NOVETECH
SURGERY

CRANIAL CRUCIATE LIGAMENT REPAIR

NOVALIG

Synthetic Ligament

MEDICAL GRADE FIBRE

Allowing a perfect biocompatibliy, softness, strengh & abrasion resistance

HIGH POROSITY

Enhancing tissue-in-growth, for greater invasion by soft tissue

CONTINUITY OF THE LIGAMENT

The fibres run the whole length of the ligament thus giving strengh and resistance to the whole implant

	K-wire Diameter (millimètre)	Drill Bit Diameter (millimètre)	Screw indication (millimètre)	Approx. resistance of the ligament (newton)
Novalig 2000 - Button	1.2	2.5	3.5	2000
Novalig 4000 - Button	2	3	4	4380
Novalig 4000	2	3	4	4380
Novalig 8000	2	3.6	4.5	8200

THE CHOICE OF THE LIGAMENT DEPENDS ON ANIMAL'S WEIGHT AND ACTIVITY

The selection criteria for the size of the ligament to be implanted is in relation to the weight of the dog, the level of activity and to be compatible with the bone size; this is to allow for the tunnels to be drilled and no impingement in the inter-condylar notch.

As an indication :

- 5-10 kg : NOVALIG 2000
- 10-15 kg : NOVALIG 4000
- + de 15 kg : NOVALIG 8000

We use the only one Medical Grade UHMPWE Fibre in the world to guarantee you the best resistance and proven biocompatibility.
Used in million of patients, its high softness enables to reduce inflammatory reaction and irritation accelerating recovery.

MANAGEMENT OF CRANIAL CRUCIATE LIGAMENT REPAIR IN CANINE PATIENTS USING A SYNTHETIC LIGAMENT

Developped with DMV Philippe Buttin, Formation ECVS
Referal Activity in the Alps, France

STEP 1 Placement of the femoral guide K-wire

STEP 2 Drilling of the femoral tunnel

STEP 3 Placement of the tibial guide K-wire

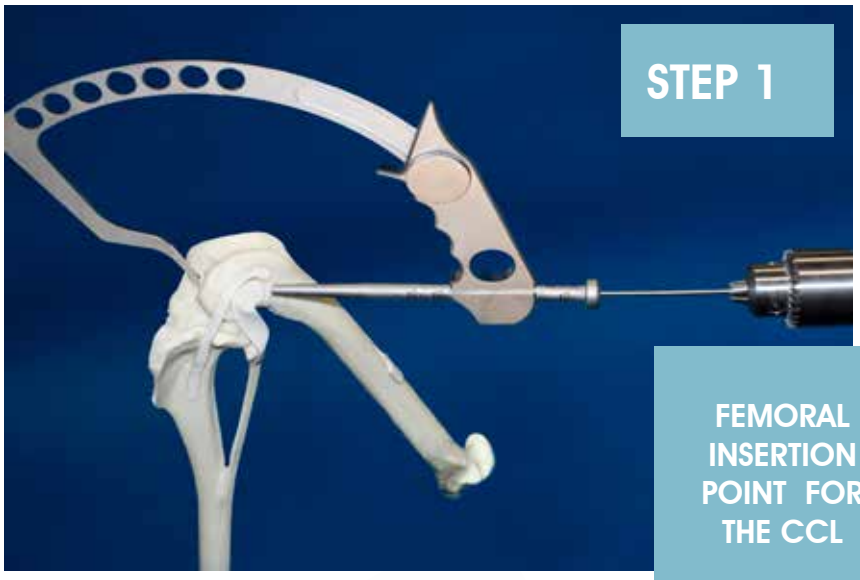
STEP4 Drilling of the tibial tunnel

STEP 5 Passage of NOVALIG

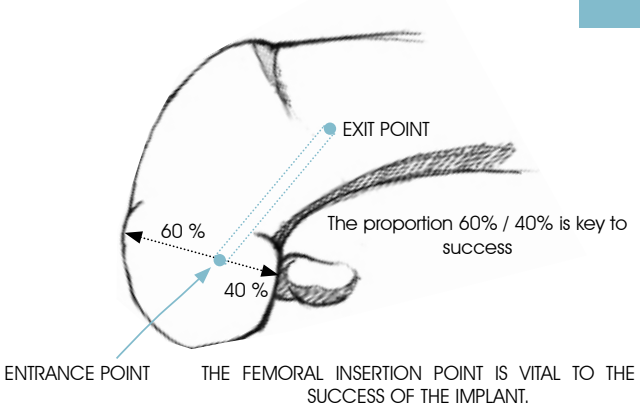
STEP 6 Femoral fixation IN-OUT

STEP 7 Adjustment of tension and tibial fixation Tibial OUT-IN.

STEP 8 Completion of fixation



FEMORAL INSERTION POINT FOR THE CCL

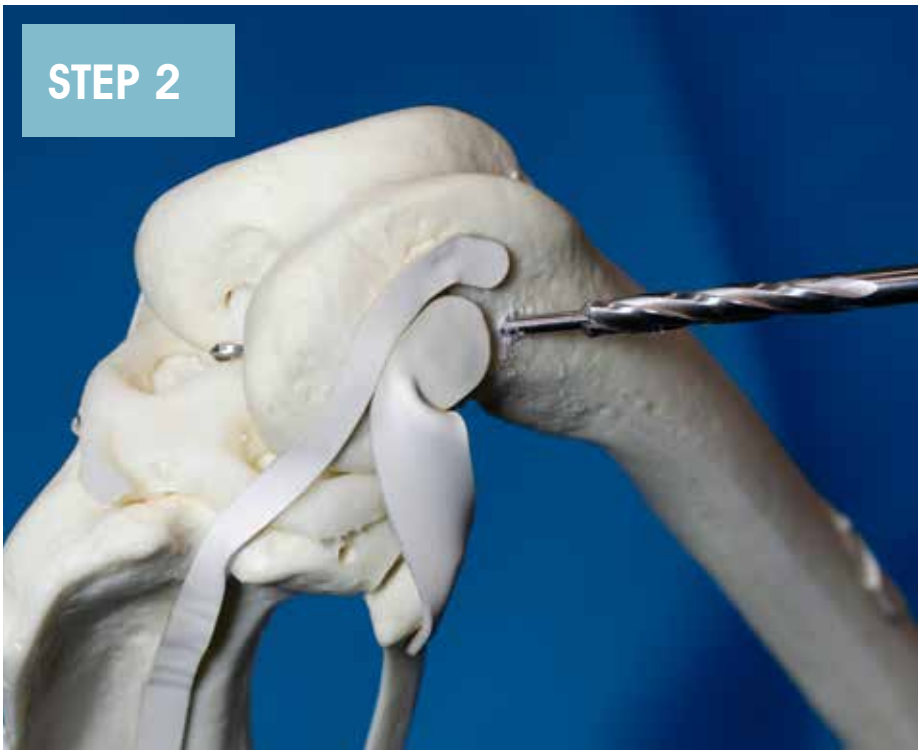


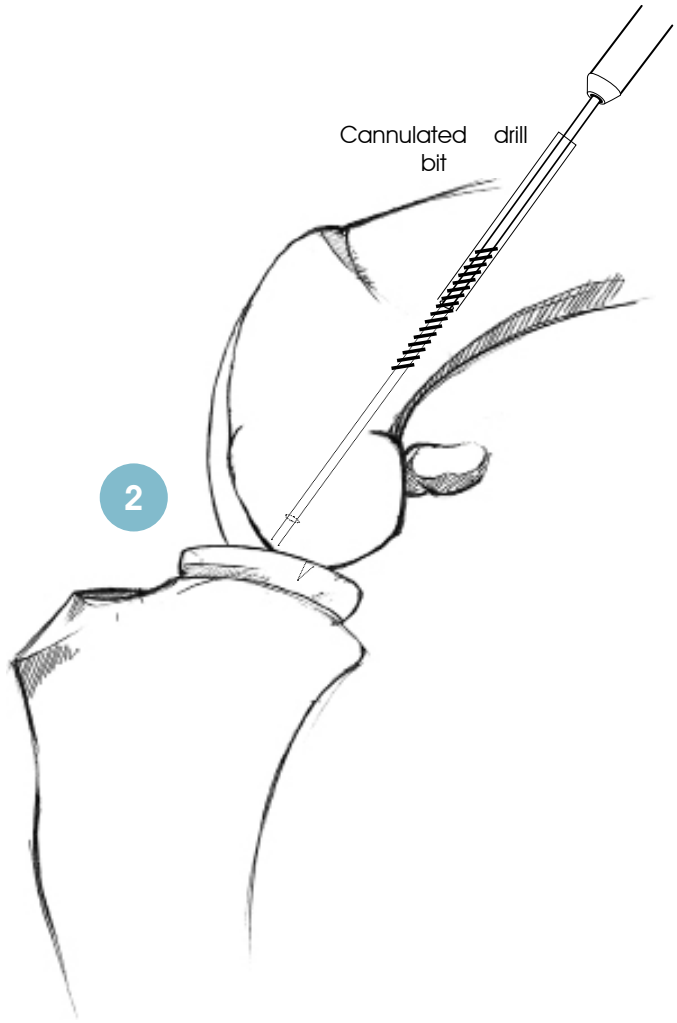
THE FEMORAL INSERTION POINT IS VITAL TO THE SUCCESS OF THE IMPLANT.

PLACEMENT OF THE FEMORAL GUIDE K-WIRE

An arthroscopic procedure is certainly ideal but requires specific training and equipement. A medial parapatellar arthrotomy with lateral patellar luxation gives a good view and allows a complete check up of the joint including the meniscus.

With the joint in hyper flexion, a double trocar K-wire 2 mm diameter is inserted thanks to the appropriate aiming guide into the lateral condyl inside out with the drill, from the entrance point to the exit point of the lateral cortex The K-wire must pass over the tibial insertion and be at equal distance from the medial and lateral notch's walls to avoid any friction. The K-wire must cross the anterior aspect of the posterior cruciate. This 2 mm K-wire may be replaced later by a 1,2mm K-wire to be used as a guide for the smaller drill bits but too soft for the drilling.





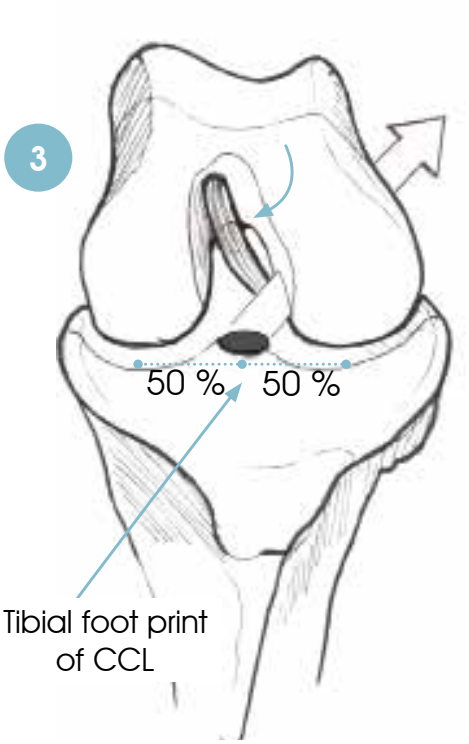
DRILLING OF THE FEMORAL TUNNEL

The drill bit in inserted into the sleeve to protect the soft tissue. The femoral tunnel is drilled from outside in with the canulated drill bit guided by the K-wire. The diameter of the drill bit is adapted to the size of the selected ligament:

3.6 mm for NOVALIG 8000
3,0 mm for NOVALIG 4000
2,5 mm for NOVALIG 2000

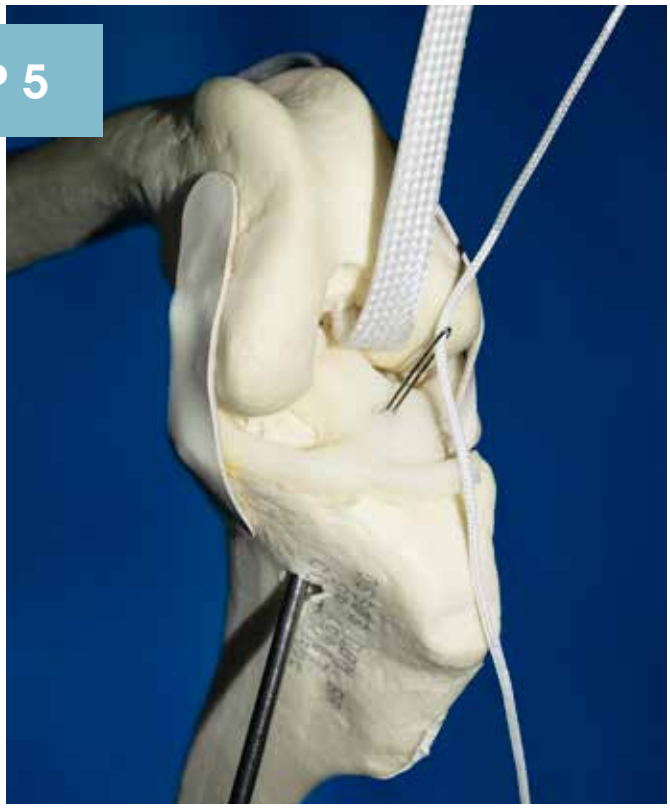
PLACEMENT OF TIBIAL GUIDE K-WIRE

The K-wire is inserted from the outside-in thanks to the appropriate aiming guide. The tip of the aiming guide is positionned caudally to the tibial footprint of the CCL.



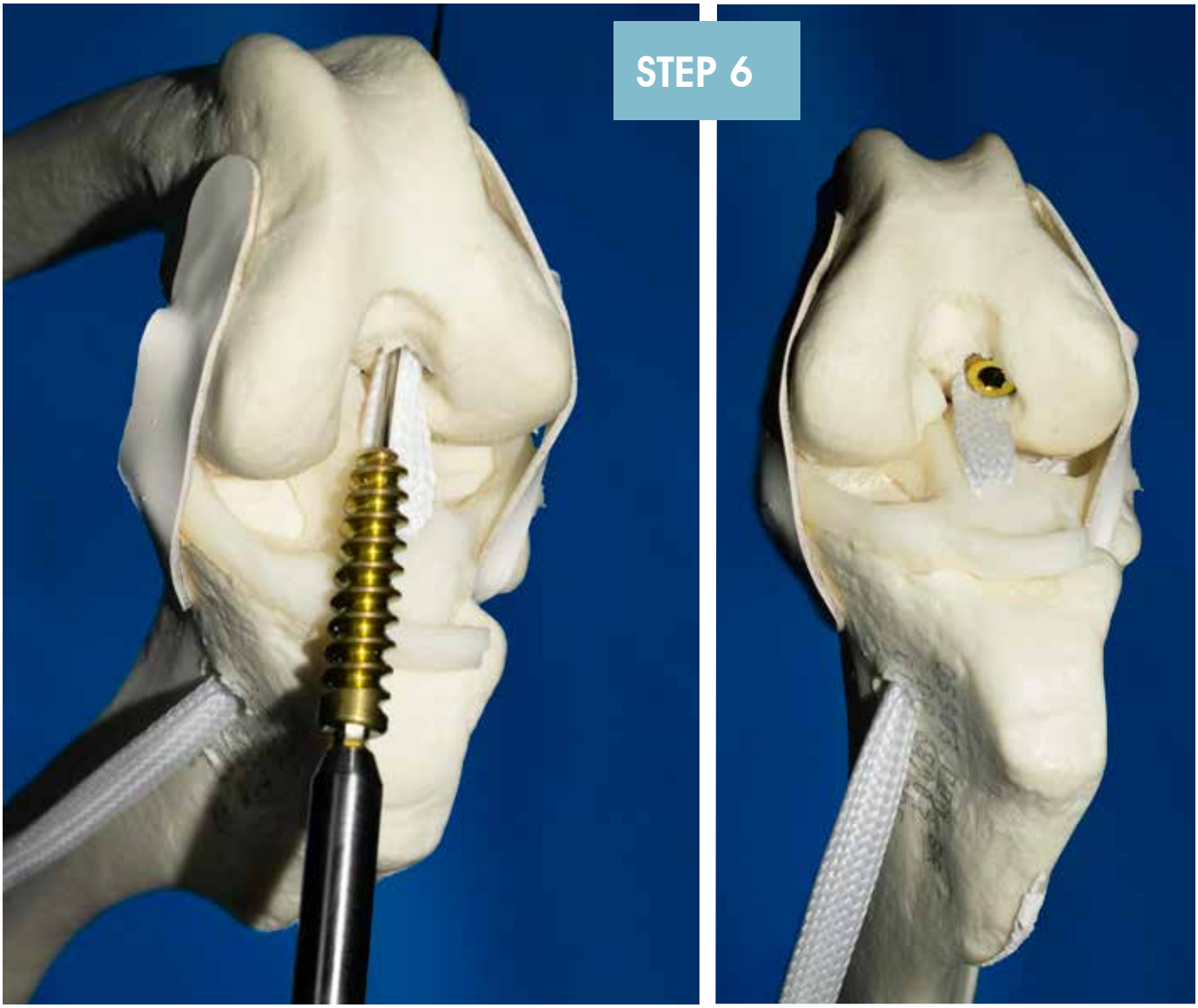
DRILLING OF THE TIBIAL TUNNEL

The cannulated drill bit is selected to the size of the ligament and slips over the K-wire. Then, drill from outside-in and stops immediately when you hit the tibial plateau, this avoids damaging the cartilage and any native CCL remnants.



PASSAGE OF NOVALIG

The Wire passing tube is placed through the tunnels followed by the wire loop. The passing tube is removed. This procedure is in fact performed in 2 different steps if the femoral and tibial tunnels are not aligned (femoral and tibial guide Kwires inserted separately).
The threads of the ligament are inserted through the loop and the ligament is pulled through the tunnels.

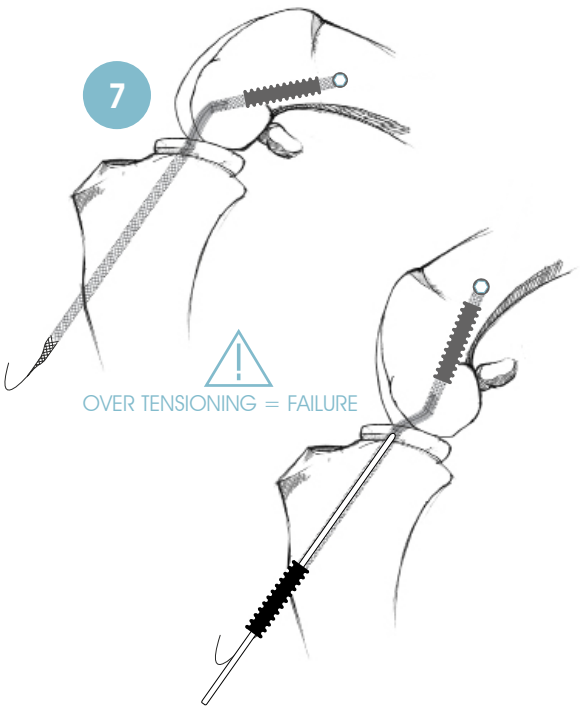


FEMORAL FIXATION IN-OUT

The 1 mm blunt K-wire is placed into the tunnel along the ligament, parallel to it, to guide the screw and avoid any divergence in the spongious bone. The screw must be selected according to the length and diameter of the tunnel and bone density. Usually, use a screw at least 1mm above the tunnel diameter you drilled and with the maximum length you can. In case of poor bone density, insert a screw of bigger diameter.

Screw thanks to the cannulated ratchet screwdriver. The distal portion of the screw must be flushing the internal cortex of the condyle.

STEP 7



TENSION AND TIBIAL FIXATION OUT-IN

Patella is replaced to its anatomical position.
The ligament is tensioned once and then the joint is put in full flexion and extension. If the placement is isometric there should not be any movement in the tibial tunnel. A small sliding of 1 or 2 mm is admissible and the tibial fixation must be completed to allow a full range of motion. The ligament must never be over tight.

The screw is inserted thanks to the cannulated ratchet screwdriver and position as high as possible in the tunnel, flushing to the tibial plateau without interfering in the intra-articular joint.

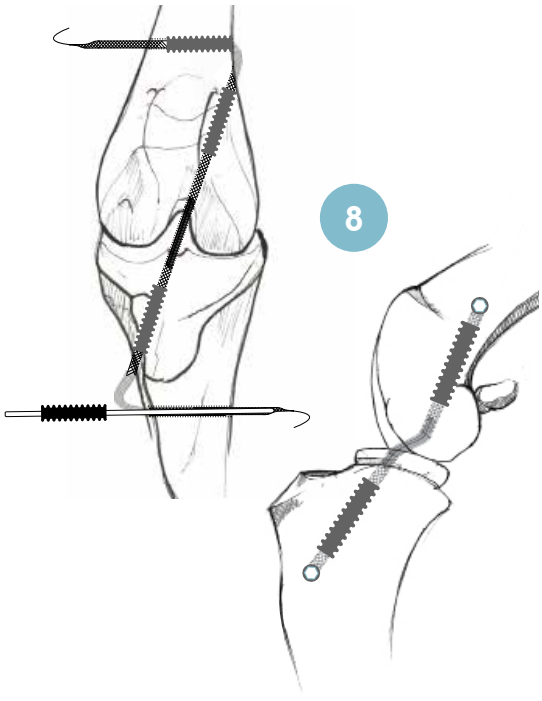
Stability and range of motion are once more verified before cutting the extremities of the ligament flush to the bone.

STEP 8

OPTION : COMPLETION OF FIXATION

For a strong and immediate mechanical fixation, it can be recommend to perform a double primary fixation. On the femoral side, a transversal tunnel is drilled 10 mm above the exit of the primary tunnel. The ligament is passed through this tunnel with the help of the wire loop and firmly tightened. The second femoral screw is secured using the same technique, over the 1 mm guide wire and flush to the femoral cortex.

The tibial fixation is also secured as per the femoral fixation. A transversal tunnel is drilled from the medial to the lateral aspect of the tibial metaphysis 10mm below the primary tunnel. The muscles of the antero lateral compartiment have to be detached along 3cm to be protected from the drill bit with a retractor. The ligament is passed through the tunnel with the wire loop and fixed with a screw.
Stability and range of motion are once more verified before cutting the extremities of the ligament flush to the bone.



SOINS POST-OPÉRATOIRES

No immobilisation is necessary. A cryotherapy brace with a compression system is recommended.
Full weight bearing
Control the activity of the dog during the first months, and recommend physiotherapy

OR

INTERFERENCE SCREW

- Diam. 2,5mm * Length 9 mm
- Diam. 3 mm * Length 11 mm
- Diam. 3,5mm * Length 11 mm
- Diam. 4 mm * Length 13 mm
- Diam. 4,5mm * Length 15 mm
- Diam. 4,5mm * Length 20 mm
- Diam. 5 mm * Length 15 mm
- Diam. 5 mm * Length 20 mm
- Diam. 5 mm * Length 25 mm
- Diam. 6 mm * Length 15 mm
- Diam. 6 mm * Length 20 mm
- Diam. 6 mm * Length 25 mm

INSTRUMENTATION

A complete instrumentation kit is available for general ligamentoplasty using NOVATEN or NOVALIG.

NOVETECH SURGERY provides to the veterinarians a range of synthetic reinforcement systems for soft tissues based on years of experience.

In addition of the implants themselves, NOVETECH SURGERY offers their fixation systems, as well as their instruments and power tools.

NOVETECH SURGERY IS THE FOUNDING PARTNER OF IGOS .

Innovation **G**roup for **O**rthopaedic **S**urgery.
IGOS is an international group allowing collaboration between surgeons enhancing scientific research on physiological orthopaedic repair using latest thechnologies.

www.igos-vet.com

WE ARE INVOLVED IN PAIN MANAGEMENT.

We are working on pain management thanks to less traumatic procedure, or better pain management in our postoperative processes.

CAPdouleur
CHANGE ANIMAL PAIN

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WARNING : In addition to this operative technique, it is highly recommended to get a training with an experienced surgeon before any applications of this product.