

10 things to know about Hip Dysplasia in German Shepherd Dogs

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1) All puppies are born with perfectly normal hips. Hip dysplasia is not a congenital defect; it is not present at birth. Multiple studies have demonstrated that all normal puppies are born with "perfect" hips; that is, they are "normal" for a newborn with no signs of dysplasia. The structures of the hip joint are cartilage at birth and only become bone as the puppy grows. If a puppy is going to develop hip dysplasia, the process begins shortly after birth.

2) The genes that cause hip dysplasia remain a mystery

Hip dysplasia tends to be more common in some breeds than others and in some lines than others, which indicates that there is a genetic component to the disorder. However, scientists have been looking for genes that are responsible for the development of hip dysplasia in dogs for decades without success. PLEASE, DON'T BREED YOUR DOGS WITHOUT HAVING THEIR HIPS FIRST CERTIFIED!

3) Environmental factors are also important

Although there is a genetic influence on hip dysplasia, the heritability of the trait is rather low. Many studies have shown that genetic variation accounts for only a modest fraction of the variation in hip scores, usually 15-40%. This means that some fraction of the variation in the quality of the hips is the result of non-genetic, or "environmental" influences.

Understanding the specific environmental factors that play a role in the development of hip dysplasia should allow us to reduce the number of animals affected by hip dysplasia even if the genetic basis is not yet understood. This would reduce significant pain and suffering as well as the expense and heartache endured by owners of an afflicted dog.

The top three environmental factors that have been found to play a significant role in the development of dysplastic hips are:

- a) joint laxity,
- b) weight, and
- c) exercise.

4) Joint laxity is the primary cause of hip dysplasia

Puppies are born with perfect hips, and if the hips do not develop laxity the dog does not develop hip dysplasia (Riser 1985). Joint laxity occurs when the head of the femur does not fit snugly into the acetabulum. This could be the result of traumatic injury, overloading of the joint by weight, lack of muscle strength, or adductor forces (e.g., bringing the legs together). Joint laxity is the primary factor that predisposes a dog to the development of hip dysplasia.

5) Controlling joint stability is key

The teres ligament should hold the head of the femur securely in the socket of the growing puppy while the muscles that will support the hip develop and grow stronger.

The abnormal forces on the femur and acetabulum that are caused by joint laxity result in the trauma that causes hip dysplasia and osteoarthritis of the hip.

6) Body weight is a MAJOR environmental factor

If there is laxity in the hip joint, the amount of damage done to the femur and acetabulum will depend on the magnitude of the forces in the hip joint. The heavier the dog, the greater the forces will be and also therefore the higher the risk of hip dysplasia and osteoarthritis.

Puppies that weigh more at birth as well as those with higher growth rates (so they get heavier sooner) have a higher risk of degenerative changes in the hip joint (Vanden Berg-Foels et al 2006).

At four years old, less than 10% of dogs kept on a restricted diet (25% less than the control diet) were dysplastic, while at the same time more than 30% of the dogs in the control group were dysplastic.

!!!!!!! As an added advantage, dogs on restricted diets live longer, too (Kealy et al 2002)!!!!!!!

Although progress from genetic selection will take many generations, the incidence of hip dysplasia in dogs could be immediately and dramatically reduced simply by practicing better weight management.

7) Exercise is good and bad

Exercise strengthens the muscles of the legs and pelvis, and this will increase the stability of the hip joint.

!!!! Puppies raised on slippery surfaces or with access to stairs when they are less than 3 months old have a higher risk of hip dysplasia, while those who are allowed off-lead exercise on soft, uneven ground (such as in a park) have a lower risk (Krontveit et al 2012). !!!!

The most critical period for proper growth and development of the hip in dogs is from birth to 8 weeks old, so the type of exercise the puppies are exposed to is most important during this time.

8) Nutrition is important

While puppies are growing rapidly, it is critically important to get their nutrition right.

Growing puppies need to eat enough to support growth but they should not be fat, because any extra weight can increase the risk of developing hip dysplasia (Hedhammar et al 1975, Kasstrom 1975). An additional problem is that puppies getting too much food could also consume too much of specific nutrients. Puppies provided a quality commercial puppy food that is fed in the proper amount will have a nutritionally balanced diet and should not receive any supplements.

!!!!!! Dietary supplements, especially of calcium, are not only unnecessary but could cause serious problems. !!!!!

9) Early intervention is critical

Most treatments for hip dysplasia are easier and more successful in younger dogs. If early symptoms are overlooked and screening is done only after 24 months or more, the window of time with the best prognosis in response to treatment will have passed (Morgan et al 2000).

Breeders should educate new puppy owners about the factors that can increase the risk of developing hip dysplasia and also advise them to get a veterinary examination immediately if there is any sign of lameness!!!!

10) We can dramatically reduce hip dysplasia now

Genetic selection should continue to produce modest progress in the reduction of hip dysplasia. But a significant and immediate reduction in the number of afflicted animals could be achieved by better control of non-genetic, environmental factors. Weight management, appropriate exercise, proper nutrition, and early intervention at the first sign of lameness are simple steps we can take that will dramatically reduce the pain and suffering caused by hip dysplasia. The research will surely continue, but we already have the information we need to tackle this problem.

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Environmental hip dysplasia