

Frequently Asked Questions About HOD

By Noa Safra DVM, PhD

Hypertrophic Osteo-Dystrophy (HOD) is a systemic disease that affects young Weimaraners. Common clinical signs include: depression, temperature >103F, reluctance to walk, lameness, painful and palpation sensitive and painful growth plates, anorexia and dehydration. Additional signs are ocular and nasal discharge, interstitial pneumonia, swelling of the jaw, skin rash and diarrhea.

HOD diagnosis is based on clinical signs and radiographs. Radiographic findings are a definitive means to diagnose HOD. CBC findings are non-specific but should be acquired to rule out infection. Treatment of HOD is immunosuppressive and supportive. The cause for HOD is unknown. Various mechanisms have been considered, such as nutritional, metabolic, infectious, stress related and vaccine induced.

Whereas the mode of inheritance of HOD is unknown, there is strong evidence to support a genetic component in Weimaraners. Genetic research at UC Davis aims to address the inherited contribution in Weimaraners.

Repeatedly asked questions about HOD and the study follow below, along with my replies. Additional questions are welcome. Please email Noa Safra DVM PhD: nsafra@ucdavis.edu

What are safe breeding guidelines?

- Never use an HOD affected dog or a dog diagnosed with other immune related disease (e.g. meningitis, polyarthritis, rheumatoid arthritis).
- Do not repeat breedings that produced HOD affected pups.
- The producers of HOD affected pups may remain in a breeding program as long as the HOD producing combination of pedigree is avoided..
- The healthy littermates of HOD pups are safe to use when taking a different direction than the parents' combination of pedigree.

What are the nutritional recommendations?

A nutritional component of HOD has not been confirmed and it is unlikely that nutrition has a role in the course of the disease in Weimaraners.

How is HOD related to other immune mediated syndromes in Weimaraners?

It is logical to assume that HOD is only one of several possible manifestations of a compromised immune system. Since there is a wide range of presentations of immune mediated problems, samples donated will be grouped together according to medical history. Any sample is welcome and will contribute to our understanding of the broad sense of the immune problem in Weimaraners.

Since HOD has many different presentations and may be related to other immune-mediated disorders, how is it possible to find a genetic marker?

The scientific community has developed the means to study the genetic cause of complex diseases. Genetic diseases currently studied in humans represent complex traits with variable phenotype. Genes can explain only part of the mechanism for diseases like diabetes, atherosclerosis, and high blood pressure. Yet, many resources are devoted to identify this part. Various genetic pathways are being identified. We are fortunate that dogs represent a much more homogeneous population when compared to men. Therefore, a genetic contribution to disease is much easier to find.

What is the recommended treatment protocol for HOD?

- The treatment is comprised of an immunosuppressive dose of prednisone, accompanied by a course of antibiotics.
- A good outcome requires early initiation of treatment. Improvement should be observed during the first 48 hrs with prompt treatment.

1.5mg/kg daily dose of Prednisone. Divide the daily dose into morning and evening administrations. Continue for 5 days.

1mg/kg daily for 5 days

0.5mg/kg daily for 5 days

5mg daily for 5 days

5mg every other day for 2 weeks

If at any time during the treatment there is deterioration, the previous higher dose should be given. The minimal therapeutic dose should be determined by trial and error. Some cases require higher doses for longer periods of time. Other cases may require 5mg of prednisone every other day or every two days until they reach 11-12 months of age.

A course of antibiotic should be given during the first 4 weeks of prednisone treatment. A wide spectrum antibiotic such as clavamox is a good choice. An antacid should be added. Pepcid (0.5 mg/kg) given twice daily is a good choice.

Ideally, no additional vaccines are given to an HOD pup before 12 month of age. If rabies vaccine is enforced, give Benadryl (diphenhydramine) 0.5 mg/kg 8 hrs prior to vaccinating and once again 8 hrs after.

What is it my vet should look for on the X-ray to diagnose HOD?

A dark line (increased lucency), the result of absorption of dead bone is found parallel to the growth plates of the affected bones. Adjacent to the dark line there is a zone of increased density of bone (white line) that corresponds to collapsed layers of dead bone. The outer layer of the bone (periosteum) may be thickened due to new bone formation.

You may need to consult a veterinary radiologist in order to obtain correct interpretation of the X-rays.

Is there a type of HOD that is not genetic in Weimaraners?

In the veterinary literature, HOD was originally described as an orthopedic disease of growing large breed puppies. This disease is similar to panosteitis in that it responds to NSAID's and does not relapse. It is not a familial disease.

Weimaraners present with a systemic disease that does not respond to NSAID's. Without the immunosuppressive treatment they deteriorate and may die. The Weimaraner disease runs in families. Even though the radiographic images meet the criteria for HOD, it is clear that the disease in Weimaraners is different than the classic HOD seen in other breeds.

A thorough study may result in a more accurate term for the problem seen in Weimaraners. Currently, there is no safe way to determine whether or not there is more than one "type" of HOD

in Weimaraners. A study to determine this distinction would require exposing our puppies to excessive vaccines and treating sick pups using a protocol that may lead to a worsened episode. Samples from Weimaraners experiencing mild as well as severe illness will greatly assist the study.