5 Facts about cruciate disease in dogs and humans

Dogs and humans have paired ligaments, called cruciate ligaments, arranged like the letter X. These ligaments have poor blood supply and as such have no healing potential. The caudal cruciate ligament (CaCL) prevents caudal tibial translation, while the cranial cruciate ligament (CrCL) prevents cranial tibial translation and over extension of the stifle.

**FACT #1: It's painful**
- Inflammatory mediators are released, causing pain, heat and swelling at inflammation sites (in this case the knee).
- Pain causes reduced range of motion on the joint
- Knee instability resultant from cruciate rupture, could lead to

**FACT #2: Leads to secondary arthritis**
- Failure or rupture results in abnormal motion and places abnormal stresses on the joint which results in degenerative joint disease and possible damage to bone and other structures in the joint capsule. When bone is abnormal stresses are placed on the tibia and femur it results in bone changes that ultimately result egradation and pain ensues.

**FACT #3: Can only slow progression of disease**
- Bony changes (osteoarthritic changes) are irreversible. Thus, treatments for cruciate ligament disease focus on slowing the inevitable bony changes that will eventually ensue due to the abnormal stress the joint is experiencing.
- Osteoarthritic changes progress despite choosing surgical approach for treatment, which is the gold standard.

**FACT #4: Treatments**
- Conservative: Anti-inflammatory drugs, like non steroidal anti-inflammatory drugs (NSAIDs), in combination with immunosuppressive drugs like steroids.
- Surgical: Tibial Tuberosity Advancement (TTA), TightRope Surgery (extracapsular repair) and Tibial Plateau Leveling Osteotomy (TPLO)

**FACT #5: DEK protein**
- Widely conserved nuclear pro-inflammatory protein across species
- Role in inflammation as a chemoattractant, calling white blood cells (WBC) into site of inflammation, and key for the formation of neutrophil extracellular traps (NETs)
- Found in serum of arthritic humans, horses and mice.
- Previous studies on small number of arthritic animals (horses and mice) effectively targeted this pro-inflammatory protein which resulted in reduced inflammation and pain from OA.