Hypertrophic Osteodystrophy (HOD) is a canine developmental disease that affects dogs between eight weeks and eight months of age. Sick dogs exhibit swelling and pain in their legs with reluctance to stand or walk. In addition to bone pain, there are variable general signs including fever, lethargy, depression, and loss of appetite. Diagnosis is based on presence of HOD lines on radiographs together with signalment (breed, sex and age) and a history that rules out an infectious cause for the clinical signs. The most effective treatment is with corticosteroids (prednisone) and cases that are diagnosed promptly and treated correctly have a good prognosis. However, relapses are common until the closure of the growth plates. Unfortunately, some severe cases are euthanized.

HOD has been reported in Irish setters as well as other large and medium breeds such as the Weimaraner, Great Dane, German Shepherd Dog, German Shorthaired Pointer, Labrador Retriever, Great Pyrenees, Boxer, Dalmatian and mixed-bred dogs. Moreover, HOD has been reported in Weimaraner and in Australian Kelpie littermates, demonstrating that it is an inherited disorder presenting a health concern within a number of breeds.

A similar disease in children is called Chronic Recurrent Multifocal Osteomyelitis (CRMO). Affected children suffer from recurrent episodes of unexplained debilitating bone pain between the ages of five and 18 years that prevents them from experiencing a normal childhood. The aims of this study are to document the clinical presentation, investigate the role of the immune system in disease manifestation, and to identify the genetic basis of HOD in Irish Setter dogs. This will allow breeders to reduce the number of HOD affected puppies and perhaps save puppies and owners from the devastating outcome of euthanasia. Results from this study have the potential to assist other breeds with HOD, and children with CRMO.