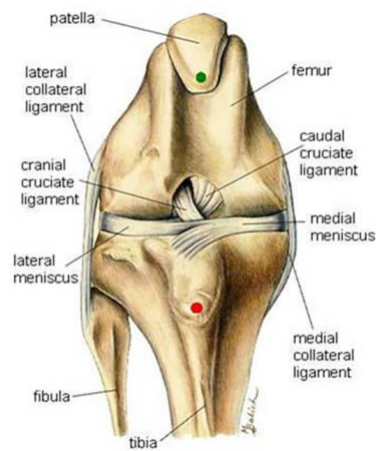
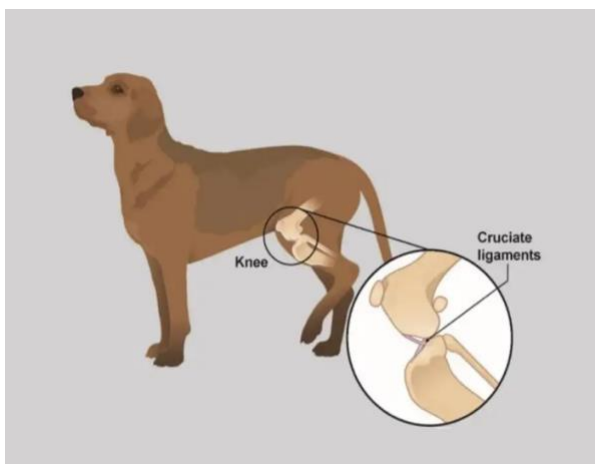


# Cranial Cruciate Ligament Disease (CrCLD)

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Rupture of the canine cranial cruciate ligament (CrCL) is the most common cause of rear leg lameness, yet it is frequently misdiagnosed or overlooked. CrCL tears or ruptures are more common in active dogs like the Portuguese Water Dog (PWD), in large and giant breeds, and in older dogs, but can also affect small dogs. CrCLD can be a chronic condition, may develop after an acute injury, and often leads to arthritis. This article will provide you with needed information to advocate and care for your dog if you seek veterinary care for lameness.

The cranial cruciate ligament (CrCL), aka anterior cruciate ligament (ACL) in humans, is one of four tough bands of tissue (ligaments) that help maintain the stability of the stifle (knee) joints. Cruciate is defined as "to cross over". The stifle joint of the dog is prone to injury because there are no interlocking bones. The stifle consists of the patella (kneecap), meniscus, and ligaments.



Small breeds that develop CrCLD are likely to have hereditary **patellar luxation** (loose kneecap that dislocates) that is transmitted from parents via defective genes, mode of inheritance polygenic. The patella slips out of a shallow femur bone groove which puts a strain on the knee ligaments. This is rare in large dogs, including the PWD, but is common in small breeds such as the Bichon Frise. Prior to breeding, all dogs should pass a knee examination. Knee certification should continue yearly thereafter, since symptoms may not be evident until older ages of 4-5 years if the disease is mild. Bichons with patellar luxation should not be bred, knowing the disease is prevalent in small breeds and hereditary. The Portuguese Water Dog Club of America does not require testing for patellar luxation since it is so rare in the breed. However, your veterinarian should check knee joints prior to breeding and check puppies' knees prior to placing in their homes. Symptoms of patellar luxation include lameness, intermittent skipping or hopping, stiffness of movement of rear legs, and suddenly picking up the back leg. When it becomes more severe with increased lameness, surgery may be necessary.

CrCLD is often caused by chronic damage from daily wear and tear on the knee joints due to the angle of the knees. Repetitive hyperextension of the CrCL can cause long-term degeneration that weakens the ligament fibers, resulting in rupture. There is no definitive cause of CrCLD in dogs but there are contributing factors: aging; obesity; poor nutrition; highly active dog; inactivity with occasional strenuous activity like fly ball or frisbee games instead of sustained activity such as walks or swimming; hormonal imbalance possibly due to early spay/neuter; inflammatory conditions; congenital (present at birth) very straight rear legs that puts stress on the knee joints; and trauma resulting from twisting of the knee.

Some studies on large breeds suggest CrCLD is inheritable as a recessive trait in certain breeds. Most large breeds exhibit preexisting arthritis on xray when complete CrCL rupture occurs, suggesting an underlying cause such as autoimmune disease that damages the ligaments. Rarely, large breeds acutely develop CrCL rupture due to strenuous activity or trauma with no evidence of preexisting arthritis. This data suggests breeding dogs with CrCLD should be avoided.

Symptoms of CrCLD initially include reticence to run or jump, intermittent limping, skipping, hopping, stiffness of rear legs, and signs of pain. If left untreated, arthritis may develop in the knees. Treatment starts with anti-inflammatory medications, weight loss, and sustained activities such as walks or swimming. If no improvement, surgical correction is needed to prevent crippling arthritis along with physical therapy, activity limitations, and pain management.

Definitive diagnosis is challenging via exam and xrays. Immature dogs whose knee joints have normal puppy laxity are unlikely to have CrCLD because their ligaments are stronger than bone, so fractures often occur first. Timely diagnosis is imperative to reduce the risk of progression of arthritis and to achieve successful surgical outcomes. One study found that 32% of 169 dogs referred to a teaching hospital for hip dysplasia had CrCLD that caused the lameness. Dogs with CrCLD usually exhibit pain during exam of hips due to unintentional extension of the stifles.

If your dog exhibits signs of CrCLD at the age of 3 months to 18 months, advocate for your dog by encouraging your veterinarian to consider **panosteitis** prior to surgery. Panosteitis, aka growing pains, is painful inflammation of the outer surface of one or more long bones of the front or rear legs, more common in larger breeds. The lameness, mild to severe, tends to occur suddenly without a history of injury or excessive exercise with episodes lasting days to weeks. Recurrent episodes can occur up to the age of 2 years at which time it spontaneously resolves. It can develop in more than one bone at a time and may move around, causing lameness that can shift from one leg to another. Some dogs also exhibit reduced appetite, fever, or lethargy. Seek veterinary care if the episode of pain persists in one location for more than 4-5 weeks. Diagnosis is based on xray and pain produced during application of pressure to the affected bone. At least 10 days of symptoms may be required to visualize panosteitis on xray. Xray completed at least 2 weeks after symptoms can confirm diagnosis. Treatment during episodes with anti-inflammatory drugs may be helpful until it resolves at about 2 years of age.

In summary, strive to avoid knee injuries by **preventing**: obesity; poor nutrition; spay/neuter at age younger than 1.5 years to allow the growth plates of joints to fuse; weaves and high jumps prior to fusion of growth plates; and excessive twisting of knees or body slams while playing. Sustained exercise such as walking or swimming is preferable to chasing balls or frisbees in an unconditioned or unsound dog. Provide non-skid area rugs on slippery floors and carpet on stairs to avoid knee injuries. Remember, 15 minutes of problem-solving and training can tire a dog more than an hour of physical

exercise. **Assure that your veterinarian rules out patellar luxation and panosteitis prior to considering surgery to repair CrCL damage.**

***Vickie Halstead RN*** has been actively involved in breeding and showing Bichons Frises since 1990 and Portuguese Water Dogs since 2017, producing 36 litters and >50 AKC champions, one of which achieved Best in Show at the 2005 Bichon national specialty. She has been a member of the Bichon Frise Club of America (BFCA) since 1997, a member of BFCA's Health Committee since 2001 & chairwoman 2003-2010, plus was a member of the Board of Directors of BFCA 2005-2007. She published articles in the Bichon Frise Reporter, dog magazines, newspapers, and on [www.bichonhealth.org](http://www.bichonhealth.org). She is a member of the Portuguese Water Dog Club of America (PWDCA) and its health committee since 2018. Vickie has been practicing as a Registered Nurse since 1973, retired in 2017 after previous experience in ICU (adult & pediatric), flight nursing (helicopters & fixed-wing aircraft), ER for 25 years, legal nurse consultant, speaker for nursing classes/seminars, and lastly as a Coumadin (blood thinner) Nurse at a clinic. Currently she operates a healing service primarily for dogs, but also humans, that offers energy healing (reiki, healing touch) and aromatherapy <https://www.victoireshealingandbreeding.com>.

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