PDP1 Information

DNA test findings can be extremely valuable when developing and implementing your breeding plans
Interpreting Your DNA Test Results for Autosomal Recessive Diseases

There are three possible test results: Clear, Carrier, and Affected. Below is a description of what each result means to you as a breeder.

Clear
This finding indicates that the gene is not present in your dog. Therefore, when used for breeding, a Clear dog will not pass on the disease gene.

Carrier
This finding indicates that one copy of the disease gene is present in your dog, but that it will not exhibit disease symptoms. Carriers will not have medical problems as a result. Dogs with Carrier status can be enjoyed without the fear of developing medical problems but will pass on the disease gene 50% of the time.

Affected
This finding indicates that two copies of the disease gene are present in the dog. Unfortunately, the dog will be medically affected by the disease. Appropriate treatment should be pursued by consulting a veterinarian.

	Clear Male	Carrier Male	Affected Male
Clear Female	100% Clear	50/50 Carrier/Clear	100% Carrier
Carrier Female	50/50 Carrier/Clear	25/50/25 Clr./Carr./Affected.	50/50 Carrier/Affected
Affected Female	100% Carrier	50/50 Carrier/Affected	100% Affected

* **This chart reflects the percentage of each puppy in the litter and the chances that it has of being Clear, Carrier or Affected. It does not reflect the percentage of the litter as a wholo.**

Ideal Breeding Pair - Puppies will not have the disease gene (neither as Carrier nor as Affected).

Breeding Is Safe - No Affected puppies will be produced. However, some or all puppies will be Carriers. Accordingly, it is recommended that Carrier dogs which are desirable for breeding be bred with Clear dogs in the future, which will produce 50% carrier and 50% clear animals, to further reduce the disease gene frequency.

High Risk Breeding - Some puppies are likely to be Carriers and some puppies are likely to be Affected. Even though it is possible that there will be some clear puppies when breeding "Carrier to Carrier", in general, neither this type of breeding pair nor "Carrier to Affected" are recommended for breeding.

Breeding Not Recommended - All puppies will be genetically and medically affected

Pyruvate Dehydrogenase Phosphatase (PDP1)

Pyruvate Dehydrogenase Phosphatase (PDP1) disease was identified in the early 2000's by Dr. J. Cameron of Canada. PDP1 is a molecular defect, enzyme deficiency. It is a disorder of carbohydrate metabolism. The knowledge of this defect has allowed for the development of a rapid restriction enzyme test for the canine mutation. This test will allow breeders to screen their stock and practice selective breeding to minimize the occurrence of the affected dog. While it has not be fully documented, there is evidence that dietary treatment of affected dogs with a high-fat, ketogenic, diet has been suggested

Known Symptoms

> Neurological degeneration

> Muscular deficiency

> Ataxia (Muscular in coordination)

> Cerebral deficiency (on set of Seizures)

> Exercise Intolerance — whereas recuperation from exercise progresses and takes longer

> Lethargy

Things to Help of an Affected Dog

> Nutritional supplementation

> Modified diet — adopting a ketogenic diet (grain free)

End Result

> Early Death

Courtesy of the Heart of Ohio Sussex Spaniel Club 2009