DEER-GROVE
Veterinary Clinics LLC.

## Rupture of the Anterior Cruciate Ligament

The cruciate ligaments are located on the inside of the stifle (knee). They stabilize the connection between the femur and the tibia in a forward/backward direction. The caudal cruciate ligament is much thicker and stronger than the cranial cruciate and rarely tears.

In order for a joint to be stable, all of the forces that are applied within the joint need to be countered by an equal opposing force; if any of these forces become unequal the joint will become unstable. The forces that are applied in the normal canine or feline stifle would cause the femur to slide off of the back of the tibia, but these forces are neutralized by the Anterior Cruciate Ligament (ACL). When the ACL is torn this neutralizing force is lost and the femur tries to slide off of the back of the tibia with every step that is taken. This movement is called Tibial Thrust or Drawer Motion and can be demonstrated with palpation while your dog is sedated. This instability causes pain because tissues that are now forced to hold the joint are not designed to do so, and in their attempt to hold the joint steady they are stretched and/or stressed with a load beyond their capacity.

Rupture of the ACL is one of the most common causes of rear limb lameness in dogs. They will typically become suddenly lame; sometimes they cannot put any weight on the limb at all. The tear can be partial or complete. A partial tear may be able to provide some stability to the joint, but it is still very painful. This is because the ligament has pain receptors that are stimulated when a partially torn ligament is loaded. Most partial tears will eventually become complete tears because the damaged ligament cannot heal adequately to carry a normal weight load. When the ACL is injured with either a partial or complete tear the damaged tissue releases chemicals into the joint, these chemicals will cause other changes in the joint that aggravate the disease process. These chemicals thin the joint fluid so that it will not protect and lubricate the joint in a normal manner and the cartilage of the joint will be damaged and eroded leading to other secondary arthritic changes. Left untreated the affected joint will be a source of continued pain. Over time even though this pain does not disappear it does seem that some patients will "get used to it." However, the abnormal joint will continue developing arthritis, leading to cartilage loss and eventually bone on bone grinding. Therefore, stabilizing the stifle with a torn ligament is important for both the long term and short term comfort of your pet.

Studies have shown that a dog will only bear 20-30% of their normal weight on a torn ACL. This puts the ACL of the other stifle at risk for rupture because of the increased weight it must carry as a result of the pain in the damaged stifle. Approximately 40% of the dogs that have torn one ACL will tear the ligament in their other stifle. For this reason it is important to seek care for a torn ACL as soon as possible and hopefully prevent the need to repair both.

The only way to stabilize a dog's stifle with a torn ligament is through some type of surgery. Over the years there have been several techniques developed to accomplish this stabilization. However most have not met with satisfactory results on a long term basis. The most common procedures being performed at this time are the external capsular repair, the TPLO, and the TTA. There is a more detailed description of these procedures in the TTA section of this site.