

# VETERINARY TECHNICAL DATASHEET

Exercise-Induced Collapse, (EIC)



Mutation Found In :Cocker Spaniel, Boykin Spaniel, Bouvier Des Flanders, Chesapeake Bay Retriever, Clumber Spaniel, Curly Coated Retriever, German Wirehaired Pointer, Labrador Retriever, Mixed breed, Old English Sheepdog, Pembroke Welsh Corgi

## Disorder Type

- Neuromuscular

## Disease Severity

- Mild/moderate

## Background

EIC is caused by a mutation in the DNM1 gene that was first identified in the Labrador Retriever. It presents as exercise intolerance in otherwise normal dogs. Affected dogs appear normal up to moderately strenuous activity levels, but they develop a wobbly, uncoordinated gait that is most severe in the hind legs and can collapse after short periods of strenuous activity.

## Key Signs

- Hind limb weakness
- Ataxia after intense exercise
- Severe cases: short-term flaccid paralysis

## Clinical Description

Affected dogs appear normal during low to moderately strenuous activity, but they develop a wobbly, uncoordinated gait that is most severe in the hind limbs after brief bouts of strenuous activity. Typically the dogs remain conscious and are not in pain during an episode. In some cases, however, the signs are severe with full body weakness and low muscle tone (flaccid paralysis), confusion, loss of consciousness, and seizures. Very rarely, death can occur. The episodes typically last 5 to 10 minutes and most dogs will recover completely within 15 to 30 minutes.

## Mode of Inheritance

- autosomal recessive

## Gene Name

- DNM1

## Next Steps

Treatment is supportive care during the periods of collapse and limiting strenuous exercise to avoid episodes.

## References

Furrow E, Minor KM, Taylor SM, Mickelson JR, Patterson EE. Relationship between dynamin 1 mutation status and characteristics of recurrent episodes of exercise-induced collapse in Labrador Retrievers. *J Am Vet Med Assoc.* 2013 Mar 15;242(6):786-91.

Minor KM, Patterson EE, Keating MK, Gross SD, Ekenstedt KJ, Taylor SM, Mickelson JR. Presence and impact of the exercise-induced collapse associated DNMI mutation in Labrador retrievers and other breeds. *Vet J.* 2011 Aug; 189(2):214-9.

Taylor SM, Shmon CL, Adams VJ, Mickelson JR, Patterson EN, Shelton GD. Evaluations of labrador retrievers with exercise-induced collapse, including response to a standardized strenuous exercise protocol. *J Am Anim Hosp Assoc.* 2009 Jan-Feb; 45(1):3-13.

Patterson EE, Minor KM, Tchernatynskaia AV, Taylor SM, Shelton GD, Ekenstedt KJ, Mickelson JR. A canine DNMI mutation is highly associated with the syndrome of exercise-induced collapse. *Nat Genet.* 2008 Oct; 40(10):1235-9.

Taylor SM, Shmon CL, Shelton GD, Patterson EN, Minor K, Mickelson JR. Exercise-induced collapse of Labrador retrievers: survey results and preliminary investigation of heritability. *J Am Anim Hosp Assoc.* 2008 Nov-Dec; 44(6):295-301.