

For Your Veterinarian

Understanding the problems and needs of the large/giant breeds can be difficult, and understandably so, if you have not had the experience of dealing with many in your practice. Great Danes in particular are a fragile breed and particularly prone to orthopedic and immune problems, which are often difficult to diagnose, based on a number of confusing issues and peculiarities of the breed.

It is in this light, that I offer you this article to assist you in working with the large/giant breeds. First, I understand as a layperson you are hesitant to put much stock in an article brought to you by your client. On the other hand, let me give you some background to assure you my experience is worth considering.

My name is Linda Arndt, owner of Blackwatch Great Dane Kennels and I have been involved in exhibiting, breeding, and training in conformation and obedience for 30 years. I am also a full professor at Ball State University where I have taught for almost 30 years, in the College of Fine Arts. My last 15 years of involvement in dogs have been focused on the education of breeders and veterinarians, involving health issues and feeding programs as it relates to the giant breeds. I work closely with the Great Dane Club of America's and their Health and Welfare Committee, to find solutions to the many problems within our breed.

In 1989 - 1995 I conducted the National Bone Disease Survey in Great Danes, which supplied data from 5200 cases of veterinarian diagnosed DOD - Developmental Orthopedic Diseases. HOD, OCD and Pano where the primary focus of the survey.

I gathered information on age, sex, diets - types and amounts, medications, vaccine protocols. Whereby this is not scientific research, it does give us the most extensive data on DOD problems within our breed. This survey also revealed antibiotic sensitivities in this breed, as well as a large number of vaccine reactions, which led to the current vaccine research being funded by the Great Dane Club of America, under the direction of Dr. Harm HoganEsch and Dr. Larry Glickman, at Purdue University. The research is in year 5 of a 7-year study on Vaccine Mediated Responses in Canines.

I mention this information to you because there is evidence, based on the national survey, that vaccine reactions, allergic reactions to certain antibiotics, and septicemia (generally from cropping), are often misdiagnosed as HOD. These conditions can "mimic" the same symptoms as HOD, making it very difficult to diagnose.

With that in mind, I offer this article to you for consideration - a checklist of "things to consider" when searching for the answers to a potential developmental orthopedic disease.

It is with the greatest respect that I offer this information. I have worked with many veterinarians and breeders in collective problem solving for the benefit of this breed. Feel free to contact me at any time that I can be of assistance.

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Introduction

Raising a large/giant breed that first year can be somewhat difficult. One of the major stumbling blocks is 3 common bone diseases we often deal with in these breeds. I would like to discuss the facts/myth of these diseases and give you a way to determine which disease you may be dealing with regarding your puppy. This is not meant to take the place of seeing a veterinarians care. If you suspect your puppy is not well, use this as support information for you and your vet in diagnosing the health problem of your puppy. The problem today is the use of multivalent vaccines, particularly on the giant breeds, puts them at great risk. Their fragile immune systems cannot handle the assault of multivalent vaccines and we lose them to autoimmune response, which is misdiagnosed as HOD in the early stages. This article will help you and your vet determine whether or not your dog has true HOD.

Distinguishing Fact from Fiction

Fact: In the textbook Small Animal Clinical Nutrition, 4th edition 2000 has these diseases HOD, OCD and Panosteitis (Pano) listed as DOD - Developmental Orthopedic Diseases and nutritionally related, not genetic in origin.

Fact: HOD and Septicemia are NOT the same disease, but share the same symptoms, making it difficult to diagnose.

Fact: All growing puppies, if x-rayed, look as if they have HOD due to fast rate of growth. Therefore, x-rays are not all that useful in diagnosing HOD.

Fact: Vaccine reactions, from combo shots, can produce the same symptoms as HOD and therefore the problem is misdiagnosed as HOD when in fact it is a Vaccine reaction.

Fact: Rabies vaccines given before 6 months of age (particularly in Great Danes) and at the same time as combination vaccines, can cause HOD -like symptoms, but not true HOD. These symptoms of fever, swollen joints, excruciating pain are often irreversible and result in the need for humane euthanasia.

Fact: Most research on orthopedic diseases have been done in the equine field

Fact: These 3 diseases HOD, OCD, Pano are definitely treatable and do not have to be life threatening. Proper diagnosis and change in feeding program is necessary to correct the problem.

Fact: Euthanasia does not have to be an option with "true" HOD, OCD and Pano, with vaccine reactions there is little that can be done for them.

Fact: Septicemia or Septic Arthritis is erroneously labeled as pseudo HOD by breeders/owners. If the dog is septic and misdiagnosed as HOD, it can be life threatening. Make sure a blood test and culture is run to correctly diagnose Septicemia.

How To Determine Your Puppy has "True" HOD

Again True HOD is a nutritionally caused disease so in order to determine if this is the problem or not, we must go through a series of questions to draw a conclusion as to what is going on with your puppy. Most of the time your puppy will be at stage three (see above) before a veterinarian will be called on for help. Unless your veterinarian has dealt with many large/giant breeds, they may not be sure how to handle this problem. You can give them a copy of this guideline and it will assist them in determining the cause for your puppies' symptoms (as described in stage three). When I receive phone calls from breeders/owners or veterinarians for guidance in this particular disease (HOD) we go through a series of questions.

Why Diagnosing HOD Can Be VERY Confusing!!

In diagnosis HOD, it is very confusing because the symptoms I have listed above, are also the same symptoms that your puppy can have with a reaction to vaccines, antibiotics or septicemia. The following things "mimic" the symptoms of HOD.

1. Vaccine Reactions or Vaccine Mediated Response
2. Allergic Reactions to Antibiotics - Sulfonamide Drugs (Ditrim, TMZ, TMP/SDZ, Bactrim, Primor, Tribissen, trimethoprim sulfa, septrax, cotrim, sulfatrim).
OR
Cephalexin (Keflex - Cefa-Tabs,)
3. Septicemia - also known as septic-arthritis. This is a "systemic" infection also known as blood poisoning

These 3 things "Mimic" the same symptoms as HOD, which is why so many puppies are misdiagnosed.

Note: After consulting with my own veterinarians, we have decided not to use any sulfonamide antibiotics on Great Danes because of their hypersensitivity and potential life threatening effect on this breed. We will use Cephalexin, when it is appropriate, but with a watchful eye and stop it immediately, if there are any adverse reaction

Discussion of 3 Bone Diseases HOD, OCD and Pano

HOD - Hypertrophic Osteodystrophy

- Normally Affects the Large/Giant Breeds
- Dogs Grow Too Fast
- A Problem of More Food Calories (Energy Eaten Than Expelled in Activity)

Nutritionally Caused By:

- Too many calories consumed
- Unbalanced diet disrupted by supplementing

Age Range for Disease: 10 weeks - 6 months (worst time is 3 months - 6 months)

Symptoms

- Early stages: large knotty joints, toes turning in or out
- Middle stages: large knotty joints, toes turning in or out, roached toelines, pinched rear end assembly
- Advanced stages: fever (104-106), refusal to eat, jaw tender, swelling of joint areas often hot to the touch animals cry in pain, unable to get up, flat feet, bowing of the limbs, lack of mobility, depression polyarthritis in all limbs.

Based on the National Bone Survey and my experience in this breed HOD does not happen in puppies past 6 months of age.

Course of Action:

- Is the dog having an allergic reaction to one of the drugs listed below in the section on antibiotic reactions, rule that out first?
- Look At Diet and Amount Being Fed
If the dog is being feed a quality diet and in appropriate amounts that are listed in the Puppy Feeding Guidelines, then you can rule out diet.
- Has the dog had a vaccination within 24 - 48 hours prior to the fever and lethargy? If so then this could be a vaccine reaction.

Once you rule out vaccine, allergic reaction to drugs and blood infection, then the problem has to be diet. Include these two supplements. A shot of dexamethsone will help in getting this puppy back on it's feet and you may have to follow up with some Azium tablets. This works better than prednisalone.

- Use a good joint support product like [Flexicose](#)
- [Nzymes](#) - dietary enzyme (877-816-6500) - a natural anti-inflammatory
- Change in diet

OCD - Osteochondritis Dissecans

The Separation of Joint Cartilage from Bone
Cause is Rapid Growth
Ages 4-12 months of age
Affects Shoulder, Hocks, Stifles
Cause Excessive Calcium or Mineral Imbalance
Nutritionally Caused Disease (as proven in Equine research)
Symptoms - Lameness. Pain present at flexing the joint
Can happen in more than one joint.

This is defect in the cartilage the overlaying or attaching to the bone does not take place properly and a small piece or flap peels up and acts as an irritant. Sometimes there is fluid build up in the hock area due to loose cartilage.

Suggestions for Prevention:

Feed a meat based, moderate protein/calorie, super premium quality food in normal amounts - see my list of better foods:
http://www.greatdanelady.com/articles/criteria_list_of_better_foods.htm

Feed only a food that has chelated or sequestered minerals in it for proper utilization and making bone and cartilage.

A good joint support product such as **Flexicose**

Course of Action:

If this is diagnosed early enough (6 mo. and under) it may be possible to repair the problems with changes in diet and the use of Adequan shots AND a product that support joint nutritional supplement such **Flexicose**. Sometimes surgery to remove the piece of cartilage is the only option. Discuss this with an Orthopedics veterinarian if surgery is a possibility. Most vets will not know about the ability to repair a lesion with joint supplements, Adequan shots and change in diet to a kibble with chelated or sequestered minerals.

The National Bone Survey in this breed had over 5200 cases of veterinarian diagnosed bone diseases reported to the survey. Of those numbers, 517 were OCD cases. Of those cases all were fed the same commercial dog foods. No, I will not name these foods. Simply stick to the foods on my list of better foods and you minimize your chances for OCD problems because they use chelated or sequestered minerals which are higher quality and usable by the system.

Once in a while an animal has been injured, the trauma to that area will cause OCD in a joint. When it is nutritionally cause is it often in more than one joint. Make sure you don't excuse your feeding program problems and call the problem "injury" related.

Panosteitis (Pano)

Pano, is what breeders call this disease. It is the least invasive and least threatening of the three bone diseases discussed in this article.

Wandering Lameness (Eosinophilic Panosteitis)

Also Known As Growing Pains in Dogs (and Children) soreness in the long bones

Rapid Rate of Growth

Spontaneous Recovery/ Self Limiting Disease

Achy Arthritis, if it lasts long periods of time their may be muscle wasting

6 - 14 months (9-12 months being the likely period)

ALERT:

An allergic reaction Cephalexin or the Sulfonamides is often misdiagnosed as Pano in an adult dog. True Pano does not happen in dogs after the growth plates are closed at 18 months but an allergic relation to antibiotics can happen at any stage of the dogs' life.

Please do not use Rimadyl on this breed. They are fragile enough without compromising their liver functions. We have other options such as **Flexicose** along with **Nzymes** that helps with pain management in a natural way.

Suggestion for Prevention:

Feeding a moderate (protein/fat/calorie), meat based, high quality diet in moderate amounts to keep growth slow and even. Excessive feeding can actually alter the length of bone and shape of muscle making an animal unsound in their development.

- Moderate High Quality Meat Based Food
- A diet that uses [chelated/sequestered](#) minerals
- [Nzymes](#) (877-816-6500) a dietary enzyme that is a natural anti-inflammatory.
- Joint Support supplement [Flexicose](#)

Course of Action:

Is the dog having an allergic reaction to one of the drugs listed, rule that out first see information below ?

- Look At Diet and Amount Being Fed
- A joint support product such as [Flexicose](#)
- [Nzymes](#) - dietary enzyme(877-816-6500) - a natural anti-inflammatory

HOW TO DETERMINE IF THIS IS A CASE OF REAL HOD OR SOME OTHER CAUSE?

STEP 1: IS DIET AT THE ROOT OF THE PROBLEM?

Diet - Are you feeding a moderate protein/moderate fat diet? (22%-24% max. protein and 12%-15%fat, 320 - 350 Kcalories per cup) this is considered moderate.

If so, this means you are feeding a moderate calorie diet which we know is appropriate for the large breeds to grow slow and even. Not all adult brands of dog foods are appropriate to feed a growing giant breed, because they will not get adequate amounts of nutrients on an adult formula. Certain brands are notorious for causing orthopedic problems due to poor quality mineral absorption.

That is why it is very important to feed only certain brands of moderate adult formulas to puppies.

NEVER FEED A LOW PROTEIN AND NEVER FEED A HIGH PROTEIN. One is not enough in calories or nutrients the other is too much calories for a growing animal. It is too difficult for the owner to regulate the caloric intake necessary when we are not using moderate foods.

Amount to Feed - this is a general guideline for the giant breeds being fed a moderate food. If your puppy is consuming more then these recommendations, they may be consuming more calories than they need the results will be "true" HOD. See puppy-feeding guidelines.

Remember the most critical time to control growth is 12 weeks - 6 months of age - this window of growth is the most rapid.

Are You Supplementing? - if you are supplementing with vitamins, minerals, (calcium) and certain people foods such as rice, cottage cheese, eggs, meat, you might be throwing the calcium and phosphorus balance off of your commercial food, as well as adding to the extra calories.

"NEVER SUPPLEMENT CALCIUM WITH TODAY'S COMMERCIAL DOG FOODS" - quote from *Small Animal Clinical Nutrition Textbook* - 4th edition 2000. This is not to say you should not use real "foods," but during these delicate growing stages 3-6 months, I recommend we go easy and use only fruits veggies.

If you have a puppy that has been diagnosed with HOD, use the feeding guidelines to determine if the dog is consuming more food than he needs and/or the diet is being unbalanced by supplementation. If not, then we must look at other factors causing HOD like symptoms rather than actual HOD. If diet is a problem adjust feeding accordingly.

STEP 2: COULD IT BE AN ALLERGIC REACTION TO ANTIBIOTICS?

Has your dog been on these Antibiotics?

Sulfonamide Drugs - Ditrim, TMZ, TMP/SDZ, Bactrim, Primor, Tribissen, trimethoprim sulfa, sepra, cotrim, sulfatrim OR Cephalexin, Keflex or Cefa-Tabs (all the same antibiotic).

If so, it is not at all uncommon to have a reaction to these antibiotics that mimic the symptoms of HOD. In some animals this happens within 24 hours, with others it maybe up to 7-10 days on the therapy before you notice the symptoms of: achy and swelling joints, fever and loss of appetite. (All the same symptoms as in stage three of "true" HOD or in older dogs, it is often misdiagnosed as PANO)

Treatment:

If you determine the "HOD like" symptoms are due to an allergic reaction to antibiotics, generally the animal is treated with Dexamethsone and antibiotic is changed. Discuss the course of action with your veterinarian. Once you rule out antibiotic reaction we go to step 3.

STEP 3: COULD IT BE ADVERSE REACTIONS TO VACCINES

If you determine the "HOD like" symptoms or Pano symptoms are not due to diet, or antibiotics, then we must look at vaccine reactions. Did your puppy have an inoculation within the past 7 days? Normally this response happens within 24-48 hours but can come on as late as a week or more past the date of inoculations. They symptoms are the same as in stage three of "true" HOD. Polyarthritis, lethargy, swelling of the joint area, fever and loss of appetite.

Treatment: I have found 3 things helpful in cleansing the fibronectin carrier/preservative in the vaccines, which the body recognizes as a toxin. (Purdue Vaccine Research - 2000) But keep in mind, nothing is a guarantee and some dogs' immune systems are so compromised that we lose them to autoimmune disease.

The best course of action is prevention of vaccine reaction. I have found this combination works as a prevention for vaccine reactions in my own animals. This is a combination I have been using for 17 years.

Nzymes a dietary enzyme and major detoxifier (877-816-6500) website:

www.nzymes.com

Nzymes is a dietary enzyme (not digestive enzyme) that provides food for the body so it can make the chemicals necessary to detoxify the body against free

radical damage. These area natural anti-inflammatory and from a food source. I find it useful to prevent vaccine response, to help heal after a vaccine reaction and fast recovery from anesthesia.

Vitamin C with Bioflavonides - 1000 mg daily to detoxify the body. Human vaccine research shows us vaccines produce elevated histamine levels and Vitamin C is beneficial in lowering these levels during vaccines.

Step 4: COULD IT BE SEPTICEMIA (Septic-Arthritis)

When we see the term Pseudo HOD, note - this is an inaccurate term for Septicemia. This is term is taken from an antiquated article that is published on the internet and has no bearing on the real cause of HOD. What this article is referring to is Septicemia, also known as blood poisoning or septic arthritis, which gets misdiagnosed as HOD.

If you have ruled out diet, antibiotic reactions and vaccine response, we must take a look at the possibility of a systemic infection. This could be from taping a joint (avoid this at all costs), a puncture wound, from non-sterile ear cropping conditions, a bite or a wound that is undetected.

Treatment:

Rather than use an antibiotic, that may not be suited for the specific bacteria or use an antibiotic when it is not needed, run a blood test first to see if there is an elevated blood count, which indicates infection. I recommend a blood culture as well, to find the best antibiotic to fight the infection. You should avoid the unnecessary use of a very detrimental drug; one that breeders often push is called Chloremphenical. This is the year 2002; you have other options, ones that are not as likely to destroy your puppy's new and underdeveloped immune system.

Chloremphenical suppresses the immune system and is not meant to be used on growing animals/children. Discuss other options with your veterinarian.

It is my experience; the numbers of "real" Septicemia cases in this breed are not nearly as prevalent as breeders are led to believe from other breeders. When there is a case of Septicemia, more than likely it is due to unsanitary cropping and aftercare techniques.

Note: Of the 5200 cases of bone diseases reported to the NATIONAL BONE SURVEY, only two cases of "HOD-like" symptoms were the results of veterinarian diagnosed Septicemia.

In Conclusion:

The following 3 diseases are difficult to diagnose at times. It requires looking at a total history of the animal, including feeding, medications, vaccines, injuries, surgeries etc. I hope this method of discussing these problems makes it a little easier to understand and helps you find a solution, when and if you have these problems. Hopefully we can find the cause and treatment for the situation along with help from your veterinarian.

Linda Arndt

*This article, my opinion or if you ask for my assistance on health and feeding issues, is not to be used "in lieu of " veterinarian advise and treatment, and should be discussed with your vet for a comprehensive approach to better health for your pet.