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Dog Tips

Your Guide to Avoiding and Treating the Top Five Genetic Diseases

Just because your pet may be predisposed to a certain inherited disease doesn't mean he'll get it, nor does it mean it can't be successfully prevented or treated. You may be surprised to learn that you have more power than you think.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Genetic diseases are unfortunately quite common in many purebred and many mixed breed dogs
- According to one veterinary expert, the top five genetic diseases in dogs are allergic skin disease, hip dysplasia, brachycephalic obstructive airway syndrome, mitral valve disease and cranial cruciate ligament disease
- It's important to realize that just because a dog is predisposed to a certain inherited disease, it doesn't mean he'll get it, nor does it mean it can't be successfully prevented or treated
- Schedule a visit with your veterinarian to determine what nutrients your pet needs to repair cartilage
- The right nutrients will also help impact longevity positively as well as reduce the risk for other diseases

Editor's Note: This article is a reprint. It was originally published March 8, 2017.

Genetic diseases are unfortunately quite common in many purebred and mixed breed dogs.

Dr. Jerold S. Bell of the Cummings School of Veterinary Medicine at Tufts University explains (in science-speak) that these diseases "… are typically associated with evolutionarily ancient disease-liability genes that preceded the separation of breeds and are dispersed in the domestic dog genome."[1]

The practice of veterinary medicine has sufficiently evolved over the last 100 years that many common diseases related to infectious, nutritional and environmental causes can now be prevented or successfully treated. These advances have cleared the way for closer scrutiny of inherited diseases.

According to Bell, the top five genetic diseases of dogs are allergic skin disease, hip dysplasia, brachycephalic obstructive airway syndrome (BOAS), mitral valve disease and cranial cruciate ligament (CCL) disease.

It's really important to keep in mind that just because some veterinarians insist certain disorders are inherited in certain breeds, it doesn't mean your dog of that breed is destined to acquire that condition.

Also, there are steps you can take to help prevent your pet from acquiring diseases to which he may be predisposed, and there are ways to successfully treat or effectively manage existing genetic conditions.

Allergic Skin Disease

Allergic skin diseases, including issues like chronic ear infections and recurrent hot spots, are among the most common reasons dog owners visit a veterinarian.[2,3,4,5] Skin disorders are prevalent in both mixed and purebred dogs, and some breeds are at higher risk than others.

For example, one study of atopic dermatitis in Golden and Labrador Retrievers showed heritability at 47%, meaning that about half the time, the condition has a genetic component.[6] This is largely associated with inbreeding practices in popular breeds.

Another study of atopic dermatitis in German Shepherds also identified a genetic component.[7] Combine poor genetics with the myriad of terrible-quality, species-inappropriate pet foods on the market along with veterinarians that don't practice proactive medicine, and you have a recipe for genetic expression at its worst.

If your dog has allergic skin disease, there are lifestyle changes and natural treatments that, in consultation with a **holistic or integrative veterinarian**, can significantly reduce how frequently your dog has flare-ups of atopic dermatitis.

Because the condition is characterized by an overabundance of a pet's own natural bacteria, topical therapy and lifestyle changes are recommended in place of oral antibiotics for this condition.

Bathing dogs with natural antibacterial shampoos can offer the same benefits as oral antibiotics (killing off the bacterial overgrowth), without any detrimental, long-lasting side effects to your pet's gut and overall immune system.

Therapeutic baths and rinses for these patients with great success. Disinfecting baths are one of the most underused therapies in veterinary medicine.

Bathing your pet in peppermint or tea tree shampoo designed for dogs several times a week (followed by soothing rinses) is also recommended to naturally help control bacterial levels on the skin.

A weekly coconut oil mask will also improve the integrity of the skin barrier. In addition, consider talking with your veterinarian about microbiome restorative therapy.

Hip Dysplasia

According to the Orthopedic Foundation for Animals (OFA), canine hip dysplasia (CHD) is the most common inherited musculoskeletal disorder, and is seen in both purebred and mixed breed dogs.

Since small dogs with the condition typically don't have the level of pain and discomfort larger dogs do, it's clear that size and weight contribute to symptoms. Veterinary researchers and geneticists are developing tests that will hopefully help breeders better identify dogs with normal hips.[8]

If your dog has hip dysplasia, surgery to repair early hip laxity or to replace all or part of a hip is an option for some dogs, however, not every dog is a good candidate for surgery, and not every dog parent can afford it, nor is it always the best option.

Conventional medical management involves the use of nonsteroidal anti-inflammatory drugs (NSAIDs), buffered aspirin and corticosteroids, all of which have side effects.

If your canine companion is on medication for pain and inflammation, you can work with an integrative or holistic veterinarian to determine what alternative treatments might also be of benefit. Often an integrative approach can reduce or replace the need for toxic drugs.

The most important aspect of managing CHD is building and maintaining excellent muscle, tendon and ligament health. Physical therapies like chiropractic, **massage**, **stretching**, laser treatment, acupuncture and aquatic therapy are extremely beneficial.

So is a naturally anti-inflammatory diet. Eliminate all potato, corn, wheat, rice and other forms of starch from your pet's diet.

Also, talk to your holistic vet about supplements that can provide the raw materials for cartilage repair and maintenance. It's really important to provide both natural pain management AND joint support (chondroprotective agents) at the same time.

Some of these include glucosamine sulfate with MSM, eggshell membrane and Perna mussel (green lipped clam), cetyl myristoleate, as well as:

- Homeopathic remedies, including Rhus Tox, Arnica and Bryonia (depending on symptoms)
- Ubiquinol and other antioxidants
- Supergreen foods (spirulina and astaxanthin)
- Natural anti-inflammatory formulas (herbs like turmeric, proteolytic enzymes and nutraceuticals)
- Adequan injections

Brachycephalic Obstructive Airway Syndrome (BOAS)

BOAS is a breathing disorder that is very common in flat-faced breeds such as Bulldogs, French Bulldogs and Pugs. The problem occurs because the shape of these dogs' heads and muzzles causes abnormalities within the nose and pharynx. Sadly, many breeders continue to tweak and further exaggerate the short skulls of these dogs to achieve a certain look, without regard for the animal's health.

In one study conducted in the U.K., almost 17% of high-risk brachycephalic dogs died of respiratory failure before 9 years of age.[9] This is the one condition on the list that is 100% genetic. Clinical signs of BOAS include difficulty breathing, exercise and heat intolerance, noisy breathing, loss of consciousness and death. Often, these dogs also have skin fold dermatitis and eye problems.

If your dog has BOAS, breathing difficulties can prevent your furry family member from being able to enjoy the very simplest things dogs naturally love to do, like eating, sleeping, play and exercise. Dogs with severe brachycephalic airway syndrome can have almost continuous difficulty getting enough air. It's not unusual for these dogs to collapse from lack of oxygen. Left untreated, the problems tend to progress over time, with worsening symptoms.

It’s important to learn the difference between normal and abnormal breathing sounds in your dog, and to make an appointment with your veterinarian if you notice any unusual breathing or other signs of respiratory distress. Unfortunately, surgery is often the only option to resolve significant breathing difficulties resulting from BOAS.

Things you can do as the owner of a brachy include keeping your dog fit and trim. Overweight and obese dogs have much more serious respiratory difficulties than pets who are kept at an ideal weight. Keeping your dog out of hot, humid environments is also important to support normal respiration and prevent overheating.

And since stress exacerbates virtually every health problem, especially breathing difficulties, keeping your dog’s life as stress-free as possible is also recommended to support your pet’s health and quality of life.

Mitral Valve Disease

Mitral valve disease is seen most often in small and toy dogs, and for some breeds like the Cavalier King Charles Spaniel, studies show it can lead to heart disease at a young age.[10]

If your dog has mitral valve disease, conventional veterinarians often suggest doing nothing about congenital mitral valve disease until symptoms appear. But if we wait until heart disease causes notable symptoms, usually by that point quality of life is diminished.

If you have a breed like the Cavalier King Charles Spaniel that has a very high incidence of acquiring mitral valve disease, here two recommended strategies — first, put your pet on ubiquinol before the problem occurs or is diagnosed. Providing the reduced form of CoQ10 can improve myocardial cellular respiration, thereby reducing stress on the cardiovascular system, which is extremely important.

Higher than normal doses of ubiquinol are recommended to dramatically slow the progression of mitral valve disease in dog (and cat) patients. It's one of the best defenses you can employ for high-risk breeds or immediately following your pet's diagnosis to slow the rate of degeneration.

The second strategy is removing all the fillers from your pet's diet, because they offset his critical amino acid intake. Dogs are carnivores and require amino acids from animal meat to maintain healthy muscle function, including heart muscle function.

Commercial dry and canned foods contain fillers or starch in the form of potatoes, rice, whole wheat, lentils, peas and tapioca, etc. These are unnecessary carbohydrates pet food manufacturers use in place of the meat protein that is so critical to the health of dogs.

Processed foods are also manufactured at very high temperatures, which denatures meat protein and essential fatty acids (EFAs) and substantially alters the bioavailability of amino acids and EFAs. Ultimately, pets on processed food diets are amino acid and EFA deficient, which can have a negative effect on heart health.

If you can't or don't want to transition your dog to a species-appropriate homemade diet, or alternatively, to a commercially available raw meat-based diet, then talk to a holistic vet about supplementation. You need to provide your pet with the amino acids missing from commercial diets, including L-carnitine, taurine, carnosine, arginine and krill oil.

Cranial Cruciate Ligament (CCL) Rupture

CCL ruptures aren't usually categorized as hereditary in nature, however, studies show an inherited tendency in Rottweilers, Golden Retrievers, West Highland White Terriers, Yorkies, Staffordshire Bull Terrier, and certain mixed breeds.[11,12] In addition, two studies of CCL ruptures in Newfoundlands showed a 27% heritability tendency.[13,14]

This leaves about three quarters of these dogs (the majority) that spontaneously tear their knee ligaments, which points to other reasons, specifically their diet. **If your dog has CCL disease,** CCL disease is a huge topic that can't be covered adequately here.

In a nutshell, if you have a breed that has a genetic predisposition to this ligament issue, it's strongly recommend transitioning your pet to a diet rich in specific food-based minerals (far above Association of American Feed Control Officials [AAFCO] minimums) to prevent him or her from becoming an injury statistic.

A Final Word About Nutrition and Your Dog's Genetic Destiny

Nutrigenomics is an emerging scientific concept that holds that the nutrition we need as individuals (both humans and animals) depends on our genetic makeup. Our genes and the expression of our genes are controlled by individual nutrients, which means we need personalized, individualized functional nutrition.

It's important to understand how the nutrients we feed our pets will affect their genes, and therefore, their health and longevity. And in fact, if we know which nutrients are essential for individual pets (and people), we can impact longevity, reduce the risk of chronic disease and heal from illness much more rapidly.

Nutrigenomics studies the effect of nutrition on the genome. The genome has everything to do with the body — how it functions metabolically and genetically. The genes are only a small part of the genome, about 2%. The other 98% have nothing to do with the genes, but with how the body controls what our genes do.

Every individual has a unique molecular dietary signature that determines which nutrients that individual should eat in order to thrive. As veterinarians and pet owners, we can exert some control. For example, if your dog's breed is genetically predisposed to a certain health problem, through nutrition you can suppress certain genes, so they don't express themselves, or encourage other genes to do the opposite.

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