Transcript:

Cushing’s Disease (part 1 of 3)

http://www.youtube.com/watch?v=0vByprTTj1c

Hi, this is Dr. Karen Becker, and today we’re going to discuss Cushing’s disease. This is the first of a three-part series.

Cushing’s disease was originally diagnosed by Dr. Harvey Cushing in 1932, hence the name. I prefer the correct title of what’s happening to this syndrome: hyperadrenocorticism, which is a bigger much more descriptive word. It means “hyper” or too much, “adreno” referring to the adrenal gland, and “cortisol” or what exactly the syndrome dictates. It’s too much adrenal release of the hormone cortisol.

What Cortisol Does to Your Pet’s Body
Cortisol is your pet’s “fight or flight” hormone. It is designed to be released by your pet’s adrenal glands in very small amounts. When there’s an up-regulation of cortisol demand, your pet can begin producing cortisol in high amounts. This can be toxic to the body.

Cortisol is a very important hormone, it’s part of your pet’s fight-or-flight response, and cortisol is designed to be released in small amounts from the adrenal glands when the body perceives stress. Ultimately speaking, the end result of cortisol release is glucose release from the liver.

Glucose, being sugar, is what provides energy to the muscle cells so that your pet is able to escape a bear, or for a kitten to run up a tree when chased by a dog. It helps your pets ready their bodies either to address confrontation or be able to get away in a life-threatening situation. That’s the big reason why pets release cortisol.

However, cortisol influences a whole host of other biochemical parameters. It influences the body in a whole host of negative ways. Cortisol is also linked to regulation of blood pressure. It can negatively influence electrolyte balance. It is immunosuppressive, so it can negatively impact your pet’s immune system in the long term. It has a negative interaction between bone and fat metabolism.

Needless to say, we’re thankful that cortisol is in our pets’ bodies in small amounts. The goal is to help your pets not over secrete cortisol, which becomes a toxic situation.

Chronic cortisol release translates to chronic signs of stress in your pet. Keep in mind there’s no such thing as good or bad stress for your pet. It’s all stress, so your pet is having the same
physiologic response whether you’re dropping them off at the groomer, they’ve been hit by a truck, they’re all excited that your serving them steak for your birthday dinner, there’s divorce or a new dog in the family, they have a large wound, or they’re dealing with the inflammation of cancer or allergic response. Those are all the same stress.

If you’re thinking, “My pet doesn’t really have stress. I’m moving from place to place, and he travels with me all the time in a brand-new environment,” then that’s still considered a type of stress on your pet’s body.

**The Effects of Chronic Stress**
Chronic stress – and therefore chronic cortisol release – ultimately results in elevated blood sugar in the long term, which can lead to diabetes. It results in elevated blood pressure, which can be negative for your pet’s cardiovascular system.

There’s also extreme hunger; when your pet’s burning that much blood glucose, then he or she ends up being much hungrier than the average pet. Increased thirst and urination also come about when there’s extra cortisol in your pet’s system.

There’s an accumulation of fat in the abdominal area, as well as thinning skin, poor, thin hair coat, a change in the pigment in the color of your pet’s skin, decreased muscle and bone mass, and increased risk of infection. That infection can come about anywhere, so pets that have chronic cortisol release, and we refer to them as immuno-suppressed, tend to be more exposed to oral, eye, gum, ear, and urinary tract infections. Infection can come about wherever your pet’s body’s weak link is, so it isn’t just in one area.

For animals that have recurring infections – or those that just lag on and on and pets have a hard time getting rid of – you need to think about cortisol influencing your pet’s ability to fight infection.

**Types of Cushing’s Disease**
There are several forms of Cushing’s disease, and they can become confusing for clients. So I’m going to try spell it out in an easy-to-understand format today. If you have a pet that’s dealing with Cushing’s disease, it’s important for you to know exactly what’s going on. If your pet is currently healthy, I want to help you prevent Cushing’s disease from occurring in your pet.

There are different types of Cushing’s disease because there are several layers of your pet’s adrenal glands. Depending on what layer of your pet’s adrenal gland is overproducing hormone is the type of Cushing’s disease your pet has.
Traditionally speaking, the middle layer of your pet’s adrenal gland for typical Cushing’s disease begins overproducing glucocorticoids. The zona fasciculata is the middle layer of your pet’s adrenal glands. When that particular layer of your pet’s adrenal glands overproduces glucocorticoids (which can also be called steroids, cortisol, cortisone, or the synthetic version that veterinarians can give orally, prednisone), it’s called typical Cushing’s disease.

Sometimes veterinarians unknowingly induce Cushing’s disease by giving too-high doses or too long administration courses of oral prednisone therapy. If your pet is on prednisone, that predisposes your pet to acquire Cushing’s disease.

Typical Cushing’s disease is too much cortisol. Atypical Cushing’s disease comes about when the outer layer of the adrenal gland overproduces electrolyte-balancing hormones called aldosterone, or when the inner layer of the adrenal gland begins overproducing sex hormones.

Atypical Cushing’s disease comes about from the outer or inner layer overproducing mineralocorticoids called aldosterone, or sex hormones like estrogen, progesterone and testosterone precursors.

So it’s all very confusing. Traditional or typical Cushing’s disease (too much cortisol in the system) also has two types. There’s adrenal dependent, and there’s pituitary dependent. Hands down, the most common form of Cushing’s disease in pets is the pituitary dependent form. About 85% of dogs that acquire Cushing’s disease acquire the pituitary dependent form.

This means that the pituitary gland – the master gland in the brain – is sending too much stimulating hormones to the adrenal gland, and the adrenal gland is simply responding to the stimulus to produce more cortisol.

In rare or about 15% of cases, the adrenal glands acquire a tumor, and that causes the up-regulation of cortisol production in the body.

**Breed Predisposition among Dogs**

It’s very rare for cats to acquire Cushing’s disease, which is much more common in dog breeds.

There’s also breed predisposition. The terriers, unfortunately, are predisposed. These include silky terriers, Yorkies, bull terriers, and Boston terriers, as well as poodles, doxies, and the American Eskimo dog, also known as spitz. All these have genetic predisposition to acquire Cushing’s.

Keep it right here for our second video on how to manage Cushing’s disease.