

VETERINARY SURGERY & ORTHOPEDICS

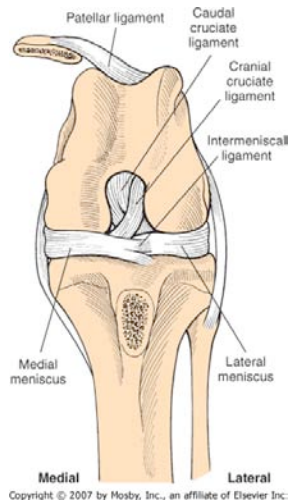
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Tibial Plateau Leveling Osteotomy

Tears of the cranial cruciate ligament (CCL) in dogs are the most common orthopedic condition we see in our practice. Tibial Plateau Leveling Osteotomy (TPLO) has been a revolutionary technique for the treatment of cranial cruciate ligament tears in dogs, and continues to be our recommended treatment for most patients with CCL injury. This procedure involves rotating the tibial plateau using a specially designed radial saw blade and bone plate to counteract tibial thrust, one of the forces responsible for cruciate ligament stress in dogs. After a TPLO, dogs generally return to weight-bearing and to normal activity more quickly and predictably than with traditional procedures. Additionally, the TPLO provides significant versatility for corrections in leg alignment that are often extremely important for many dogs with CCL injury. Dr Wooldridge has been performing the TPLO for more than 10 years, with over 1800 TPLO procedures performed. There are a number of surgical options (including the TTA, and the traditional extracapsular techniques), but the TPLO is highly recommended for all dogs, and especially for our larger patients. We have performed the procedure in many breeds and weights from 8 pounds to 220 pounds, as well as in a number of cats.

How and Why Does the TPLO Work?



NORMAL CANINE STIFLE

This diagram shows the normal canine knee joint, or stifle, viewed from the front, with the patellar ligament reflected (for demonstration purposes only), so that the cruciate ligaments and the menisci are visible within the joint.

The canine stifle (knee) is supported by a variety of ligaments, and the cranial cruciate ligament (CCL) is the most frequently damaged. The CCL is most commonly injured by progressive wear-and-tear, but can also be due to an acute injury related to trauma or explosive activity.



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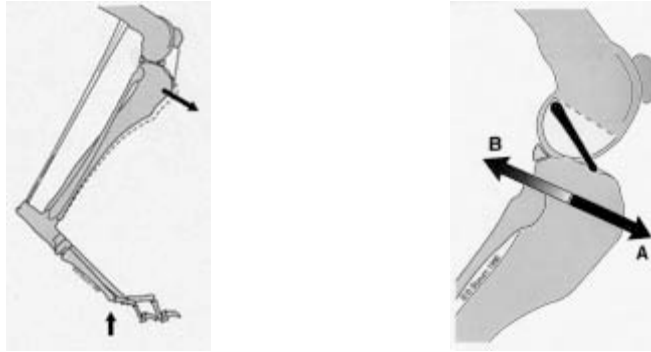
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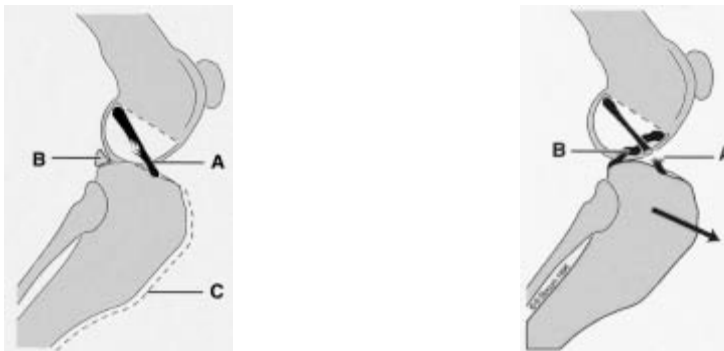
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Unlike the human knee, the canine tibial plateau slopes backwards, which results in a force called Cranial Tibial Thrust.



Cranial Tibial Thrust is produced as the dog walks/runs/plays, producing a forward force on the top portion of the tibia. In the dog knee, forward translation of the tibia is counteracted by the cranial cruciate ligament, as well as a balance between the hamstring and quadriceps muscle groups.



Once the cranial cruciate ligament becomes either partially damaged or is completely torn (A), there is an imbalance within the knee. Due to the cranial tibial thrust, this results in forward motion of the tibia relative to the femur. It is important to understand that if the ligament becomes partially torn, the repeated strain results in a progression to eventual complete tear in most dogs. With either partial or complete tears, the stifle becomes progressively unstable resulting in pain, damage to the medial meniscus (B) and arthritis.



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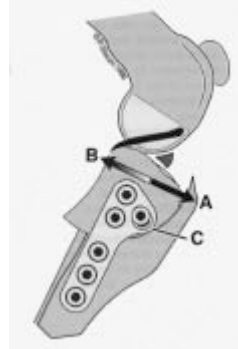
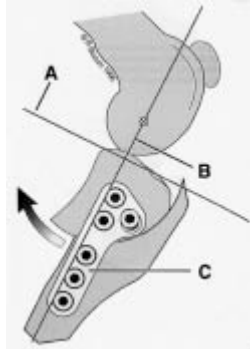
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The TPLO, unlike conventional procedures, changes the biomechanical forces within the knee by rotating the tibial plateau. In a sense, the TPLO abolishes the primary force that helped damage the CCL. Therefore, after a TPLO, cranial tibial thrust is negated and balance is reestablished within the knee resulting in a stable, pain free joint.

During your initial consultation and pet's examination, we will be able to discuss the TPLO in greater detail using additional models and radiographs. Post-op care will also be reviewed.

Following are radiographs (x-rays) of a typical dog with complete rupture of the CCL before surgery, immediately after a TPLO, and at 8 weeks after a TPLO, showing complete healing of the TPLO

Pre-op x-ray



Immediate post-op x-ray



8 weeks post-op x-ray



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