ANIMAL GENETICS

EXERCISE INDUCED COLLAPSE (EIC)

Exercise-Induced Collapse (EIC) is an autosomal recessive genetic disorder causing affected dogs to suffer from a loss of muscle control following periods of extreme exercise. Typically, an affected dog begins to show symptoms between 5 months and 3 years of age, usually around the age that more intensive training begins.

EIC episodes generally occur after 5-25 minutes of extreme exercise. Not all types of exercise can induce an attack; generally the dog must be actively running and excited for an extended period of time. The attacks often begin with rocking, followed by the hind limbs becoming weak and giving out. The severity of these attacks ranges between different dogs; some will continue to attempt to retrieve, dragging their hind legs along, and other will be totally unable to move, acting disoriented. These attacks usually only last about 5-25 minutes, however, in some extreme cases, dogs have died immediately following an EIC attack.

Dogs with Exercise-Induced Collapse can still lead full lives. However, it is important for dog owners to be familiar with what types of activities a dog can participate in and what types of games may trigger an episode.

Because EIC is a recessive disorder, a dog must have two copies of the mutation in order for the disease to manifest, ie it must inherit the mutation from BOTH its parents. This means that a dog can have one copy of the mutation and not experience any signs or symptoms of EIC; this dog would be known as a carrier. The carrier can then pass on either the normal gene or the mutated gene to any offspring. If two carriers are bred, a dog could potentially receive the mutated gene from each parent and be affected by EIC.

Source: https://www.animalgenetics.us/canine/genetic_disease/eic.asp

ACTION:

Responsible breeders will test all their breeding dogs for EIC with a simple genetic test that verifies the presence of the EIC mutated gene. When buying a puppy, ask the breeder for the genetic test results of both parents. Note that if both parents are certified "clear" of the condition, it is not necessary to test the offspring as all offspring will automatically be clear as demonstrated in the table below. Also note that many breeders will include carriers of the disease in their breeding programme, always making sure that the mate is clear. This carefully implemented strategy is done to ensure continued genetic diversity in the breed and poses no risk to the puppies.

BREEDING IMPLICATIONS			MATERNAL CANDIDATE					
			CLEAR		CARRIER		AFFECTED	
			G	G	G	A	A	A
PATERNAL CANDIDATE	CLEAR	G G	GG	GG	GG	GA	GA	GA
			ALL CLEAR		50% CLEAR 50% CARRIER		ALL CARRIER	
	CARRIER	G A	GG	GA	GG	GA	GA	AA
					GA	AA		
			50% CLEAR 50% CARRIER		25% CLEAR 50% CARRIER 25% AFFECTED		50% CARRIER 50% AFFECTED	
	AFFECTED	A A	GA	GA	GA	AA	AA	AA
			ALL CARRIER		50% CARRIER 50% AFFECTED		ALL AFFECTED	

Source: Inqaba Biotec