



Working for the Breed

Working Clumber Spaniel Society Fact Sheet on Exercise Induced Collapse (EIC)

Exercise Induced Collapse was first identified as a genetically inherited condition in Clumber Spaniels in August 2015. A DNA test is available from Laboklin (<http://www.laboklin.co.uk>) and they offer a 10% discount on the test for WCSS and CSC members – contact the Society for a discount form before submitting your test. You can also have this tested for as part of a full genetic health profile with Embark Vet if you are wanting to check for other genetic issues such as PDP1 at the same time – again contact the society for further information.

EIC is recessively inherited which means that dogs can be:

- **EIC clear** (has no copy of the mutant gene and therefore will never have the condition or pass it to any offspring)
- **EIC carrier** (has one copy of the mutant gene and therefore will never have the condition but has a 50% chance of passing the mutant copy of the gene on to its progeny)
- **EIC affected** (has two copies of the mutant gene and therefore may be EIC symptomatic and WILL pass a mutant copy of the gene to any offspring)

As long as at least one parent of any litter is EIC clear then none of the puppies can be affected for the condition, meaning none of the puppies will show clinical signs of the illness and will carry a clear or carrier status depending on the other parents status.

Sire		Dam		Offspring
clear	×	clear	>	100% clear
clear	×	carrier	>	50% clear and 50% carrier puppies
clear	×	affected	>	100% carrier puppies



*For example, a **Clear X Affected** mating would still only produce carrier puppies not affected puppies, and a **Clear X Carrier** mating would produce either clear or carrier puppies, no affected dogs would be produced by either of these matings so they would be considered safe to go ahead based on EIC status.*

It is not recommended to breed two carrier dogs or two affected dogs together as this could produce puppies affected by the condition.

The WCSS recommends that all puppies born from an EIC carrier parent should be DNA tested before homing so that buyers of the pups will know if they are buying a clear or carrier pup, and that at least one parent is EIC clear so that no affected pups can be produced.

So why don't we simply only breed clear to clear dogs and 'eliminate' EIC from the breed?

On the face of it this sounds like a good idea and one strategy that some breeders may choose to follow. However genetic research shows us that this is at best naïve and at worst damaging to the breed as the frequency of the mutant gene in the breed is still far too high to suddenly stop breeding from all the carrier dogs. ***We have been advised by experts that we should breed slowly and carefully (ie not producing any more affected puppies) away from the mutation so that the we do not breed away from all the other (good) genes that the carrier dogs need to pass on. Geneticists have advised us that we should take at least 3-4 generations to do this and be in 'no rush' to eliminate the mutation. That means this could take 12 – 16 years before we need to consider removing carrier dogs from breeding.*** This is particularly important in a vulnerable breed that already has far too few dogs being used for breeding and too few puppies being produced each year.

The gene pool is already small, and we must not make it even smaller by arbitrarily breeding away from one known condition which can be easily controlled by a simple DNA Test.

How does EIC affect the dogs?

From our experience so far, it appears that only about 50% of dogs who are affected (ie have two copies of the mutated gene) ever display and symptoms of the condition. All dogs should be tested if they are to be used for breeding, we cannot assume that if they do not have symptoms they are not affected and cannot pass the condition on.

An EIC episode seems to be triggered by excitement, rather than exercise, in the Clumbers who are symptomatic. Firstly, they will appear a bit wobbly and uncoordinated, and then lose any muscle strength in the back legs only. The dog seems oblivious to this and is in no pain or discomfort but tries to continue the activity and drags their back legs.

Continued activity will make the dog worse and they MUST be removed from the triggering situation. A short period of rest and calmness will restore the ability for the muscles to function and the dog returns to normal.

EIC though distressing to watch is not life threatening to the dog unless the activity is prolonged, or the dog is in a life-threatening situation (eg swimming) when the loss of control can result in an accident of some description. Owners with an EIC affected dog will learn the trigger situations for their dog and make sure that as far as possible these are avoided allowing the dog to maintain a good quality of life.