Patellofemoral Joint Surgical Technique
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Introduction
Isolated patellofemoral arthritis is found in approximately 10 percent of those patients who have knee arthritis. The key to a successful patellofemoral arthroplasty (PFA) is the appreciation that it is NOT 1/3 of a TKR. It remains extremely important to understand the fine points of soft tissue balancing specific to a patellofemoral arthroplasty, which are different from the soft tissue balancing of the patellofemoral portion of a TKR.¹

PFA is appropriate for patients with disabling end-stage primary or secondary (i.e. post-traumatic or dysplasia with chronic patellar static subluxation) osteoarthritis that is isolated to the patellofemoral compartment and refractory to conservative treatment. In these knees, the tibiofemoral compartment articular cartilage is intact and capable of bearing normal loads, the knee is stable, and asymptomatic except for the PF symptoms (Figures 1 and 2).

Patellofemoral arthroplasty is not appropriate for patients with active inflammatory arthritis, overt infection, significant chondrocalcinosis of the articular surface, symptomatic arthritic involvement of the tibiofemoral compartment, or patella infera. Patellofemoral arthroplasty is also not appropriate for unexplained patellofemoral pain not associated with osteoarthritis and in a complex regional pain syndrome.

Patellofemoral arthroplasty may not be appropriate for patients with marked patella alta, recurrent patellar instability, with or without patellar tilt, and chronic lateral subluxation of the patella. If present, the underlying pathology allowing the recurrent patellar instability or chronic excessive lateral position of the patella will need to be corrected at the time of resurfacing, i.e. medial patellofemoral ligament surgery (Figure 3).
This patellofemoral (PF) implant is purposely less constrained than earlier generations. It is designed to reduce wear, shear forces and the risk of loosening. The patellar component is the same oval-domed component used for P.F.C. SIGMA® Total Knee Replacement. The SIGMA High Performance Partial Knee trochlear component is not the trochlea from the SIGMA TKR system. It was designed to meet the unique requirement of a patellofemoral arthroplasty; it is narrower and more bone conserving. In addition, it allows the component to be either used in an inset or onset fashion and decreases overhang impingement that previously had been associated with postoperative anterior knee pain. As this design closely replicates the normal anatomy, soft tissue balancing is extremely important.

Appreciation of the role of the medial and lateral patellofemoral ligaments in balancing the patella is emphasised.

To achieve an optimal result, it is necessary to reproduce normal patellar tracking with this minimally constrained anatomic design. Consideration should be given to counselling patients that, at times, postoperative muscle activation may in some cases cause subtle changes in tracking that could require further (staged) balancing.
After assessing patient considerations, the knee should be classified preoperatively to allow optimal surgical planning:

**Isolated Patellofemoral Degenerative Joint Disease (DJD) with normal anatomy**
Isolated patellofemoral arthritis with no history of instability. These patients will typically have normal anatomy that can best be treated with an inset rather than an onset trochlear component. The patellar resurfacing may be of the surgeon’s preference. The patient may be counselled that the failure mode will often be through tibiofemoral degeneration. In addition, patients should be advised that, if intraoperatively there is more tibiofemoral degeneration than expected, they could be treated with bicompartimental or total knee arthroplasty.

**Isolated Patellofemoral DJD with PF dysplasia**
Dysplasia and isolated patellofemoral arthritis without a history of instability. These patients will have trochlear morphology typically best treated with an onset trochlear technique. They often have associated patella alta, which needs to be rechecked and treated as indicated. These patients typically do not have significant tibiofemoral compartment degeneration (Figure 4).

**Isolated Patellofemoral DJD with history of instability**
 Patients with isolated patellofemoral arthritis with a current or remote history of instability may have normal to severely dysplastic patellofemoral compartments with considerations as above. However, they present additional challenges. The most common history is one of dislocations in their youth followed by a period of no dislocations and finally a presentation of pain and arthritis. They may have had multiple surgeries including chondroplasty, tibial tuberosity osteotomy and medial soft tissue tightening and lateral release. Thus, they may have medial as well as lateral instability. Once the arthritic patellofemoral compartment is replaced with low friction
components, old instability patterns may reappear in the postoperative setting if not addressed intraoperatively, as described in Appendix III. Please refer to that section before treating this complex patient.

**Isolated patellofemoral arthritis with a history of trauma**

This category is historically included in discussions of patellofemoral degenerative joint disease treatment. However, post-traumatic problems may include instability from the trauma, or post-traumatic changes with or without a fracture. Those with post-traumatic arthritis after a fracture may have an enlarged irregularly shaped patella with bone incongruities that require special attention to positioning the patellar component and managing the soft tissue scarring and ligament imbalances. The post-traumatic patients with arthritis, but without a fracture, may have had chondrocyte death from the impact and subsequent premature patellar degenerative changes. Those with a history of post-traumatic instability would be assessed as noted above in the instability section.

**Examination**

After classification of the patellofemoral compartment by X-ray, it is important to review the specifics of the preoperative examination:

1. **Patellar Tracking**: Should be observed while actively flexing and extending the knee when sitting and/or loaded against resistance or squatting if not too painful.

2. **Patellar Displacement**: Medial and lateral displacement of the patella is documented in trochlear quadrants from a central trochlear position. Excessive medial and lateral patholaxity may be noted and considered for intraoperative treatment.

3. **Patellar Tilt**: Inability to lift the lateral facet of the patella to neutral while the knee is in 20 degrees of flexion may be considered fixed tilt.
In the past, classic templating was used infrequently with PFA implants as compared to unicompartmental or total knee arthroplasty. However, preoperative review of the bony anatomy and relative position of the patella to the trochlea may aid in the intraoperative determination of the position and sizing of the components. The following examinations are recommended:

**Weight bearing Anterior/Posterior view**
This will allow assessment of the tibial-femoral compartment and assess the size and shape of the patella as well as to determine post-fracture changes for bipartite patella. These observations do not exclude use of a patellofemoral arthroplasty, but will forewarn of potential problems. If there is evidence of joint space narrowing, osteophytes, or other signs of degenerative changes, this patient will not be a candidate for an isolated patellofemoral arthroplasty. This X-ray may be taken as an AP standing erect or as a Skier P/A view in slight flexion. If there is a concern that the patient may have degenerative changes, both studies may be appropriate.

**True Lateral view**
A true lateral view (with matching of posterior femoral condyle contours) is essential for measurement of patellar height (Caton-Deschamps ratio below 0.8 is infera and above 1.2 is alta, with the knee in 30 degrees of flexion), and extent of retropatellar degenerative changes. (Size and position of osteophytes, quality of bone with presence or absence of cysts, and re-evaluation of the tibiofemoral space.) It is also very useful for classification of trochlear morphology and tilt (Figures 5 and 6).

**Posterior Anterior Weight Bearing Flexed View**
This view highlights the region of the tibiofemoral compartment most often involved with narrowing secondary to arthritis and supplements the AP view. The tibiofemoral compartments may have normal joint spaces on one of these views and narrowing on the other. (Figures 7 and 8).
**Axial view**

This is very important for assessing the structure of the patella and its relationship to the trochlea. This should be a supine, low flexion angle (30 to 45 degrees) and a higher flexion view (50-60 degrees). While this view can suggest trochlear morphology (dysplasia), it should be appreciated that even with the axial and lateral views, trochlear dysplasia can be underestimated. (Figures 9a and b).

**Applying the imaging studies**

Direct intraoperative measurement is the standard for onlay patella sizing and positioning. However, the Merchant view will aid in preoperative planning for the positioning and/or feasibility of an inset patellar component. It is also useful in determining and planning for the treatment of bone deficiencies. The Merchant view, in conjunction with the lateral view, is useful in determining if the morphology is within normal limits or has a degree of dysplasia. It is possible to preoperatively determine if it will be best to consider insetting or onsetting the trochlear component, i.e. inset for more normal morphology and onset for more dysplastic morphology. In addition, the lateral view will allow measurement of patellar height of significant patella infera or significant patella alta. If either is present, they may require a tibial tuberosity osteotomy to assure appropriate contact of the patella in the trochlea during flexion and extension with full quadriceps activation.

**CT and MRI**

For knees with a physical examination or radiographic view that is even slightly suggestive of excessive lateral position of the tibial tuberosity, CT (Figure 10) or MRI (Figure 11) measurement of the tibial tuberosity to trochlear groove (TT–TG) distance will aid in the decision to normalise the tuberosity position through precise tibial tuberosity medialisation. Note that these measurements may be obtained during any standard MRI or CT if the cuts include the tibial tuberosity.
Incision and Approach

The skin incision is most often midline and long enough to obtain adequate exposure. It is usually longer with obesity and shortens with experience.

Deep Soft Tissue Approach

The knee may be entered by a medial or lateral parapatellar arthrotomy. With a medial approach, the medial patellofemoral ligament (MPFL) can be shortened (tightened) at closure. The standard medial capsular incision should begin near the superior border of the patella and extend distally along the medial border of the patella and patella tendon. A proximal extension of the incision is advised when first starting to use the procedure or if the patient is obese. Obviously, it is important not to harm the uninvolved articular cartilage and the meniscus. Alternatively, if the patient does not have MPFL patholaxity, and the primary soft tissue pathology is excessive lateral tightness associated with patellar tilt, the deep approach may be made laterally. This may be through a standard lateral parapatellar incision or the less widely known lateral lengthening approach. This lateral approach allows for direct treatment of patellar tilt and avoids the Vastus Medialis Oblique (VMO).

Once the joint is exposed, make a final assessment of the extent of arthritic damage in all three compartments and the suitability of the joint for patellofemoral arthroplasty. If the tibiofemoral compartments have chondrosis, various treatment options must be considered based on the extent and site of the involvement. These options include: proceed with patellofemoral arthroplasty, and transfer an osteochondral plug from the patellofemoral compartment to resurface a small focal defect; add a tibiofemoral unicompartmental component; or proceed to a TKR. This illustrates the importance of preoperative planning and the patient informed consent process.
**Onset Technique**

Preparation of the patella can be performed before or after the trochlear preparation. The advantage to a patella-first approach is that the decrease in patellar thickness allows subluxation of the patella into the gutter for improved trochlear visualisation. Carefully resect the fibrous tissue, fat and synovium from the patella to expose the margins of the patellar and quadriceps tendon attachments. Remove marginal osteophytes. With the knee in extension, complete visualisation of the patella is possible without full eversion. The primary goal is good visualisation.

Gauge the thickness of the patella and calculate the level of bone resection with adjustments for asymmetry and bone loss (Figure 12).

The thickness of the resurfaced patella should be the same as the natural patella, understanding that in situations of bone loss the remaining patellar bone should not be less than 12 mm. After resection, the patellar thickness should be uniform in all quadrants: medial, lateral, superior, inferior. The resection surface should be parallel to the insertion of the quadriceps tendon. Some surgeons may prefer a freehand saw cut using the plane of the quadriceps and patellar tendons as a reference for the cut. This is acceptable if a reproducible flat cut with a uniform thickness (NOT thinner than 12 mm) is achieved. Thickness is gauged, and the goal is to normalise the composite thickness—not overstuff.

For those who prefer a guide to make the patellar resection, clear the patella as above. Attach the patellar clamp to achieve a uniform thickness post resection. Use the quadriceps and patellar tendons as references. Select a patellar stylus that matches the thickness of the implant to be used. (Figure 13).

The minimum depth of patella resection should be no less than 8.5 mm. However, when the patella is bone stock deficient, use the 12 mm remnant patellar stylus (Figure 14) attached to the anterior surface of the patella to maintain a minimal residual thickness of 12 mm to avoid fracture (Figure 15).
Slide the appropriate size stylus into the saw capture of the resection guide. To achieve a "normal composite" thickness of the patella plus implant, the minimum composite thickness should be 23 mm for a size 41 mm implant. For all other sizes of patella, the minimum should be 20.5 mm. Place the leg in extension and position the patella resection guide with the sizing stylus against the posterior cortex of the patella with the serrated jaws at the superior and inferior margins of the articular surface. The jaws should be closed to firmly engage the patellar margins (Figure 16). Tilt the patella laterally to an angle of 40 to 60 degrees. Remove the stylus and perform the resection using an oscillating 1.19 mm thick saw through the saw capture and flush to the cutting surface (Figure 17).

In cases where there is bone loss (typically lateral) after the cut is finished, it may be possible to slightly medialise a smaller patella implant to a region with better bone stock. The surgeon may also consider augmentation techniques. Gauge the patellar thickness, calculate the new implant plus bone thickness and recut as necessary to achieve the desired composite thickness. For patellar onset implants, the drilling guide is applied and the three fixation holes are drilled. Any eburnated bone may be drilled to improve cementation. The patella is then subluxed into the gutter and protected. A protective metal patellar wafer can be hand placed on the resected surface to protect the patellar bone bed or the bone may be protected with retractors.

**Inset Technique**

See the P.F.C. SIGMA Knee System Inset Patella surgical technique (cat. no. SIG-086).
To appreciate the true bony architecture, remove all osteophytes from the intercondylar notch and from the lateral and medial ridges of the trochlea. Select the proper implant size using the transparent trial template so that the distal tip sits 2 mm above the apex of the intracondylar notch roof (Figure 18) and the width does not exceed local anatomy. The superior border of the trial will lie just above the superior articular surface of the trochlea (Figure 19). Based on the size of the transparent trial template, select the appropriate size of the anterior block. This will allow the operating room technician to assemble the anterior cutting guide during the distal pilot drilling.

Place the tip of the distal pilot drill 7 mm proximal to the apex as to allow the final socket placement 2 mm above this apex (Figure 20).

Do not use excessive force on the collared level, as this will deform (compress) the local cartilage, causing the socket to be formed too deeply and thus excessively inset the tip of the final implant.

**Note:** The point of the distal pilot drill is 7 mm above the apex of the roof of the notch.
Place the distal peg of the anterior block in the above created socket. The distal lip on the peg is placed flush with the remaining 2 mm of articular cartilage immediately above the notch (Figure 21).

With the sizing arm attached to the anterior cutting block, correct sizing will ensure that it extends proximally beyond the articular cartilage of the native trochlea, as the implant is designed to extend proximal to the native trochlea to accept a mild degree of patella alta (Figure 22).

The anterior block will largely dictate the final trochlear implant position, so it is essential to carefully find the proper orientation. There is not uniform agreement among surgeons on anatomic references for trochlear component placement. Some surgeons may choose to refer to anatomic femur angle, epicondylar axis, Whiteside’s line, etc. The goal is a correctly positioned trochlea to normalise the kinematics of the patellofemoral compartment.

1. Distal tip is flush with surrounding cartilage. This is set by the initial stepped drill bit socket.

2. Distal triangle of the trochlear implant is either flush or slightly recessed.

**Note:** The implant’s anterior surface medial/lateral radius of curvature is symmetrical to match the oval dome patella and the native trochlea is not (the medial trochlea and medial femoral condyle extend more distally than the lateral side); therefore, there will always be a slight mismatch between the implant and native trochlea. As per No. 1, the distal aspect is set flush by the stepped drill bit. The medial and lateral aspects of the distal triangle are fine-tuned by slight varus/valgus or rotational movements of the jig. Most typically, the movement to create a flush fit is to rotate the proximal portion of the block medially. This is compensated for by the lateral angle of the proximal aspect of the trochlea component required for right and left knee geometry.
3. The proximal final implant is not proud and does not notch the femur. Achieve this by placing the sizing arm flush with anterior cortex of the distal femur as this sets the proximal trochlea final component flush without notching or sitting proud.

4. Rotation is selected that does not cause lateral impingement (Figure 23), excessive internal rotation (Figure 24) or decreased lateral restraint (excessive external rotation). With a normal anatomic trochlea, the medial and lateral aspects of the anterior block are matched to the local native trochlear margins using a flat surface; e.g. a small osteotome, set on the medial and lateral cutting guides (Figure 25). With the flat reference placed on the articular cartilage of the normal trochlea margins, this will result in the final component being placed flush on both sides. A laser-etched line is present on the block that shows the component position and can be referenced by visualising the skyline of the trochlear condyles. During this planning exercise, the extent of varus/valgus positioning is reassessed and adjusted to assure there is no medial (rare) or lateral (more likely) overhang. If this occurs, reassess steps No. 2 through No. 4 and, if necessary, downsize the block. Next assess the medial and lateral extent of the planned vertical cuts to confirm they will be inboard to the articular margins and allow for an inset technique, if planned.
With trochlear dysplasia, a properly sized trochlea implant may extend medially or laterally so there is no remaining native cartilage after the anterior cut. In this case, rotation is set by paying attention to the distal anterior femur and matching the medial and lateral distal triangle margins. In most dysplastic situations, there is a trochlear entrance “boss” and excessive central trochlear bone/cartilage more prominent than medial and/or lateral dysplasia. Locally, with the knee in 90 degrees of flexion, the trochlear anterior cut may be secondarily checked with Whiteside’s line and the distal tibia; the anterior cut is roughly perpendicular to these references.

With the anterior block in proper position, secure the block with threaded, headed pins (one through the pilot socket hole and the other oblique; Figure 26). The reference guide can be used to reconfirm the exit plane of the cut and ensure that the femoral bone will not be notched.

Use a sagittal saw blade to make vertical medial and lateral cuts with care to stay in the plane of the block (do not dive into the femur (Figure 27)).

Use an 1.19 mm thick oscillating saw blade to make the anterior cut (Figure 28).
Remove the pins and block. The amount of bone cut removed is designed to be the same as the final component thickness, except for minor milling centrally.

Engage the above selected size of the finishing guide so the depth stop on the distal foot is flush with the distal remaining articular cartilage just above the roof of the notch—take care not to force it deeper or to allow it to remain proud as this sets the depth of the final bone resection (Figure 29). Secure the guide with straight, non-headed pins starting with the proximal pins first (Figure 30).
Finishing Bone Preparation

The cutting bit is intended for use with standard high speed burring systems. The plastic washer on the cutter is set to remove bone to full depth required for the final implant. Take special care when starting the cutting bit into hard bone. It is advised that you stabilise your hand and enter the bone with the edge of the cutting bit (Figure 31) and not the flat end of the cutting bit.

The plastic washer must lay flat on the finishing guide to resect the proper amount of cartilage and bone (Figures 32 and 33).

**Note:** Carefully follow the internal track of the finishing guide. The cutting bit is only used on the track and NOT freehand at this point.
Place the transparent trial of the proper size on the trochlea (Figure 34).

The transparent trial has the same shape and size as the implant, with markings showing patellar tracking and the anatomical axis of the femur. The trial does not have pegs or the cement pocket geometry. Some additional bone clean up with the cutter or cartilage fraying at the margins with a rongeur may be necessary. Recheck the cavity with the trial to assure proper fit and alignment. The goal is to set the distal tip flush with surrounding cartilage, the distal triangle flush on both sides (or one flush and one slightly recessed) and provide a smooth transition for the patella proximally (Figure 35).

**Note:** The rounded margins of the trial and final implant can visually appear flush, yet may be slightly proud. To assure the trial and thus the final implant are flush, use the flat end of an osteotome to bridge across the face of the trial component to prove the trial is flush or slightly recessed onto the surrounding articular cartilage. It should prove the trial is flush or slightly recessed (Figure 36).
If the patella has not yet been prepared, prepare it as described earlier in this technique.

With the patella and trochlea trials in place, move the knee through range of motion and assure:

1. Smooth transition of patella from trochlea into the notch (Figure 37).

2. Smooth entrance of the patella into the trochlea component on extension (Figure 38).

3. With proximal traction on the quadriceps tendon, the patellar component should be engaged on the trochlear component in the fullest extension possible for the knee (if patella alta is present that does not allow patellar component contact with the trochlear component at full extension, tibial tuberosity distalisaton will be necessary).

4. Assure no abrupt medial or lateral movements occur.

5. Assess for tilt (will also need attention during closure).

6. Assess medial and lateral displacement (in certain advanced cases this may require temporary suturing and final tuning after the components are cemented).
Preparation of Peg Holes

The next step is to drill the peg holes.

Assemble the drill guide onto the metal trial by inserting the lock rod through the centre hole of the drill guide and screwed it into the centre hole of the metal trial. Be sure to position the drill guide correctly for “left” or “right” components (Figure 39).

When the assembly is complete (Figure 40), use the peg drill to drill the distal peg hole first. After the first hole is drilled, insert a stabilising pin (Figure 41) into that hole.

Drill the second hole and insert a second stabilising pin (Figure 42). Drill the third hole and remove the assembly.
Trochlea Implantation

Drill any area of eburnated bone to improve cementation. Clear the bone of debris, blood and fat. Apply cement to the posterior surface of the trochlear prosthesis and also apply cement packed with finger pressure to the prepared bone. Impact the component into the prepared cavity using the impactor (Figure 43). Pay special attention to the alignment of the three pegs into the three fixation holes. Remove any extruded cement with a curette.

Patella Implantation

The patellar cut surface is thoroughly cleansed with pulsatile lavage. The protective metal patellar wafer is removed if used. Apply cement to the cut surface and implant, then insert the component. Centre the silicon O-ring over the articular surface of the implant and the metal backing plate against the anterior cortex, avoiding skin entrapment. When snug, close the handles and hold by the ratchet until polymerisation is complete. Remove all extruded cement with a curette. Release the clamp by unlocking the locking switch and squeezing the handle together.

After the cement is cured, the patella is reduced and the patellar implant tracking is re-evaluated. An unrestricted range of motion and proper patellar tracking should be evident.
Closure

As will be common in many knees, the postoperative composite patellofemoral thickness is greater than preoperatively (bone and cartilage loss have been restored with metal and plastic) even though the components are technically not too thick (true overstuffing). The new composite patellofemoral thickness relatively “stuffs the soft tissue envelope” that the knee has acquired over time. With flexion, soft tissue lengths change with the lateral side becoming tighter and the medial side more lax. In other words, even with a technically correct thickness, the new thicker composite will apply tension in the lateral soft tissues causing tilt during flexion. The typical required external rotation of a TKR to balance flexion/extension gaps is not duplicated in a patellofemoral arthroplasty (as the tibia was obviously not cut into relative valgus—the reason for TKR external rotation). Thus, it will be more common to have lateral tightness in flexion with a patellofemoral arthroplasty than a TKR and therefore lateral release, lateral subperiosteal recession or lateral lengthening will be necessary more often after patellofemoral arthroplasty than TKR. Closely monitor midterm postoperative axial radiographs to observe for this phenomenon.
APPENDIX I – Rehabilitation
Initial emphasis is on controlling swelling with compression and cooling while maintaining quadriceps function. Gentle range of motion is begun on post op day one and progresses to 90 degrees by day two and full motion (or the limit of swelling) by week four. Weight bearing is as tolerated with protective support until quadriceps strength is sufficient for a safe and normal gait. Standard core proximal muscle strengthening, flexibility and quadriceps exercises are continued until the gait is normalised.

APPENDIX II – Distal Realignment
Some patients will have an excessive laterally positioned tibial tuberosity. This contributes to a lateral force vector that may not be compensated by proximal soft tissue balancing. If this is suspected, it is evaluated and measured with CT or MRI preoperatively. The position of the tuberosity is measured relative to the trochlear groove (Tibial Tuberosity – Trochlear Groove or TT-TG distance). The radiologist can calculate this on either MRI or CT using the technique described by Shoettle et al. Normal values are in the range of 10 to 13 mm and grossly abnormal are over 20. When the TT-TG is elevated preoperatively, and lateral tracking persists after appropriate medial and lateral soft tissue balancing, the tuberosity is osteotomised and transferred medially to normalise the position (10 to 13 mm), but not to overmedialise. The technique is not unique to patellofemoral arthroplasty and will require reassessment of the proximal medial and lateral balancing with the tuberosity in the new position.

APPENDIX III – Medial Proximal Soft Tissues
Newer appreciation of the role of the medial patellofemoral ligament (MPFL) in maintaining a checkrein to lateral displacement allows for selective shortening (tightening) of that structure rather than non-anatomic global medial reefing or VMO advancement. Recurrent lateral patella instability will require assessment of the MPFL damage. If it is adjacent to the patella, direct shortening at that site is logical. If the pathology is at the femoral attachment, reattachment may be possible. If the damage is diffuse or poorly defined, then a formal MPFL reconstruction may be necessary. To avoid drill holes in the patella, an option for fixation is a suture anchor technique.

Caution: If the patient has had a suspected remote lateral instability episode, it is possible that in recent years the friction of the arthritis has prevented instability. The medial tissues may seem adequate to allow shortening of the MPFL at the patella, but over time with the new low friction patellofemoral arthroplasty, natural lateral vector forces may stretch the compromised tissues and allow lateral subluxation.

1. With this history, be very vigorous in testing the medial structures. If there is question of adequacy, augment or reconstruct the MPFL.

2. Discuss this possibility with the patient preoperatively as a possible occurrence, so if additional MPFL surgery is required in the post operative setting, the patient will understand the difficulty of balancing the soft tissues in a nonfunctional situation (OR vs. ambulation and activities of daily living).

APPENDIX IV – Lateral Proximal Soft Tissues
As previously noted, the tendency will be for lateral soft structures to become tighter in flexion than medial soft tissue structures. The goal is for an even balance. As the thickness of a laterally worn patellofemoral compartment will be normalised, preoperatively it can be appreciated that more length will be needed in the lateral structures. If the medial structures have no history of injury, then a lateral approach would appear logical to avoid insult to the VMO. This can be accomplished by a titrated lateral release (release only enough to allow reversal of tilt as opposed to a set amount of release), which remains open at the end of the case. Alternatively, a lateral lengthening approach will allow closure of the joint. Additionally, lateral structures not only contribute to limiting excessive medial displacement but also participate (somewhat counterintuitive) in limiting excessive lateral displacement.

For knees approached through a medial arthrotomy, both of these lateral-relaxing techniques may be applied with special attention to maintaining patellar blood supply. Alternatively, for those with low levels of expected lateral tension (for example, a normal appearing patellofemoral compartment radiographically that has extensive chondrosis/degeneration—as in the case of many bicompartimental arthroplasties where the predominant pathology is the tibiofemoral compartment) a patellar subperiosteal recession may be sufficient.
**Ordering Information**

*Implants*

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3 2024-65-200 Metal Trial 2L
4 2024-66-200 Metal Trial 2R
5 2024-65-300 Metal Trial 3L
6 2024-66-300 Metal Trial 3R
7 2024-65-400 Metal Trial 4L
8 2024-66-400 Metal Trial 4R
9 2024-65-500 Metal Trial 5L
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11 2024-67-100 Transparent Trial 1L
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20 2024-68-500 Transparent Trial 5R
21 2024-85-004 Bone File
22 2024-60-021 Stabilising Pins
23 2024-60-020 Peg Drill
24 2024-63-000 Drill Guide and Threaded Rod
25 2024-85-005 Impactor
26 96-6515 Pin Puller
## Ordering Information

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References


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