Tibial Plateau Leveling Osteotomy

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 tibial 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. Any breed can have a cranial cruciate ligament tear, but it is common in Labrador Retrievers, Golden Retrievers, and Bernese Mountain Dogs.

Diagnosis

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 tibial 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.

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.