



Chihuahua

Update

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Breeders Are Encouraged to Health Test for Patellar Luxation

A lifelong breeder-owner-handler of Staffordshire Bull Terriers, Kathy Bolin of Foxsong Chihuahuas was a newcomer to the breed in 2004 when a puppy she had just begun showing was diagnosed with luxating patella, a painful, potentially crippling genetic disease. Though the Chihuahua, named "Seamus," had been giving Bolin hints about having the condition, she hadn't noticed.

Seamus was reluctant to stack squarely, and he occasionally moved one of his hind legs just enough so it was no longer parallel with the other one. Bolin repositioned him each time, unaware that stacking was uncomfortable for the dog.

One unforgettable day, while Bolin was stacking Seamus on the table to be judged at the Toy Dog Breeders Association of Southern California Dog Show, she heard and felt the dog's patella (kneecap) pop. With limited experience in the breed, Bolin, of La Quinta, Calif., was unsure about what had happened.

"I wasn't aware of the knee problems Chihuahuas can have," Bolin says. "My veterinarian determined that Seamus had a bad knee. I then had all my dogs evaluated. The veterinarian referred me to an orthopedic specialist with 'Tiffany,' who was just 10 months old. The specialist confirmed that Tiffany had a severe case of luxating patella, with a Grade 3 luxation in the left stifle (knee) and a Grade 4 luxation in the right. Radiographs also showed that Tiffany had Legg-Calve-Perthes disease, a genetic disorder that can lead to degenerative joint disease, in the right hip."

Though the news was heartbreaking, both orthopedic conditions can be managed surgically. Days later, Tiffany underwent surgery on her left patella and was spayed. Six months later, surgery was performed on the second patella and the femoral head of the hip joint was removed to alleviate the Legg-Calve-Perthes disease.

Though the severity of Tiffany's case was rare, the experience didn't discourage Bolin from breeding Chihuahuas. It did, however, motivate her to learn

more about patellar luxation and Legg-Calve-Perthes disease. She sought breeding advice from Shirley Banderet of B-Z-B Chihuahuas in Glendale, Ariz., and joined her as an advocate for health testing for patellar luxation and registering the results in the CHIC (Canine Health Information Center) database maintained by the Orthopedic Foundation for Animals (OFA).

A Chihuahua breeder for 56 years, Banderet had years of wisdom and experience to share with Bolin. "I generally do not breed dogs until they are 2 ½ years old," Banderet says. "This allows time for multiple health evaluations. I usually have dogs checked by a veterinarian at 8 weeks of age, 4 months and 1 year. After that, dogs are evaluated at annual checkups.

"I take health checks seriously. After all, we are the caretakers of this toy breed. It is not fair to perpetuate health problems and cause pain for dogs because of our breeding practices. We are responsible to the dogs we breed."

Sometimes an Intermittent Condition

Many breeders of toy and small breeds have learned to recognize signs of luxating patella due to its prevalence. The typical scenario is a Chihuahua that suddenly yelps in

pain while running and playing. The dog pulls the affected hind leg off the ground and begins hobbling on three legs. After a few minutes, the rear leg drops back to the ground, and the dog resumes a normal gait.

"Most commonly owners report noticing intermittent lameness characterized by a skipping gait and/or an extended leg, where the dog sticks the leg out behind," says James L. Cook, D.V.M., Ph.D., DACVS, director of the Comparative Orthopaedic Laboratory at the University of Missouri in Columbia. "Owners also may notice a dog's inability to jump, weakness in the hind limbs, reluctance to run or exercise, abnormal crouching or standing, abnormal appearance of the hind limbs, and bouts of crying out in pain."

Luxating patella can cause temporary or permanent pain and lameness, and can occur in one or both rear legs. The patella, or the bone known as the kneecap, is part of the stifle joint. In normal dogs, the patella moves smoothly up and down a deep groove in the lower end of the thighbone.

In dogs with patellar luxation, the alignment of the patella and quadriceps muscles is "off center," and the groove is often too shallow, which

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How to Take Part in Patellar Luxation Database

Breeders and owners of Chihuahuas are encouraged to have their dogs tested for patellar luxation. The condition occurs when the patella (kneecap) pops out of place causing pain and sometimes lameness.

Patellar luxation is one of three conditions for which the Chihuahua Club of America encourages health testing. The other two are eye disorders and congenital heart disease. The parent club also encourages breeders to register health test results with the Canine Health Information Center (CHIC), a central database and DNA bank sponsored by the Orthopedic Foundation for Animals and the Canine Health Foundation.

The benefits of health testing and reporting the results publicly in the CHIC database are many. CHIC provides a parent club with recommended health screening protocols and standardizes testing methods. It also provides a database to archive data, promote more informed breeding decisions, increase awareness of health issues and testing, and promote betterment of the breed through the pursuit of breeding healthier dogs. The data also can be used by researchers who study demographic information across breeds.

For information about the patellar luxation database, visit the OFA Web site at www.offa.org/patluxgeninfo.html.

Patellar Luxation

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causes the patella to jump sideways, inside or outside the groove in the joint. Most commonly the displacement occurs toward the inside of the joint, known as medial patellar luxation (MPL). Lateral patellar luxation (LPL), or displacement that occurs toward the outside of the joint, is less common. Luxation can also result from trauma.

Experts believe the alignment problem occurs during skeletal growth and that this can result in a shallow groove that allows the patella to become displaced. Other causes include weak ligaments that fail to hold the patella in place, tight ligaments that do not allow for sufficient flexibility, and a developmental lag between the time it takes for a dog's legs to grow to maturity and cartilage to mineralize. All these structures and processes are affected at least to some extent by genetics.

Treatment for patellar luxation is based on severity and the cause of the condition. Dogs can be affected as early as 8 weeks of age; however, health test results are not accepted in the patellar luxation database maintained by OFA until dogs are 12 months of age. Based on health tests submitted from 1974 to 2009, the Chihuahua breed ranks 22 out of 93 breeds included in the database. Of the 638 Chihuahua evaluations entered in the database, 94.5 percent were normal tests and 5.5 percent were affected dogs.

"If a dog is normal at 2 years of age and has had no indication of luxating patella, then it is uncommon to see clinical problems develop later," Cook says.

Veterinary orthopedic specialists grade a dog's luxation according to severity, ranging from Grade 0, indicating a normal state, to Grade 4, the most severe form. Owner education is important to effectively monitor a dog's movements and determine whether the condition is worsening. Classifications for each grade based on OFA criteria are:

- Grade 1: The patella is usually in a normal position but can be manually pushed out of place. Once the patella is displaced, it promptly pops back to the normal position.
- Grade 2: The patella can be in a normal or luxated position. Frequent luxation in some cases becomes more or less permanent. If luxated, the patella can be placed into a normal position and will stay there. If in a normal position, it can be manually luxated and will remain in that position.
- Grade 3: The patella is permanently luxated. Although it can be placed manually into a normal position, it will promptly pop back into the luxated position.
- Grade 4: The patella is always in a luxated position and cannot be manually pushed back into a normal

position. A dog carries the leg or moves in a crouched position with the leg flexed.

"Interestingly, dogs that are more lame are often Grade 2, where the patella pops in and out on its own, rather than Grade 4, where it's out all the time," says James K. Roush, D.V.M., DACVS, professor of clinical sciences at Kansas State University College of Veterinary Medicine.

In dogs with Grade 4 patella luxation, "we typically see marked bone deformities of the femur and/or tibia," Cook says. "Surgery is recommended, but it is very involved with multiple osteotomies. We typically have to cut the femur and tibia in multiple places and do internal fixation, which involves using bone plates to straighten out the limb and make the patella seat align and track correctly. These are major surgeries with higher costs and complication rates and more guarded prognoses."

A physical examination combined with radiography helps veterinarians diagnose patella luxation. "Radiographs will only find patellas that are 'out,' as in Grade 3 or 4," Roush says. "They will miss Grade 1 and 2 luxations because the patella may not be displaced at the time of the X-ray. The only way a radiograph can find Grade 1 or 2 luxation is if secondary osteoarthritis is detected; however, osteoarthritis may not be present or may be due to something other than patellar luxation. A physical examination is the diagnostic method of choice."

Not a condition that improves over time, patellar luxation can lead to lameness and osteoarthritis. Medical management includes restricted exercise and nonsteroidal, anti-inflammatory medications for low-grade patella luxation. Surgery, used for more severe, high-grade cases, consists of returning the patella to its proper position to correct the anatomical abnormality.

Dogs with Grades 1 to 3 luxating patella generally have a good to excellent prognosis, says Roush, noting that even dogs with Grade 4 luxation can have quality lives with careful monitoring. "The limited factor is the length of time the luxation has occurred and the degree of secondary osteoarthritis present at the time of surgery," he says.

Prudent Breeding Recommendations

Breeding recommendations for dogs diagnosed with luxating patellar should be made cautiously. "Patellar luxation is most likely a complex genetic disease involving several genes," Roush says. "Breeders can select against the disease by not breeding dogs diagnosed with it, but this isn't complete assurance."

The prevalence of luxating patella in Chihuahuas is not known. Patellar luxation may affect some but not all puppies in a litter. The more generations bred without the condition, the stronger the indication the disease is

reduced in a bloodline. Still, it's never certain that it will not reappear.

"The dilemma is that while you're selecting against patellar luxation, you may introduce other heritable problems," Roush cautions. "As a result, it is important to not cull dogs with quality traits because this could result in reducing genetic diversity. Dogs that carry this mutation also carry other important good genes that breeders may not want to lose from the breed."

"Ideally, you would not breed pairs that produce puppies with patellar luxation, especially if there is a high incidence and high severity," Cook says. "As with everything genetically based, you have to consider all factors and strike the best balance of desirable and nondesirable traits when breeding."

As for Tiffany, who is now 5 years old, she has fared well since her surgeries. Following her veterinarian's direction, Bolin continues to give Tiffany medications that include an anti-inflammatory, and she tries to make sure Tiffany is comfortable and pain-free.

"Tiffany is a little trooper," Bolin says. "Through it all, she has had lots of spunk. When she feels good, she'll even gallop a little. She is a happy little dog." ■

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