Trends in Equine Health and How This Impacts our Ponies

The State of Equine Nutrition

Many of us know and hear the astonishing and deeply disturbing statistics about increases in health disease and cancer and diabetes in humans. One reports states that if you are a male, that 47% of all males will have prostate cancer and 38% of all women will have breast cancer. These trends are not unique to the human population but are slowly affecting our equine friends as well. Why these trends are occurring cannot be overlooked or ignored. What you has worked in the past may no longer be the way of the future. It is our goal at Personal Ponies to ensure that our ponies are not part of these trends and to learn and do all that is needed to make certain our ponies continue to lead long, healthy lives.

We live in a world of caloric rich and nutritionally lacking foods. The commercial feed industry is no different. The result is dis-eases, not genetic in origin but as a result of poor diet. Everything about our feeding program has taken into account these trends and issues. Personal Ponies’ commitment to excellent feeding and health care practices will provide us the insurance we need to keep our ponies healthy. Some of the trends listed here are purely equine related and others are relevant across species (including humans).

- Fertility rates have decreased (over the past 60 years fertility rates in humans decreased 50%). There are reports of significant decreases in livestock as well.
- Insulin resistance is on the rise.
- Cushings is no longer a disease of the “elderly” pony.
- Allergies are more common.
- EPSM is more common (equine polysaccharide myopathy).
- Cancer rates are increasing.
- Incidences of laminitis/founder are more frequent.
- Orthopedic disease is more common.
- Retained placentas, still births are reported to have increased.
- More cases of un-descended testicles.

- Inflammatory joint disease is both more common and occurring at younger ages.

**To what can we attribute these trends?**

1. **Increased use of by-products**

   By definition “by-products” are a secondary or incidental product that is derived from a manufacturing process. The process takes what is a whole food and breaks the seed, kernel, etc. apart through extensive heating and processing which virtually destroys all enzymes and nutrition. In addition, chemicals are often added to prolong the shelf life and stabilize some of the products. By-products are used as filler – it is simply a very cheap way for feeding companies to fill a bag and sell it for profit. Typical by-products found in horse feed are: wheat middlings, distilled grains, oat mill by-products, soy meal, corn meal, beet pulp, rice bran, wheat bran, molasses, etc. Some commercial feeds create their own mixture of by-products. One example is Purina who lists by-products such as, processed grain products, forage products, plant protein by-products, roughage products, etc. Below is a brief comment about some of the most common by-products found in commercial feeds offered to our ponies.

   **BEET PULP** - Beet pulp was originally used to fatten cattle up for market. Beet pulp makes cattle (and ponies) look as if they are full and round because it retains fluid but offers little in the way of real nutrition. Beet pulp is mostly fiber (too much fiber actually) and as the content of fiber increases, digestibility decreases. The cattle industry is not interested in nutrition, or how chemicals or pesticides impact the health of it’s livestock. Beet pulp is one of the most heavily pesticided and chemically treated by-products available on the market. Pesticides are used during growing, harvesting and in production. A pony fed beet pulp is a pony that is malnourished and is likely to have many health issues over time. One study showed the more beet pulp and molasses in the diet, the more insulin is secreted. Even though many vets suggest beet pulp as a feed for ponies with Cushings or insulin resistance, it is still high in sugar and a poor choice.

   **RICE BRAN** – Rice bran has been a by-product of rice production for many years. Until effective processing and stabilization techniques were developed, raw rice bran was discarded as low-quality animal feed mostly because once the bran layer is removed, the fat content becomes oxidized and rancid. In recent years, processing and the use of chemicals has offered a way to stabilize the fats in rice bran so that it can actually have a reasonable shelf life. Rice bran undergoes significant processing with the addition of many chemicals to keep it “fresh”. There are many other issues that one should consider when feeding rice bran. Rice bran is very high in phosphorous in the form of phytates. Phytates prevent the absorption of phosphorous and the absorption of other minerals (copper, zinc, manganese). If deficient in these minerals, a pony cannot metabolize protein efficiently, which affects the quality and growth of it’s hooves, bones, muscles, etc. For every day there is a calcium deficiency, the body will compensate by mobilizing calcium from storage deposits in the bone. Over the lifetime of the pony, this may contribute to decreased bone density, as well as decreased calcium availability. In a
young growing pony, it may contribute to the development of orthopedic diseases. Also, animals that cannot absorb calcium often become deficient and cannot absorb vitamin D. A vitamin D deficiency is considered a leading cause of cancer.

**NOTE:** Producers of rice bran have gotten smart in their marketing and addressed this issue by adding calcium to the rice bran to bring the phosphorous and calcium ratios up to an acceptable level. Unfortunately this has not been terribly helpful because of two reasons: 1) as discussed above, the form of phosphorous blocks calcium absorption and 2) they mostly add inorganic, not very bioavailable forms of calcium. Not all calcium is created equal.

**MOLASSES** – Many feed companies use molasses as a way to hold the grain together, keep dust down and increase taste. Most molasses that is “feed grade” contains 65% sugar and is preserved with chemicals that inhibit mold growth and prevent freezing. The sugar in the molasses encourages water retention and as a result a pony may look as if he or she has gained weight, but it is not healthy muscle tissue that you see. Sugar overall contributes to a weakened immune system and upsets the natural balance in the digestive tract. All sugar creates an acidy environment in the gut, which then pulls minerals from the bones to provide the missing minerals to the blood stream. The insulin rush from the sugar causes glandular stress that impacts overall health, and specifically calcium metabolism, which results in decreases in bone density. Several reports indicate that many equines are actually allergic to molasses. Feeding molasses can lead to hypothyroidism, insulin resistance, Cushings, allergies, obesity, hyperactivity, and poor immune and digestive system function.

2. Growth of the Corn Industry

Corn became popular for people, horses, cattle etc, about 30-40 years ago when the industry suffered from such a huge surplus. Farm policies were designed to encourage the overproduction of this crop, subsidies were offered, farm bills created to keep a source of cheap corn flowing, guaranteeing the cheapest, emptiest calories available to animals and people. This led feed companies to find endless ways to process the corn and sell it for cheap.

Corn is an energy dense food. It is not very useful to our ponies. Corn is about 30% digestible where barley is at least 90% digestible. The reason barley is so easily digested is because it is its high fiber content. Corn provides very little fiber, making its digestion even more cumbersome for an equine. Ponies that eat products with corn added (in any form) will be more susceptible to Cushings and insulin resistance. UK Shetlands have what some refer to as the “thrifty gene”, meaning that they can maintain themselves in an environment of food scarcity and unpredictability. They know how to build up reserves of fat to avoid future potential famine. As a result they cannot process energy dense food such as corn, over long periods of time. Cushings and insulin resistance and cases of laminitis or founder occur when the body’s mechanism for managing glucose simply wears out from over-use. Over-use occurs from a lifetime of eating energy dense foods. Products like corn, molasses and other by-products overwhelm the metabolism.
Almost all of the corn in our commercial feeds is genetically modified. The Environmental Protection Agency that regulates GMO corn requires no tests to determine how the crop impacts the reproductive system of the animals that eat it. (see discussion on GMOs). Another risk factor with corn is its susceptibility to mold and myotoxins.

3. Increased use of Soy and Soy By-Products

Many believe “soy” is the “magic” health food from the East. Soy in the east was mostly eaten whole or in a fermented state and was never processed. Here in the US almost all soybeans are genetically modified or solvent extracted which means we use petroleum products in the process. The Chinese only used the whole soybean in their food. The oil was used for fuel and the protein was used for fertilizer. In the US we use the oil and protein as a feed source.

All soy, meaning genetically modified soy and organic soy, carries a load of anti-nutrients and toxins in them (phytates, asaponins, isofavings, and other components) that have been known to cause digestive distress, immune system breakdown, thyroid dysfunction and reproductive problems. Digestive distress often leads to malnutrition, which is not good for any of our ponies, but can result in serious growth problems for our foals. The phytates you find in soy (similar to those found in rice bran) block mineral absorption and can cause zinc, iron, and calcium deficiencies, all of which impact growth, healing, blood sugar regulation, and thyroid function. Deficiencies in iron can lead to increased absorption of heavy metal – this will interfere with the brain and nervous system development of our foals. Just because a pony has been fed soy-based products without any incidence of disease does not mean that these problems will not appear later in life or be passed along to our foals. Some companies claim that by heating the soy they have rid the soy of any of the anti-nutrients discussed above. In actuality, what they do is make it harder to digest and the anti-nutrients are still an issue. Rarely, if ever, will you hear a vet say, “Ah, this health issue is a result of a lifetime on soy.” Unfortunately, vets are not trained for this type of thinking. It is up to us to know what it is we are feeding our ponies and how it will impact our breeding program.

Another component of soy are phytoestrogens that affect the fertility and the testosterone levels of male animals. Scientists first linked phytoestrogens that are in soy with lowered sperm count and other reproductive problems in 1940. Normal animals became infertile. Estrogens that interact directly with the testes or that modulate sex hormone concentrations are known to disrupt sperm production. As it happens, changes in sperm quality and quantity over the past 60 years loom large (50% decrease) as mentioned in the beginning.

The use of soy in our broodmare’s diet will have huge impacts on a growing fetus. Among the many issues to consider is that soy isoflavons have been known to interfere and suppress unborn foals testosterone, which is then attributed to reduced sperm production and quality later in life. Apparently the testosterone is produced in the male
fetus during the 1\textsuperscript{st} trimester of pregnancy. In addition, reports have concluded that exposure to soy in-utero may put males at risk for cancer later in life.

Soy has high concentrations of genistein and daidzein, which are known to cause liver disease and reproductive failure in animals. Soy is rich in estrogens and is a major factor in the decline of fertility. Over the past 25 years, researchers have turned up evidence of soy’s probable role in today’s epidemic infertility and reproductive disorders.

4. Use of Processed Oils such as Soy, Corn, Vegetable

Many commercial feed companies add oils or volunteers might add them directly to their feed to help the pony gain weight. Many believe that the fat from the oils is helpful. Fats can provide energy, endurance, help facilitate mineral absorption, cushion vital organs, build hormones, construct strong flexible cell membrane and make up the brain. HOWEVER, it must be “good fat” like those found in flax oil and hulless oats. The fats that will destroy the health of our ponies are those that are heavily processed, heated at high temperatures and are exposed to chemical solvents. Nearly all soy, corn, and vegetable oils are hydrogenated. Hydrogenated oils are known to harden and damage cells (human and equine!!!) within the body and make tissues less pliable. This makes insulin resistance or metabolic issues even more of a problem. Hardened cells do not respond to insulin like more pliable cells.

These oils have large amounts of chemical building blocks or arachidonic acid, which the body uses to mount an inflammatory response. In addition, these oils contain high levels of linoleic acid, which is a parent compound of DPA (OMEGA 6s) and are very low in Omega 3s. A diet high in Omega 6s will put our stallions at risk for fertility issues and our mares as well. Diets high in Omega 6s do not provide a favorable environment for optimal semen quality or fertility. Other health issues that are the result of feeding these oils include inflammation in joints, and a disrupted immune system. This is a very big “NO-NO”, for our broodmares, stallions and foals. (It is not useful to our other ponies as well!!) The oils block fat soluble vitamin receptor sites so that absorption of vitamins A, D, E, and K are blocked. Vitamins D and A are needed for calcium absorption which is very important to our broodmares and foals. It is important to any equine but if broodmares and foals represent the “longevity” of our program, they cannot have blocked receptor sites. Vitamin E of course helps the absorption of selenium and K is necessary for proper blood clotting.

***Commercial feeds often add corn, soybean or vegetable oil.

5. Increased use of Genetically Modified Organisms

Jeffery Smith, author of Genetic Roulette states “There is evidence to suggest that Genetically Modified (GM) crops are inherently dangerous and may be responsible for many serious, widespread health problems”. GM products are reported to adversely affect virtually every system, brain, liver, pancreas, reproductive, etc. It is also associated with compromising the digestive and immune system creating a fairly toxic environment.
Unfortunately, just about all of our corn and soy are genetically modified. And if you look at the list of commercial feeds, almost all have one or the other, or both listed in their ingredient list.

**What is Genetic Engineering?**

Genetic engineering involves taking genes from one species and inserting them into another. The technique is extremely imprecise and the surrounding genes suffer considerable collateral damage making it impossible to predict the effects. For example, genes from an arctic flounder, which have “antifreeze” properties, may be spliced into a tomato to prevent frost damage. Another example is the GM soy being consumed by our ponies that has a gene from bacteria inserted. This gene has never before been part of the animal or human food supply and can be an allergenic and toxic. It sounds like an interesting plan at first but there is no way to determine with any accuracy the effects of doing so. Genes do not work in isolation but in highly complex relationships that are not understood. There is very little scientific testing or research that has been done to support the use of genetic engineering.

**Did you know?**

Since the genetically modified crops are now herbicide resistant, fields are being sprayed with even more toxic and powerful chemicals that will kill all of the surrounding weeds while the crop still stands tall. That does not mean the chemicals are not covering the plants, it just means there is enough changes and modifications in the genetics of the soy that it is resistant to these chemicals. Many claim that GMOs have lead to harsher and more aggressive use of pesticides. There are well-documented cases of birds, plants and butterflies dying off, humans and livestock having reproductive issues, sterility, false pregnancies, liver disease, allergies, getting very ill and even dying all as a result of GMO feed and farming. The FDA, GM biotech industry, and the mainstream media will tell you that there is little health risk. That is because the people who are most interested in its success have made sure no formal documentation is available to the public. The environmental and health risks are unstudied and from the information that is available, they are immense.

In Europe, Japan and other regions of the world, the press is far more open than here in the US about the potential dangers of GMOs. Consequently, they limit the amount of GMO food imported into their country and manufacturers there comply with the consumers demand for GMO-free goods.

The best thing for our ponies is that our volunteers are educated and kept informed of the risks associated with the GMO industry and that we do what we can to avoid products that are full of GM products.


Even with the best intentions there is an inherent risk of toxicity just living in the environment. The uses of many chemical substances in many products, on our soil, in our food itself, are contributing to the increased incidence of disease.
- Increased use of herbicides and pesticides;
- Increased use of chemical processing and use of preservatives, stabilizers, etc;
- Use of chemical fly sprays, shampoos, cleaning materials;
- Overuse of antibiotics, vaccinations and de-wormers;
- Sludge and run off in hay fields, pasture, grain fields;
- The increased use of pesticides has leached minerals from our soils passing the residue on to us and leaving us with depleted food sources;

Our immune system, the body's defense system, has to deal with these substances and is in danger of becoming overloaded. The liver is the filter for the whole body, and when it must handle too much residue it becomes less efficient. The liver sends the excess to the lymphatic system, which is part of our immune system. The result is often overproduction of histamine, a substance that helps control and destroys what the body identifies to be a foreign invader. This histamine response causes sinus drainage, watery eyes, asthma attacks, skin eruptions and rashes. Resistance to parasites and diseases can also be lowered. (Pest attacks are a symptom of deficiencies and malnutrition, not illness.) Proper immune function can only happen when your liver and lymphatic system are cleaned and detoxified. Your liver is like the oil filter in your car - if it is clogged and dirty, the car won't keep running for long without major problems such as insulin resistance and Cushings. At the core of these issues is an unhealthy liver. In order for the thyroid to function properly or efficiently, the liver must be healthy.

7. Increased Processing of Feed

Horse feeds are becoming more and more processed, to the point there are now extruded feeds, pelleted feeds, textured feeds, feeds for every type/condition/situation the feed company can convince us is needed. Each one of these companies may appear to use different ingredients in the various feeds but almost all of the time their choice of ingredients is based on the least cost means. Often quality and content vary from load to load and nutrient content is questionable to say the least.

8. Lack of Truth in Labeling so Owners are Educated on What is in the Feed

In addition to increased processing which has decreased nutritional value, feed labels are very misleading giving very little indication of what nutrition is being offered. There are many chemicals in your feed that the feed companies do not have to disclose. Unless the manufacturer adds these preservatives at their feed facility, they do not have to list it on the label. For example, if the chemical is added by a supplier or at a different plant, it does not have to be included in the label. Below is a list of some common chemicals you will find in many feedbags.

- Most molasses contains propylene glycol, a preservative many animals are allergic to but the feed companies do not have to list this on the feed label.
• Ethoxydiun is a rubber stabilizer in tires and has been linked to cancer, infertility, and liver disease. Purina ---Athlete, Strategy, Equine Senior, Junior and Omolene is confirmed to use ethoxydiun.

• Mamathion is a chemical residue found in commercial feeds from pesticides. Many spray the actual bags in the warehouses and the chemicals seep in to the bags to prevent insects, etc.

• Added salt with many different names such as sodium chloride, potassium chloride, salt, etc. Salt should not be added to feed or at least not in the first ten ingredients, but provided free choice.

In addition, feed companies list things like protein but say nothing about the quality of protein or amino acid profile, which is even more important than the actual protein profile. Urea is often found in commercial feeds and it is actually non-protein nitrogen but tags as protein and has absolutely no nutritional benefit for an equine. In fact, too much non-protein nitrogen in feed causes high ammonia levels, leading to reduced resistance to bacterial infections.

Fat and Fiber are often listed on a feed label but the information tells you nothing about the actual digestibility of the feed components. Many of the feed companies sell what is considered a higher fat feed but dare not share with you the process they use to make sure the fats do not go rancid. The issue of fat oxidation is very important. The oxidation destroys the fatty acids along with fat-soluble vitamins A, D, E, K, and then produces free radicals which damage the cell membrane and destroy the nutrients. (Free radical is the breakdown life process of cells.) The source of fat is often not one that promotes health. The feeds with fat added often result in immune dysfunction and degenerative disease.

Minerals and vitamins are often listed on the label but unless one understands absorbability, organic versus inorganic, synthetic versus natural, chelation, trace versus major, etc. you cannot make an educated decision as to whether or not what is added provides any nutritional benefit. The guaranteed analysis does not tell you the source or its absorbability. In the later section on Free Choice Minerals, there is a brief discussion of what forms (oxide, sulfate and carbonate) of inorganic minerals are difficult to absorb and provide little nutritional value.

9. Feeding Equines Like they are Cows

Many things that are problematic for our ponies are products developed for the cattle industry. Mineral blocks, grass and pasture mixtures, the use of corn, the use of beet pulp did not grow out of the need for equine nutrition. They were all products created and used for cows that made their way into the horse industry.

The cattle industry had very specific reasons for using these feed sources and for creating nutrient dense grass and pasture mixtures. Many people are not aware that the grass seed mixes that we purchase are actually created with cattle in mind. There are few if any “experts” in equine grass and pasture development. When developing grass
mixtures, trials were done to maximize milk production in dairy cows, fattening animals intended for meat, and to create mixes that could withstand the abuse of cattle foraging about all day long. As a result, the mixes are energy dense and full of sugars not meant for equines. These are the same mixes people use in their horse pastures.

The salt and mineral blocks that people purchase were also crated for cows with thick rough tongues. A pony, with his or her smooth tongue, cannot possibly get what he or she needs to balance his or her mineral or salt requirements from a block and what they are getting has little to no nutritional value. Blocks are chemically processed and do not provide what is needed for anyone!! Any pony that relies on mineral or salt blocks for their nutritional requirements is a pony that is likely suffering from significant deficiencies. These deficiencies can contribute to joint disease and inflammation, poor bone development in foals, allergies, reproductive challenges, retained placentas, risk of infections, skin irruptions, muscle disease or weakness, digestive disorders, and weakened immune system.

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