

## Addison's Disease

Known also as canine *hypoadrenocorticism*, canine Addison's disease is caused by an adrenal gland hormone deficiency.

The adrenal glands are complex organs that reside near the kidneys in the abdomen. They are made up of two parts – the outside is the “cortex”, and the inside is the “medulla”. Addison's disease affects the adrenal cortex, which normally produces corticosteroid hormones. The two main corticosteroids produced are *cortisol* (which helps with sugar, fat, and protein metabolism) and *aldosterone* (which helps regulate electrolytes, sodium & potassium and our blood pressure). Both of these corticosteroids help with stress. If the adrenal gland does not function properly and produce these hormones in sufficient quantities, a potentially life threatening disease (Addison's disease) is the result.

### CAUSES

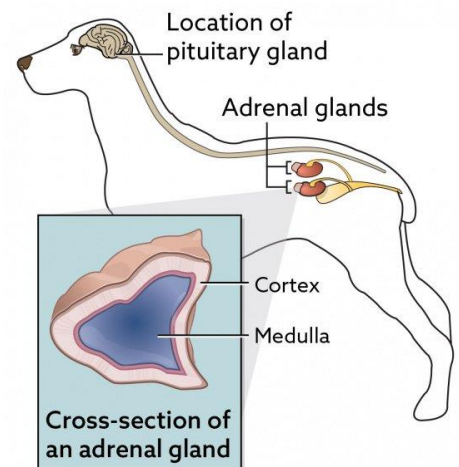
Addison's is primarily caused by an immune-related destruction of adrenal tissue. Less commonly, the adrenal glands may be damaged by trauma, infection, or cancer. Addison's disease can also occur following treatment of Cushing's disease (a condition where too much of these corticosteroids are produced), in which the medication used to treat the disease inadvertently suppresses too much adrenal gland activity or damages the gland.

A secondary form of Addison's disease can result from a tumor or defect in the pituitary gland, which is an important hormonal regulator located in the brain. Secondary Addison's disease can also develop if a dog has been treated with long-term steroids for any reason and the medication is abruptly stopped; this condition is generally temporary.

Certain breeds seem to be at increased risk for developing Addison's disease. These include, but are not limited to: Portuguese Water Dogs, Bearded Collies, Standard Poodles, Nova Scotia Duck Tolling Retrievers, Leonbergers, Great Danes, and Labrador Retrievers.

### SIGNS & SYMPTOMS

Clinical signs of Addison's disease are usually vague and non-specific, meaning there are no particular signs that indicate a diagnosis of the disease. “Addisonian” patients may present with *lethargy, diarrhea, vomiting, increased thirst, increased urination, and unplanned weight loss*. Intermittent shaking episodes are sometimes seen. The signs may wax and wane. Non-specific medical treatment like the administration of fluids or corticosteroids appears to help temporarily, but the signs soon return. *If a pet experiences recurrent bouts of sudden lethargy, diarrhea and vomiting, increased thirst and urination or other non-specific illness, Addison's disease should be considered as an underlying cause.*



## DIAGNOSIS

After completing a physical examination, if Addison's disease is suspected, one of our next steps is bloodwork to look specifically at the patient's levels of sodium and potassium. Typically, dogs with Addison's have an elevated potassium and low sodium. We compare these numbers with the normal range for dogs and also with each other (sodium:potassium ratio). In addition, dogs with Addison's disease often have a mild increase in BUN (blood urea nitrogen) and creatinine. If these changes are seen on the bloodwork, the diagnosis is confirmed with an additional test, called the **ACTH Stimulation Test**. Is test is a blood test which involves a resting cortisol blood sample, and a cortisol sample after administration of cortrosyn (a synthetic hormone which normally tells the adrenals to release cortisol). In Addison's dogs, resting cortisol levels and levels after administration of cortrosyn are both low because the adrenal glands are not functioning properly.

## ADDISONIAN CRISIS

Sometimes this condition takes on a much more serious presentation resulting in ***sudden weakness, with severe vomiting and diarrhea, and sometimes collapse. This is an "Addisonian Crisis" and is considered a medical emergency. Immediate hospitalization and supportive treatment are needed.***

## TREATMENT

Although dogs that present in "crisis" situations are often very sick, they often respond very well to treatment with intravenous fluids and the administration of steroids. Long term treatment involves supplementing the dog with corticosteroids. The two commonly used products to replace aldosterone are "Percorten-V" and "Florinef". Percorten-V is an injectable product that is typically given once every 28 days. Florinef is an oral medication that is administered daily. Your pet's vet will discuss which medication may be right for your pet. The cortisol is replaced with prednisone. During times of stress, dogs often need additional prednisone. During the treatment phase, we frequently perform physical examinations and check the patient's electrolytes (sodium and potassium) to determine the correct medication levels.

## WHAT ABOUT WHIPWORMS?

Severe whipworm infection has been known to potentially lead to the same signs/symptoms as a dog experiencing an Addisonian crisis. These symptoms, like the inability to regulate electrolytes, can lead to a potentially life-threatening dehydration crisis. We would be happy to discuss numerous preventatives that include whipworm preventions.

## PROGNOSIS

When treated appropriately, dogs with Addison's disease lead remarkably normal, active lives. Treatment does require a lifetime of medication and monitoring, however. In our experience, the cost of medication and monitoring is often the limiting factor in treating dogs with Addison's disease. All medications are dosed based on the dog's weight so treatment is more expensive for larger dogs.