

# CRANIAL CRUCIATE LIGAMENT DISEASE IN LARGE BREED DOGS: FUSION TTA AS A SURGICAL TREATMENT

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## INTRODUCTION & OBJECTIVES

This is an experimental project, more specifically, a **retrospective clinical research project**. Its main objective is to **explain and determine the function** of the Fusion Tibial Tuberosity Advancement (Fusion TTA) as well as **establish a typology** in relation to breed, sex and etiology and **compare the results obtained** with the different procedures that nowadays are available in order to solve the cranial cruciate ligament disease.

## CRANIAL CRUCIATE LIGAMENT DISEASE PHYSIOPATHOLOGY

Traumatic origin:

- o Direct traumatism | **4%**
- o Functional traumatism | **19%**

Degenerative origin:

- o Debilitation of articular structures | **44%**
- o Degeneration of articular structures | **33%**

## MATERIALS AND METHODS

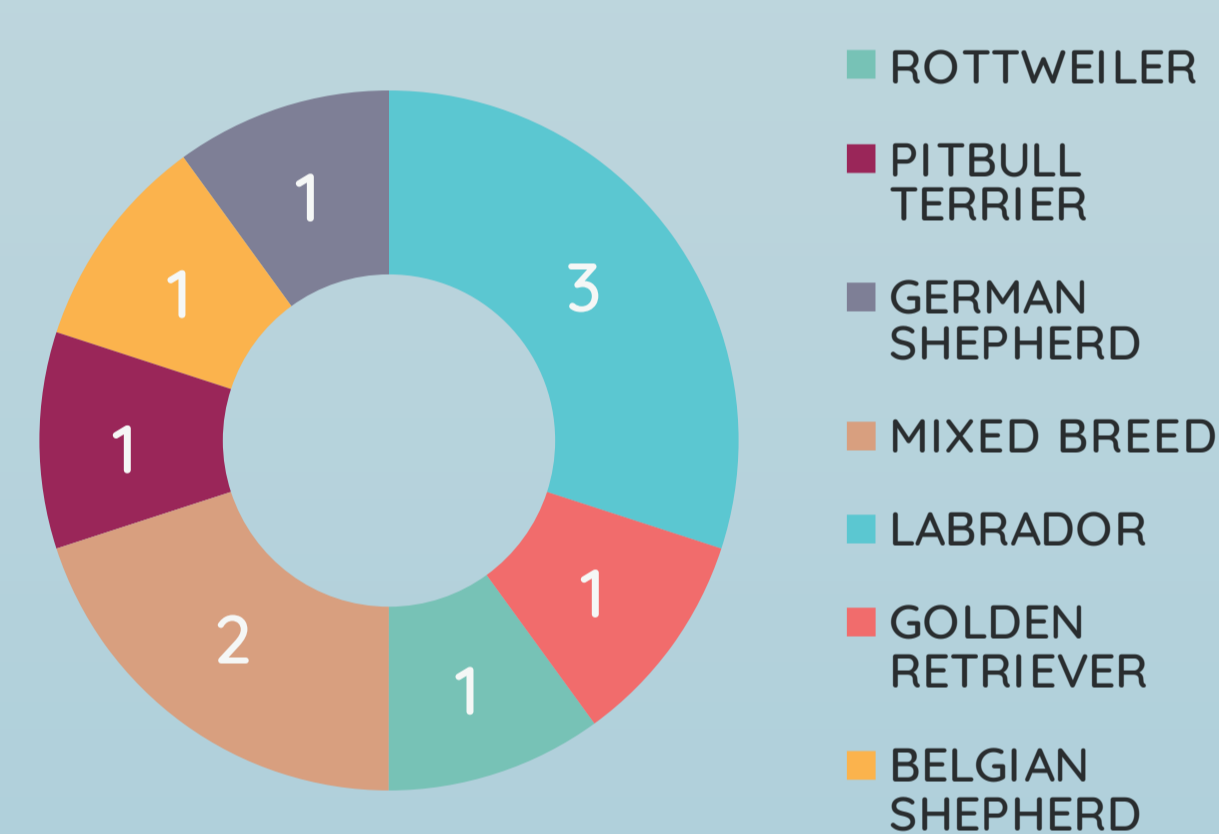


Figure 2 Breed predisposition

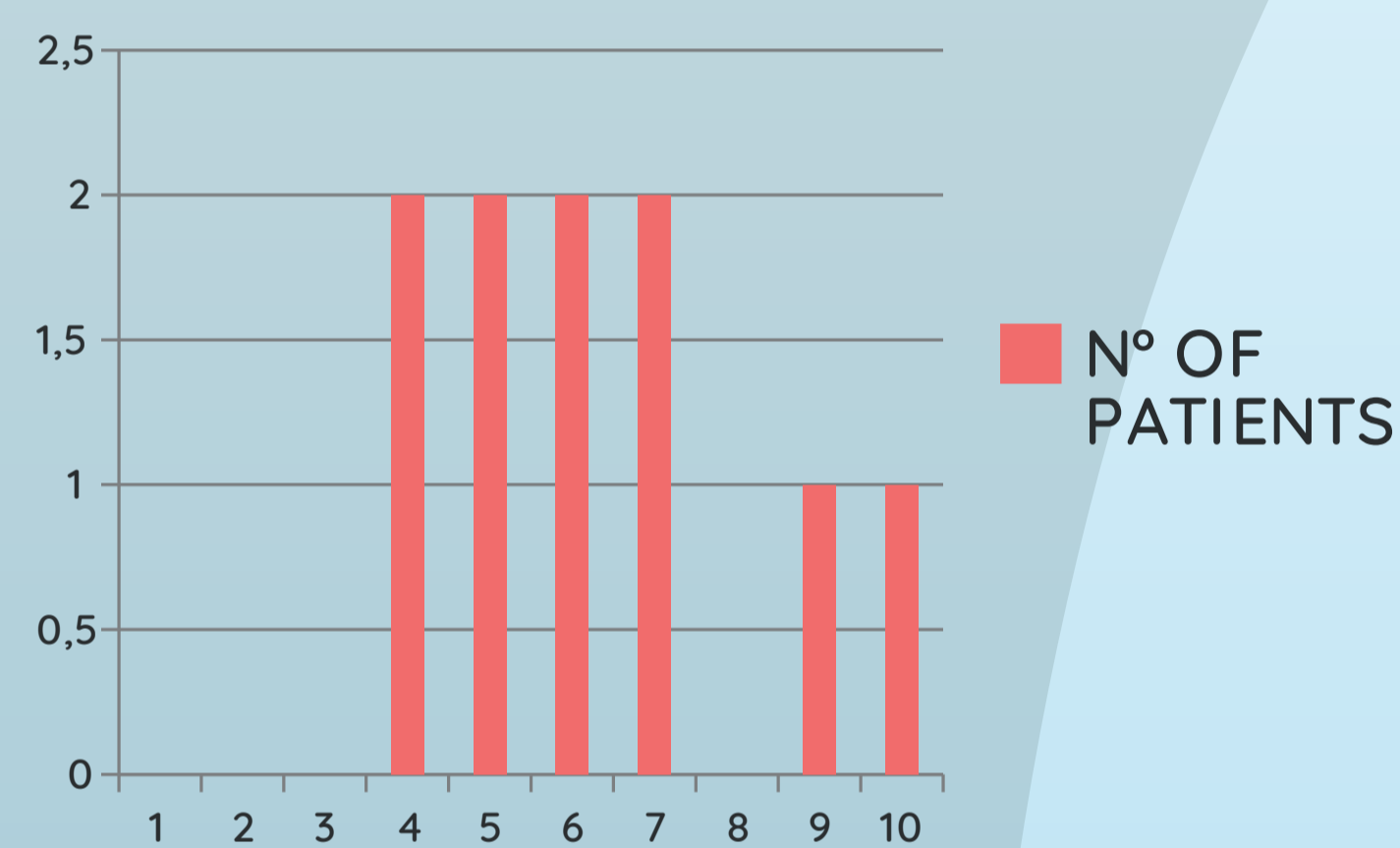


Figure 3 Age predisposition

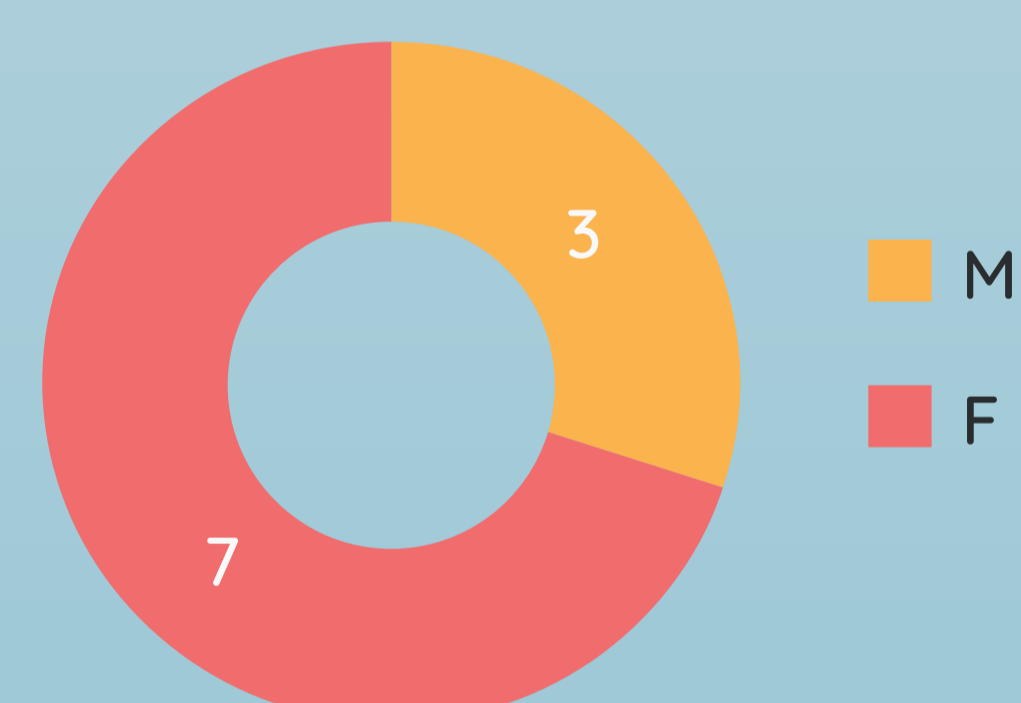


Figure 4 Sex predisposition. M= Male F= Female

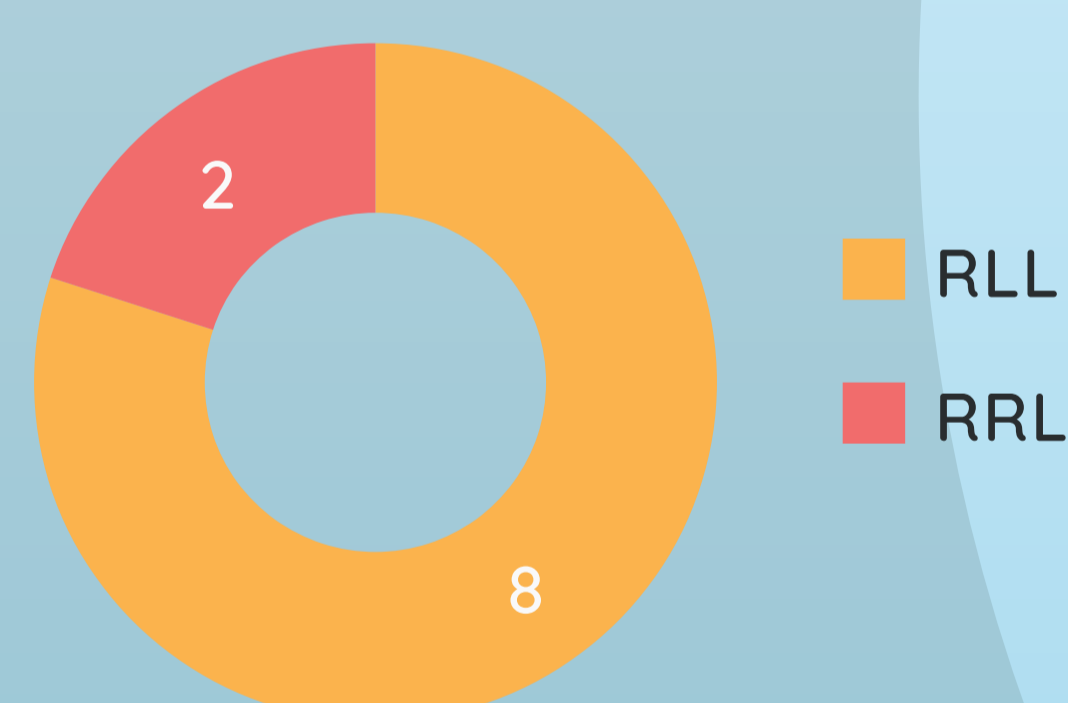


Figure 5 Limb more affected by CCL injury. RLL= Rear left limb RRL= Rear right limb

## DISCUSSION

- o Lafaver et al. (2007) **conventional TTA**. The 31,5% dogs had complications post operation. On the three month post operation visit, 23,5% of patients presented mild lameness, 2% presented moderate lameness and 1% presented severe lameness.
- o MacDonald et al. (2013) **conventional TTA**. Patients with mild lameness but post operation complications were elevated (33,3%).
- o Samoy et al. (2015) **TTA RAPID**. On the three month post operation visit, 56% of the dogs had an excellent outcome.
- o Retallack and Daye (2018) **mTTA**. Lameness on the two month post operation visit was mild (0,8 out of 4). The 20% of the procedures showed tibial crest fractures and the 7,1% presented surgical site infections.

The results obtained by the undergraduate and her tutor manifest there was a 100% excellent outcome in the patients intervened and no secondary problems.

## BIBLIOGRAPHY

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- o MacDonald TL, Allen DA, Monteith GJ. 2013. Clinical assessment following tibial tuberosity advancement in 28 stifles at 6 months and 1 year after surgery. *Can Vet J = La Rev Vet Can.* 54(3):249-54.
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- o Samoy Y, Verhoeven G, Bosmans T, Van der Vekens E, de Bakker E, Verleyen P, Van Ryssen B. 2015. TTA Rapid: Description of the Technique and Short Term Clinical Trial Results of the First 50 Cases. *Vet Surg.* 44(4):474-484.

## AVAILABLE SURGICAL TECHNIQUES

- o Intra-articular: were the first ones created.
- o Extracapsular.
- o Osteotomy techniques (CTWO -Cranial Tibial Wedge Osteotomy-, TPLO - Tibial Plateau Leveling Osteotomy-, TTA and CBLO -Cora Based Leveling Osteotomy -).

## DETAILED DESCRIPTION OF THE FUSION TTA

Fusion TTA technique is based on advancing the tuberosity of the tibia sufficiently for the plateau tibial to be perpendicular (90°) to the patellar ligament. When this is achieved, the tibiofemoral shear force is reduced to zero, which signifies that the patellar ligament does the function of the CCL (Mattila 2012).

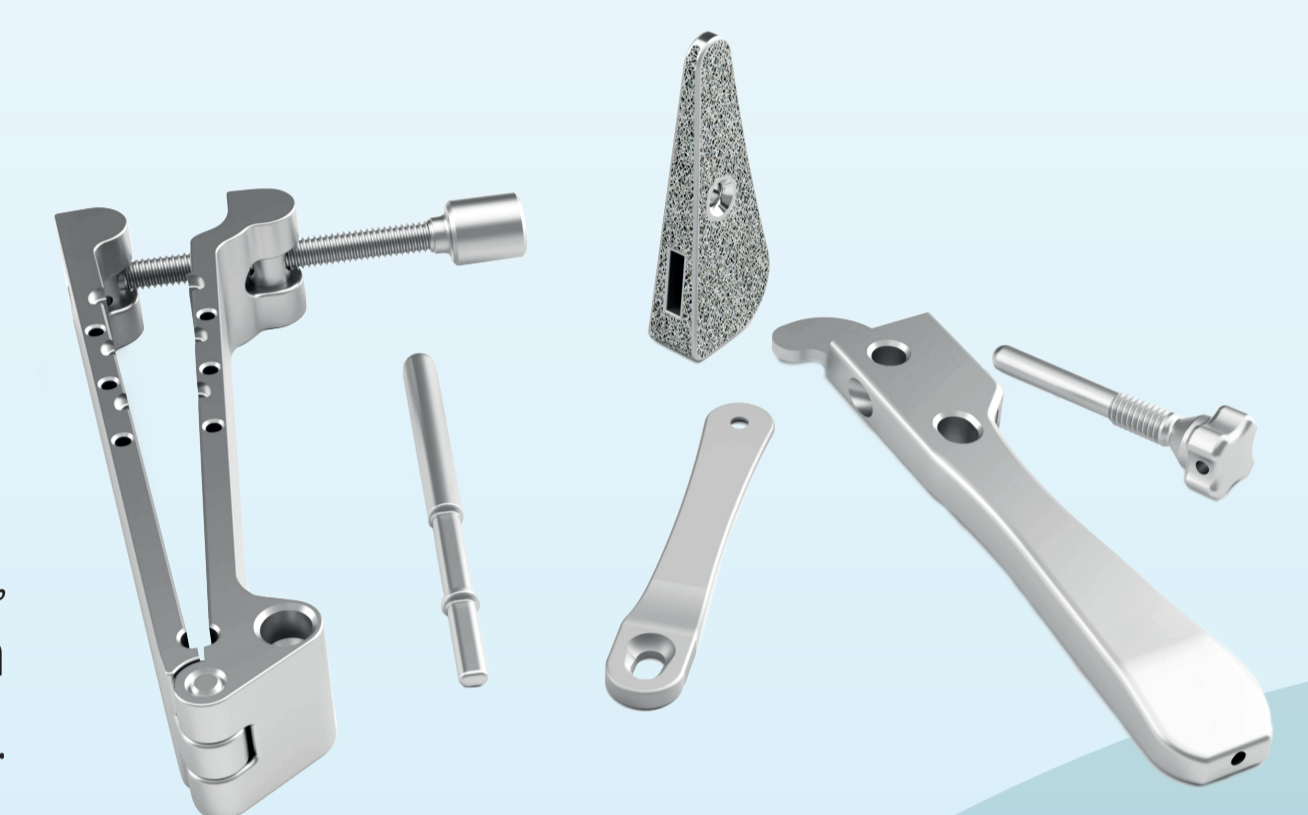


Figure 1 From left to right: cutting guide, implant, plate and insertion tool of Fusion TTA. From Fusion Implants.

## RESULTS

Table 1 Lameness post ten days

PATIENT	LAMENESS POST 10 DAYS
1	2/5
2	2/5
3	4/5
4	2/5
5	3/5
6	2/5
7	2/5
8	3/5
9	2/5
10	2/5

Table 2 Lameness post two months

PATIENT	LAMENESS POST 2 MONTHS
1	0
2	0
3	1/5
4	0
5	1/5
6	0
7	0
8	0
9	0
10	0

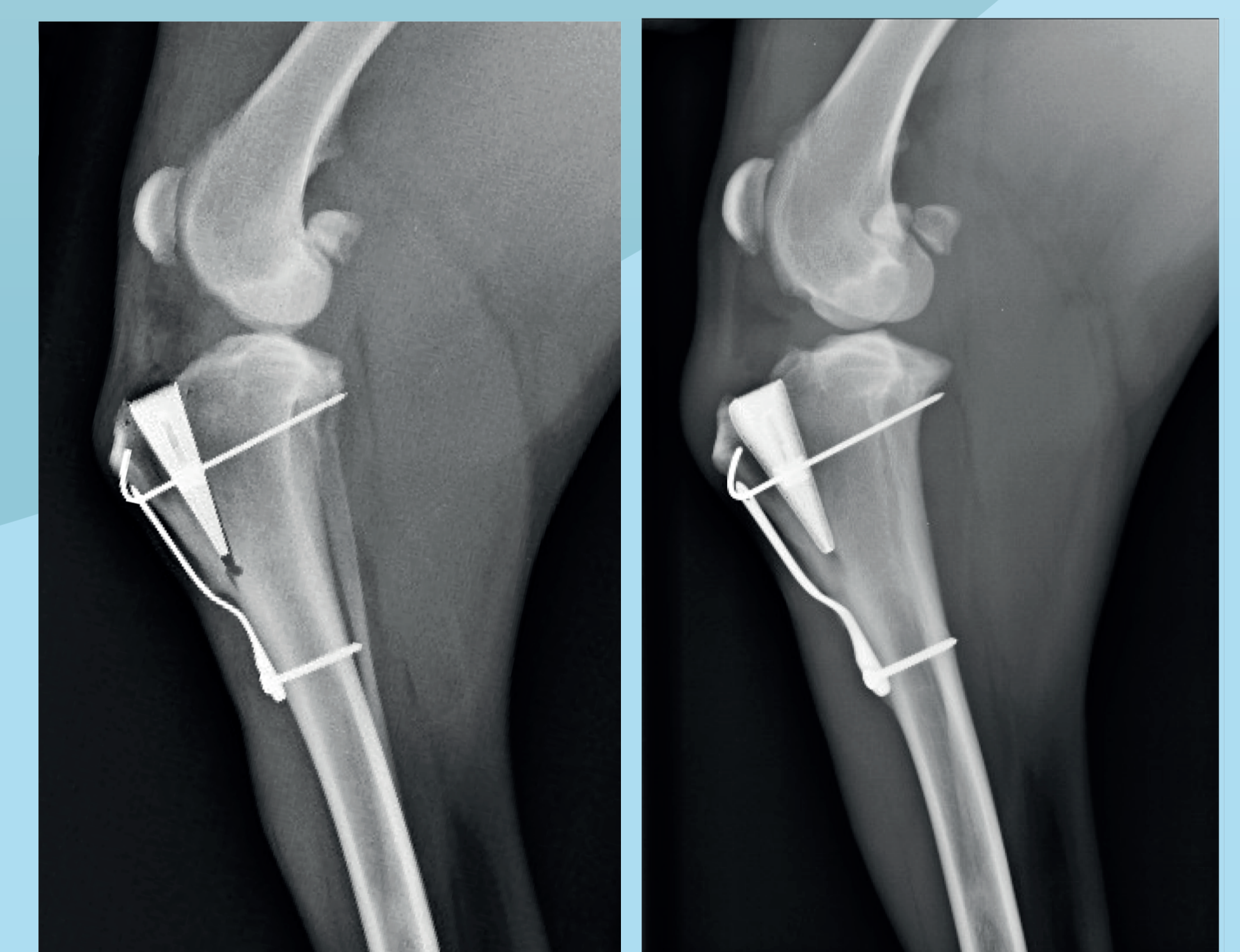


Figure 6 It is appreciated on the second radiography that the Maquet Hole zone and the fissure have started to blur because of the initiation of the healing and growth of the bone on its cranial section, which signifies a bone consolidation is happening. By Franch J at Hospital Clínic Veterinari.

## CONCLUSIONS

Once this retrospective clinical research project is completed, and considering the reduced number of patients that were involved, the student can conclude the Fusion TTA in comparison to the other techniques available, is a **safe and effective** procedure to perform in cases where the cranial cruciate ligament is ruptured.

The typology of the cases manifested a predisposition of **Labrador type dogs** as well as **female** patients. Also, the limb more affected during this experimental project was the **left**. The second month and third month post-operation visits with the patients showed improvement of the lameness and **subsequent recovery** in the studied dogs.