

FACT SHEET: Tibial plateau levelling osteotomy or “TPLO”

What is a TPLO?

TPLO is a surgical technique used for the treatment of cranial cruciate ligament failure in dogs. When the cranial cruciate ligament ruptures, the tibia slides forwards (cranially) when any weight is put on the foot.

This sliding force is affected by the slope of the tibial joint surface and it is known as the “cranial tibial thrust force”. The images below show the tibial plateau slope (Fig 1) and the tibia in its displaced position (Fig 2).

If the tibial plateau is surgically altered so as to level this slope then the cranial tibial thrust force is counteracted and the tibia no longer slides forward. Figs 3 and 4 illustrate the way that the slope is levelled with the Slocum technique. A bone plate and screws are used to hold the repositioned tibial plateau in position whilst it heals (this usually takes 8-12 weeks). Plate removal is not usually necessary.

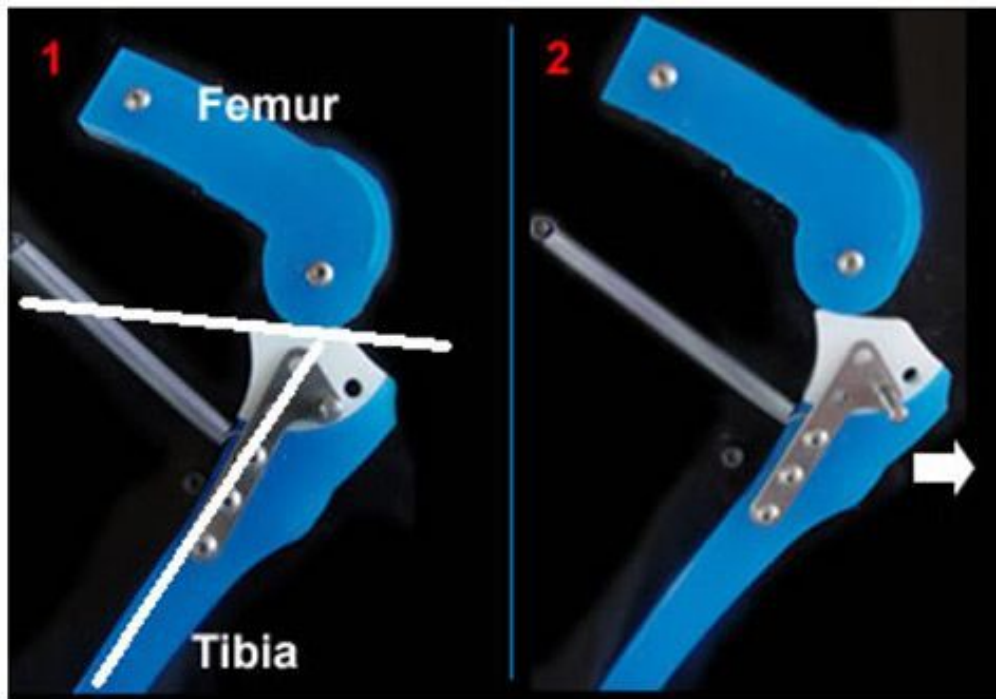


Fig 1: Normal weight-bearing position of the tibia with an intact cranial cruciate ligament. Note the slope of the tibial plateau in relation to the long axis of the bone.

Fig 2: When the cranial cruciate ligament has ruptured, the tibia slides forward (see arrow) under weight-bearing forces



Fig 3: TPLO, showing the tibial plateau levelled. The tibia no longer slides forward under weight-bearing forces

Fig 4: A post-operative radiograph of a TPLO (Stocum method)

Why choose a TPLO?

There are many techniques available for stabilising joints with damaged cruciate ligaments. Some rely on replacing the ligament with a strip of muscle sheath/tendon (the “Over-the-Top” technique). Others rely on placing a strong and permanent stitch on the outside of the joint to counteract the sliding force (“Lateral Fabello Tibial Suture” technique or Tight rope procedure).

1. The cranial tibial thrust force is very large and it often overcomes the restraint provided by the over-the-top or lateral fabello-tibial suture techniques.

2. In our experience dogs that have had TPLO will walk on the operated leg much sooner than those that have had the over-the-top or lateral fabello-tibial suture techniques.

3. Heavy/boisterous dogs or dogs with bilateral cruciate ligament ruptures/other orthopaedic disease tend to put a lot of their weight on the operated leg very soon after surgery. TPLO has two advantages in this regard:

- It is strong enough to allow immediate but controlled weight-bearing.
- Dogs are comfortable enough to stand and walk on the operated leg very soon after surgery (more often than not within 24-48 hours).
- Dogs with partial cranial cruciate ligament tears may not have unstable joints. These are also good candidates for TPLO for two reasons:
 - a. TPLO reduces the load on the damaged and painful ligament.
 - b. There is no point trying to stabilise an already stable joint.

What are the risks of TPLO surgery?

General anaesthesia is required for any cruciate surgery and this has potential risk for any animal. With the modern anaesthetic agents and the intensity of monitoring, these risks are very low. Here at Charte Vets we have a highly skilled anaesthetic team who oversee all anaesthetic procedures. TPLO is the most common orthopaedic procedure that we perform and our surgeons have a very high level of experience with the procedure.

The complication rate is very low, but as with any surgical intervention there is potential for an unforeseen complication. Most complications can be resolved with prompt treatment. If there is any deterioration from the moment that an animal is discharged then we want to know straight away and in most cases we will want to re-examine your dog here to identify and deal with any problem.

What is the post-operative care after TPLO?

- **Exercise.** For the first 6 weeks after surgery, patients should be confined to two adjacent rooms downstairs. Running, jumping, flights of stairs and slippery floors should be avoided. Short lead walks are permitted (preferably only in the garden) for toilet purposes only. One or two steps outside (e.g. patio) are OK as long as they are taken slowly and under close control. Walking slowly using the operated leg is beneficial for post-operative healing/rehabilitation and is an indication of good post-operative progress. Patients are expected to be putting weight on the leg within two or three days of surgery. A steady improvement in both comfort and use of the leg should be seen for 6 weeks.
- **Diet.** In an effort to minimise changes to the daily routine it is best not to change the type of food given or the times of feeding during the recovery period after surgery. Dietary intake should be reduced by around 20% to minimise the risk of weight-gain whilst exercise is limited.
- **Stitches.** If present, these should be removed 10-14 days after surgery (by your own vet).
- **Follow-up care.** After 6 weeks, follow-up radiographs should be taken to assess healing of the osteotomy. No food should be given on the day of the re-examination as a sedative or general anaesthetic will be needed for the radiographic assessment. If the radiographs show that the bone is healing satisfactorily then progressively increasing lead walks are permitted with the intention of allowing off lead exercise 12 weeks after surgery.

What is the prognosis following TPLO?

Most dogs (over 90%) are expected to regain a very active and athletic lifestyle with no post-operative complications and without the need for any pain-relieving medication. All dogs that suffer cranial cruciate ligament rupture are likely to develop some degree of arthritis, but this can be expected to progress more slowly in dogs that have had surgery.

Unfortunately many dogs suffer cruciate ligament failure in both stifles (sometimes concurrently). In some cases, the treatment for the two joints overlaps although the surgeries are staged. As a general rule we prefer to have a delay of at least 6 weeks between the two operations.

If you are concerned about the health of your pet you should contact your veterinary surgeon.