

Joy Smith. I am President of the Mississippi Walking Horse Association. I have been involved in the horse industry for 30 years, encompassing amateur training both flat shod and performance horses, trail riding, having show horses in training, riding in field trials, breeding and raising colts. I have also led horses through inspection and I have observed numerous inspections over years.

First, I would like to state that the Tennessee Walking Horse industry has made great strides over the years in complying with the Horse Protection Act. The horses seen in the show ring now are nothing like the horses seen ten or twenty years ago. The industry should be commended for its overall compliance. Collectively, as a group, I do not think any of us want to see a sore horse in the show ring. We support HIOs who actually over enforce the Horse Protection Act to ensure the show horses exceed compliance.

SHOW HIO has a 98⁺% compliance rate, and that is with over enforcement. Our core differences lie in the fact that we disagree on how to detect a horse that is not compliant and how many hoops our horses have to jump through in order to finally be deemed compliant.

The USDA receives a lot of pressure from humane activist groups and their lobbyists, to further enforcement of the HPA. NONE of those groups are lobbying for tougher commerce laws, they are pushing hard on the humane front even though the HPA is actually a commerce law. The USDA should take a stand against those humane groups by responding to their complaints that the USDA does not have funds to attend every horse show or sale, but that enforcement is ensured by utilizing the HIOs, which are over enforcing the HPA.

Complaints from activist groups such as HSUS and FOSH, who refer to pads as stacks or stilts and plantation shoes as manhole covers, should NOT be what pushes the USDA or HIOs along in enforcement. Their cries that pads or action devices are inhumane and should be abolished should be countered with a response that there are no reliable scientific studies that indicate pads or action devices weighing six ounces or less violate the HPA. (A copy of the Auburn Study is submitted herewith.)

There are times when I have watched inspections that I wondered how the law itself and the federal regs, have led to what I've actually witnessing first hand. The USDA needs to get back to the basics of enforcing the law as written. In order to do so, you need to turn to your very own VMO/ DQP training manual which sets forth what to look for to detect horses that are not in compliance.

Indications of Pain: consistent and repeatable withdrawal responses to palpation; reluctance to lead; gait abnormalities or problems with locomotion, abnormal reaction of the eyes, ears and head; tucking of flanks; flexing of abdominal muscles; shifting of weight to the rear legs; changes in depth and rate of respiration; excessive perspiration;

All of these indications of pain are taken from the VMO/DQP Handbook and the Atlanta Protocol. (A copy of the Atlanta Protocol is submitted herewith.) The esteemed vets who wrote these guidelines in the Atlanta Protocol did so in order to help the USDA with enforcement of the HPA. Realizing that there is some subjectiveness to these areas, those same vets also stated that you should not rely solely on any one pain indicator in finding non-compliance - that the overall horse MUST be evaluated.

The USDA and the HIOs have moved so far away from the common sense approach found in the Atlanta Protocol, that horse industry participants have no faith in their own government or the HIOs. To build a solid future for this breed, faith needs to be re-established. If we continue down the path that we are on, where humane groups are who dictates what we can and cannot do instead of the law itself, horse industry participants will turn their backs on the HIOs. More and more already are. The USDA will not only be left to enforce the HPA 100% on its own, but it will also have to track everything down before it can even try to enforce the law.

The Atlanta Protocol actually makes sense - probably because it did not originate from the government or industry. If you use it as a guide to get back to enforcing the law as written instead of appeasing the humane groups, inspections will cease being overly subjective and enforcement will come much easier and faith will be restored.

Finally, I urge you to reach an agreement on how to interpret the scar rule definition. I keep hearing about the new scar rule. There is no new scar rule. The language remains unchanged. The USDA needs to ask the AAEP for input on interpretation of the scar rule. Get the scar rule defined where it is understandable, educate the VMOs, DQPs and horse industry participants on what that definition is and how it will be enforced.

THERMOGRAPHY IN DIAGNOSIS OF INFLAMMATORY PROCESSES IN HORSES IN
RESPONSE TO VARIOUS CHEMICAL AND PHYSICAL FACTORS

(Summary of the Research From September 1978 to December 1982)

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To study the effects of acute and chronic inflammatory responses of the horse's thoracic (front) and pelvic (hind) limbs, several studies were done over a seven year period at the School of Veterinary Medicine, Auburn University, Alabama.

Phase I. Normal Thermographic Pattern of the Horse Over 100 horses were used to establish normal thermographic patterns of both thoracic and pelvic limbs. There is a high degree of right leg to left leg symmetry to the infrared emission of the horse, which has also been shown in humans. But in the horse, there is also a high degree of symmetry between the front and rear legs from the carpus and tarsus distally. After exercise, the temperature patterns of lower legs remained very similar to normals obtained before exercise. Even though there was an overall increase of temperature due to exercise thermal patterns remained the same.

Phase II. Chemically Induced Acute Inflammation of the Thoracic (Front) Limbs and the Use of Anti-inflammatory Compounds in Horses Thirteen ponies were used to inject 1.25 ml of 1.9% iodine solution (hypodermin R) around the distal portion of the lateral left front splint. This was done to create an area of acute inflammation. Twenty-four hours after iodine injection, ponies were divided into four groups. Group 1 was control with no medical treatment. Group 2 was treated with Benzydamine Hydrochloride ointment. Group 3 was

treated with intramuscular injection of Benzydamine Hydrochloride and Group 4 received intravenous injection of Phenylbutazone BID (twice a day). All treatments were done for 5 days and ponies were evaluated by clinical examination for heat, swelling, pain, and physical soundness, and thermographic evaluation was done before and after exercise.

The objective of this study was to evaluate thermography as a means of quantitative determination of acute inflammation and therapeutic effectiveness of the anti-inflammatory compounds. The induced inflammation was readily shown with thermography while comparing control, nontreated and treated with anti-inflammatory compounds. Anti-inflammatory compounds like benzydamine and phenylbutazone decreased inflammation when compared to nontreated inflamed animals. Thermography was very effective in the diagnosis of inflammatory responses and healing processes.

Phase III. Thermographic Evaluation of Tennessee Walking Horses, Using Various Chemical and Physical Factors (A Field Trial)

A one week extensive field study was performed on seven Tennessee Walking Horses, owned by various owners and trainers. This study was performed at Murfreesboro, Tennessee. Seven horses from various areas were brought and housed at University Camps of Murfreesboro, Tennessee. Each horse was individually handled by their trainers to provide field condition. Some of these horses were young and some were old. All had been shown at various Walking Horse shows in the nation. At one time or another these horses were considered to be sore according to the conversations with trainers and owners. Our objective for this phase of study was not to document how and when they were sore, but to evaluate these horses for a period of five to six days.

Horses were given a thorough physical examination and pertinent data were recorded for information. Various thermographic views of all four legs were obtained pre-exercise and thereafter at 15, 75, 135, 255 minutes respectively for 5 to 6 days in each horse. In some horses 18 oz. chains were used for one day during exercise and then 10 oz. chains were used during exercise the other day. All horses were exercised by the trainer of a horse or by a trained horse rider hired on the research grant during the 6 day study period.

With a few exceptions, most horses having old callouses will modify the thermographic patterns. But the effects of soring and the use of heavy chains can be differentiated from old callouses by comparing thermographic pictures with physical evaluation and location of the callouses. Thermographic pictures obtained 15 minutes after exercise in normal horses could be differentiated from the horses who were sore due to chemical or physical factors. This field trial produced results similar to those obtained by Dr. Nelson at Ames, Iowa.

Phase IV. Subclinical Diagnosis of Osteoarthritis by Thermographic Technique

Thermographic and radiographic evaluations of the tarsus (hock) were done in 20 horses, prior to and after exercise at 3

consecutive six week intervals. All horses were from the same stable, receiving identical care and training under equivalent schedules and conditions. . Normal thermographic patterns were established for pre-exercise and post-exercise workouts. These patterns corresponded to the underlying tarsal vasculature. Post-exercise thermal patterns were generally warmer, and the increases were uniform. Abnormal thermal patterns were more localized and did not conform to the normal underlying vascular distribution. The results of this study suggest the four horses that were unable to race professionally suffered sufficient discomfort in their hocks to cause reduced performance and inability to meet minimum track qualifying times. These horses were clinically sound but all exhibited positive thermal changes of the medial aspect of their right hocks with no radiographic evidence of inflammation in the corresponding surfaces. It is my opinion that the medial aspect of the right hock bears more weight and stress when horses racing counterclockwise make the turns of the track, and is consequently prone to traumatization and early degeneration. Only one horse exhibited clinical lameness, supported by radiological findings as well as abnormal thermal patterns within the same area. It may then be concluded that abnormal thermal increases may be detected in the subclinical stages where only slight discomfort produces reduced performance. This study did determine that thermographic changes can be detected prior to radiologic changes and that these thermal increases were correlated with discomfort that presumably resulted in reduced performance. Standardbred horses were used in this study.

Phase V. Thermographic Evaluation of Sore Horses

Objectives of this study were: to evaluate chemical soring without use of action devices; to determine the pressure at six different areas of the foot below the fetlock joint in response to chemical soring; and to evaluate thermographic pictures along with the gait of horses using videotape recording. Normal thermographic patterns, before and after exercise were similar to those reported previously (Phase I) in all three horses. Application of detergent soap and leg wraps for two days produced an increase in IR-emission pattern of the treated legs. This increase in temperature varies from 2-4 degrees C warmer than the non-treated legs. Following use of detergent soap, same legs were used for application of mustard oil. After second application of mustard oil, horses showed obvious signs of pain and discomfort. Horses were also very sensitive to touch. Thermographic evaluation of affected foot showed increase in IR-emission pattern and consisted of about 5-7 degrees C rise in temperature when compared to the non-treated legs. Three to five days after the last application of mustard oil there was gradual decrease in temperature, but did not return to normal level for 3 to 4 weeks. Rectal temperature along with temperature recording from the pastern area of the foot also increased following treatment with mustard oil. Thereafter, there was a gradual decline in both rectal temperature and the temperature

in the pastern area of the foot. Rectal temperature was between 99 to 101 degrees F before soring. Seventy-two hours after second application of mustard oil rectal temperature averaged about 105.5 degrees F (pre-exercise). Immediately after exercise, in sore horses there was a slight decrease in body temperature, whereas non-sored horses had an increase of body temperature of 1 to 2 degrees F. Six point pressure (SPI) below fetlock joint were recorded in all horses. In clinically normal horses before exercise, a mean pressure of 36 to 37 lbs. were recorded, prior to the flinching response. Fifteen to 30 minutes after exercise the pressure dropped to a mean value of 31 psi. Application of detergent soap followed by wrapping of the leg for 24 to 48 hours caused slight inflammation. This inflammation was obvious on thermographic evaluation. When these horses were tested for pressure response on the treated foot there was a marked reduction in pressure recording. Thus, point pressure obtained indicated the presence of inflammation. After the second application of mustard oil, treated legs were sore and inflamed to the extent that horses will not tolerate point pressure above 5 to 10 psi in the affected areas. Whereas non-sored legs of the same horse will withstand a pressure ranging from 24 to 40 psi. Thus one could conclude that along with physical examination and thermographic evaluation, point pressure of affected areas could also determine the inflammatory responses which can be quantitated by using point pressure recording. Increase in body temperature could also be used in acute cases of active inflammation, but further studies are needed in this area with the speculation that in response to chronic pain, body temperatures may not stay elevated in all horses.

Phase VI. Determination of Thermographic Patterns in Response to 10 oz. chains

The objectives of this study were to determine the effects of 10 oz. chains on normal horses, before and after exercise for a duration of two weeks and to use pressure testing device along with thermography and photographic documentation of any lesions produced by 10 oz. chains. Three horses (Nos. 3, 4, and 6) were exercised without chains for several days to obtain normal thermographic patterns and pressure data. Thereafter, the horses were exercised with 10 oz. chains for 10 consecutive work days (given weekends off) and pressure data were collected along with thermography and photography documentation. Horse No. 4 had 10 oz. chains on both pasterns whereas Horse No. 3 had a chain on the left pastern and Horse No. 6 had a chain on the right pastern. The chains were fitted according to the USDA, APHIS, Veterinary Services regulations so that the chain struck the pastern at least one inch above the coronary band. Results of this study provided evidence that by day 7 of exercise with chains lesions can be produced on a horse's legs. By the 10th day of exercise with chains, these lesions were more obvious and were present on the anterior and posterior areas of both right and left pasterns. The anterior

lesions were about 1 to 2 cm in diameter and about 0.5 cm deep with the presence of edema, exudate and some bleeding. The posterior lesions were less deep, covered a larger area and had an appearance more like an abrasion. Thermographically, horses exhibited altered thermal patterns as early as day 2 of exercise with chains. These altered thermal patterns persisted as long as chains were used. After 10 days of experimentation with chains the horses were exercised without chains, and it took about 20 days in recovery to obtain normal thermal patterns. Scars formed by using chains continued to show altered thermal patterns compared to the normal areas. Horse No. 6 was exercised with a 10 oz. chain on the right leg only so it could be compared to the left leg. The right pastern area developed inflammation and edema by day 8 and visible lesions by the 10th day. Alterations in thermal patterns of the right leg were present as early as day 3 after exercise with chains. Recovery in this horse was parallel to that of the other horses. It was concluded that the use of 10 oz. chains for 10 days without use of chemical soring produces lesions in the areas of the pastern which can be seen visually after 8 to 10 days and altered thermography patterns can be seen in 2 to 3 days. If animals are allowed to recover without use of anti-inflammatory treatment it would take 3 to 5 weeks for their thermal patterns to return to normal. Extent of soreness due to chains only are less dramatic than the chemical soring.

Phase VII. Simultaneous Use of Chemical and Chains for Soring Horses

The objectives of this study were to determine the effects on forefeet of horses of detergent, mustard oil and chains, before and after exercise for a duration of two weeks and to determine if pressure readings from the forefeet of sored horses will correlate with the thermographic findings. Three horses (Nos. 3, 5 and 6) were exercised several days in a normal fashion and the animals were monitored to establish pre-treatment physical condition of the forefeet. Data were obtained by pressure testing, thermography and by taking rectal temperature. Liquid detergent was liberally applied to the pasterns of the forefeet and they were then wrapped in plastic and cloth bandages. The next day the bandages were removed and # 3 was exercised 15 minutes with chains on both feet, # 5 with a chain on the right forefoot and # 6 with a chain on the left forefoot. Ten ounce chains were used. The next day 18 drops of oil of mustard were applied to each pastern after the horses had been exercised in chains as previously described. Plastic and cloth wraps were applied and left on overnight. Wraps were removed the next day and the horses exercised in chains for 15 minutes each day (except weekends) for 8 more days. The horses were then exercised in a normal manner 5 times during a 10 day recovery period. Results of this study showed that the combination of detergent, chains, and mustard oil caused the clinical signs of a sored horse described by Nelson (1975). Horse # 3 (chains on both legs) and # 6 (chain on left leg) had some bleeding in the pasterns