

Our Summer Venues

It's that time of year again! Many of you are moving your horses to northern states for the summer racing season, and some of our veterinarians are also making the move up north to Delaware and New York. Three of our veterinarians are relocating to Delaware Park for the summer meet, increasing our veterinary staff there to a total of five. Dr. Sara Langsam, Dr. Sarah Barr and Dr. Bonnie Comerford are joining our year-round Delaware veterinarians, Dr. Luis Benitez and Dr. Tom Reid, from April 17th through November 30th.

In addition, Dr. Luis Castro and Dr. April Downey are making preparations for the start of the meet in Saratoga Springs by returning to New York to re-open our practice there. They will be on the grounds from April 22nd through November 15th.

Our Florida clients will continue to be served by our year-round Florida veterinarians.

We are all looking forward to working with you and your horses during the coming months.

Where You Will Find Us This Summer

Delaware

Dr. Sarah Barr 954-732-2006
 Dr. Luis Benitez 443-553-2870
 Dr. Bonnie Comerford 954-732-2002
 Dr. Sara Langsam 954-732-2001
 Dr. Tom Reid 443-309-6850

Florida

Dr. Tom Brokken 954-732-2007
 Dr. Scott Hay 954-732-2003
 Dr. Martine Rodgers 954-732-2010
 Dr. Jackie Shellow 954-732-2009
 Dr. Bruce Solomon 954-732-2011
 Dr. Heidi Thomas 954-732-9378
 Dr. Joe Zerilli 954-732-2008

New York

Dr. Luis Castro 954-732-2005
 Dr. April Downey 954-732-6813



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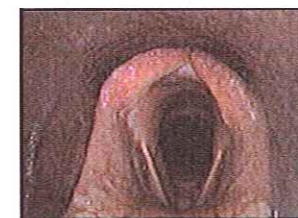
Teigland, Franklin, From Start to Finish & Brokken, DVMs

Dynamic On-Track Video Endoscopy by Scott Hay, DVM

Every once in a while, a new technology comes along that changes the way we look at things.

The digital age of radiology was certainly one of those. Now a new technology is available that will, once again, significantly enhance our ability to make an accurate diagnosis in the horse. This new tool is termed, "Dynamic On-Track Video Endoscopy."

Have you ever had a horse that made a respiratory noise and a resting endoscopic examination just couldn't determine the cause or whether or not it affected the horse? Certainly many of you have had horses that couldn't finish well in a race without any real excuse. What about the horse that everyone thinks has a breathing problem, and likely does, but no real



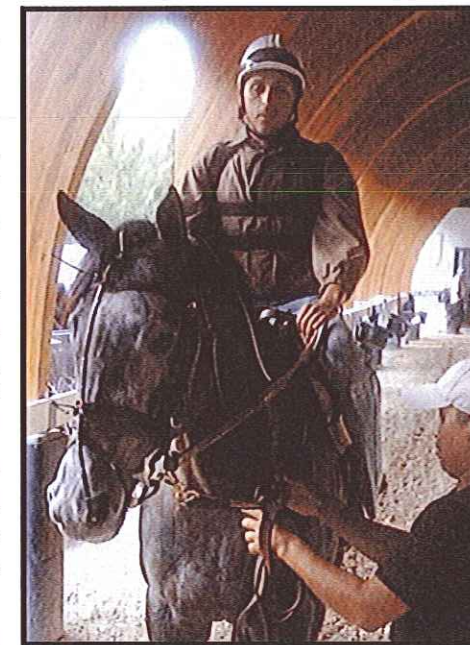
VIDEO ENDOSCOPY OF LARYNX

diagnosis can be made from resting endoscopy? How about the horse you are looking at to purchase that may have some subtle issue on a resting endoscopic exam? And think about the horse that you are trying to sell that has a similar subtle finding that could be shown to have a completely normal throat while training. Would that be helpful?

All of these questions, and more, can be addressed with Dynamic On-Track Video Endoscopy. Dynamic Endoscopy itself is not really new. Horses have been scoped while running on treadmills for years. What is new is that we now have the ability to do endoscopic examinations while the horse

is actually on the racetrack with a rider up, at training or racing speeds. Horses won't have to be shipped to a hospital facility or university setting. They will not have to be subjected to running on a treadmill, something which most horses have never experienced.

The equipment is tolerated very well by the horses and does not appear to be more distracting to them than a tongue-tie. Placement of the endoscope is performed in the horse's own stall or barn while a rider wears the digital video recording equipment in a small backpack. As the horse



DYNAMIC COLLAPSE OF LEFT ARY AND AE FOLDS DURING EXAM OF AIRWAY ABOVE

trains, a remote video monitor can be watched live (up to 400 yards) while a digital recording is being made in the rider's backpack. Once the horse's exercise is completed, the recording can be viewed immediately on any computer in slow motion. A CD of the exam can also be made and sent to your veterinarian for their evaluation.

Results of the examination can yield many findings. Often there will be no significant abnormalities found, which is important in ruling out the upper airway as a problem area. But commonly in horses selected for this examination, there will be significant upper airway issues seen only during exercise. It is very important to visualize these abnormalities accurately so the appropriate treatment or management tools can be utilized. The owner and trainer will be able to save a significant amount of time and money in the long run.

If you have a horse that you feel is a candidate for this type of examination, please make an appointment with your veterinarian.



DORSAL DISPLACEMENT OF SOFT PALATE OCCURRING DURING A DYNAMIC EXAM

Strengthening Young Thoroughbreds' Limbs by Kimberly French

One of the major challenges in training racehorses is keeping them sound. Not unlike a human athlete, a racehorse's ligaments, tendons, bones and joints are susceptible to injury throughout its career and, at times, it seems impossible to avoid some sort of musculoskeletal mishap.

Shin soreness or bucked shins is an extremely common condition in young racing Thoroughbreds and Quarter Horses (and occasionally Standardbreds). It involves the front portion of the cannon or metacarpal bone and is the result of rapid bone modeling. Before a horse begins training, its cannon bones have the same thickness all the way around. When horses start galloping, there is a considerable increase in stress on the front of the cannon bone. To contend with the stress, the equine body responds by adding new bone to the area in duress. Ultimately, this creates stronger bones, but early on this new bone is prone to microfractures similar to the stress fractures that human athletes endure during training.

The severity of bucked shins can vary greatly, but most horses will exhibit pain when the cannon bone area is massaged, will be lame while trotting, and have a short, choppy stride. Another symptom is swelling in this area of the leg.

The condition is usually diagnosed by recognizing the clinical indicators in a horse when it begins its first training and/or racing campaign. Horses suffering from shin soreness must be rested until all signs of lameness have disappeared, which can take several days or many months.

Bucked shins are not exclusively relegated to 2-year-olds but to all horses which are just beginning intense training. Some horses can suffer recurrences of shin soreness after a period of stall or paddock rest. Therefore, bucked shins do not discriminate based on the age of a horse, but depend on how intense the training is and if the horse is undertaking the action for the first time.

Dr. David Nunamaker, VMD, PhD, is an orthopedic surgeon and chair of the research department at the University of Pennsylvania's New Bolton Center who has conducted extensive research on bone development from 1982 to the present. Dr. Nunamaker, Dr. William Moyer, DVM, chair of the Large Animal and Surgery Department at Texas A&M University, and Dr. John Fisher, DVM, an equine veterinarian and Maryland horse trainer, analyzed their research results and established a training system created to reduce the severity of bucked shins or erase them.

"We found that a horse's bone shape alters in response to its training," Dr. Nunamaker said. "The

way most conventional training is conducted, a bone changes in a way it should not and that is why you get into trouble with bucked shins. Also saucer fractures seem to occur only in horses that have previously bucked their shins. This could lead to catastrophic fracture." Dr. Nunamaker concluded a problem will become evident after 50,000 cycles of trotting and galloping. A cycle is equal to one swift stride.

"The Standardbred doesn't have issues with bucked shins because you never see a pacer do anything but pace while Thoroughbreds train with a variety of gaits, such as walking, trotting and galloping," Dr. Nunamaker said. "Thoroughbreds do not run while they are training, and when they do run, it's only every 10 to 14 days. The bone remodels to what it experiences - which is not racing. Speed work is very important because when a horse runs at speed, the angle of strain is much greater. So horses that breeze more often remodel their bones for racing.

Utilizing the research results, Dr. John Fisher adheres to a training program that stresses and stimulates the cannon gradually. "When a horse is breezed, the bone sees it as an emergency and immediately begins laying down new bone," Dr. Fisher said. "This new bone is weak and needs to be strengthened through later remodeling, which would be triggered by further breezes spaced closer together. If remodeling is not allowed to take place and the horse is asked to do too much before he is ready, the new bone will be weak and prone to injury. The bone-strengthening is entirely based on stress and recovery to gradually increase bone density and strength."

In Dr. Fisher's program, horses transition from a one furlong work at 15 seconds to a half-mile or more in 13 seconds over a 16-week period.

If there are more than four days between short distance works, Drs. Nunamaker and Fisher have discovered the new bone will stop rebuilding and actually weaken, with no additional stress after five days.

Once the program has been finished, a horse is prepared to begin conventional training because he



should have accumulated enough bone strength that he will not buck shins. However, if a horse is subjected to different track conditions or circumferences, such as a European horse racing on American dirt, the threat of shin soreness resurfaces.

Even though Dr. Fisher has modified the program throughout the years, he is still quite pleased with its performance. "We just don't have many injuries at all," Dr. Fisher said. "No more tendons, no more suspensories, no more fractures."

How much high-speed work and distance are required to signal the bone to remodel itself correctly and not form weaker bone? Research is still being conducted, but Dr. Nunamaker claims the goal is to correctly change the bone at the slowest possible speed over the shortest possible distance.

"Maybe two furlongs, maybe one furlong," Dr. Nunamaker said. "Maybe it won't even have to be that far. We just don't know, but there is a fine line during a crucial time period as to what is too much and what is not enough."

Once the bone has attained maximum strength by becoming thicker at its stress points, it should stay that way.

"When we looked at the timing of the injuries that occurred in horses that have shin injuries, we found that when the horse reached four years old, it no longer had shin injuries," Dr. Nunamaker said. "It may develop injuries to other parts of its body, but not to the shins. It is in the first two years of its training program, if it starts at two years of age, that it is going to have shin injury problems. After that no more shin injuries."

It is important to note the bones are the slowest part of the body to train. In most cases, the cardiovascular system and soft tissues are prepared for the stress of racing before the bones.

Study results presented at the 2005 Australian Veterinary Association depict shin soreness or bucked shins can be avoided. Certain training techniques place horses at risk for this condition.

The most significant factor was how far the horse trained and how quickly he went. If a horse trained

at a speed greater than 33 mph during its first ten weeks of training, he tended to have some shin pain.

"A gradual increase in the weekly distances at these speeds is the key to reducing the number of cases," Dr. David Evans, BVSc, PhD and associate professor of veterinary science at the University of Sydney and one of the researchers on the project, said. The study also revealed that using short gallops of 200-300 meters at 33 mph or greater can decrease shin soreness; training horses to induce shin soreness will not reduce the risk of contracting the condition during subsequent training; and shin pain occurred much less often in horses that began training at an average age of 30 months. Dr. Evans acknowledged that much more research was necessary before any authoritative program could be implemented.

K.L.P. Verheyen, DVM, MSc, PhD, MRCVS, of the Royal Veterinary College (RVC) in London, agrees with Drs. Nunamaker and Evans that training methods are associated with injury risk. "Stress injuries are repetitive loading injuries," Dr. Verheyen said. "Compare it to a paper clip and if you keep bending it, it will break. Interval training (alternate periods of hard exertion and rest) is a better option because high-speed exercise is not as bad as previously thought. It actually stimulates bone to respond, because bone is a living tissue and is constantly remodeling. If the same exercise is repeated again and again, the bone will stop responding, which is what we think is happening with the low-speed exercise and stress fractures."

While more research must be conducted to provide greater insight into how equine bones adapt and grow, even less is known about how tendons and ligaments respond to training. In a series of recent studies, Allan Goodrich, a professor at the Royal Veterinary College and the University College of London, discovered that the tendons of young horses (less than two years) strengthen in response to training. These results raise the possibility that early training enhances the development of the limb's support structures and could diminish injuries during training and racing.

After reviewing training methods and treatments, it is obvious much more research must be completed before any sound strength management program can be introduced. "We just don't have all the answers yet," Dr. Nunamaker said.

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