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**VETORYL**<sup>®</sup>  
Life restored on every level

## Your dog, Cushing's syndrome and you

This booklet has been designed to help answer questions that you may have about Cushing's syndrome.

With daily medication and careful monitoring your dog will soon feel better and many of the symptoms of Cushing's syndrome will start to disappear and be kept under control.

The information in this booklet will help you support your dog's treatment. The additional treatment logbook will help you keep a record of the treatment and the improvements in your dog's condition.



## What is Cushing's syndrome?

Dogs with Cushing's syndrome produce excessive amounts of cortisol, the body's natural stress fighting and anti-inflammatory hormone that also helps regulate the body's metabolism. This can have harmful effects on many organs and on the ability of the body to regulate itself.

## A brief description

Cushing's syndrome is one of the most common endocrine disorders, which occurs mostly in middle-aged and older dogs.

Cortisol is produced by the adrenal glands, two small glands located in the abdomen, next to each kidney. A hormone called ACTH controls the production and release of cortisol from the adrenal glands. ACTH itself is produced by the pituitary gland, a pea-sized gland located at the base of the brain.

The concentration of cortisol in the blood of healthy animals varies greatly as the body's demand for cortisol fluctuates. For example during a period of stress or illness, the production of cortisol by the adrenal glands is increased. Once this period of stress has passed, the cortisol concentration in the blood returns back to normal again.

## Cortisol overproduction

In dogs with Cushing's syndrome, there is a chronic overproduction of cortisol over weeks and months. Although the concentration of cortisol in the blood of a dog with Cushing's also fluctuates greatly, it tends to be, on average, much higher than in healthy dogs. The excessive amount of cortisol released into the bloodstream has a harmful effect on the function of many organs and the body's metabolism.

## What causes Cushing's syndrome?

Cushing's syndrome will usually occur as a result of a tumour - often benign - in the pituitary gland (most common) or the adrenal gland (less common). Regardless of the cause, a dog suffering from Cushing's syndrome will develop a combination of clinical signs which may initially be associated with the aging process.

Most dogs (80 - 85%) with Cushing's syndrome have a benign tumour of the pituitary gland. The tumour cells produce large amounts of the hormone ACTH, which in turn stimulates the adrenal glands to overproduce cortisol.

In 15 - 20% of cases, Cushing's syndrome is caused by a tumour of one (or very rarely both) of the adrenal glands, which produces excessive amounts of cortisol.

Irrespective of the cause of Cushing's syndrome, the result is always the same - more cortisol is produced than actually needed by the body. This results in the slow development of a combination of clinical signs that are commonly associated with Cushing's syndrome.



## Recognising the signs of Cushing's syndrome

Cushing's syndrome is more often seen in older dogs and in smaller breeds of dog. Hair loss, pot-belly, skin disease, changes in behaviour, frequent urination and a ravenous appetite are some of the most noticeable signs. These are very similar to those associated with the normal aging process, making it difficult to diagnose and later monitor.

Although a number of the symptoms of Cushing's syndrome are fairly typical, they can be easily overseen in the first instance.

The most noticeable signs of Cushing's syndrome include:

- Excessive urination with possible incontinence
- Large water intake
- Ravenous appetite
- Excessive panting, even at rest
- Muscle wasting and weakness
- Frequent urinary tract infections (cystitis)
- Pot-belly
- Lethargy
- Hair loss, thin skin and recurrent skin infections

Not all dogs will react to the disease in the same way and your dog may not necessarily display all of these signs. Wherever possible it is always a good idea to keep a note of the changes you see in your dog's habits, behaviour and appearance.

If you become concerned with your dog's health you should consult your veterinarian immediately.

**From Vetoryl  
comes a new energy for life.**



## Diagnosing Cushing's syndrome

Your veterinarian will initially suspect Cushing's syndrome based on the clinical signs your dog is showing. Diagnosis is not always straight forward and your dog will need to undergo a series of blood tests.

In most cases, the changes to your dog's appearance and behaviour caused by Cushing's syndrome occur very gradually, making them easy to overlook.

When your veterinarian suspects Cushing's syndrome, they will perform blood tests to confirm the diagnosis. It is also recommended to carry out a blood test to assess the overall health of your dog.

The cortisol concentration in the blood fluctuates greatly throughout the day in both healthy dogs and dogs with Cushing's. It is for this reason that diagnosis cannot be confirmed by just one measurement of cortisol. The two tests that are most commonly used to confirm a diagnosis of Cushing's are called the ACTH stimulation test and the low-dose dexamethasone suppression test. It may be necessary to perform both tests.

In the ACTH stimulation test, blood is taken to measure cortisol before and after your dog is given a synthetic version of the hormone ACTH. This test assesses how well your dog's adrenal glands control the production of cortisol.

You will need to leave your dog with your veterinarian for a few hours or for the day. Your veterinarian may also elect to perform a further test to identify whether your dog has a pituitary or an adrenal tumour.

## The importance of treatment

Treatment improves your dog's quality of life and prevents the development of other, potentially life-threatening, conditions for which treatment can be intensive and costly.

Cushing's syndrome has a large, negative impact on your dog's quality of life and if left untreated your dog runs a greater risk of serious conditions such as:

- diabetes mellitus
- high blood pressure
- pancreatitis (inflammation of the pancreas)
- infections of the kidneys and urinary tract
- pulmonary thromboembolism (blood clots in the lung)



## Treatment with Vetoryl

Now that your dog has started treatment, you should soon notice some marked improvements. It is important that you follow the instructions given by your veterinarian.

Your dog will begin Vetoryl at the recommended starting dose based on its body weight. You should then make an appointment for your dog to return to your veterinarian after 10 days. If necessary, your vet may have to adjust the dosage of Vetoryl. Every dosage change should again be followed by a check up after 10 days.

Your veterinarian will assess your dog's response to Vetoryl treatment by:

- **Looking for improvement in clinical signs**

In most cases you can expect to see a decrease in your dog's appetite and the amount they drink within the first couple of weeks on treatment. Other clinical signs may take 3 to 6 months to improve.

- **Performing blood tests**

The results of routine blood tests and an ACTH stimulation test are used to assess the effectiveness of Vetoryl treatment at 10 days, 4 weeks, 12 weeks and subsequently every 3 months after starting treatment.

## Management of Cushing's syndrome

Cushing's syndrome cannot be cured, but it can be successfully managed using medication. Vetoryl®, which is the only licensed treatment for use in dogs, contains the active ingredient trilostane, a drug which reduces the production of cortisol by the adrenal glands.

## Continuous care

Your dog should be closely monitored in the early stages of therapy so that the dose of Vetoryl can be adjusted to meet its specific needs. This also helps to minimise the risk of side-effects or complications that could be harmful to your dog.

Once your veterinarian is happy with your dog's progress, it is strongly recommended that you visit your veterinarian every 3 months for regular monitoring so that any dose adjustments can be made as required.

**Vetoryl is well-tolerated by most dogs. If your dog develops any signs of illness while on Vetoryl including lethargy, vomiting, diarrhea and anorexia, stop treatment immediately and contact your veterinarian as soon as possible.**



## Quick Reference guide

Answers to some questions you may have about Vetoryl.

### Why do I have to give Vetoryl every day?

The active ingredient in Vetoryl is a medicine called trilostane. Trilostane is a short-acting medicine which needs to be given every day to control the disease.

### How do I give Vetoryl to my dog?

We recommend that you give your dog Vetoryl with a meal in the morning so that it can be easily absorbed. This also makes it easier for your veterinarian to perform monitoring tests at the appropriate time after dosing.

### What should I do if I forgot to give a capsule?

Speak to your veterinarian.  
DO NOT give a double dose the next day.

### How long will my dog require treatment?

Most dogs need to be given Vetoryl every day for life.

### How long will it take for my dog to improve on treatment?

The clinical signs of Cushing's such as lethargy, increased drinking, eating and urination improve quickly, often within the first two weeks of treatment. Skin changes and hair loss can take up to 3 to 6 months to improve.

### Will I need to revisit my veterinarian?

Yes. It is important that your dog revisits your veterinarian for assessment and monitoring tests at 10 days, 4 weeks and 12 weeks after starting Vetoryl, and thereafter every 3 months. If your dog becomes unwell at any time while on Vetoryl, stop treatment and consult your veterinarian as soon as possible.

### Does Vetoryl have any side-effects?

Vetoryl is well-tolerated by most dogs. If your dog develops any signs of illness while on Vetoryl including lethargy, vomiting, diarrhea and anorexia, stop treatment immediately and contact your veterinarian as soon as possible.



### Do:



- Give Vetoryl capsules in the morning with food, so they can be easily absorbed. This also allows your veterinarian to carry out monitoring tests at the appropriate time of day.
- Take your dog back to your veterinarian for regular monitoring.
- Note your dog's weight, water consumption, appetite and frequency of urination so you can monitor its improvement once treatment starts. Contact your veterinarian if you have any concerns.
- Contact your veterinarian immediately if your dog stops eating, drinking or urinating or becomes unwell while on Vetoryl.
- Wash your hands after using Vetoryl.
- Book follow up appointments with your veterinarian every three months so that progress can be assessed.
- You might like to consider taking a photo before you start treatment - improvements such as hair regrowth or the loss of a pot-belly occur gradually so are less noticeable on a daily basis.

### Don't:



- Split the capsules.
- Give a double dose if you have forgotten a dose before. Consult your veterinarian.
- Handle Vetoryl capsules if you are pregnant, or planning to become pregnant.
- Change the daily dosage without consulting your veterinarian.
- Stop administering the prescribed dosage Vetoryl because you notice an improvement in the condition of your dog.

**Ensure that you continue giving your dog the prescribed dose of Vetoryl even if you notice dramatic physical improvements. Vetoryl will curb the excesses associated with the overproduction of cortisol but it will not cure the disease.**

**Monitoring is important and regular checks performed by your veterinarian will ensure that your dog continues to get the best possible care.**

## Too much jargon? Confused?

Don't worry. We have listed some of the terms with their definitions below.

### **ACTH**

Adrenocorticotrophic hormone. A hormone produced in the pituitary gland that stimulates the adrenal glands to produce hormones including cortisol.

### **ACTH stimulation test**

This is a blood test designed to measure the amount of cortisol released into the bloodstream.

### **Adrenal-dependent hyperadrenocorticism (ADH)**

This is a form of Cushing's syndrome resulting from a tumour in the adrenal glands.

### **Adrenal glands**

Two small glands located next to each of the kidneys responsible for producing hormones that help control metabolism, blood pressure and fluid balance. Cortisol is one of the hormones released by the adrenal gland.

### **Cortisol**

A hormone produced by the adrenal gland, the body's natural stress fighting and anti-inflammatory hormone.

### **Cushing's syndrome**

Another name for hyperadrenocorticism – the term given to an endocrine condition characterised by an excessive amount of cortisol being released into the body. Harvey William Cushing (1869 – 1939) was a pioneering neurosurgeon and gave his name to the disease. The group of clinical signs resulting from the disease is known as Cushing's syndrome.

### **Endocrine system**

The collective name of glands in the body that release hormones directly into the bloodstream.

### **Enzyme**

A protein that triggers chemical reactions in the body.

### **Glucocorticoids**

Also known as steroids, are a group of hormones released from adrenal glands that affect the body's metabolism. Cortisol is a glucocorticoid.

### **Hormone**

Hormones act as chemical messengers to body organs stimulating certain life processes and impeding others.

### **Hyperadrenocorticism (HAC)**

This is another name for Cushing's disease. It is often abbreviated to HAC.

### **Metabolism**

The physical and chemical processes by which the body builds and maintains itself and by which it breaks down food and nutrients to produce energy.

### **Pituitary gland**

A gland situated at the base of the brain. The pituitary gland releases ACTH which in turn stimulates the production and release of cortisol into the body.

### **Pituitary-dependent hyperadrenocorticism (PDH)**

This is a form of Cushing's syndrome resulting from a tumour in the pituitary gland.

### **Trilostane**

The active ingredient in Vetoryl that is known to block the production of cortisol.

### **Vetoryl**

A medicine containing the active ingredient trilostane developed by Dechra Veterinary Products to treat Cushing's syndrome in dogs.





VETORYL: Vetoryl contains Trilostane

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