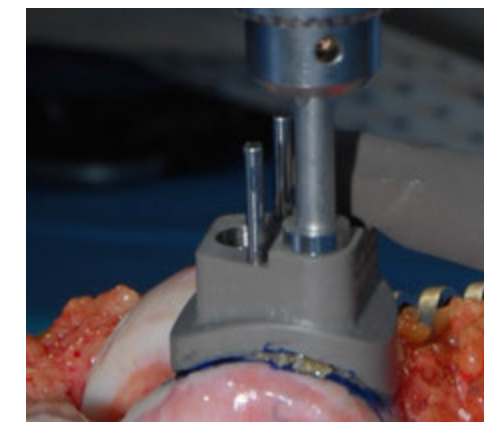
Patella Preparation

Refer to *Patella Technique Guide B00169* for detailed instructions

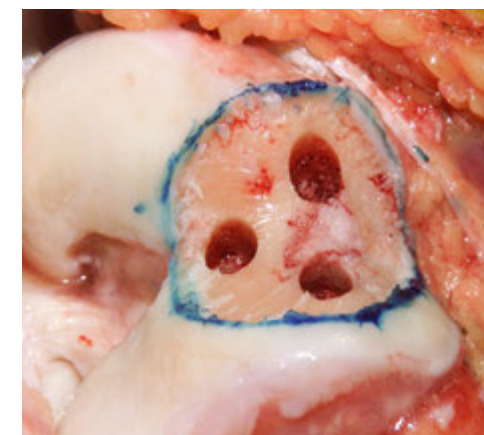
- Set the height of the Patella Resection Guide (22-800-3019) to correspond to the desired patella thickness after resection (a minimum residual thickness of 15 mm is recommended).
- Grasp the patella in the jaws of the resection guide with the anterior surface of the patella resting against the foot.
- Resect the patella with an oscillating saw using the slot provided in the jaws of the resection guide.
- Prepare the site for the tri-peg patellar component using the parallel clamp (22-800-3020) with drill guide (22-800-3021) and sizing rings. Prepare the three peg holes with the 6mm stop drill (22-800-3003).
- Select the appropriate patellar component using a patella trial. The joint should be tested through a range of motion with the PFR implant and patella trial in place to ensure proper tracking.

Cementation and Closure

- Bone cement is prepared per the manufacturers instructions. Cement is injected into the drilled holes in the distal femur until the holes are completely filled with cement. The posterior surface of the implant is coated with cement and the implant is placed onto the femur into its proper position. Excess cement around the implant margin is carefully removed. The PFR implant is held in place with the impactor (22-800-2003) until the cement has cured (*figs. 7 & 8*).
- The appropriately sized patella implant is cemented in place with the pegs centered in the drill holes, and held in place by the patella clamp (22-800-3020, 22-800-3025 and 22-800-3026) until the cement cures. Excess cement is carefully removed.
- Once the cement has fully cured, the patella is reduced to its anatomic position and the implants are tested through a range of motion to ensure proper patellar tracking. **Proper patella tracking is critical. Instability or lateralized tracking should be corrected at the time of surgery.**
- Drains are placed in the joint prior to closure.



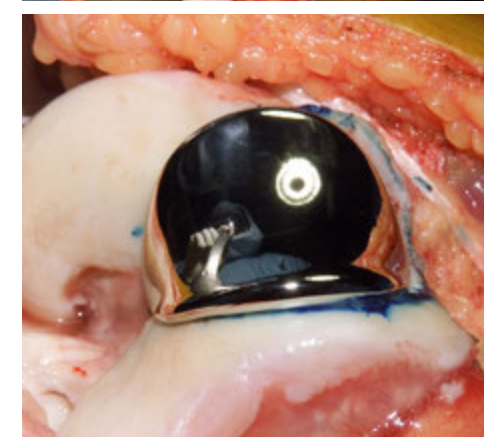
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Postoperative Care

- No immobilization is required and the patient can be made immediate weight-bearing.
- Range of motion should be obtained as soon as possible.
- An accelerated rehabilitation is possible and is encouraged due to the reduced incision size and absence of femoral and tibial bone resection as in total knee arthroplasty.

KineMatch® Custom-Fit PFR Implants	Catalog No.
PFR Implant, Left	22-100-1001
PFR Implant, Right	22-100-1002

Patella Implants, Dome, Tri-Peg

	Diameter (mm)	Thickness (mm)	Catalog No.
Patella Implant, Size 1	30	8	20-420-0101
Patella Implant, Size 2	33	9	20-420-0102
Patella Implant, Size 3	36	10	20-420-0103
Patella Implant, Size 4	39	11	20-420-0104

KineMatch® PFR Instruments	Catalog No.
Custom PFR Drill Guide, Left	22-800-2004
Custom PFR Drill Guide, Right	22-800-2005
Instrument Tray (Autoclave Case)	22-800-1020
Trochlea Stop Drill, 8mm	22-800-2001
Trochlea Drill Guide Stabilization Pin	22-800-2002
Trochlea Impactor	22-800-2003
Trochlea Fixation Nail Pilot Drill	22-800-2007
Trochlea Drill Guide Fixation Nail	22-800-2008
Trochlea Pin Puller	22-800-2009
Trochlea Ring Curette, 8mm	22-800-2010
Trochlea Ring Curette, 12mm	22-800-2012
Trochlea Nail Extractor	22-800-2011

Patella Stop Drill, 6mm	22-800-3003
Patella Caliper, Sliding	22-800-3005
Patella Sizer and Drill Guide, 30/33mm	22-800-3017
Patella Sizer and Drill Guide, 36/39mm	22-800-3018
Patella Resection Guide	22-800-3019
Patella Parallel Action Clamp	22-800-3020
Patella Drill Guide for Parallel Action Clamp	22-800-3021
Patella Sizing Rings (3): 33mm, 36mm, 39mm	22-800-3022, -3, -4
Patella Cushion Collar for Parallel Action Clamp	22-800-3025
Patella Cushion for Parallel Action Clamp	22-800-3026
Patella Caliper, Pinch	22-800-3027
Patella Trials (4): 30mm, 33mm, 36mm, 39mm	22-800-4001, -2, -3, -4

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