



## TIBIAL PLATEAU LEVELING OSTEOTOMY (TPLO)

### What is TIBIAL PLATEAU LEVELING OSTEOTOMY (TPLO)?

Many tendons and ligaments are involved in providing stability to the stifle joint (knee). The cranial cruciate ligament provides the same support as the anterior cruciate ligament does in humans. This ligament prevents forward motion of the tibia (shin) and backward motion of the femur (thigh bone) when weight is placed on the limb. If this ligament tears, the femur will slide down the back slope of the tibia plateau and weight will be transferred to the joint capsule and other soft tissue structures resulting in pain and inflammation. Ultimately, this ongoing inflammation will result in the development of degenerative osteoarthritis leading to persistent and progressive worsening rear limb lameness.

### Diagnosis

Rupture of the cranial cruciate ligament is diagnosed by taking a thorough history, performing a comprehensive physical examination, and reviewing x-rays of the knee. Acute onset of single rear limb lameness after activity would be a classic history. Dogs will slowly begin using the limb within a few days of sustaining the injury and show discomfort with manipulation of the knee. A specific manipulation during the exam is performed to elicit stifle laxity (cranial drawer motion). This laxity or looseness between the tibia and the femur cannot exist if the cranial cruciate ligament is intact. Presence of cranial drawer is diagnostic for cranial cruciate ligament rupture. This manipulation may need to be performed under sedation or anesthesia due to patient resistance. X-rays are used to evaluate the knee for signs of arthritis and effusion (fluid in the joint) and to help eliminate other predisposing or complicating conditions. Diagnosis of cruciate ligament injury is confirmed during the surgical repair procedure by direct visualization or during arthroscopic joint evaluation.

### Treatment

The TPLO technique levels the tibia plateau (top surface of the tibia) to prevent the abnormal forward motion of the tibia that occurs after cranial cruciate ligament injury. The resultant repair is more durable than other techniques with fewer failures and a more rapid return of full function. Prior to surgery, the tibial plateau slope is measured on x-rays. After performing the osteotomy (cutting the bone), the tibial plateau is rotated a specific amount thereby neutralizing the abnormal cranial drawer. The tibial plateau is next secured in place with a specially designed bone plate and screws. After the bone heals in its corrected position, the plate is just a passenger for life. The result is a knee that is dynamically stable, thereby provided good limb function and slowing the progression of osteoarthritis over time.

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