

RidgeStop™ For Patella Luxation



 User Guide



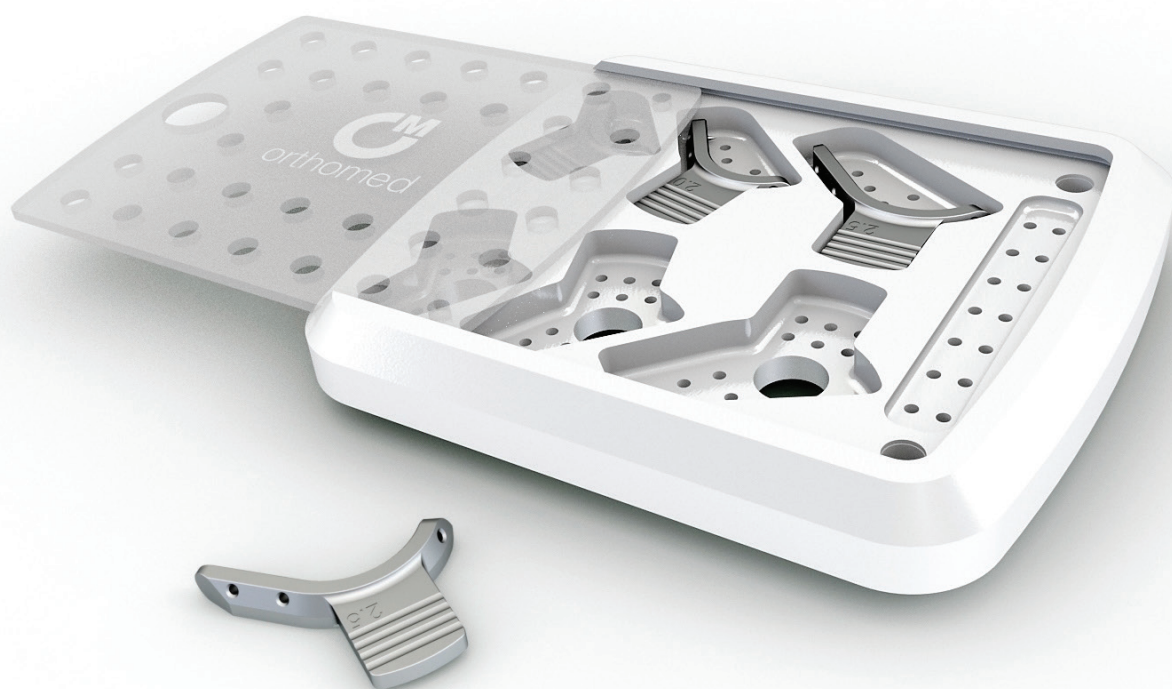
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Case Selection

RidgeStop™ can be used as a “stand-alone” procedure for less severe cases of patellar luxation – Grade 2 or better.

Alternatively, RidgeStop™ is employed as an adjunct procedure when re-alignment operations such as distal femoral ostectomy or tibial crest translocation have been performed. In such cases, RidgeStop™ acts effectively as an alternative to sulcoplasty procedures.

When used as an adjunct to a re-alignment operation, the re-alignment surgery is decided on and completed after the RidgeStop™ is applied as part of the same anaesthetic procedure.



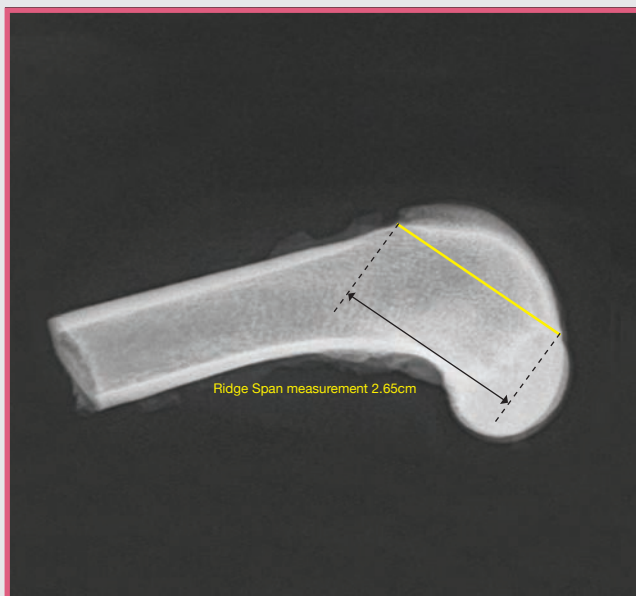
01 Patient Positioning



The patient is positioned in dorsal recumbency and draped to permit free manipulation of the affected limb. Specifically, it is essential that the surgeon is able to flex and extend the stifle joint freely throughout the procedure.

In this illustration, the combination of an aperture drape and a sterile “foot bag” allows the surgeon adequate access to the stifle while permitting intra-operative flexion and extension of the joint.

02 Surgical Planning



More severe cases (perhaps grade 3 or more) will require a re-alignment procedure. RidgeStop™ application is best done as part of the same anaesthetic procedure but after surgical re-alignment (for example distal femoral ostectomy or tibial crest translocation) has been achieved.

The size of RidgeStop™ implant needed is determined from the “Ridgespan” measurement taken from a standard lateral radiograph. Ridgespan is measured from the proximal extent of the trochlear ridge to the condylar notch as shown.

Typically the Ridgespan distance is “rounded down” so a surgeon measuring a 2.65cm Ridgespan distance will select a 2.5cm Ridgestop implant.

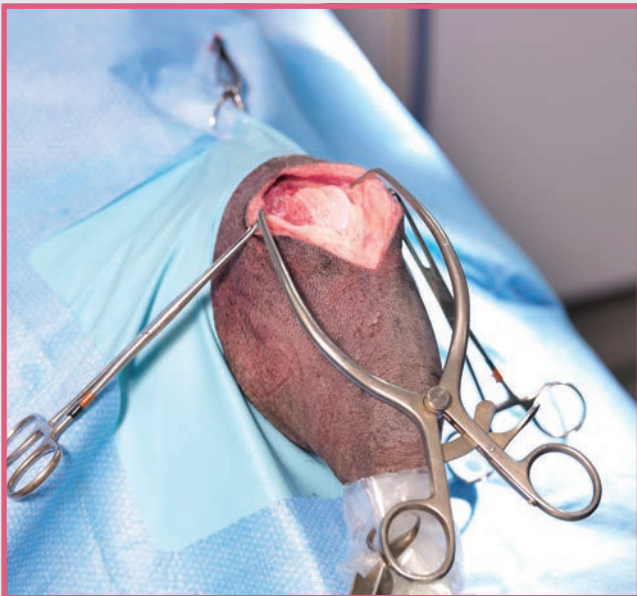
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03 Surgical Approach



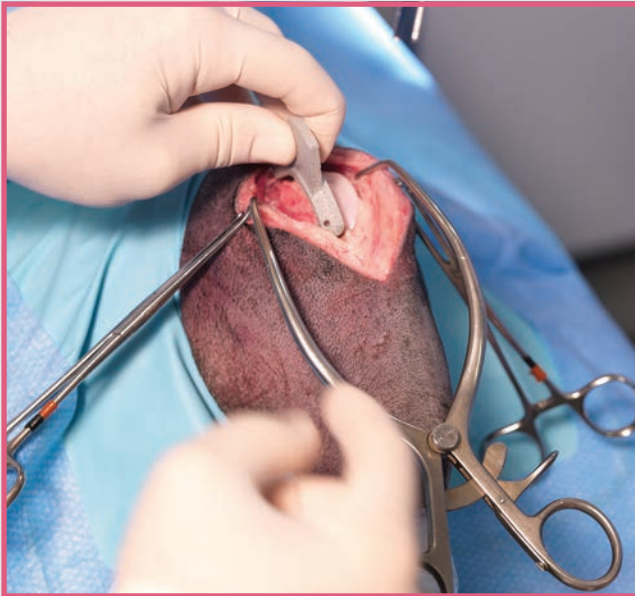
For medial patellar luxations, a RidgeStop™ implant is applied to the medial trochlear ridge and a medial parapatellar approach to the stifle joint is employed. Conversely, for lateral patellar luxations, a lateral parapatellar approach is appropriate.

For a medially luxating patella, a skin incision is made extending distally over the medial extent of the patella then parallel to the straight patellar ligament to terminate just distal its tibial attachment. The deeper soft tissues including the joint capsule are incised. The incision is extended to allow the patella to be luxated laterally over the lateral trochlear ridge.



Partial flexion of the stifle after lateral luxation of the patella maintains the surgical exposure of the medial trochlear ridge. Gelpi self-retaining retractors can be used to further improve the surgical exposure as shown here.

04 Preparing to Drill

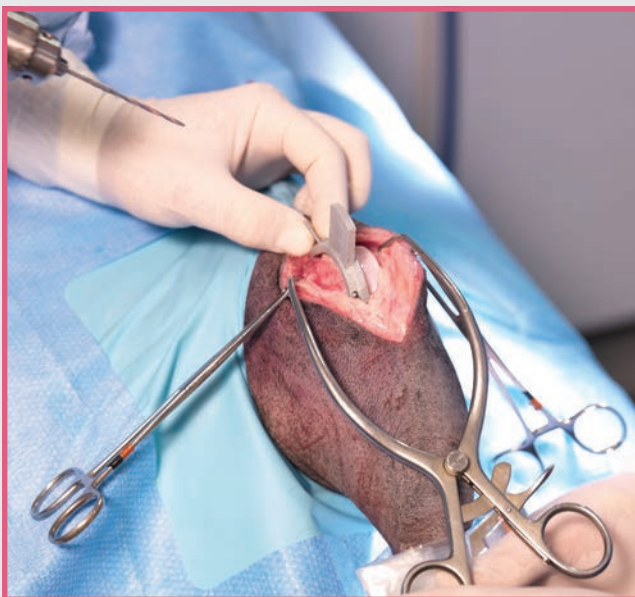


The correct size of drill guide is selected (with reference to the “Ridgespan” distance determined on pre-operative radiographs). For each size of drill guide, there is a “left” and “right” version – care must be taken to select and use the appropriate guide. The size and shape of the “foot” of the guide is identical to the RidgeStop™ implant.

The guide is placed along the trochlear ridge and inspected for position and fit. Avoid the temptation to place the guide (and therefore the implant) too axially. The patella can be returned temporarily to its normal position to help assess the best position for the RidgeStop™.

Before drilling, carefully review the size and the position of the guide, especially at the proximal and distal extremities.

05 Drilling Technique

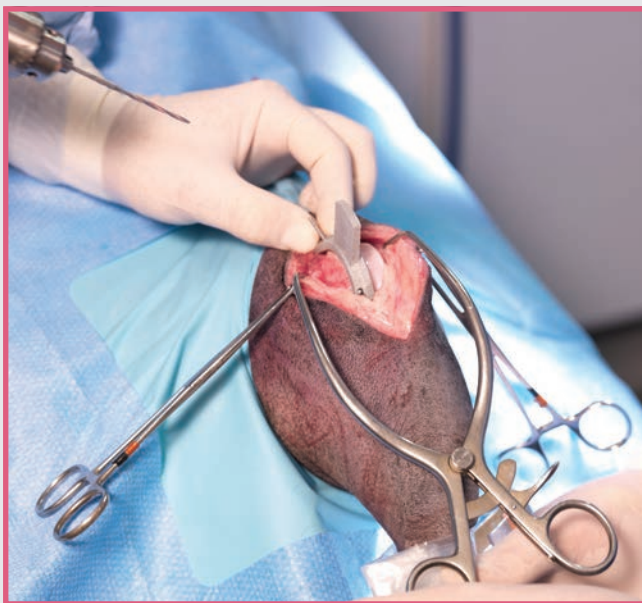


The most distal drill hole is made first using a 2.0mm orthopaedic drill – this hole is made through the near cortex and into the cancellous bone. The far cortex should not be penetrated. The drill is withdrawn and one of the temporary fixation pegs is pushed through the drill guide and seated into the bone.

The screw to be used here, and consequently the depth of this hole depends upon the size of RidgeStop™ used. RidgeStop™ size (**bold**) and screw length (*italics*) as follows:

(RS 1.5 – Screw 14mm)	(RS 3.0 – Screw 20mm)
(RS 2.0 – Screw 16mm)	(RS 3.5 – Screw 22mm)
(RS 2.5 – Screw 18mm)	(RS 4.0 – Screw 24mm)

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Next, the most proximal hole is made – the drill guide will send the drill in the correct direction and this time both cortices are drilled. Again, the drill is withdrawn and replaced with a temporary fixation peg.

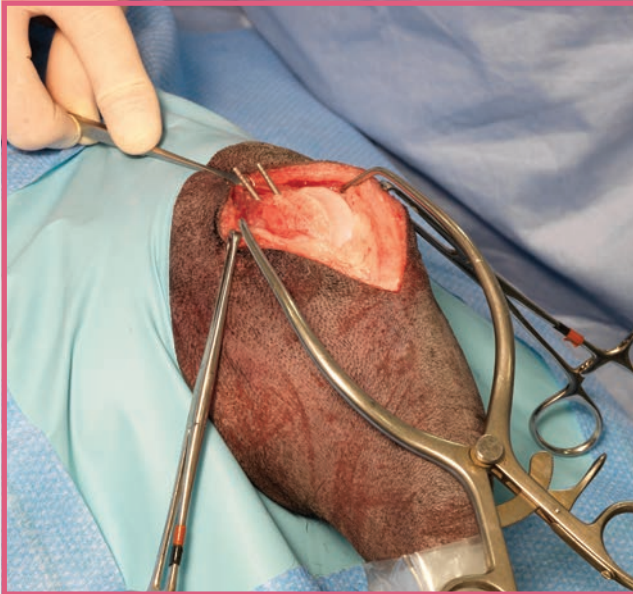
The remaining 2.0mm hole is made through both cortices and again, the drill is withdrawn and replaced with a temporary fixation peg.



All three 2.0mm holes have been made and temporary fixation pegs are in place.

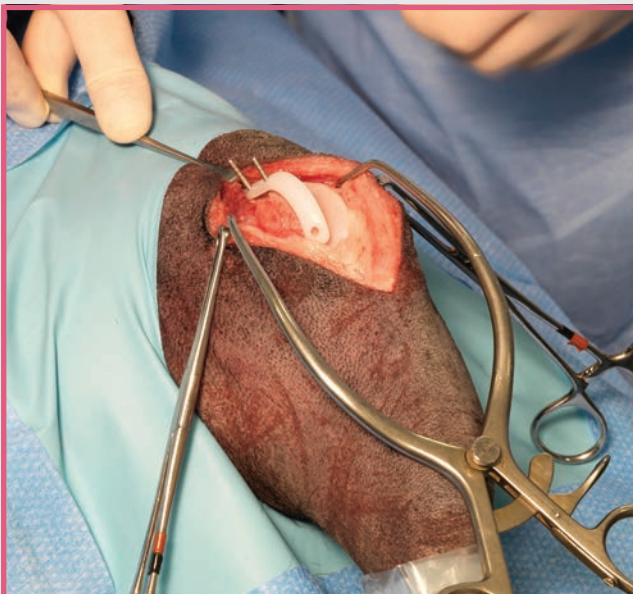
Note the angulation of the pegs which has been dictated by the drill guide. The two proximal pegs are parallel to one another.

06 Implant Placement



The most distal temporary fixation peg is removed. With the two more distal temporary fixation pegs remaining in place, the drill guide is carefully removed.

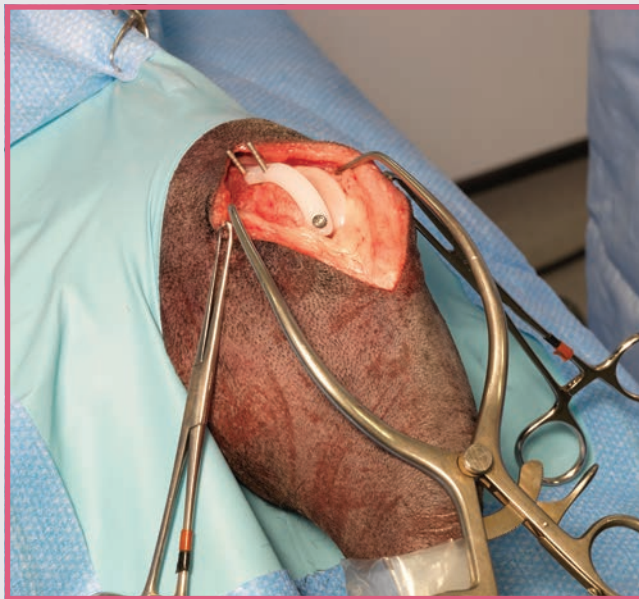
The illustration shows the two proximal temporary fixation pegs remaining after removal of the distal peg and the guide.



The RidgeStop™ implant is carefully slid over the two temporary fixation pegs and pressed down to its planned position on the trochlea.

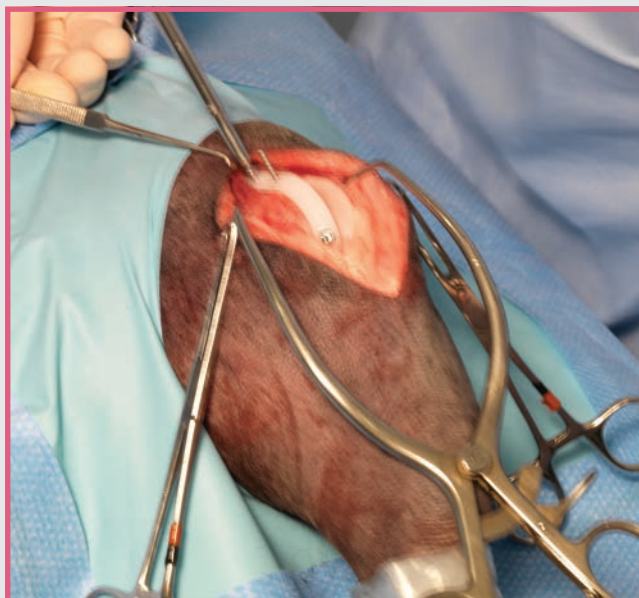
A 2.7mm cortical screw of appropriate length is selected, based on the size of Ridgestop implant used.

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The first screw is driven through the RidgeStop™ implant and into the bone of the distal femoral epiphysis.

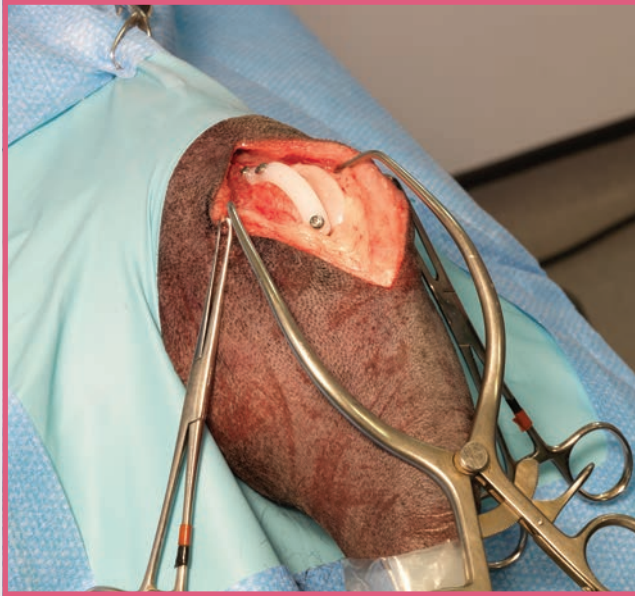
Care is taken to avoid over-tightening the screw as this will deform the relatively soft RidgeStop™ implant.



The most proximal temporary fixation peg is removed and a standard orthopaedic depth gauge is used to determine the appropriate length of screw.

A 2.7mm cortical bone screw is selected that is 2mm longer than the measured length – this is a bicortical screw and it is important that the screw properly engages both cortices.

Again, care is taken to avoid over-tightening and deforming the implant.



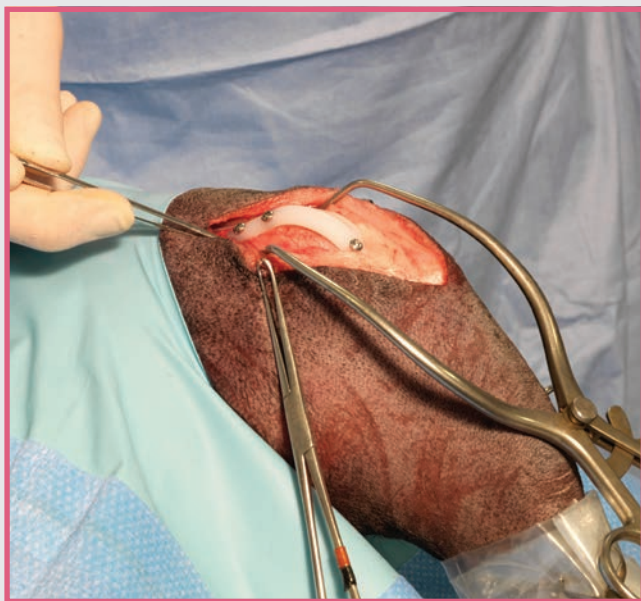
The final screw is measured and placed in similar fashion. This too is a bicortical screw so a screw approximately 2mm longer than measured is selected to ensure that both cortices are properly engaged.



Once all three screws are placed, the implant placement is inspected and reviewed. The patella is replaced into the trochlear groove and tested through a range of stifle joint motion.

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07 Wound Closure



Care is taken to ensure that soft tissues have not become trapped beneath the RidgeStop™ implant.

Soft tissues are sutured in several layers – in many cases, it is not possible to fully re-appose the joint capsule over the RidgeStop™ implant and in such cases, closure is achieved by suturing the overlying loose fascial layers.

Remaining wound closure is routine.

RidgeStop™ prosthetic trochlear ridge

After-care information for clients

Your pet has just undergone surgery to fix a condition called patella luxation (also known as “floating kneecap”). The aim of the surgery was to make sure that the patella slides up and down within its groove, without slipping to one side or the other, causing discomfort and lameness. This surgery works by applying a special implant (a prosthetic ridge called RidgeStop™) using screws onto the side of the groove where the knee cap was dislocating, thereby creating a barrier which prevents this from occurring. The surgery involved opening the knee joint space, examining the joint, and fixing the implant (made of an ultra-high molecular weight polyethylene) to the bone using 2 or 3 screws.

Unlike other procedures for this condition where the joint surface had to be cut, this is a much less traumatic procedure, as well as being more effective. As no bones have been cut, there is no risk of fracture and therefore no need to restrict exercise after surgery - it is actually encouraged. However, it is important to take into account that there is still some pain and discomfort after surgery, so a non-steroidal anti-inflammatory pain killer should be used for a period of 4-6 weeks after surgery. You may have been given some antibiotic treatment as well for a few days post operatively.

It is recommended to exercise on a lead only, as well as prevent swimming, to reduce risk of contamination or injury to the surgical wound until it has healed, which usually takes 10-14 days.

What to expect after surgery

Normally you should see your pet start using their leg 3 to 4 days after surgery, and slowly improve over the following 3 to 4 weeks. There is some individual variation on how quickly your animal will return to full function, and is suspected to be due to having to adjust to the new biomechanical state of the knee joint, and to the implant itself. Occasionally some swelling is seen post operatively around the knee joint due to fluid accumulation (seroma), however this usually resolves without incident after a few weeks.

Additional surgical procedures in conjunction with the RidgeStop™ implant

Depending on the severity of the condition, additional surgical measures may have had to be performed. This could be involving sawing of the tibial and/or femoral bones, which help re-align the knee cap. In cases where the surgery involves the sawing of bones, all the forces acting on these bones are countered by the pins and wires or even plates and screws, and whilst these are of adequate strength, they may still fail if excessive force is applied, for example by jumping, running and sudden twisting. It is therefore imperative that if in addition to the RidgeStop™ implant bones had to be cut and repositioned in your pet, exercise is restricted to controlled lead walks only, no stairs and not letting free in the garden until the bone heals. This can take 2 to 3 months depending on the age of your pet, and is confirmed by post-operative x-rays at the appropriate times as advised by your vet.

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