

Tibial Plateau Levelling Osteotomy (TPLO)

What is a TPLO?

A TPLO is a surgical procedure, used for the treatment of cranial cruciate ligament (CCL) failure in dogs. The weight bearing surface of the tibia (shin bone) is sloped to the back, and an intact CCL prevents a sliding motion between the bones.

When the CCL ruptures, the tibia slides forwards during the weight bearing phase of the gait. Instability between the bones causes pain and inflammation, and in the long term, contributes to the development of arthritis.

The operation

The procedure consists of two main parts:

Arthrotomy – surgical exploration of the knee joint and assessment of the cranial cruciate ligament and the menisci. Damaged and degenerated tissues of the ligament and the meniscus are removed from the joint.

Osteotomy – a radial (circular) cut is made in the top part of the tibia, and the weight bearing surface is rotated. After sufficient rotation, the fragment is secured with a TPLO plate and screws. This new position changes the angle of weight bearing, preventing the previous sliding motion between the bones.

Advantages of TPLO over suture techniques for CCL disease

Patients treated with TPLO tend to bear weight on the operated leg sooner than those treated with suture techniques. Forces in the stifle affected by CCL disease can be very high, causing instability that can be challenging to stabilise with suture material.

The procedure is particularly advantageous in medium to large breed dogs, as the post-operative construct is strong enough to support immediate weight bearing. In patients with partial CCL rupture, the procedure is still beneficial as it reduces the forces put through the damaged ligament.



Above: TPLO - post-operative radiograph

Post-operative care



Wound care - If stitches are present, these should be removed 10-14 days after the operation. Monitor the surgical site twice daily, and contact your vet if you notice any discharge or swelling.



Medication - Your dog will be discharged with anti-inflammatories and antibiotics. It is important to follow the instructions. Any vomiting, diarrhoea or other changes should be reported to your vet immediately.



Diet - It is advised to reduce the caloric intake by about 20% during the initial 6 weeks after the operation. Drastic changes in the type of food offered should be avoided.



Follow-up care - Six to eight weeks after the operation, follow-up radiographs will be taken. This allows us to evaluate bone healing, and confirm there are no implant-related complications.

If there are no complications, exercise can be gradually re-introduced. Your dog should be walked 5 minutes twice daily for the first week after the follow-up x-rays are assessed, and increasing by 5 minutes per walk, every subsequent week.

A steady progress is expected during that time. If your patient becomes increasingly lame, contact your vet immediately. If there are no concerns once a 30 minute twice daily exercise routine is established, your dog can start exercising off-lead.



Exercise

It is extremely important your dog is strictly rested during the first **6 weeks** following the operation. During that time, your dog is not allowed to run, jump onto furniture, play with other dogs or climb flights of stairs.

Slow, short lead walks are only allowed for toilet breaks. It is critical that this is done in a controlled way. Patients are expected to bear weight on the operated leg within **3 days** of being discharged. Early use of the leg is beneficial for bone healing and maintenance of the muscle mass.

Gentle passive flexion and extension of the operated leg can be started once your dog becomes more comfortable.

Start with 5 repetitions twice daily, gradually increasing to 20 repetitions twice daily.

Stop the exercise if your dog seems to be painful.

If any of these exercises seem to make your dog lame, stop them immediately and contact your vet.



2-4 weeks post-operatively

Sit – stand

Sit and stand for 5 repetitions, increasing weekly.

Elevated sit-stand

Place an elevated surface (e.g. a small box) behind your dog's back legs, and ask to sit on this surface, up to 5 times a day.

Alternate weight-bearing

Stand behind your dog, and using a treat encourage them to turn to one, and then to the other side. In this position, you can also bring the same treat between their front legs, encouraging them to put their head between the front legs.



4-6 weeks post-operatively

Unstable surface weight bearing

This exercise is done in the same manner as with alternate weight-bearing, but on a soft surface such as a soft padded mat or foam roll.

Weaving

Create an obstacle line, made of 6 objects. The distance between the objects should be the length of a dog. Walk your pet slowly between the obstacles. The exercise is done 5 times daily, on a short lead.

Pole exercise

Place poles or objects close to the ground, in such way that your dog needs to step over them. Ensure they walk slowly, and do not jump over the obstacles. Repeat 3 times twice daily.

If any of these exercises seem to make your dog lame, stop them immediately and contact your vet.

Complications

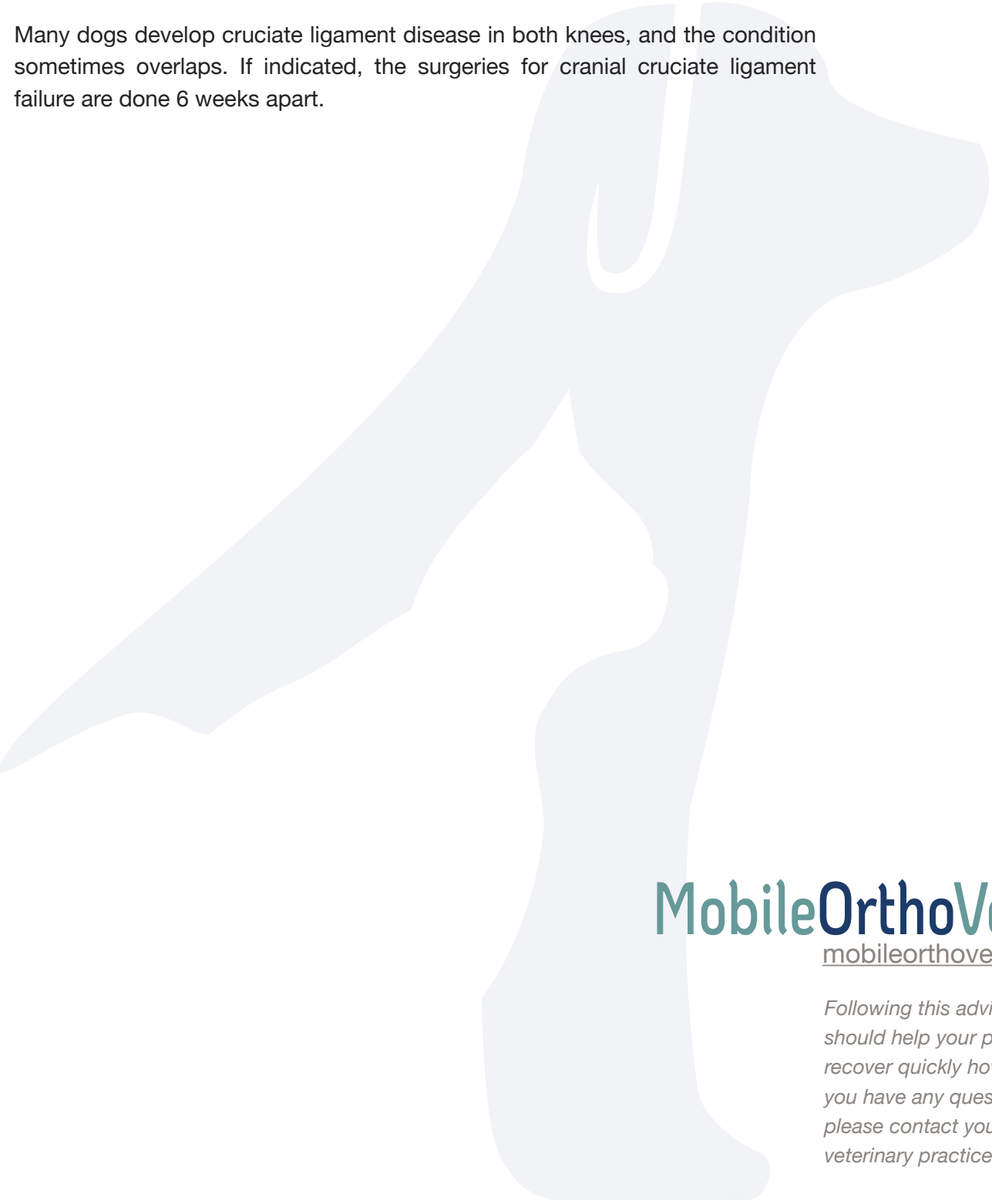
The complication rate is low, but as with any other surgery, they are recognised. These include risks and complications associated with general anaesthesia, infection of the surgical site, implant (plate or screws) failure, fracture, and late meniscal injury.

Prognosis

Over 90% of patients treated with TPLO regain normal function of the limb and the ability to exercise without post-operative complications.

Most dogs do not require long term medication, but a proportion of dogs may benefit from intermittent use of anti-inflammatories, to manage osteoarthritis. The development of osteoarthritis is expected to be slower in dogs that have had surgical treatment.

Many dogs develop cruciate ligament disease in both knees, and the condition sometimes overlaps. If indicated, the surgeries for cranial cruciate ligament failure are done 6 weeks apart.



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*Following this advice
should help your pet
recover quickly however if
you have any questions
please contact your
veterinary practice.*