



# AGM 2013

## Fenway Foundation Presentation

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The 2013 FHANA AGM has come and gone and I believe that “a good time was had by all”. I enjoyed being able to “put faces to names” for many of you that I have worked with over the past year and to meet some of you for the first time. It was obvious the enthusiasm all of you have for this wonderful breed of horse.

The main topic for the Foundation’s presentation this year was the medical condition of megaesophagus in the Friesian horse, a subject that had been brought to my attention by numerous owners in 2012. While I believe that many of you know quite a lot about this condition, I also believe that there are an equal number of owners who have not heard of it or have only limited information regarding megaesophagus. When thinking about how to approach this topic, I thought it would be very helpful to hear from someone who had a horse that was affected, someone who could walk us through a more personal experience and offer insight into what can be done for these horses. I asked Friesian owner and breeder, veterinarian, and friend, Dr. Krista Porter, to give us that personal insight...

Megaesophagus is one of the emerging genetic disorders recognized in Friesian horses. In 2010, after 6 months of tests and trial treatments, my mare, “Kat”, was diagnosed with megaesophagus. I had treated megaesophagus in dogs, but honestly had never heard of it affecting horses. So I began the journey of learning about megaesophagus in Friesians.

The esophagus is made up of striated and smooth muscles, which constrict (peristalsis) to move food from the mouth to the stomach. Megaesophagus is a lack of tone or strength of the muscles that make up the esophagus. It is sometimes accompanied with a chronic dilation of the esophagus or an out pouching (diverticulum) of the esophagus. Megaesophagus can be congenital (present at birth) or acquired, with the age at diagnosis ranging from 1 week to 19 years. Most affected foals will show clinical signs when they start creep feeding and may have milk that comes out of their nose during or just after nursing.

The most common clinical presentation of megaesophagus in the horse is a condition called “choke”, which refers to the “plugging up” of the esophagus with feed material

with which the horse has difficulty moving down into the stomach. Horses not affected with megaesophagus can choke, but the underlying cause is often time related to dental conditions or problems with the types of feed that are fed. Clinical signs of megaesophagus, however, can vary between horses. Horses with megaesophagus lose the ability to move feed down the esophagus, which predisposes them to episodes of choke. A horse that is experiencing a choke will often repeatedly swallow with their head and neck extended out and often down. If the choke is high in the esophagus then they will often have feed material coming from their nose and mouth. A choking horse may also be drooling, coughing, and showing obvious signs of distress. When a horse chokes, it is possible for them to get some of the feed material or saliva into the lungs that may result in aspiration pneumonia. Other signs of megaesophagus may be more subtle, such as excess salivation often in the anticipation of food, loss of appetite, weight loss, or regurgitation. As I look back, my mare always had excess salivation when she anticipated dinner and had chronic intermittent nasal discharge.

The “gold standard” for diagnosis of megaesophagus that we have currently is contrast radiographs. The horse is fed a liquid that shows up white on the radiographs. A normal horse will only show minimal traces of contrast left in the esophagus, where as a horse with megaesophagus will have pools of contrast left in the esophagus. Another useful diagnostic tool is an endoscopic exam, where a small camera encased in a tube is passed through one nostril, down the throat and into the esophagus. When viewed through the scope, the esophagus should be clear and free of any material or fluid. A horse with megaesophagus will often have feed material and pools of fluid remaining in the esophagus. If the horse has an out pouching of the esophagus, this can be seen during this procedure. Once a diagnosis has been made, a maintenance program needs to be designed. As far as we know, there has never been a case of successful treatment of megaesophagus, meaning that the esophagus is able to return to normal function. The goal is to manage the condition and decrease the amount and severity of the symptoms. Managing these horses can be very challenging and often very costly, something that I know to be true first hand. Each case can be very unique in its presentation and severity. Therefore, a maintenance program needs to be customized for each individual animal.



Enlargement on the lower surface of the neck due to a dilated esophagus.

What is known about megaesophagus is that proper feeding is of particular importance and that most horses will have to be maintained on a concentrated complete feed. This means that the feed is formulated to meet all the horse's nutritional needs without eating hay. There are several available on the market and each horse prefers something different. I tried many different brands before settling on "Purina Equine Senior". It made the best mash and was the most appealing to my mare. Ideally these horses, and actually all horses, should have many small meals a day and there are automatic grain dispensers available for convenience that can accomplish this goal. However, convenience most of the time comes with a nice price tag. A grass hay or alfalfa pellet can also be used when soaked in water. In my personal experience, most of the pellets ended up on the ground or in the bottom of the water bucket where I would have several inches of mush to clean out after each meal. It is important that these horses be fed at an elevation of shoulder height. Feeding elevated allows gravity to assist in the movement of feed material to the stomach. Horses with less severe disease will often still be able to graze on pasture. The moisture content of the grass allows for easier movement of the feed and grazing encourages the small bites, which helps to avoid choking. I have also found a slow feed hay bag to be useful for allowing them to eat hay yet deterring them from taking the big mouthfuls that can get them into trouble. The "NibbleNet®" was designed to have very small openings in order to make the horse take small bites, mimicking grazing behavior. (See note at the end of this article for more information on the "NibbleNet®")

"Kat" was successfully managed for almost 2 years

on concentrated feed, pasture and herbal supplements. Unfortunately in December 2012 she had to be euthanized due to colic. "Kat" was the kindest horse I have ever had the pleasure of owning and I am very grateful to her for putting me on this path of personal and professional development. I have the pleasure of working with the FHANA health committee and the Fenway Foundation because of "Kat". I hope it is in the near future that we are able to develop a genetic test for megaesophagus and the other genetic disorders affecting the Friesian horse.

I would like to thank Dr. Porter again for giving us such good information as to what we know about megaesophagus. Let's take a moment to think about what we don't know:

**1. The pathophysiology of megaesophagus** – at a microscopic level, what is going on with the esophagus? Where is the defect?

**2. The genetics of this condition** – how is it passed from the sire and dam to the offspring?

**3. Why are some horses so severely affected** while other show only mild symptoms? What might the effects of environment, management, nutrition, and individual horse variation have on the expression of the megaesophagus gene?

So, what are we doing about this problem? The Foundation has joined a megaesophagus project in collaboration with Michigan State. The goals are to describe and define the actual defect in the esophagus from which megaesophagus results.



Swabbing the cheeks to collect a DNA sample.

to detect the gene, Friesian horse breeders would be able to conduct selective breeding against such defect. Additionally, if we could detect carrier horses that contain the genetic defect, owners could prevent potentially fatal complications associated with megaesophagus through proper nutrition and feeding management.”

What can you do to help? If you have a horse suffering from megaesophagus, please contact me at the Foundation. I can work with you to get the appropriate samples submitted, as well as helping to put together a case history to go with your horse’s DNA sample. We can’t do this without your help.....

Other interesting projects that are “out there”:

**: Update from Utrecht** – Dr. DeLasalle at Utrecht has developed an exciting new diagnostic technique to identify aortic rupture. An ultrasound probe is encased in a clear nasogastric tube that is passed through the nostril, down the throat and into the esophagus. One can then “look” at the heart and specifically at the affected area of the aorta to determine if the defect is present. This is done on a live, unsedated horse! An “elegant” procedure, to say the least.

**: Potential new collaboration with a group of researchers at University of Georgia** as they look at the condition of DSLD (Degenerative Suspensory Ligament Desmitis), it’s impact on other systems in the body and a potential link with cardiac disease. Currently focused more on Peruvian Pasos as they suffer most commonly with this condition, but it does affect all breeds of horses, Friesians included.

**: Update directly from the KFPS -**

“Working on developing the genetic test for Dwarfism and Hydrocephalus. Fall of 2012 – narrowed down the location of both mutations enough to develop a test, based on the linked SNP’s (dwarfism further ahead than hydrocephalus). Once the test is developed, the validation of the test is the next step, using horses that are ‘known carriers’. Will assess reliability of the test to determine if the test can be used. Continue to work on tracing the exact mutation, in order to have a 100% reliable test.”

**: CPL Study (Chronic Progressive Lymphedema) Update**

- Many of the horses that participated in the Blood Study also agreed to have blood sent for the CPL study. This study will get going “full swing” this June so look for updates!

**: Foundation’s Blood Reference Interval Research Project**

- I am very proud to announce that the Foundation’s ‘Blood Reference Interval Study’ has been completed! In just 8 short months, 129 samples were collected from 128 horses from all

From there, a focused effort will be made to define the gene(s) responsible for this condition such that a genetic test can be developed to screen horses for this gene. A detailed pedigree analysis can then be done to determine the family tendencies for the defective gene. This project is well underway, with a paper already submitted by this group regarding a retrospective look at the esophageal cases that were presented to Michigan State over a period of years. Their conclusion was that a significant number of Friesian horses in their study presented with what they classified as “severe esophageal disease” which was then determined to be megaesophagus. The study continues, with our participation in the form of sample submission, with a summary of the research goals provided to me by Dr. Misa Komine as a result of this retrospective study:

“This result suggests that a significant number of Friesian horses will eventually develop megaesophagus. We would like to further investigate this condition to detect the suspected underlying genetic defect and to develop a test for this defect. If we could successfully identify the causative genetic defect and develop a test

over North America. The numbers have been analyzed and much was learned. It appears that there will be about 5 different values from the CBC and Blood Chemistry for which Friesian specific values will be recommended for use. The scientific paper has been written and the abstract submitted for publication.

I wish to thank everyone who participated:

MARKEY, MATUSHAK, BORN-SMITH, HERMAN, KELNHOFER, FFFH, WITTENBERG, DREAM GAIT, PORTER, VORHESS, BOCIK, KULA, SIMPSON, FULWILER, MARSHALL, ROBERTS, ORWIG, KONRAD, BROCKWAY, CACCHIATTI, BRON, SHARP, HENSHAN, MOELLER, JEFFCOAT, CARDON, RAY, BROWN, KELLY, TORRENCE, MORRISON, VIDAL, CONNELLY, BAKER, FREIBERT, WOODS, D. SMITH, VAN OOOY, JALBERT, HAMILTON, ARGIRES, ALEXANDER, MARTIN, COOPER, DILLON, FERROZA, DEAL, MENDOZA, O'REAGAN, BEICHER, HICKS, MAACKIEWICZ, SCHMIDT, SWING, SHERMAN, JOHANEK, CALDEMEYER-REID, MAYO, HORN, BRUNIA, K. SMITH, MCCUE, CLAPP

I want to also thank their horses for donating their blood, some of who gave more reluctantly than others I suspect. Look for more information and results on the website as we are able to make them available. To sum it up, with respect to their blood, we learned that Friesian horses are alike and different from the general horse population.

Awwwww.....you guys already knew that, didn't you?

I often get asked exactly what it is that I do for the Foundation and why the Foundation exists, why we do what we do. Well, the answer is really quite simple. We do this for all of the Friesian horses that have gone before and, as we reflect on each of them, we remember them with love and respect. We do this for the Friesian horses that help us and for those horses that we help. We do this for the Friesian horses that need to find that "forever home" because they can no longer remain where they are. Mostly, we do this for all of you that own these Friesian horses. You take these Friesians into the show rings, onto the trails, to parades and weddings, to schools and



nursing homes. You share your Friesian horses willingly and show them off proudly. You love them and treasure them and "wish they could live forever". We wish that as well, so we do this to help produce a healthier, stronger Friesian horse that can live a longer, better life.



**The NibbleNet®** is proudly made in the USA. A Nibbling horse is a happy horse!!

Visit [www.NibbleNet.com](http://www.NibbleNet.com) or call 772-463-8493. The NibbleNet® is designed by a horse lover for horse lovers. The unique slow-feeding design and high quality construction make this an ideal way to feed hay to your horses. The 1 inch webbing lattice-work grid design sets this bag apart from other nets in addition to making it extremely safe and durable. The 2 inch, 1.5 inch, or 1.25 inch openings allow the horse to *graze* for his hay in a much more natural way. Instead of gulping big mouthfuls, the horse gets one bite at a time to simulate grazing. This slows him down, which is much healthier for digestion and extends the feed time. They help prevent ulcers, colic, laminitis, obesity and stall vices that arise through boredom. They are perfect for horses with limited turnout and ideal for traveling and trailering.



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