

# Patella Luxation

By Jill Terry

Luxating means out of place, or dislocated. The patella is the equivalent to the human kneecap and part of the stifle structure, and therefore a luxating patella is a kneecap that moves out of its normal location. The patella normally moves up and down in a groove in the lower femur bone called the trochlear groove. In patella luxation the groove is often shallow and this shallow groove prevents the patella from sitting deeply, predisposing it to dislocation. A patella that is not stable but does not slip out of joint is said to be subluxating, while one that comes out of joint on its own is said to luxate.

There are two types of luxation, medial and lateral. Medial luxation is the most common and is where the patella dislocates to the inside of the knee. One knee can be more severely affected than the other. This type of luxation is mainly congenital (present at birth) and trauma is not usually associated with it.

With lateral luxation the patella dislocates to the outside of the knee. Lateral patellar luxation can be congenital or the result of trauma to the knee. In some cases the patella can luxate both medially and laterally. Again, this disorder can affect one or both knees and to varying degrees.

## What are the Symptoms?

Signs of luxation may appear as early as weaning or may go undetected until later in life. Signs include intermittent rear leg lameness, often shifting from one leg to the other, and an inability to fully extend the stifle. The dog may frequently stop to stretch his rear leg behind him to allow the patella to pop back into its normal groove. Mildly affected animals can have a hopping or skipping action. This is due to the patella luxating while the dog is moving and by giving an extra hop or skip the dog extends its stifle and is often able to replace the patella until the next luxation, when the cycle repeats.

## Diagnosis

A veterinarian can usually confirm diagnosis by manipulating the stifle joint and pushing the patella in and out of position. This can be done as early as 8 weeks of age to ensure that congenital patella luxation is not present before the puppy leaves for his new home. This type of examination is best left to the veterinarian, as an overzealous examination can stretch the ligaments.

The degree of patella luxation is graded from 1 to 4 depending on the relative ease with which the patella luxates.

Grade 1 is the mildest and grade 4 the most severe. With grades 1 and 2 patella luxation the dog may not show any symptoms and can be incidental findings in mature dogs who have never been lame. Grade 3 and 4 dogs are usually lame. Severe cases may develop abnormal growth of the long bones of the leg or a non-functional knee.

**Grade 1:** Occasional carrying of the leg is seen, often described as skipping or hopping, which may be transient, often returning to normal by itself. Your veterinarian may easily luxate the patella manually and return it to its normal position. Pain may be evident only when the knee cap is luxated.

**Grade 2:** The frequency of luxation increases, becoming more or less permanent. The dog will usually carry its leg, but will occasionally bear weight on it. When palpated by the veterinarian, a dry, crackling sensation (crepitation) may occur in the joint. A grade 2 luxation can increase in severity, and if not surgically treated, can develop into degenerative joint changes.

**Grade 3:** Permanent dislocation that occurs though weight bearing may still be possible, however the stance will appear somewhat crouching or bowlegged. Surgical intervention should not be delayed, especially if this is found in a young, growing dog. Rapid growth of abnormalities results in progressive deformities.

**Grade 4:** Permanent luxation, with the affected limb always being carried, creates a bowlegged / crouching stance. Early surgery is strongly recommended at this stage for bone deformities of the femur and tibia may occur.

## What Causes It?

Patella luxation is strongly suspected of being inherited, but it can also be caused by trauma. When the luxation is from trauma, something has occurred that has caused the knee to be forced out of normal alignment. Usually the traumatic injury occurs when the dog's leg gets caught somehow and he struggles to pull free. Or during an overly enthusiastic playtime when the playmate grabs the foot and holds tight while the excited puppy tries to get away. Any other similar accident can permanently injure this small joint.

If the luxation is believed to be of a genetic nature, it is due to an abnormal development of the leg. The possible mode of inheritance is at present undetermined, but it is believed that it may be polygenic. This means that any number of genes may be involved, and that dogs are not "carriers" as such but it is merely an unfortunate specific combination of certain genes from the parents that produce patella luxation.

As with all polygenic traits, affected dogs should not be bred from as the risk of producing puppies with patella luxation would then be increased.

### **How is it treated?**

Treatment is based on the severity of signs as well as the dog's age and weight, and ranges from rest (decreasing your pet's activity for 1-2 weeks) to surgical reconstruction of the knee joint.

Grade 1 luxations may respond well to anti-inflammatory therapy and restricted exercise. These may or may not progress to worsening grades.

Grades 2 through 4 luxations tend to require surgical corrections. The worse the luxations the more reconstructive surgery required to provide a functional joint.