



# NOVETECH

## SURGERY

**GASTROCNEMIUS  
TENDON REPAIR**

# NOVATEN®

## Synthetic Tendon

### CONTINUITY OF THE BRAIDED FIBER

The braided fibres run the whole length of the tendon thus giving strength and resistance to the whole implant

### MEDICAL GRADE FIBRE

Allowing perfect biocompatibility, softness, strength & abrasion resistance

### HIGH POROSITY

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

2

	K-wire Diameter millimètre	Drill Bit Diameter millimètre	Screw indication millimètre	Approx. resistance of the tendon newton
Novaten 2000	1.2	2.5	3.5	2000
Novaten 4000	2	3	4	4380
Novaten 8000	2	3	4	4380

## THE CHOICE OF THE TENDON DEPENDS ON ANIMAL'S WEIGHT AND ACTIVITY

As an indication :

The selection criteria for the size of the tendon graft to be implanted is in relation to the weight of the animal, the level of activity and to be compatible with the bone size.

NOVATEN® 2000 fit into a 2,5 mm tunnel  
 NOVATEN® 4000 fit into a 3,0 mm tunnel  
 NOVATEN® 8000 fits into a 3,6 mm tunnel

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 it to reduce inflammatory reaction, irritation and thus accelerating recovery.

## MANAGEMENT OF GASTROCNEMIUS TENDON DISRUPTION IN CANINE PATIENTS USING ASYNTHETIC TENDON

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

### STEP 1

Surgical approach

### STEP 2

Tunnel Preparation

### STEP 3

NOVATEN® / Gastrocnemius Sutures

3

### STEP 4

Passage of the prosthesis & Tensioning

### STEP 5

Calcaneum Fixation

### STEP 6

Post-operative

## STEP 1



4

## STEP 1

Position the patient laterally in decubitus position. Perform a caudo-lateral approach, starting distally at the gastrocnemius to the mid body the calcaneus.

Dissect the Gastrocnemien tendon to isolate it, from his entheses to the musculotendinous junction. Debride the scar tissues on the lesion to keep healthy tissue.

The lateral retinaculum of the superficial digital flexor tendon is incised along the lateral margin of the calcaneus and luxated medially with a Hohmann retractor to protect it during the drilling.



## STEP 2

The first bone tunnel is made from the middle of the proximal surface of the calcaneus (calcaneal tuber) towards its plantar aspect. Drill with a K wire and then over drill with the cannulated drill depending on which size implant is chosen. For the NOVATEN® 8000, a 2 mm K wire is used for a 3.6 mm cannulated drill bit. For a NOVATEN® 4000, a 1 mm K wire is used for a 3 mm cannulated drill bit

The second tunnel is made perpendicular to the first one (a few millimetres distally to the exit of the first hole) using the same process (K-wire and Cannulated drill bit). Drill from the lateral aspect to the medial side of the calcaneus. This second tunnel is possible only if the calcaneum is large enough to support it. To avoid any risk of fracture, drill in the middle of the surface to conserve enough bone on each side.

The tunnel where you place the screw has to be pre-tapped.



### STEP 3

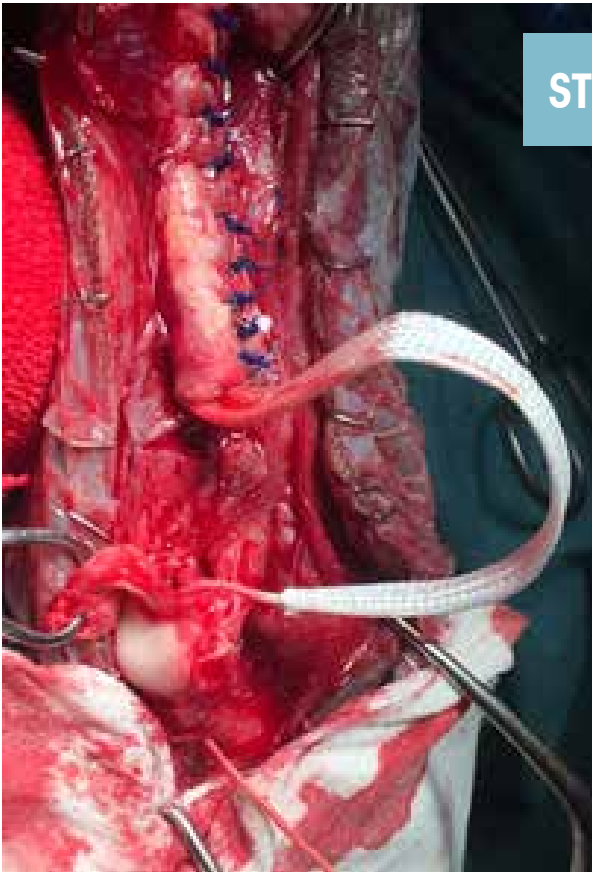
Identify where the tendon lesion, rupture or avulsion of the enthesis or the musculotendinous junction is. Make a longitudinal incision of the proximal end of the tendon over half its diameter from the musculotendinous junction to the site of rupture. This incision can be made on the dorsal side of the tendon in order to protect the sutures from friction with the skin caused by friction. The length of the Novaten interface / tendon and the number of sutures made will determine the strength of the overall procedure.

Insert the Novaten® into the space left by the tendon incision. Stabilize the Novaten® with single sutures spaced 5 mm apart to sandwich it inside the Achilles tendon to the site of injury (site of rupture at the level of the body of the tendon). Polypropylene thread 2: 0 to 0 (3 to 3.5 metric) is used depending on the patient's template. The use of UHMWPE wire is considered superior for tear resistance. NB: In the case of a rupture at the junction musculotendinous, it is possible to ascend proximally on the fascia of the muscle, then to insert the tendon in the distal tendinous space.

In the case of a rupture at the level of the enthesis the Novaten® traverses the whole of the tendon proximo-distally.

A Kessler suture or a «three loop Pulley» suture can be made to consolidate the join between both ends of the tendon when the affixation of the two tendon ends is possible. Once the suture is done, protect the ligament with a compress soaked in saline so to limit the risks of contaminations.

## STEP 4



### STEP 4

The Novaten® synthetic tendon is passed through the first tunnel and the second perpendicular tunnel. It is then tensioned so it will function biomechanically and allow you to find the optimal length.

For the graft placement: insert the passing tube in the first tunnel and place the bendywire through the tube exiting proximally. Put the Novaten® ends into the bendy wire and pull through.

Use the same technique for the second perpendicular tunnel so that the wire exits medially on the calcaneus.

Use a curved Kocher forceps to pull the tendon between the two tunnels. When the correct position is you can quickly lock the forceps on the medial side of the calcaneus to prevent the slipping of the implant back through the tunnel while you select the screw.

A functional check is made before the final fixation of the prosthesis.

To achieve the correct tension, position the stifle and tarsus with physiological angles during the indirect drawer movement, ideally symmetrical with the other leg (Cf preoperative). The tarsus should not flex when the knee is in extension. If this is the case or if the tension is not satisfactory, adjust by sliding the Novaten® in one direction or the other.



## STEP 5

### STEP 5

Measure the depth of the perpendicular tunnel in the calcaneum and choose a screw that will be bicortical for a better fixation for the implant.

Insert the screw, guided a 1 mm K-wire to beyond the cortex. This allows during the second cortical passage to avoid a fracture. Use the cannulated screwdriver over the 1mm guide wire to insert the screw. Or you can use a ratchet screwdriver to preserve the axis of the screw during insertion and to avoid a deviation which may lead to fracture.

If you did not make a perpendicular tunnel, insert the screw through the first tunnel.

8

## STEP 6



### STEP 6

The use of Novaten® avoids having to use an external fixator.

A splint bandage is still recommended for 4 to 6 weeks. Or possibly a resin on particularly active dogs. A return to progressive exercise is recommended for 1 month after removal of the bandage. Physiotherapy is recommended.



Improved Resistance - Improved Biocompatibility -  
Larger space for suturing - Less Invasive -  
Easier fixation by interference screw















## NEW IMPLANT - NOVATEN®

### INSTRUMENTATION

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



### 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



### SUTURE - FIBER TECH

We recommend the use of FIBER TECH to suture the implant to the defect tendon.

It will enable a stronger & immediate biomechanical fixation of the implants.



## Notes



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## Notes



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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 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 technologies.

[www.igos-vet.com](http://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.



**CONTACT US :**

Mail : [info@novetech-surgery.com](mailto:info@novetech-surgery.com)  
NOVETECH SURGERY S.A.R.L.  
Zone F, Entrée B - C/o MonacoTech  
4-6, Avenue Albert II 98000 Monaco  
Tel : +33 (0)607937711  
[www.novetech-surgery.com](http://www.novetech-surgery.com)



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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.

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