

EQUINE UPDATE

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CUSHINGS, HYPOTHYROIDISM, AND INSULIN RESISTANCE

Age is not a disease, but new syndromes may accompany it. As horses have more birthdays endocrinopathies may peak their head. These include Cushings, Insulin Resistance, and Hypothyroidism.

CUSHINGS, also known as hyperadrenocorticism, is a syndrome where horses are secreting excess cortisol. This occurs due to a dysfunction of the pars intermedia, a portion of the pituitary gland. The pituitary gland is an area located in the brain responsible for hormone production. Cortisol secretion results in catabolism through out the horses body. Catabolism means break down, specifically protein in this case. See side column for signs of Cushings.

Control of Cushings involves a drug known as pergolide. This is a daily additive that is given orally usually for the remainder of the horse's life. Also, the horse should be retested after thirty days to evaluate the appropriateness of therapy. Once the horse is in the acceptable range of ACTH, the horse should then be retested each year. To make life easier, I usually suggest retesting at vaccination time. The test is a simple blood test which takes about a week. The test may however be falsely elevated during the spring in April, or during the fall around October due to changes in daylight.

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SIGNS OF CUSHINGS:

- **Polyuria:** excess urination
 - **Polydypsia:** excess drinking
 - **Pendulous abdomen:** enlarged hanging belly
 - **Hirsutism:** a long hair coat often accompanied by a decreased amount of sweating, often hear horses do not shed out.
 - **Loss of weight:** horses are skinny due to the break down of protein (hence muscle loss)
 - **Fatty redistribution:** cresty necks, fat pouches around the eyes, and around the tailhead area
 - **Numerous hoof abscesses:** Cushings horse are immunocompromised due to the excess amount of cortisol release and are thus more prone to infections such as hoof abscesses.
- *Note**
- **Hyperglycemia:** horses often have an elevated level of glucose in the blood without any outward clinical signs.

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I recommend avoiding testing during this time due to the possibility of a false elevation in ACTH. However, if a horse is tested at this time and tests high, I recommend retesting at a later date.

INSULIN RESISTANCE (IR) often accompanies Cushings, but may stand alone. Insulin resistance is like type 2 diabetes in people. It takes an excessive amount of insulin secreted by the pancreas to control the drive of glucose into the body's cells. Glucose is the main energy source for the body's cells. Adipose tissue (fat) and protein are converted in the liver to a glucose source when glucose is lacking.

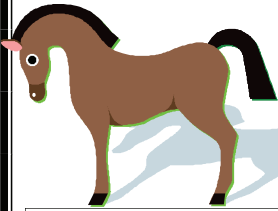
Sometimes the horse is so insulin resistant that the glucose is above a normal acceptable value. This is when the horse is in a stage where, despite the excess amount of insulin released, the body cannot drive glucose into the cells. This is called an uncompensated state.

The reason insulin testing becomes important is because insulin itself is inflammatory. Glucose is peaking high in these horses which is why insulin gets to an excessive level in the first place. Insulin also results in small thrombotic like compounds inside the blood vessels. You can think of it like the blood vessels acquiring sticky areas that impede blood flow. Changes in blood flow may result in lamellar swelling and separation which is known as founder (laminitis).

Treatment of the insulin resistant horse is very simple. Horses must forgo many carbohydrates such as molasses, oats, carrots, peppermints, apples, and bran. Otherwise it's like feeding a bag of candy to a diabetic. Also, alfalfa must be replaced with grass hay. Should this not be possible, alfalfa must be soaked in water overnight, then removed from the water and fed. The water soaking removes large amounts of the "bad carbohydrates" in the hay. Many supplements such as hoof supplements, joint supplements, and performance supplements contain excessive amounts of molasses and or other sugars. These are added for greater palatability, meaning to make the horse eat them because they taste good. There are "good carbs" however, such as beet pulp. The difference is that the bad carbs are known as non-structural carbohydrates, or NSCs. Most feed bags will have NSCs listed as a percentage of the feed.

You want a low percentage.

If the horse is not an easy keeper and further supplementation other than hay is needed there are options. There is a feed known as **Born to Win** made by Purina. Although the label addresses it as a mare's formula, the feed has been found to help drop insulin as it is very high in protein and very low in NSCs. Furthermore, an herbal supplement known as Fenugreek decreases the amount of insulin secreted by the body. E.C.V.V.H. has this herbal readily available. A bonus is, horses tend to enjoy the taste of it!



Signs of IR:

As Cushings and IR often go hand in hand, signs are often the same!

- **Polyuria**
- **Polydipsia**
- **Pendulous abdomen**
- **Hirsutism**
- **Weight loss**
- **Recurring hoof abscess**
- **Increased weight**
- **Laminitis.**



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HYPOTHYROIDISM is a condition in which horses have a decreased abundance of thyroid hormone. Thyroid hormone is a main component regulating the metabolic rate in a horse.

This endocrinopathy is important to identify as heavy horses are placing more weight on their hooves. This is important as should they have a laminitis episode, they have more weight bearing down on that sensitive lamina. Obesity is harder on the joints that support the horse. Also, heavy performance horses have a more difficult time under saddle. There is more weight to take over jumps. It is harder to sit and push from behind for dressage. Endurance during team roping and cutting may fade...you get the idea!

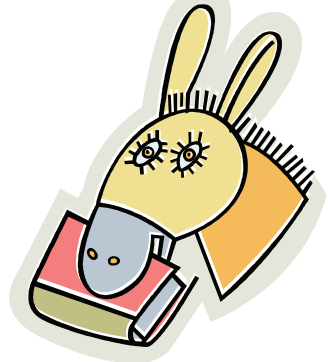
Testing for hypothyroidism is yet again a simple blood test. It is important however, to indicate which supplements are given to your horse. For example, administration of phenylbutazone (bute) will artificially lower thyroid hormone in the body. So timing of bute administration following the blood test or enough hours prior is key. Results of the blood test take one to two days to acquire.

Hypothyroidism is simple to treat. Horses are supplemented with Thyro-L, a source of thyroid in the form of T4. Like the other two endocrinopathies discussed above, the horse should be retested in 30-60 days to assure that the horse is receiving an appropriate amount of supplementation. Then, once this level is achieved, the horse should be retested annually.

Talk to us if you have a golden oldie. By addressing these issues with simple blood tests you may prevent some future mishaps such as laminitis and improve the quality of life of your four hooved friend.

Signs of Hypothyroidism:

- **Obesity:**
the easy keeper
- **Lethargy:** tiredness
- **Bradycardia:**
slow heart rate
- **Poor hair coat**
- **Poor hoof wall growth**



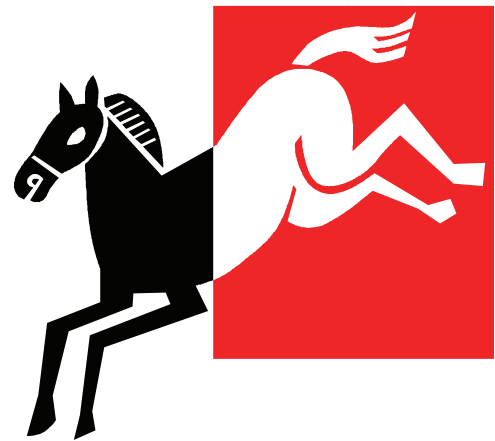
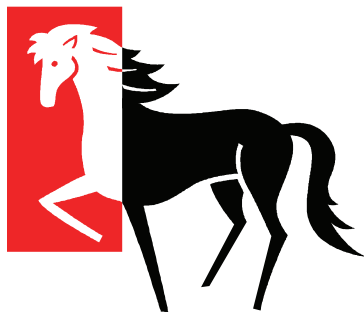
EYE SPY

Lately, irritable eyes have been popping up throughout the practice. It appears that it's allergy and dust time. Make sure you keep those fly masks meticulously clean. A dirty fly mask may be the cause of irritation. It may also be that your horse has a plugged nasolacrimal duct. This duct runs from the corner of the eye down to the nose, and drains the horse's tears. If, irregardless of cleanliness, those eyes are red and runny, an ophthalmologic examination may be warranted to rule out foreign bodies and corneal ulcers. This involves a direct examination of your horses eyes, both externally, using a stain called fluroscein, and internally, using an ophthalmoscope, to visualize your horse's retina and optic nerve. Looking at these internal eye structures may help rule out infectious causes of eye infections, as well as indicate whether the eye condition has happened in your horse's past as well. (Optic nerves may have scarring around them which we can only see using the ophthalmoscope.) **Please, never put old eye ointments or a barn friend's eye medicine in your horse's eye prior to an exam.** Should there be any break in the corneal layer of the eye, this could be disastrous. For example, an ointment with a steroid should never be placed in an eye with a corneal ulcer, as the steroid will cause further damage to the cornea by eating through its layers.

FEEDBACK FEEDBACK FEEDBACK

We need to hear from you. After we visit you and your horse, please don't let it end there. We appreciate and welcome comments about the visit, and especially those involving your horse's health after treatment. Our priority is to make happy healthy horses. We rely on your input following a visit to assure that the horse is doing well. If after our visit your horse requires further attention, **please call** or **email**.

There are times when one form of treatment fixes the problem. There are other times when a horse requires a combination of more than one kind of treatment. That makes your observations, as an owner, **GOLDEN !**



Happy Riding!

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