

Addison's Disease
What Every Standard Poodle Fancier Should Know
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Addison's disease was first described as a human affliction in 1855 by Dr. Thomas Addison (even back then, medical doctors could be rather egocentric!). The scientific name for Addison's disease is *hypoadrenocorticism*- an insufficient production of essential hormones by the adrenal glands.

Let the physiology lesson begin! Every Standard Poodle begins life with two adrenal glands located adjacent to each kidney within the abdominal cavity. These glands are responsible for producing several important hormones. Dogs with Addison's disease lose their ability to produce two of them, namely cortisone and aldosterone, and neither man nor beast can live without adequate levels of both. Cortisone is essential for normal function of virtually every organ within the body. It is responsible for normal appetite and a sense of well-being. Aldosterone's main function is the regulation of sodium and potassium levels within the body. In the absence of aldosterone, the blood potassium level increases and the sodium level decreases. Such changes can be life threatening. Every once in awhile a dog develops "atypical Addison's disease" in which there is cortisone depletion, but aldosterone production remains normal- such dogs have normal blood levels of sodium and potassium. The cause of Addison's disease is incompletely understood, however, an immune mediated etiology is suspect. This means that the individual's own immune system is somehow triggered to attack and destroy the body's normal tissues; in this case certain hormone-producing cells within the adrenal glands.

Most dogs with Addison's disease begin with vague waxing and waning symptoms such as diminished appetite, increased thirst, vomiting, diarrhea, lethargy, weakness, and weight loss. In fact, Addison's disease is known as the "great imitator" because symptoms are often so vague and nonspecific and may mimic those associated with a plethora of other diseases. While performing a physical examination, the veterinarian may notice depression, weakness, dehydration, weak pulses, thin body condition, and a slow heart rate. Some affected dogs experience collapse and shock.

The diagnosis of Addison's disease begins with blood and urine testing. The urine is typically dilute rather than well concentrated. Blood test abnormalities may include increased levels of potassium, blood urea nitrogen (BUN), creatinine, and calcium and decreased levels of sodium and glucose. A chest x-ray may demonstrate a decrease in heart size. Addison's disease is definitively diagnosed by measuring the blood cortisone levels before and after injecting ACTH, a drug that stimulates the adrenal glands to release cortisone. This is known as an ACTH response test. An Addisonian dog will have extremely low levels of circulating cortisone both prior to and after adrenal gland stimulation.

Because the symptoms are so vague, the biggest pitfall with Addison's disease is its lack of recognition. The symptoms may wax and wane, so it's easy to talk oneself out of a

veterinary visit. If basic blood test abnormalities are mild, the veterinarian may not think about Addison's disease. If the patient presents in a state of collapse, the veterinarian may automatically administer cortisone that can reduce the likelihood of getting accurate results from the ACTH response test. Additionally, veterinarians sometimes fail to consider Addison's disease in a puppy (the disease can affect Standard Poodles at any age). The most famous Addisonian in the world, John F. Kennedy, had waxing and waning symptoms for years before his physicians finally thought about testing for Addison's disease!

In some cases, emergency therapy for the Addisonian patient may be necessary including intravenous fluid therapy, cortisone administration, and treatment for circulatory shock. Ongoing treatment for Addison's disease involves life-long hormone replacement therapy. The cortisone is typically replaced with physiologic doses (the amount the adrenal glands would normally manufacture) of prednisone. It is inexpensive and, at the recommended dosage, has no significant side effects. Aldosterone replacement is achieved with orally administered daily medication called Florinef or an injectable preparation known as desoxycorticosterone pivalate (DOCP) that is administered approximately once every 25 days. Unfortunately Florinef and DOCP are both quite expensive. The good news is that Addison's disease is a completely treatable disorder and, with proper management, has an excellent prognosis. Recognition of the disease and cost of treatment seem to be the biggest obstacles to a successful outcome.

Addison's disease can occur in any breed of dog. A familial or inherited predisposition for the disease has been described in Standard Poodles, Bearded Collies, Great Danes, and Portuguese Water Dogs. (Standard Poodle people, you're not alone out there!) The mode of inheritance of Addison's disease in Standard Poodles has not been clearly elucidated. Males and females and dogs of any age can be affected. A normal screening test (ACTH response test) only confirms that the disease is not present at the time. Unfortunately, it does not guarantee that it won't occur later in life.