KNOW YOUR HORSE’S VITAL SIGNS!

During the heat of summer, it’s important to keep a check on your horse’s vital signs. Normal respiration rate at rest should be between 8-16 breaths per minute. You can check respiration by watching your horse’s side rise and fall with each breath. Count the number of breaths in 30 seconds and multiply by two. Normal pulse rate in an adult horse should be between 30-40 beats per minute. Pulse can be most easily felt just under the horse’s jaw bone. Ask your vet if you’re not sure how to find it. Normal temperature is 99-101°. If respiration, pulse, or temperature is elevated, be sure to keep a watch on your horse. He could be suffering from heat stress or could be exhibiting signs of illness, such as colic.

Horses should be drinking 5-10 gallons of water per day or more during the summer months. To test whether your horse is dehydrated, use the pinch test. Pinch an area of skin on your horse's neck. If the skin flattens back into place in less than 1 second once you release it, the horse is properly hydrated. If it doesn’t return to normal that quickly, it means your horse could be dehydrated. You can also feel of your horse’s gums. They should feel slippery to the touch and not sticky.

NEED HAY?

Consult the Southeastern NC Hay Directory to find a supplier near you. Visit http://onslow.ces.ncsu.edu, click on Animal Agriculture in the left hand column, then click on Hay Directory. Hard copies are also available by contacting the Onslow Extension office.

CHOOSING HIGH QUALITY HAY FOR YOUR HORSE

Since the horse’s body is designed to live off of forages, one of the most important parts of horse ownership is making sure that you’re feeding your horse good quality hay. Learning how to select good hay can be challenging at first, but by following some simple rules of thumb, you’ll be a pro in no time.
First of all, it’s important to understand that you cannot completely judge the quality of hay based on how it looks. A bale of hay that is the prettiest green color you’ve ever seen may also be a very low quality hay that’s high in nitrates! In order to get a complete picture of what kind of hay it is, you need to have the hay tested through chemical analysis. A chemical analysis can tell you a great deal more about the actual quality of the hay than you’d be able to determine by just looking at the bales. A complete test costs $10 and a nitrates test is free through the NC Department of Agriculture. Call the Extension office for assistance with getting your hay tested. Some hay producers routinely test their own hay and can save you the trouble of doing it yourself. Just ask them.

There are 3 major values that show up on the hay test report that you’ll want to look for. Always read the values listed under the “dry matter” column and not the “as sampled” column. “Dry matter” just means that all of the water was removed from the sample before it was tested. The first value to look for is the crude protein (CP) content. For your typical grass hay, such as bermudagrass, a CP value of 12-14% would be considered high quality. Anything with a CP value below 8% is considered to be low quality. Protein is certainly an important part of a balanced diet but hay should not be selected based on protein content alone.

Next, look at the Acid Detergent Fiber (ADF) content. ADF represents the amount of cellulose and lignin present in the hay. Horses can’t digest these types of fiber easily so we don’t want a lot of it in our hay. A lower level of ADF reflects a hay that is low in cellulose and lignin, which means that the hay is going to be more digestible to the horse. For grass hays (anything other than clovers and alfalfas!), an ADF value below 30% is considered high quality hay. Any hay that tests above 37% ADF is considered low quality and you should probably steer clear of feeding this hay. It will be less digestible and could possibly lead to problems with colic.

The last value you should look at will be the Nitrate Ion. A high level of nitrate in hay just means that the plant had stored a certain level of nitrogen and was unable to convert it over to protein before the forage was harvested for hay. High nitrates are bad! It can be caused by too many fertilizer applications or applications that were applied at the wrong times. Hay harvested from sprayfields (or “hog hay” as some call it!) is not the only hay at risk for high levels of nitrates. Hays that were fertilized with commercial fertilizer are just as likely to test for high levels of nitrates as those fertilized with animal waste. Nitrates may interfere with an animal’s ability to carry oxygen in the blood, may cause reduced feed consumption, and in extreme cases may cause death. Horses can tolerate up to .50 percent nitrate in their total diets on a dry matter basis with no problems so it’s ok to feed hay that shows a low level of nitrates. As a general rule for horses though, do NOT feed any hay that tests over .65 percent nitrate.

Look at the hay and pay attention to the stage of maturity of the grass, texture, color, and smell. If the hay has large, coarse stems and many seed heads, then the hay was harvested at a very late stage of growth. Mature hay is lower in nutritional value and is less digestible. Also, look at how many leaves are on the stems. Most of the nutrition of the hay is carried in the leaves of the plant. If all you see is stems, then the hay is probably not very good. The hay should also feel soft. If you wouldn’t want to stick your own face in a pile of stiff, tough stems then it’s a pretty sure bet that your horse wouldn’t want to either! Hay that has smaller, more flexible stems is going to be more desirable to the horse.

Hay color can be tricky. In general, a bright green color can mean that the hay has a high vitamin and protein content. If hay is left outside, the sun can bleach the color. Although the hay may not look as pretty and may have lost some of the vitamin content, it may still be very high quality hay even though it’s not green. Hay that has a beige color may have been rained on, which can cause a loss of nutrients. Hay that is a dark brown color has probably been heat damaged and could contain mold. Also look at the bale and make sure there is no trash, insects, or weeds. Be very careful that any weeds present in the bale are not poisonous!

Smell the hay and pat the bale to check for dust or mold. A musty or moldy smell means that the hay was not cured properly or has not been stored correctly. Mold will show up in the bale as a grayish-white dust when you pat the bale. So if the bale seems to be very dusty, it may actually be mold! Excessive dust can also cause respiratory problems and irritate horses with allergies or
COPD. Also, if the flakes of hay clump together rather than falling apart when the bale is broken up, this means that the hay has molded. You may also see a white, flaky substance in between the pads or flakes of hay. If you suspect that there is any mold present, do not feed the hay to your horses. A horse’s digestive tract does not tolerate mold and moldy hay can lead to colic.

Keep in mind also that some of the hays that are trucked in to our area are not always a higher quality than the local hays produced here. More than a few of the timothy samples that have been sent off for testing from our office have come back as average or below average compared to our locally grown hay. So don’t get a false sense of security thinking that the more expensive hay is always better hay. Have it tested!

If you have questions about hay testing, selecting hay, or just want a second opinion on the quality of a load of hay, feel free to contact the Extension office for assistance.

By Dr. Jenifer Nadeau, Equine Extension Specialist –
University of Connecticut
www.extension.uconn.edu/ansci/ext/factsheetpdfs/insulinresistance.pdf

Insulin resistance is a newly recognized problem in horses that may have been around a long time. You may be wondering what it is all about and how your horse may/may not be affected. It is probably not as common a problem as it may seem. This article will discuss insulin resistance including its causes, effects, diagnosis, treatment and prevention.

What is Insulin Resistance?

Glucose (sugar) normally functions to fuel many metabolic processes in the body and is the primary energy currency of the body. Insulin is normally produced in response to elevated blood glucose and is key to the regulation of blood glucose concentrations and glucose utilization. Insulin promotes glucose uptake by cells and promotes formation of glycogen or fat. Insulin resistance is defined as a reduced sensitivity of the body's cells to insulin's facilitation of glucose uptake.

Basically what happens in insulin resistance is that the cells become resistant to the glucose uptake action of insulin. Initially, this just means that more insulin is needed (hyperinsulinemia) to keep blood glucose concentrations within normal limits after a starchy or high sugar meal. If it is severe enough even super high insulin concentrations are ineffective and blood glucose may also be abnormally high. The problem is that not only does this limit energy availability to the cells but insulin also has other effects on the body that may be detrimental when it is higher than normal for prolonged periods of time. Unlike humans, horses rarely go into the second stage, where the pancreas becomes “exhausted” and no longer can secrete adequate insulin.

Causes

The exact cause of insulin resistance is still unknown. However, several possible causes include:

- Diet - In a recent study, horses had increased insulin resistance when fed high sugar/starch feeds compared to high fiber and fat rations, especially when they were not obese.
- Obesity - Overweight horses tend to be insulin resistant, as are “easy keepers” even if they are not obese.
- Age - Old horses (>20 years) seem to be more prone to insulin resistance, probably secondary to pituitary dysfunction (Cushing’s disease) which is extremely common, especially in mares.
- Breed - Ponies were found to have higher degrees of insulin resistance than Dutch Warmbloods or Standardbreds. Breeds that are prone to developing cresty necks and obesity, such as Morgans and some lines of Arabians, Quarterhorses, and Thoroughbreds may be more likely to develop the problem, although a study conducted at the University of Connecticut comparing exercising Morgans and exercising Thoroughbreds did not find a difference between breeds in insulin resistance.
- Laminitis - Horses with a family history of laminitis and horses that develop laminitis without an obvious cause...
(grain overload, sudden access to lush, green grass) may be insulin resistant.

**Effects of Insulin Resistance**

Insulin resistance may result in:

- Loss of weight
- Loss of muscle
- Lack of stamina
- A condition similar to human Type II diabetes
- Laminitis

**Diagnosis**

Your veterinarian will be able to diagnose insulin resistance. A single blood sample drawn within 60 to 90 minutes of eating a meal of grain is a quick screening test for hyperinsulinemia. If the results are abnormal the veterinarian should perform a more reliable test by administering a glucose challenge orally or intravenously and measuring the glucose/insulin response over the course of two or three hours. This is not usually practical in the field and the horse may need to be referred to a clinic to get such tests done.

**Treatment**

Treatment may consist of the following:

- Weight loss through diet and exercise if the animal is obese
- Addition of a minimum of 30 min of exercise
- Limiting carbohydrate intake through elimination of grain and high sugar feeds
- Soaking hay if it is known to contain high amounts of sugars (> 10 to 12% soluble sugars)
- Feeding warm season grasses, such as Bermuda grass, or feeding beet pulp that does not have added molasses
- Cutting down on free choice intake of grass if the horse has a history of founder and is obese

**Prevention**

Preventative measures to reduce insulin resistance are:

- Feed primarily grass or legume mix hay or pasture. If the horse tends toward obesity, limit access to the forages and feed no grain at all!
- If concentrates are needed to maintain body condition, feed products formulated to have a low glycemic index. For example, oats are commonly used as the standard with an index of 100. Plain beet pulp has the lowest index in most studies and barley has the lowest index of the commonly fed grains.
- Test pastures and dry forages for amounts of sugars present.
- Soak high sugar hay in hot water for 30 min or cold water for 60 min
- Restrict grazing time but only if the horse has a pre-existing case of laminitis and grass is lush
- Add fat and fiber to the diet at 6-10% for fat and at least 12% for fiber.

Insulin resistance can be a serious problem, but actual statistics on insulin resistance are currently unavailable. An accurate medical diagnosis by a veterinarian is extremely important. As with most equine health concerns, prevention is better than treatment. By paying careful attention to diet and condition of your horse, you may be able to prevent insulin resistance from becoming a problem in your horse.

**Upcoming Events**

**AUGUST**

8th – Hunter/Jumper show @ Equine Country – Jacksonville

21st - 22nd – REINS new volunteer training – Raleigh

**SEPTEMBER**

12th – Coastal Carolina Saddle Club fun show @ Barker’s Farm – Vanceboro

18th - 19th – REINS new volunteer training – Raleigh

19th – Tarheel Horseman’s Assoc @ Breezy Meadows – Hubert

19th - 20th – Eastern Hunter Assoc @ Bob Martin Ag Center – Williamston

24th - 27th – Trail Master Certification Course – Contact NC Horse Council to register
ONSLOW COUNTY BEEKEEPERS ASSOCIATION

The Onslow County Beekeepers Association was organized January 14, 2003 to promote beekeeping and increase the skill level of area beekeepers through cooperation and education. Monthly meetings are held the second Tuesday at 7:00 – 9:00 pm at the Onslow County Multipurpose Complex. Meetings are open to area beekeepers and persons interested in learning about beekeeping. A short course which teaches basic entry level beekeeping skills is conducted at the Multipurpose Complex in November each year for a nominal fee. Contact the Cooperative Extension office at 455-5873 to enroll for the course. The Onslow County Beekeepers Association maintains an active membership of 40-45 members who are actively involved in promoting beekeeping through area schools, the county fair, festivals and public events. Individuals needing assistance with honeybee swarms or advice on how to deal with honeybees in structures can contact Jeff Morton with the Cooperative Extension office at (910) 455-5873.