

This Breed Tops the List for Intelligence, in Spite of These Quirky Disorders

Much loved for their smart and active personalities, these canine Einsteins can inherit rather unique genetic disorders that owners must know about, including one strange disorder named just for them. If this breed is in your dog's mix, make sure to learn about these disorders sooner than later.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- The Border Collie, a very intelligent and energetic breed, is predisposed to certain relatively rare conditions
- One disorder many Border Collies inherit is multidrug sensitivity, making them prone to serious adverse reactions to over a dozen different drugs
- Another strange disorder of Border Collies and some other herding breeds is Border Collie Collapse (BCC)
- The cause of BCC is unknown and is currently under study; so far, identified triggers for collapse include a combination of warm weather, excitement and strenuous exercise
- Affected dogs lose focus and become disoriented, develop an abnormal gait and sometimes fall to the ground; recovery is aided by cooling the dog down and keeping him at rest

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Border Collies are undoubtedly one of the most active and smartest dog breeds. In fact, according to psychology professor and neuropsychological researcher Stanley Coren, Ph.D., author of the best-selling book "The Intelligence of Dogs," the **Border Collie tops the list of most intelligent breeds.**¹

But like many breeds, these little canine Einsteins can inherit certain rather unique genetic disorders that both owners and veterinarians should be aware of. For example, many herding breeds, including the Border Collie, can inherit multidrug sensitivity as a result of carrying the multidrug resistance gene (MDR1 gene).

It's a genetic predisposition that causes adverse reactions to over a dozen different drugs, including several antiparasitics (e.g., ivermectin), the antidiarrheal drug loperamide (Imodium), several anticancer drugs and certain anesthesia agents.

Fortunately, an MDR1 test is available that will tell you if your dog has the gene mutation. Anyone with a herding breed or breed mix ask his or her veterinarian to run the test. You can also request a test kit yourself through **Washington State University's College of Veterinary Medicine.**

If your dog's test comes back positive for the MDR1 gene, WSU can work with your veterinarian to find appropriate drug doses or alternative drugs should the need arise.

Border Collie Collapse

Another strange and even lesser known condition in Border Collies is Border Collie Collapse (BCC) disorder. According to the University of Minnesota College of Veterinary Medicine:

“Border Collie collapse (BCC) is an episodic nervous system disorder that is triggered by strenuous exercise. BCC is recognized throughout North America, Europe, and Australia and is observed in dogs used for working stock, as well as dogs participating in agility or fly-ball competitions or repeatedly retrieving a ball.

This disorder has also been called exercise induced collapse (EIC), exercise induced hyperthermia, stress seizures and ‘the wobbles.’”²

A similar collapse condition has been reported in other breeds, including the Australian Cattle Dog, Herding Border Collie, Australian Kelpie, Australian Shepherd, Bearded Collie, Collie, Shetland Sheepdog, Whippet, Belgian Malinois and Belgian Tervuren.

Symptoms of BCC

Dogs with BCC seem otherwise healthy and show no signs of a problem while at rest. Collapse episodes typically begin from five to 15 minutes after a dog begins to exercise and include the following signs:

- Disorientation, loss of focus
- Swaying, staggering, falling to the side
- Exaggerated lifting of each leg while walking, an uncoordinated gait
- Crossing of the legs while turning
- Scuffing (dragging) of the front or rear legs

Allie, the Border Collie in the following video, is 9 years old and has had BCC for about half her life. She and her owner are participating in a research project on the condition. For those who may find the video disturbing, it’s important to note that Allie’s mom deliberately exercised her to the point of collapse only for the video.

Normally, Allie is allowed to retrieve the ball a maximum of 10 times to prevent triggering a collapse. In part three of the video, Allie’s mom has her in a cool tub of water and she’s almost fully recovered; in part four, she’s resting comfortably.

Episodes can last for five to 30 minutes, after which the dogs seem to recover completely without so much as a limp. But sadly, to prevent episodes of collapse, many dogs with the condition should stop exercising and retire from competition and work.

Studies of BCC Are Ongoing

Researchers at the University of Saskatchewan, the University of Minnesota and the Comparative Neuromuscular Unit at the University of California, San Diego are conducting a large-scale project to investigate Border Collie Collapse.

If you have a dog who has experienced two or more episodes of collapse and would like to participate in the project, you can get more information at the University of Minnesota College of Veterinary Medicine **[Border Collie Collapse page](#)**. If you have a healthy Border Collie, you can participate in the genetic study by visiting the same page.

The researchers have published two studies so far. The first was an exercise study on dogs with the condition;³ the second was a compilation of survey results from owners of dogs with BCC.⁴

The strenuous exercise study involved 13 dogs, six of which participated in a ball-retrieving exercise protocol, with the remaining seven participating in a sheep-herding protocol. The dogs' results before, during and after exercise were compared with those of 16 healthy Border Collies who participated in the same exercises at a similar level of intensity.

Of the 13 dogs with BCC, 12 developed disorientation and/or an abnormal gait. The body temperature, pulse rate, blood oxygen levels and other measures were similar in both the BCC and healthy dogs after exercise. Nothing the researchers tested for pointed to a reason for collapse in the BCC dogs. It is suspected there is a genetic basis for the disorder.

In the second study, a survey of owners of 165 Border Collies with BCC, the researchers learned that median age of onset was 2 years. Retrieving was the activity most often linked to episodes in 112 of the dogs, with 39 dogs suffering collapse while herding.

The owners also reported warm outdoor temperatures and excitement increased the likelihood of episodes during strenuous activity. When veterinarians were asked to review videos of 40 dogs having episodes of BCC, based on observable symptoms, the vets suggested the condition “may be an episodic diffuse central nervous system disorder.”

Prevention = Treatment for Border Collie Collapse

The only treatment at this time for BCC in susceptible dogs is to prevent episodes from occurring. This may mean avoiding strenuous exercise, especially in hot weather. You should stop exercising your dog as soon as he shows the first signs of a collapse, and cool him down.

Sources and References

[AVMA.org](#) March 1, 2017

[University of Saskatchewan](#) (Archived).

¹ [Wikipedia](#), The Intelligence of Dogs

² [University of Minnesota College of Veterinary Medicine](#) (Archived).

^{3,4} [Journal of the American Animal Hospital Association](#), Volume 52, Issue 5 (September/October 2016)
