Puppies are synonymous with rambunctious energy—at least they should be. So when Daisy, a six-month-old bull mastiff, refused to get off her bed or even drink water over Labor Day weekend last fall, Channa McNiel Roe knew something wasn’t right.

Channa’s husband, Eric, brought Daisy to the veterinary hospital where clinicians in the Emergency and Critical Care Service started IV fluids and a morphine drip for seven days to manage her pain. After an extensive array of tests, Daisy was diagnosed with hypertrophic osteodystrophy (HOD), a developmental disease found in some large breed dogs that causes severe musculoskeletal pain. Affected canines may refuse to walk or even stand. They experience lameness, usually along with fever, lethargy and loss of appetite. Sometimes these dogs have diarrhea, puppy acne and discharge from the eyes and nose.

Seen in other breeds such as the Great Dane, boxer, German shepherd, Labrador retriever, Irish setter and Weimaraners, HOD may manifest in several episodes until complete closure of the growth plates, which usually requires hospitalization for intensive care. The harsh pain and poor quality of life, accompanied by the high costs of hospitalization, leads some owners to elect euthanasia.

Veterinarians currently diagnose HOD through X-rays and treat the disease with what’s called “supportive care,” or measures to control or relieve signs and side effects to improve comfort and quality of life. While there is no cure for HOD, there is hope on the horizon for finding the gene responsible. HOD research at the Bannasch Genetics Laboratory in the Center for Companion Animal Health (CCAH) is ongoing. Dr. Noa Safra, a lover of all dogs, initiated the study when she was a post-doctoral fellow. Funding for the work comes from grants from the AKC Canine Health Foundation, CCAH and from dog lover donors.

After several months of physical therapy and medication to control pain and inflammation, Daisy can walk on soft surfaces and enjoys playing with her three human siblings again. But the Roe family is unsure of her final outcome as she approaches adulthood.

“We’ve had to really adjust our family’s expectations of what she can do, but we still adore her—even when she eats the Legos!” Channa said.