

ADDISON'S DISEASE (HYPOADRENOCORTICISM)

What Are the Adrenal Glands?

Located just next to the kidneys, the **adrenal glands** are small but vital organs that produce essential hormones for the body. These hormones fall into two main categories:

- **Glucocorticoids** (e.g. cortisol): Help the body respond to stress and regulate metabolism of sugars, fats, and proteins.
- **Mineralocorticoids** (e.g. aldosterone): Control the balance of sodium and potassium, which in turn helps manage blood pressure and hydration.

These hormones are essential for the body's "fight or flight" response. Without them, even minor stressors can trigger a severe physiological crisis.

What Is Addison's Disease?

Addison's disease (hypoadrenocorticism) occurs when the adrenal glands fail to produce enough glucocorticoids, mineralocorticoids, or both.

In most dogs, Addison's disease is caused by an **immune-mediated destruction** of the adrenal glands. Less common causes include:

- Previous treatment for Cushing's disease (e.g. Lysodren or Trilostane)
- Sudden withdrawal from long-term steroid use
- Inflammation, cancer, or infection of the adrenal glands or brain

It typically affects **young to middle-aged dogs**, but can occur at any age. Breeds such as Poodles, Collies, Great Danes, Rottweilers, and West Highland White Terriers are at higher risk. Females are more commonly affected than males.

What Are the Signs?

Early symptoms are often vague and intermittent, including:

- Lethargy or depression
- Poor appetite or weight loss
- Vomiting and diarrhea

As the disease progresses or during times of stress, dogs may experience an **Addisonian crisis**, which is a medical emergency. Signs can include:

- Weakness or collapse
- Dehydration
- Low heart rate or abnormal heart rhythms
- Abdominal pain
- Bloody stool or diarrhea

- Vomiting
- Low blood sugar (which can cause seizures)
- Shock or death in severe cases

About **30% of cases** are diagnosed during a crisis event.

Why Is It Called ‘The Great Imitator’?

Addison’s disease mimics many other conditions, making diagnosis challenging. Bloodwork often shows:

- Low sodium and high potassium
- Elevated kidney values
- Low blood sugar
- Dehydration
- Poor response to stress

It can be mistaken for kidney failure, gastrointestinal disease, or whipworm infection.

How Is Addison’s Disease Diagnosed?

The **ACTH stimulation test** is the only definitive test. It assesses the adrenal glands’ ability to produce cortisol in response to synthetic ACTH. A lack of response confirms the diagnosis.

Note: This test can be affected by previous glucocorticoid use (except dexamethasone).

How Is It Treated?

During a Crisis:

- **Intravenous fluids**
- **Electrolyte correction**
- **Glucocorticoid and mineralocorticoid replacement**
- Hospitalisation and close monitoring are often needed

Long-Term Management:

Dogs with Addison’s disease require lifelong hormone replacement therapy. Two main treatment plans exist for managing **mineralocorticoid deficiency**:

1. **DOCP injections (e.g. Percorten-V):**
 - Given every ~25 days
 - Blood tests (electrolytes) 12 days after injection and before each of the first few doses, then every 6–12 months
 - Also requires daily oral **prednisolone** (a glucocorticoid), especially during stress
 - Allows for more flexible prednisolone dosing and fewer side effects
2. **Oral Florinef (Fludrocortisone):**
 - Given twice daily
 - Blood tests weekly at first, then 2–4 times per year when stable
 - Has both mineralocorticoid and glucocorticoid effects, so additional steroids usually aren’t needed
 - Doses often need to increase over time
 - May be compounded for large dogs

Glucocorticoids (e.g. prednisolone) are often required for life. Doses may be temporarily increased during stressful events (e.g. travel, surgery, illness, boarding).

What About Atypical Addison’s Disease?

In **atypical Addison's disease**, only **glucocorticoids** are deficient—electrolyte levels remain normal. It's diagnosed the same way (ACTH test) and treated with oral prednisolone. Some dogs may later develop mineralocorticoid deficiency and require DOCP or Florinef.

Steroid-Dependent (Iatrogenic) Addison's Disease

This rare form occurs if long-term steroid use is suddenly stopped. The adrenal glands have become inactive due to prolonged external steroid supply and are unable to function when the medication is withdrawn. Treatment involves restarting steroids and tapering them slowly under veterinary supervision.

Prognosis

With appropriate treatment and regular monitoring, **most dogs with Addison's disease live full, happy lives**. Regular vet visits, medication compliance, and careful attention during times of stress are key to success.

A small number of cases related to cancer or granulomatous inflammation have a poorer prognosis.



If you have any questions or concerns about Addison's disease or your dog's treatment, please contact your veterinary team.

We're here to help guide you every step of the way!