

## **ALLERGIC SKIN REACTIONS**

### **FIRST SOME BASICS**

Once an inflammatory cascade is started it seems more and more things will act as triggers until our horse is in a bubble of inflammation - with many systems affected. It can take something fairly significant (such as steroids and antihistamines) in large enough doses taken for a long enough period of time to stop the inflammatory response spiral and hold it off long enough for the immune system to regroup. If we don't get a handle on inflammation, our horses will start to react to "everything" - this is what we often see when horses are given allergy tests (not particularly reliable) and they respond as "allergic" to every hay, feed and other things they encounter in their environment.

Why some horses respond or react more to inflammatory insults than others isn't really known - just as why some people are allergic to bee stings or have autoimmune diseases and others do not. There may have been a reaction to midge bites or another "trigger" when their immune system was busy with something else and that began the process. What we need to accomplish is to support the immune system so it can effectively deal with future triggers. (We don't want to "stimulate" the immune system as it is already overstimulated.)

Inflammation is also the hallmark - and sometimes a desirable phase - of other problems our horses experience such as arthritis, joint and soft tissue response to injury, infection and delayed healing. For a more complete understanding of the layers of the immune system, consider Dr. Eleanor Kellon's *Nutrition as Therapy* course, one in a series of equine nutrition courses.

The first step in supporting the immune system is a forage based mineral balanced diet that provides antioxidant support. "Balanced" minerals work together with other nutrients and the body's own processes to provide a base for the immune system. There are many nutrients which which may also be considered "anti-inflammatory" - the essential ones that we look to first are Omega-3 fatty acids (mainly from flax) and vitamin E as these are not available in cured hay.

We also want to eliminate some obvious things that may provoke inflammation - excess iron in the diet, dust, heavy exposure to biting insects, etc. The deworming program also needs to be looked at - parasites are much more able to become established when a horse's immune system is being challenged and the presence of a heavy parasite load will contribute to inflammation.

Flax, spirulina, chondroitin and other herbs (in addition to the baseline mineral balanced diet) can all help improve the inflammatory threshold so the horse doesn't respond to triggers by mounting a major inflammatory response.

### **DIET**

Southwestern Bermuda hay is usually adequate in protein and calcium, high to excessively high in iron, and may often be high to low in manganese. Sugar and starch levels tend to be

lower than in other grass hays. All hay has more than enough potassium and may or may not have sufficient magnesium. Low sugar and starch levels are less apt to support inflammation. These generalities might not apply to all hays and the best course is to have hay analyzed at a forage lab.

Alfalfa can be excellent hay but, for a "reactive" horse, the protein level may be excessive. While adequate protein is needed for good immunity, excessive protein may contribute to overstimulation of the immune system. Lowering the overall protein (but ensuring basic amino acids in a supplement) may help avoid this. Also, some insulin resistant horses have been shown to be "sensitive" to alfalfa. Alfalfa can be reintroduced at some later time when the rest of the horse's system has settled down.

Using a fairly simple supplement with known, identifiable ingredients will also help simplify the diet while continuing to provide essential nutrients. Many supplements when fed at manufacturer's recommended levels contain high levels of iron and excessive manganese, along with possibly other "unnecessary" ingredients which may be contributing to the inflammatory process.

## RECOMMENDATIONS

Many nutritional changes can take several weeks before having their full effect - so don't give up even if you're not seeing results right away. Also, if the inflammatory cascade has already been established in the current "allergy" season, your horse may require medication - antihistamines or steroids - to "break" the inflammatory cycle before nutritional support can be effective. We're looking for long term success - not just treating "this year's" reaction but to prevent future inappropriate inflammatory responses to triggers.

**Straight Bermuda hay** fed at 1.5 to 2% of body weight (15-20 lbs for a 1,000 lb horse). It doesn't need to be soaked but "dunking" will help remove any excess dust. If fed in hay nets instead of solid bottom feeders any dirt will tend to fall to the ground. This also makes a quick dunk in water easier.

If your horse is also insulin resistant, every effort to remove excess sugars from the diet will help reduce the inflammatory response - and this may include actually soaking/draining untested hay.

## SUPPLEMENTS

If your hay has been tested, starting out with a custom supplement balanced to the analysis results would, of course, be ideal.

Otherwise, I'd recommend starting on something like **HorseTech's BioFlax Ultra** - <http://www.horsetech.com/bioflax-ultra.html>. It's a basic, simple supplement providing most of the essentials. HorseTech is great to order from, no shipping charges, and you get some chocolate chip cookies with each order.

Because BioFlax Ultra doesn't contain iodine, I also like to include **Source (the "original")** <http://www.4source.com/products/horses1.shtml>) - start with 1 level scoop per day. This is available online or at your local feed store.

As an alternative to the **BioFlax Ultra**, **Source Focus Hoof** can be used. This will supply adequate iodine but the copper is lower than needed; it can be safely fed at 1-1/2 times the manufacturer's recommended dose to increase copper, zinc and biotin levels. In the Southwest, you can also consider AZ Copper Complete or California Trace - see the Regional Supplement comparisons at [www.desertequinebalance.com](http://www.desertequinebalance.com).

**Flax** - add an additional 3 ounces of NutraFlax, also from HorseTech <http://www.horsetech.com/nutra-flax.html> If not using a flax-based supplement, give at least 4 to 6 ounces/day.

Other options are Omega Fields HorseShine or Triple Crown Omega Max - both are "stabilized" flax products. Do not use flax that is not labelled "stabilized" as it will not provide Omega-3.

**Vitamin E** - the best way to ensure your horse is getting adequate vitamin E is to include human natural vitamin E gel caps in their feed - 1,000 IU per 500 lbs of body weight. I use 400 IU gel caps - five of them will provide 2,000 IU vitamin E and most horses don't even notice them in their feed. They should be oil based for best absorption. The best price for natural vitamin E in an oil base is from Swanson <http://www.swansonvitamins.com/SW142/ItemDetail>. You can use some from Walgreens or WalMart in the interim. If using synthetic E, add an additional capsule (it's less bioavailable). If not in an oil base, add a small amount of vegetable oil.

**Magnesium** - this "major" mineral has been shown to have anti-inflammatory effects. I generally add a base of 5 grams/day when working with untested hay (and never exceed 10 grams unless hay has been analyzed and more is needed for balancing calcium). I would use magnesium carbonate from HorseTech initially for a horse with inflammatory issues. You'd need 13 grams (by weight) to provide 5 grams of magnesium.

**Salt** - horses at maintenance - not in training or work - need 1 to 3 oz plain white salt a day. They really can't get this much from a block and loose salt should either be added to their feed or made available in a feed pan or hanging feeder. My horses get two ounces a day mixed into their feed but it does take some time for them to get used to this if they haven't had salt added before (see the article links below). Horses in work need the maintenance level plus additional salt to replace sweat losses.

Most horses, unless training for endurance or high level eventing, do not need "electrolytes" as hay provides generous levels of potassium (and the diet should already be balanced for calcium and magnesium). Most commercial electrolytes contain inadequate chloride, so providing plain salt (NaCl - sodium + chloride) is the best "electrolyte". Just a reminder that a horse that is already dehydrated and not drinking should not be given salt or electrolytes as this can cause dangerous imbalances resulting in tying up or cardiac problems. If your horse is dehydrated and not drinking you need to have a veterinarian give your horse fluids by tubing or IV.

## **NUTRACEUTICALS**

Flax and vitamin E will be the long term mainstays for anti-inflammatory antioxidant support and should be continued year round for all hay-fed horses. The other two first line

"nutraceuticals" (nutrients known to have an actual effect on the body) are chondroitin and spirulina.

**Chondroitin** - this is the same chondroitin sulfate that is used in joint supplements. It has good anti-inflammatory effect (it's also used with cats to sooth urinary tract irritation) and has been shown to be effective with skin reactions. I purchase mine from My Best Horse <http://www.mybesthorse.com/productinformation.html>.

The effective dose for allergic reactions is 2,500 to 5,000 mg per 500 lbs. of BW given twice a day [Kellon, "Get Allergy Control" Horse Journal June 2011] If a horse is already in an active inflammatory cascade, I would begin with the highest dose (10,000 mg - two rounded teaspoons - twice a day for a 1,000 lb horse); once the symptoms have settled down you can reduce to a lower dose for the rest of the "itchy" season.

**Spirulina** - this is a specific species of blue-green algae that has been shown to have anti-inflammatory effects and to be effective with allergic reactions, also available from My Best Horse. The dosage is 2 grams per 100 lbs body weight twice a day for respiratory/skin allergies (twenty grams for a 1,000 lb horse). Twenty grams is approximately two Tablespoons [Kellon, "Get Allergy Control" Horse Journal June 2011] It has similar actions on leukotrienne receptors as the human medication Singulair.

If these are discontinued over the winter, they should be restarted **several weeks before** the next "allergy" season. If your horse's reactions were not particularly severe, you might find the ongoing diet modifications have been sufficient to support the immune system and these additional nutraceuticals aren't necessary. But they should be kept on hand and restarted at the slightest indication of reaction to bug bites or other triggers to avoid starting a full inflammatory cascade again.

There are a couple of additional herbs which can be added if needed (Jiaogulan and ginseng, both "adaptogenic" herbs) and a medical product - Microlactin. The veterinary version is Duralactin but has not been available recently; Microlactin is the human version and also happens to be less expensive. It is a whey product made from the milk of "hyper-immunized" cows.

## SUMMARY

The above recommendations are "immediate" to bring your horse's inflammatory response under control. As I mentioned your horse might still require TriHist and/or a steroid for a while until the immune system has a chance to quiet down. At some point your horse should be tested for selenium levels and hay should be mineral balanced based on analysis by a forage lab.

The flax-based supplement will need to be dampened to mix with hay pellets or other carrier. I use soaked beet pulp shreds (rinsed, soaked then rinsed again) plus Timothy pellets as a

"carrier" to mix my supplements in. You can use water or a little oil (canola, safflower, olive oil - not corn oil) to mix things together. It may take a little experimenting.

**Important** - All supplements and oils or any feeds containing vitamins or fats need to be stored in a cool place - in Arizona this likely means inside the house or, possibly, a cool garage. Vitamins are destroyed by heat and air and fats can easily become rancid - aside from tasting bad, rancid fats can contribute to inflammation.

## LINKS

### Supplements

BioFlax Ultra - <http://www.horsetech.com/bioflax-ultra.html>

Nutra-Flax - <http://www.horsetech.com/nutra-flax.html>

Regional Supplements - <http://www.desertequinebalance.com/supplements/regional-supplements>

Calcium Carbonate - <http://www.horsetech.com/ingredients.html#minerals>

Source - <http://www.4source.com/products/horses1.shtml> Best price at local feed store!

My Best Horse - <http://www.mybesthorse.com/productinformation.html>

Swanson - <http://www.swansonvitamins.com/SW142/ItemDetail>

Mountain Rose Herbs - <http://www.mountainroseherbs.com/> (for essential oils, bulk herbs)

Nutrition as Therapy - one of the highly recommended equine nutrition courses at at [www.drkellon.com](http://www.drkellon.com) <http://www.drkellon.com/coursedescriptions.html>

Wikipedia - <http://en.wikipedia.org/wiki/Allergy> and also follow links to hypersensitivity and the immune system

### Articles (from my blog and website)

<http://www.desertequinebalance.com/articles/introducing-new-feeds>

<http://desertequinebalance.blogspot.com/2012/03/immune-boosters.html>

<http://desertequinebalance.blogspot.com/2010/11/allergies-breaking-inflammatory-cycle.html>

<http://www.desertequinebalance.com/articles/small-mesh-hay-nets>

<http://www.desertequinebalance.com/supplements/compare>

<http://www.desertequinebalance.com/az-copper-complete>

What To Do About Culicoid Sensitivity by Claire Cox-Wilson = <http://www.shotgunranch.me/page17.html>