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Ruptured cruciate ligaments are a leading cause of lameness in dogs. Some dogs develop a ruptured cranial cruciate ligament after a severe injury, while others may rupture the ligament after only mild trauma. Some breeds of dogs appear to have significantly higher rates of ruptured cruciate ligaments than others.

What the researchers wanted to know: Researchers at the College of Veterinary Medicine at Iowa State University, and the University of New England in Australia wanted to determine if there was a hereditary component to ruptured cranial cruciate ligaments in Newfoundlands, and if so, how it may be passed to offspring.

What the researchers did: The researchers evaluated medical records from 574 Newfoundlands from January 1, 1996 to December 31, 2002. The records were examined to determine if a diagnosis of cranial cruciate ligament rupture was made, and then determined the level of inbreeding, and calculated the heritability of the condition and the mode of inheritance. The pedigrees of the study dogs were followed back for 11 generations.

What the researchers found: The researchers found that there was a genetic basis for cranial cruciate ligament rupture in Newfoundlands. It appeared to be due to a defect that was passed as a recessive gene.

What the researchers concluded: By identifying a genetic basis for ruptured cranial cruciate ligaments in Newfoundlands, investigators can now focus on developing methods to identify carriers of the gene to reduce the occurrence of the condition.