**Canine Hip Dysplasia - by Patricia Long**
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Much has been written on hip dysplasia (HD), and this article is simply an attempt to summarize much of that information. For a more in-depth examination of HD, I urge you to read the articles by Susan Thorpe-Vargas and John Cargill which can be found on [http://workingdogs.com/](http://workingdogs.com/)

Prevention - the ounce worth more than a pound

Breeders have several methods of trying to minimize the risk of HD: OFA, GDC, PennHIP. But these registries are only able to identify some dogs that may have HD. They are not able to identify the dogs that carry the genes for HD. It is important to understand that no matter how many generations there are in the pedigree with hips rated clear, all this can do is to minimize the risk of HD - it can't eliminate it. HD is a polygenetic multifactorial condition, which means that we still don't know exactly what causes it. But without the genes for it, a dog won't get it without some other event such as an injury.

What is HD? The hip joint is a clever device, the classic ball and socket joint. Properly constructed, the top of the thigh bone, or femoral head, is the ball that fits into the socket, or acetabulum, in the pelvis. But in dogs, as in humans, this joint does not always develop properly. Typically, the socket is not deep enough for the ball to fully fit into place. Over time the wear on the joint from the improper movement will cause moderate to severe arthritic changes, or degenerative joint disease (DJD), causing pain and limited mobility. The malformation of this joint is called Canine Hip Dysplasia. [Note: dysplasia comes from the Greek words meaning bad (dys) and growth (plasia).]

All right, you've found a breeder who x-rays hips and elbows and did her very best to produce a beautiful sweet Berner puppy that is orthopedically sound, and this puppy is now nipping at your ankles. What can YOU do to help minimize the risk of HD? Do not overfeed that puppy! Ignore those beautiful sad brown eyes when it comes to pleading for too much food. And don't supplement with calcium. Several studies on diet and HD have shown that puppies allowed to eat as much as they'd like (ad libitum feeding) were twice as likely to develop HD as puppies fed a limited amount of food. Traditionally, food that is high in protein has also been linked to HD, but more recent studies show that it is the calcium-phosphorus ratios and high calorie levels that increase the risk of HD, not the protein intake.
Exercise may be another component in the development of HD. Strong muscles help to support the joints, but overly taxing the muscles of a developing Berner pup can put too much stress on developing bones and joints. So let the puppy play, but hold off on those obedience jumps or heavy draft work until he's at least 18 - 24 months old. As for stairs, many breeders will insist that the pup not be allowed to manage stairs until those bones are fully developed. Some have reported dogs' reluctance to do stairs who were not allowed to do them as pups. But don't risk injury to you and the dog by carrying a 30 pound puppy up and down the stairs! Do yourself a favor, and teach the puppy to negotiate stairs by climbing them at his own pace and descending them slowly and sedately.

Diagnosis - when the ounce fails

Even if your dog seems perfectly fine, x-rays of the hips (and elbows) are important for several reasons. The breeder needs (and should insist) on the feedback to help make better breeding choices. Hopefully all will be well and your Berner will receive a certification for normal hips. But if not, it is important to diagnose any potential problem early to help you make sensible choices for your dog's development. If the hips are diagnosed as dysplastic, don't panic quite yet! Get a recommendation for a good radiologist and get at least one more opinion before you make hasty decisions regarding treatment. If your dog is showing symptoms which may have prompted you to seek an evaluation, spending money for a second opinion from an orthopedic surgeon may be wise.

What are the symptoms of HD? There are many different indications that your dog is having hip problems: difficulty getting up, unwillingness to play, unwillingness to sit, limping, bunny hopping (keeping the back feet together when he runs). Some of these may be seen on occasion for other reasons, but if you notice any of these more than just occasionally, it may be time for an evaluation.

HD is rarely identifiable at an early age. If a puppy is severely dysplastic, symptoms may be seen at 4-6 months but typically, symptoms appear later. HD is progressive, worsening with age, and each case is different in terms of progression and symptoms.

Once you are certain that the dog has HD, you have many options. If a two year old dog with dysplastic hips is showing no signs of any problems (asymptomatic), then surgery is probably not necessary. But the dog's career as a high-jumper may need re-examination. Providing ample opportunity for the dog to exercise at will and keeping the dog slim and trim may be the only treatment necessary. (For information about dietary supplementation and medication, see the article about osteoarthritis at http://www.jersey.net/~mountaindog/berner1/) But if your 8 month old puppy has trouble getting up from a sit, likes to lie down instead of going for romps, whimpers when going up the stairs, then it's probably time to review the surgical options. Surgery will not stop arthritis from occurring, but it may make the difference between crippling and moderate arthritis.
The surgical choice for big dogs under the age of one year is the Triple Pelvic Osteotomy, or TPO. This procedure is best done before any degenerative changes occur in the hip. The pelvis is cut in three places, then it is rotated so that the socket fits better over the femoral head. The pelvis is then plated, bolted, and wired into the new position. Chances for full activity after recovery are excellent. Dangers include the normal surgical risks, as well as damage to nerves, constipation from narrowing of the pelvic canal, and loosening of screws. With all of these procedures, activity must be restricted for 6 to 8 weeks following surgery to optimize the healing process.

The surgical choice for big dogs over the age of one year, or after degenerative changes of the hip have begun, is the Total Hip Replacement (THR). The femoral head is replaced by a prosthetic ball, and the acetabulum is replaced by a prosthetic socket. There are two types of prosthetics for the femoral head, a fixed head unit, and a newer version modular system. There is a 95% rate of achieving normal or near-normal function for the fixed head prosthetic, while the modular system equals or betters that. Surgical complications can include infection, dislocation, femoral fractures, and sciatic nerve damage. Although the risk of infection is rare, it is probably the worst of the side effects, since the whole prosthesis must be removed - including scraping out all of the cement.

The Femoral Head Osteotomy (FHO) involves removing the femoral head and allowing scar tissue to develop to create a new ball. This procedure is not generally used for big dogs. This is a procedure of last resort, once the FHO has been done, there are no other options. This is sometimes even used in large breeds if the THR has been unsuccessful or has become infected.

The Intertrochanteric Osteotomy involves cutting the femoral head in order to force it to fit better into the acetabulum. This procedure works best on dogs less than 50 pounds and before any degenerative changes occur.

The Pectineous Tendon Surgery helps to reduce the pain of HD by releasing tension on the hip joint capsule. The pectineous muscle and tendon attaches the pelvis to the base of the femur and runs down the inside of the thigh. This procedure does not stop the arthritic changes, nor will it restore normal movement, but it can give relief from the pain for anything from months to several years.

Shelf Arthroplasty uses a biocompatible (body won't reject it) osteoconductive (bone material will grow into it) polymer (BOP) to extend the acetabulum - it creates a bigger socket. However, there are still too many concerns with this process. Some studies have shown that the BOP is not osteoconductive, and may not even be biocompatible. Other risks with this procedure include infection, sciatic nerve damage, and broken screws.
From the List:
Brenda Briggs’ 6 month old Keisha was diagnosed with HD, and $3600 worth of surgery was recommended. After getting a second opinion and $200 worth of additional x-rays, the problem was not HD, but a femur that was growing too fast for the muscle, pulling the ball out of the socket. A much less serious surgery was done to more firmly attach the ball in the socket. Two months later when Keisha resumed her normal activity, the stress on the joint was too much for the sutures to hold. At that time, a graft was taken from the pelvic area and placed on the end of the socket in order to increase the depth of the socket so that the muscles no longer pull the ball out of the socket. There are no longer any sounds of the hips popping as there had been, and 2.5 years after the surgery she is still doing great with no symptoms of any hip problems. Keisha is a very active girl who loves to swim, fetch, run, and just have tons of fun!

Steve Dudley’s excellent post in Digest 131 is inadequately summarized here. His horribly dysplastic Labrador pup was immediately put on Ester-C and never showed any signs of problems. He was a fine hunting dog right up to the very end. Steve also used Ester-C on his Berner when Baron had cruciate ligament surgery, and was extremely impressed with the speed of Baron’s recovery. Baron never showed much sign of restricted motion. Steve went on to post a letter which summarized the many benefits of Vitamin C.

Digest 196 has a summary of an article on exercise by Margareta Forssell-Olssen. She recommends plenty of rest and normal puppy play for the first year, and no long walks. Moderate exercise the second year is recommended in order to slowly build the muscles and condition the heart.

Sue German’s Shelby had a TPO at 10 months on one side only. She had been x-rayed early because she was reluctant to negotiate slippery surfaces, had no desire and would not attempt to jump onto things or into the car, and showed decreased ability to get up from lying down. The TPO cost about $1500 in 1993. By the age of two she was moving just as well as any show dog, although the leg turned when she walked. She was a Therapy dog, a draft dog, and a novice brace draft dog. Shelby did very well with vitamin C and chondroitin/glucosamine supplements up until the time of her death at age 8 years. Six year old Strykker also takes the same supplements for his bilateral severe CHD, and is still asymptomatic.

Cathy Burlile’s Golden Retriever Bear was diagnosed as mildly dysplastic at the age of two. It never stopped him from completing his CDX jumps, or from doing tracking distances up to 1/2 mile as he was a TD dog and in training for his TDX. His HD did not deter him from jumping onto things or into the car, and he could outrun his GSD buddies for that tennis ball till well into old age. The only problem Bear had was some mild arthritis by the time he was 9.
Lisa Ebnet teaches her puppies to take stairs "slow and gentle" to help avoid injury - both to her dogs and to herself!

Sue Brightman stresses the need for a second opinion, preferably by a board certified veterinary orthopedist, and to use surgical intervention only if truly needed. This is a muscular, touch-insensitive breed that may tolerate HD surprisingly well. Realistically look at your dog's symptoms and the severity of the HD, taking into consideration your dog's age and activity level. Sue's Ivan didn’t need pain medication for his moderate to severe HD until he was 10.5 years old. Now that he’s 12 he still manages pretty well, and enjoys pretending to breed any female in season! He has always been an easy-going dog that knows his limits, has kept slim and in good muscle tone. Through her experience as a breeder, Sue has seen the range of tolerance in dogs, from those with moderate HD who required surgical intervention, to those who were severely dysplastic and showed no symptoms for life.

Kathy and Michael Maher opted for a double TPO for 8 month old Jessie. They used swimming post-op to help build Jessie's muscle conditioning. There were no complications with constipation as in some TPO's. At 5 and a half years, Jessie was running and playing with the rest of the dogs, and never had any trouble jumping onto the bed or the couch! By the age of 9, she had a great deal of arthritis, and with the tears of the cruciate ligaments in both knees, walking became impossible for her. Kathy is convinced, however, that without the TPO Jessie’s life would have ended much sooner than it did.

Sue Sanvido got chiropractic adjustments for her 8 year old Magi who had HD, and it made an enormous difference. It kept Magi tearing around the yard playing with the younger dog. Sue’s only regret is that she did not start the chiropractic adjustments at a much younger age. She truly believes that it helps - and not just for HD.

Rose Tierney's Katie had a unilateral TPO which was complicated by the sciatic nerve being nicked during the plate drilling process, resulting in paralysis of the leg. This risk factor is present for all TPO surgeries. Katie regained full use of her mobility, due to five times daily physiotherapy sessions to prevent ligaments from tightening and massage therapy. Katie's recovery took a full year and she went on to live a moderately active life, including winter trail walks until cancer claimed her at age nine years.

Ruth Reynold's Ruby (Pioneer's Ruby v Krugerrand) was the second true "runt" born in our breeding program. A "runt" I describe as a pup who probably would not make it without a lot of help. Ruby matured into a normal, yet very small, Berner with CHD. The degree of her HD, I cannot say. Based on her radiographs taken just prior to one year when she was experiencing some discomfort, I'd guess she, at that time, was moderately dysplastic. I suspect it has degenerated from there. Dynamite Herbal Green, a mixture of Alfalfa, Barley grass, Yucca and
Amer. Ind. Gensing gave her much relief during the initial period of discomfort she experienced around a year of age. She has not routinely had Herbal Green since that bout of discomfort. Ruby had EXCELLENT movement coming and going and side gait. One would never have suspected she had CHD. The one trait I observed over her time with us was what appeared to be lack of stamina. She would go on runs with the other dogs in the pasture but would not stay out as long. While the other dogs roughhoused in the yard, she would lay quietly in a comfy hole someone had dug and observe. Ruby taught me that each dog affected with CHD is unique and should be managed according to the individual's needs.

Sue Bacig's rescue Berner Wolfgang had a double TPO, and due to the narrowing of the pelvis, it caused difficulties with elimination and gas - making Wolfie a bit nasty. (This will only happen with a double TPO). Once she discovered the problem and started using fiber pills for him, his personality changed to the typical sweet Berner. It is an on-going battle to keep the constipation under control. Recent x-rays (he's now 6!) showed no signs of any arthritis at all! His leg turns in and he looks goofy when he runs, but he's fine.

Janice Cagwin's Beau had a shelf arthroplasty at 8 months of age, using bone from the pelvis screwed together to form a socket. His recovery from this was excellent, and he walked out of the hospital the day after surgery. Beau had a TPO on his other hip at 10 months. His recovery from this was a nightmare! He would scream and cry whenever he would try to stand. The surgeon left for vacation right after the surgery, and the associate just felt that Beau was being overly dramatic; after the surgeon returned, he examined Beau and determined that the sciatic nerve might be irritated. After several visits to an acupuncturist, Beau was back to walking normally! At 17 months of age, he began to limp on the shelf arthroplasty hip. X-rays showed degeneration of the joint, and his orthopedist felt a hip replacement would be necessary. Instead of the hip replacement, a combination of acupuncture, chiropractic adjustments, supplements, regular exercise and maintaining a low weight, has kept Beau doing well and at age 4 he shows no signs of limping.

Doug Smith has had too much HD experience with his Goldens. He advocates keeping the dogs as slim as is healthy, with lots of walks for muscle strengthening exercise. He does massage therapy on the rump and haunches, especially after a play period or at the end of the day. He supplements their diets with 500mg of vitamin C, 500mg glucosamine, and about 1/2 teaspoon of flax seed oil mixed with cottage cheese or yogurt (the cultured dairy product is said to increase the efficacy of the oil). He also gets the vet to help monitor the dogs for any subtle changes.

References:


