Surgical Technique

smith&nephew
LEGION®
Total Knee System

Resurfacing Patellar Preparation

Primary Total Knee Arthroplasty

LEGION® Total Knee System Resurfacing Patellar preparation

Contents

Nota Bene

The technique description herein is made available to the healthcare professional to illustrate the authors' suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which addresses the needs of the patient.

Additional LEGION Total Knee System surgical technique brochures are available for the other LEGION Components.

Introduction

The LEGION® Total Knee System has been designed to offer the orthopaedic surgeon solutions to address intraoperative situations. Implant function is directly related to accurate surgical technique. LEGION instrumentation has been developed to be an easy-to-use system that will assist the surgeon in obtaining accurate and reproducible knee alignment.

The instrumentation can be used in minimally invasive or standard exposures. While it has been the designers' objective to develop accurate, easy-to-use instrumentation, each surgeon must evaluate the appropriateness of the following technique based on his or her medical training, experience and patient evaluation.

Instrument assembly

Patellar reamer guide

Determine the appropriate diameter patellar implant, and select the correctly-sized patellar reamer collet and slide it into place on the patellar reamer guide (Figure 1).

Depth gauge and reamer assembly

1 Attach the appropriate patellar depth gauge (red = resurfacing, black = large resurfacing/ oval) to the reamer guide (Figure 2).

2 Attach the matching sized patellar reamer dome and patellar depth stop to the patellar reamer shaft (Figures 3 and 4). Lower the assembly through the patellar reamer guide until the reamer dome contacts the patella.

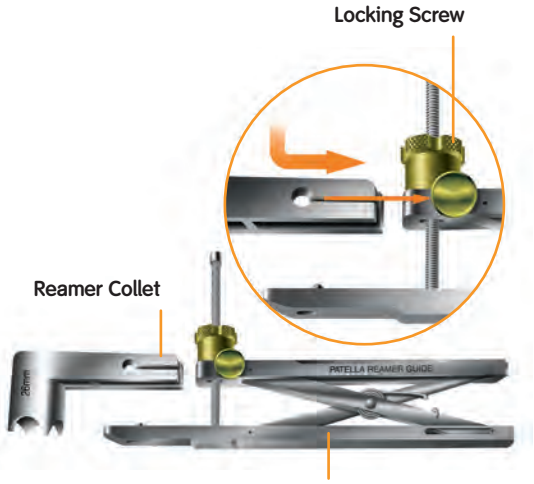

Figure 1

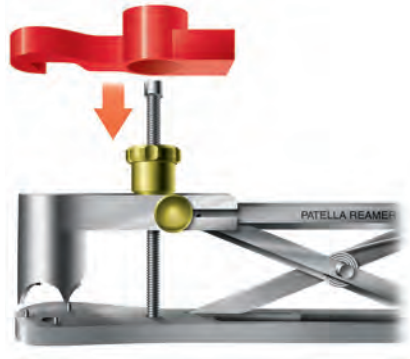

Figure 2

Figure 3

Figure 4

Reamer Collet			**Reamer Guide**	**Patellar Depth Stop**		**Reamer Dome**	
26mm		7144-0512	7144-0311	7144-0326		26mm	7144-0348
29mm		7144-0514				29mm	7144-0342
32mm		7144-0516	**Resurfacing Depth Gauge**			32mm	7144-0344
35mm		7144-0518	7144-0330	**Large Resurfacing/ Oval Depth Stop**		35mm	7144-0346
38mm	Large	7144-0744		7144-0427		38mm	Large 7144-0751
41mm	Large	7144-0745	**Large Resurfacing/ Oval Depth Gauge**			41mm	Large 7144-0752
44mm	Large	7144-0748	7144-0431	**Reamer Shaft**		44mm	Large 7144-0349
46mm	Large	7144-0746		7144-0324		46mm	Large 7144-0753
51mm	Large	7144-0747				51mm	Large 7144-0754

Resurfacing patellar preparation

The surgeon can choose from a freehand cutting technique with towel clips, or if desired, he or she can choose one of the following instrumented techniques.

Resection guide technique

1 Measure the overall thickness of the patella with the patellar calipers (Figure 5).

2 Subtract from this number the thickness of the round resurfacing patellar component, which is 9mm.

Note: The thickness of the oval resurfacing patellar component varies by diameter. See the chart on page 10.

3 The guide is set at the amount of bone that should remain after cutting the patella — ie the difference between the original patellar thickness and the implant thickness. The guide is set at this level by turning the knob at the top of the guide (Figure 6).

For example:

a Measure the overall thickness of the patella with the patellar calipers. For this example, the patella measures 25mm.

b Subtract the thickness of the round resurfacing patellar component. In this example, 9mm. 25mm - 9mm = 16mm). The guide should be set at 16mm for this example.

Figure 5

Key Points
(measured thickness - 9mm)

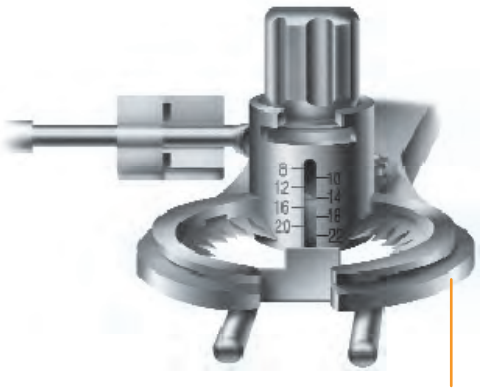

Figure 6

Resection Guide

Patellar Calipers
11-4943

Patellar Resection Guide
7144-0391

4 Cut the patella through the dedicated saw guides (Figure 7).

5 Drill for the three pegs (Figure 8), insert the resurfacing patellar trial and remeasure. The overall thickness should be equivalent to the original thickness (Figure 9).

Figure 7

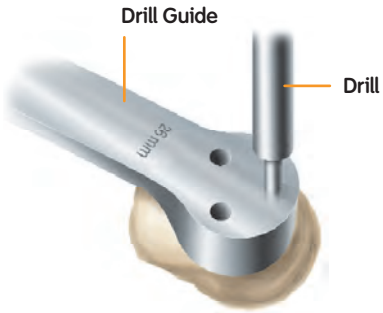

Figure 8

Figure 9

Resurfacing Drill Guide	Drill
	7144-0360
26mm 7144-0402	
29mm 7144-0403	
32mm 7144-0404	
35mm 7144-0405	

Reaming technique

The objective of this technique is to resurface the articular surface of the patella with the precision of a reaming technique. The reamed patellar surface can accommodate an oval or round resurfacing patellar component.

1 Trim tissue surrounding the patella using electrocautery (bovie) (Figure 10).

Figure 10

2 Use a rongeur to remove osteophytes and reduce the patella to its true size (Figure 11). It is recommended to leave the superior rim of bone intact. The bovie should also be used to release soft tissue attachments to the estimated level of resection.

Figure 11

3 Place the collet over the patella so that it fits snugly around the patellar diameter (Figure 12). The goal is to reduce the patella to its smallest diameter so that the smallest possible collet will fit around the entire patella. Use the patellar reamer collet as a sizing template to select the appropriately sized collet and reamer.

Figure 12

Tip: The collet should be resting on the soft tissue surrounding the patella. If the patella does not enter the collet evenly but instead enters at an angle, the collet may not be completely surrounding the patella, but instead resting on part of the bone. If the collet is only slightly smaller than the patella, you may trim 1-2mm of the medial and lateral edges of the patella to ensure a snug fit. If the collet is far smaller than the patella, choose the next size up and assess fit.

Patellar Calipers	Reamer Collet		
11-4943	26mm		7144-0512
	29mm		7144-0514
	32mm		7144-0516
	35mm		7144-0518
	38mm	Large	7144-0744
	41mm	Large	7144-0745
	44mm	Large	7144-0748
	46mm	Large	7144-0746
	51mm	Large	7144-0747

4 Measure patellar thickness with the patellar calipers (Figure 13).

Tip: The patella should measure a minimum of 19mm before reaming to use this resurfacing technique.

Determine the design and diameter of the patellar implant to be used. A round or oval resurfacing design may be chosen. The round resurfacing patella is 9mm thick, and the depth stop for this technique prepares for 9mm of resection. The oval patella's thickness varies.

Tip: Minor adjustments may be necessary at the time of resection to accommodate the largest diameter oval patellar implants. Please see chart on page 10.

5 Rotate the appropriate resurfacing patellar depth gauge (red = round, black = large round/oval) around so that the hooked end or 'claw' surrounds the patellar reamer shaft (Figure 14). Lower the depth stop by compressing the button until it meets the depth gauge (Figure 15). Remove the depth gauge from the assembly. Ream the patella until the depth stop engages the patellar reamer guide (Figure 16).

Tip: Excessive force on the reamer shaft may alter the depth of resection, causing overreaming.

Figure 13

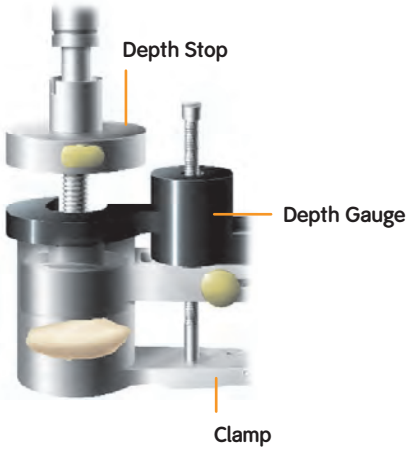

Figure 14

Figure 15

Figure 16

Resurfacing Depth Stop	**Reamer Dome**		
7144-0326	26mm		7144-0348
	29mm		7144-0342
	32mm		7144-0344
Large Resurfacing/ Oval Depth Stop	35mm		7144-0346
	38mm	Large	7144-0751
7144-0427	41mm	Large	7144-0752
	44mm	Large	7144-0349
Reamer Shaft	46mm	Large	7144-0753
7144-0324	51mm	Large	7144-0754

Reamer Guide
7144-0311

Resurfacing Depth Gauge
7144-0330

Large Resurfacing/ Oval Depth Gauge
7144-0431

6 After reaming, the patella should have a completely flat articular surface (Figure 17). Measure the resected patella to ensure adequate resection (the resected patella should measure its original depth minus 9mm).

7 Drill the appropriate fixation holes for the resurfacing patellar implant using the correctly sized drill guide and resurfacing drill (Figure 18).

8 Place the patellar trial into the prepared patella. If desired, use the calipers to remeasure the composite thickness of bone and trial (Figure 19).

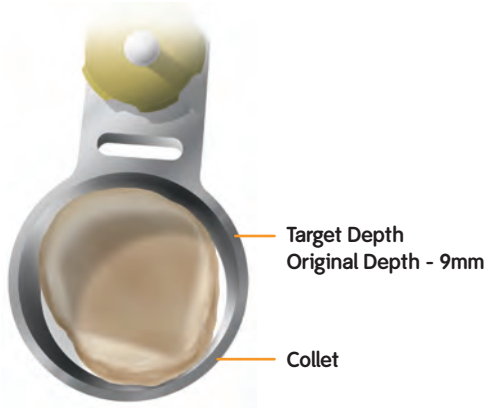

Figure 17

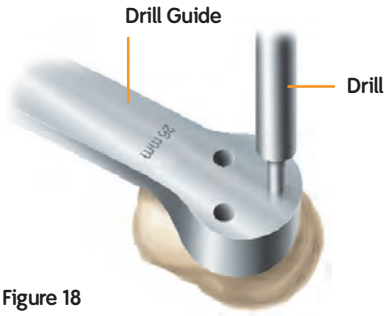

Figure 18

Figure 19

Resurfacing Drill Guide		Drill	Patellar Calipers
26mm	7144-0402	7144-0360	11-4943
29mm	7144-0403		
32mm	7144-0404		
35mm	7144-0405		

Oval resurfacing patellar preparation

The oval patellar implant can be prepared for use with any resurfacing technique; however, there are a few differences in final preparation. The patellar implant has to be implanted in the proper orientation, where the extended lateral flange will be riding on the lateral side of the femoral component.

The oval patellar implant does not have the same thickness for all sizes. This is due to the varying offset needed to obtain the correct design for the different diameters. (See the chart for sizing/thickness options.)

1 Mark the medial facet axis of the patella superior and inferiorly with a marking pen or use the laser etch line on the sizing guide to mark the vertical ridge of the patella.

2 Measure the depth of the patella at its maximum depth centrally along the medial facet (Figures 20 and 21).

Oval Patellar Sizing Options	
Oval Resurfacing Implant	
Diameter	**Thickness**
29mm	8.5mm
32mm	9.0mm
35mm	9.0mm
38mm	9.5mm
41mm	10.0mm

Figure 20

Figure 21

The technique for the Oval Patella was developed in conjunction with William J. Robb III, MD, Illinois Bone and Joint Institute, Glenbrook Hospital, Evanston Northwestern Healthcare.

Patellar Calipers
11-4943

3 Resect the patella using the preferred method (Resection Guide or Reaming Technique).

4 Measure the diameter of the resected patella with the trial templates (Figure 22).

5 Centralize the thickest portion of the prosthetic patella along the line of the previously marked medial facet eminence.

6 Place the appropriate drill guide on the patellar reamer guide and clamp the guide to the patella. Drill to the measured depths (Figure 23).

7 Place the trial on the patella and remeasure the patella if desired (Figures 24 and 25).

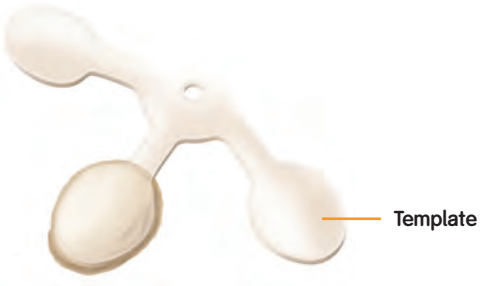

Figure 22

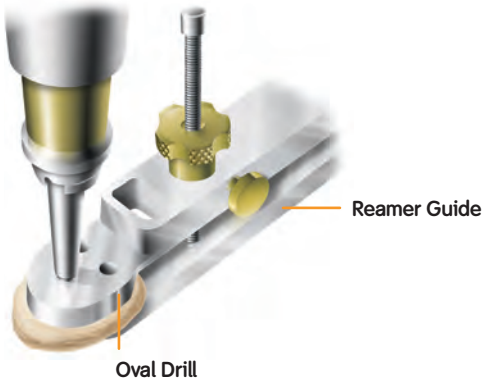

Figure 23

Figure 24

Figure 25

Oval Patellar Sizing Template	Oval Patellar Drill Guide	Drill	Reamer Guide
7144-0842	29mm 7144-0729 32mm 7144-0732 35mm 7144-0735 38mm 7144-0738 41mm 7144-0741	7144-0743	7144-0311

Component trialing

1 Place the patellar trial into the prepared patella (Figure 26).

2 Perform a trial range of motion to assess patellar tracking. Medial/lateral placement of the femoral trial can be adjusted to optimize patellar tracking (Figure 27).

Figure 26

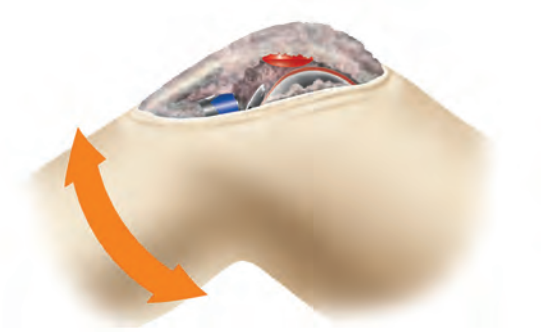

Figure 27

Resurfacing Patellar Trial		Oval Patellar Trial	
26mm	7143-0580	**29mm**	**7143-0429**
29mm	7143-0574	**32mm**	**7143-0432**
32mm	7143-0576	**35mm**	**7143-0435**
35mm	7143-0578	**38mm**	**7143-0438**
		41mm	**7143-0441**

Implantation

Patellar implantation

1 Assemble the patellar cement clamp to the patellar reamer guide.

2 Apply bone cement to the patella.

3 Place the patellar implant onto the patella and clamp into the bone (Figure 28). Remove excess cement.

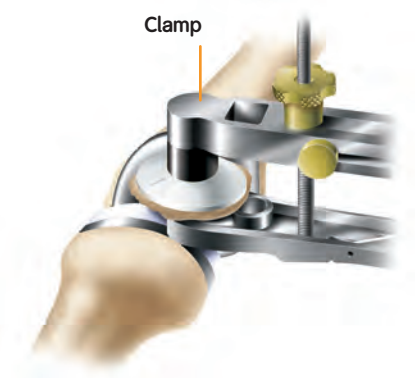

Figure 28

Reamer Guide	Cement Clamp
7144-0311	7144-0322

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