

VETERINARY GUIDELINES FOR JUDGING AERC ENDURANCE COMPETITIONS

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PREFACE

The rapid expansion of distance riding throughout the world requires an ever-increasing number of qualified veterinarians. This handbook serves as a guideline for the effective veterinary control of endurance competitions. Only the broadest principles are stated and more detailed information can be obtained from a member of the AERC Veterinary Committee. Call the AERC office (866-271-AERC), visit www.aerc.org, or see a copy of *Endurance News* for the list of current Veterinary Committee members.

INTRODUCTION

The purpose for knowledgeable veterinary guidance is to ensure the health and welfare of the horses competing in endurance rides. The level of metabolic and physical stress is high and the rider must learn to read his/her horse to reach optimal performance for that horse on that day. During the course of a ride, the veterinarian sees the horse only periodically. Therefore, the responsibility of the horse's welfare and performance clearly remains with the rider. Optimal performance utilizes all available substrates without metabolic or mechanical damage.

The rules of this sport are ever-evolving to allow for a competition that is fair and consistent for horses and riders at all AERC rides. These Veterinary Guidelines for Judging Endurance Competitions have been developed by experienced endurance veterinary judges. It is the duty of every veterinary judge to know the rules to the best of his/her ability and to consider the medical safety and health of the horse participants. Necessary supplies for treatment, or the arrangement thereof, and a comprehensive plan for said treatment, are the responsibility of the Head Veterinary Judge.

The ride veterinary judge should understand all of the AERC rules. Read, review, and reacquaint yourself with all rules and these guidelines prior to taking on this responsibility. These guidelines may be superseded by any rule changes made by AERC. (Please refer to the most current AERC Rule Book.) Also spend a few moments with the ride manager to discuss any ambiguities. We have made an effort to make these guidelines readable and understandable and they have been prepared to provide assistance to the ride veterinarians. They **are not** standards of care or conduct. Common sense and good clinical judgment must prevail in each situation. Factors such as ride location, space, time and manpower, as well as trail and environmental conditions may demand different practices. Realize that at times it's difficult to differentiate between a horse that is tired and needs to cease work versus one that is in serious metabolic trouble and needs aggressive treatment. Attempting to follow these guidelines will help to protect the well being of endurance horses. Thank you for your time and effort in making our sport the best that it can be.

2006 AERC Veterinary Committee

VETERINARY GUIDELINES

Qualifications

Veterinarians should systematically qualify themselves for endurance judging. This implies not only extensive self-preparation and evaluation for those who have never been involved in this professional activity but also the constant updating and reevaluation of one's skills from time to time.

Familiarization: It is not advisable for a veterinarian to undertake endurance judging without any previous acquaintance with the sport. If you are invited to judge and have never done so, try to familiarize yourself at least by observation of other endurance rides and by your assistance to other veterinary judges on these rides. Likewise, if you have been away from the sport for a period of time, try to attend a ride to see how much evolution in judging has occurred since you were last active.

Professional Qualifications: Veterinary judging of endurance riding requires rapid and critical decision-making based on thorough acquaintance with exercise physiology and pathology. Review the basic and recent literature on that subject.

Equestrian Qualification: If you can gain experience as an endurance rider, it will provide a dimension of understanding that is not really obtainable in any other way. If that is not possible it is useful to have had some kind of competitive equestrian experience or at least to have been a casual rider. This may allow you to have a better understanding of a horse's and a rider's problems.

Personal Qualifications

1. The veterinarian should be tolerant, objective, firm and fair.
2. The personality should be pleasant, helpful, good-humored, kind and concerned.
3. No alcoholic beverages or recreational drugs should be consumed during the competition. This cannot be too strongly stressed: the credibility of one's judgment in the presence of liquor or drugs is rightfully suspect.

Equipment

The amount of equipment will vary with the circumstances and whether or not you are serving as head veterinary judge, assistant veterinary judge, or sole veterinarian for judging and treatment. For simple judging, you will require a stethoscope, thermometer, watch with a second reading, and hoof tester.

Treatment:

As a veterinary judge you may be asked to give emergency treatment to horses arriving at your check point. You should have the appropriate equipment and supplies. (See list under the section entitled Suggested Equipment and Medications on page 28.)

If you are the designated treatment veterinarian for the ride, come equipped for a variety of possible contingencies. Refer to the section entitled Suggested Equipment and Medications on page 28.

Duties

Pre-ride planning and briefing: Prior to the start of the ride, the Head Veterinarian should participate with management in all phases of planning that affect the stress levels which the horses may experience. These include: layout of the trail, the selection of check points (access and time required) and their staffing (at least two P&R crews per veterinarian on large rides), the provision of emergency care, as well as access for removal of horses requiring ambulance service. The Head Veterinarian sets pulse criteria and length of the holds. Briefing the management, other veterinarians, the control staff, and the riders on criteria is also the responsibility of the Head Veterinarian. Thought and judgment applied here prevent most of the problems that can arise unexpectedly from poor planning. **Veterinarian(s) must have absolute and complete control over all matters affecting the welfare and safety of horses.**

Taking on the task of being a ride veterinarian implies a commitment to the horses, riders, and ride management. Your presence at the ride site is required from the start of check-in until one hour after the last horse has safely completed the course. In accordance with AERC rules, at least one

vet must remain at the ride site for at least an hour after the last horse has finished. You should arrange to have emergency coverage for your personal veterinary practice so there is no interference with your duties as a ride veterinarian. If all ride veterinarians must leave the ride site following an hour after completion of the last horse, ride management should arrange for local veterinary care for horses remaining on site.

VETERINARY JUDGING AND SAFETY

Support staff for veterinary judging (others for management)

Optimal:

- P&R crews to gather objective data. Good personnel here can halve the veterinary judge's effort and double efficiency
- Marshal to regulate horses, staff, pit crews, spectators and vehicular traffic at vet stops and road crossings
- Timers at vet stops
- Recorders
- Communications system between officials and between vet checks
- Ambulance (transport) for horse casualties
- Treatment veterinarian(s) or arrangements for prompt emergency coverage by a local equine veterinary practice

Desirable:

- Marshal to control pre-ride and post-ride examinations for efficient flow
- Timer assistants
- Extra P&R crews and recorders at busy vet stops
- Drivers for each veterinarian may be recorders, but **MUST** know routes
- Radio network for emergency access
- Trail-sweepers, mounted patrol, drag riders
- Go-fers to run errands and facilitate communications amongst officials

Control

The amount of stress of the competition horse should not exceed a level where metabolic or mechanical damage could occur.

- A pre-ride examination should find and prohibit from the competition horses that are mechanically or metabolically either unsuited or unprepared.
- On-course examinations detect signs of excessive stress rates.
- A post-ride examination qualifies a horse for completion and is a chance to consult about horses with signs of stress, whether metabolic or mechanical. Plans should be made for the continued care of horses at the ride site and/or referring them to a veterinarian of the owner's choice.
- On-going inspections in camp assess the safety and suitability of arrangements and care before and after the ride.

Control of the course (refer to previous statistics from this ride, if available). As to the route assure that:

- the test is reasonable without undue hazards of mechanical injury or metabolic exhaustion;
- there are sufficiently accessible check points;
- there are a sufficient number of veterinary checks and ample total hold time.

As to the length of the course, assure that completion within the time allowed under the circumstances presented is reasonable. Climate, terrain, or altitude must be considered. These conditions increase the stress levels and require careful consideration of the relationship between the length of the course and the time allowed for completion.

Control of ride: Change the time of the start or even cancel the ride if weather conditions or terrain conditions create an unacceptable hazard to the horses' health.

Treatment

When possible, the veterinary judge should NOT be the primary treatment veterinarian. Even small rides should be encouraged to have a separate treatment veterinarian available. In large rides, the Head Veterinary Judge

should designate which of the veterinary judges will switch to treatment in the event of problems. Treatment is almost universally a fee-for-service arrangement between the rider and the treating veterinarian. Details of the signs and recommended treatments for various diseases of exertion are provided under the Treatment section on page 30.

“Judge and Jury”

Management may wish to add adjudication of all disputes to the duties of the veterinary judge. Resist this tendency. Management should handle all complaints and protests relating to the trail markings, timing and all non-veterinary matters. Veterinary judgment should be confined to matters relating only to the horse’s health and safety.

Special Awards

Unless you have special expertise and the time available outside of your judging or treatment duties, disqualify yourself as a judge for such special awards (breed, trail horse, sportsmanship, etc.) or just refuse to participate. Recognized horsemen or women are usually better qualified and better accepted by the competitors as judges for this kind of award.

Agreements

Get in writing the time and place of the ride, the duration of service, the duties you are to undertake, the assistance that will be provided, and the compensation (expenses reimbursed and amenities included). The time to clarify expectations is not during the ride. Misunderstandings can endanger the horses and create liability issues. Be sure that you make your agreement with an authorized member (ride manager if possible) of the management team. Satisfy yourself that treatment of a horse will comply with the requirements of the state in which the ride is held.

Head Veterinary Judge

Establish who will be securing the services of additional veterinary judges and treatment veterinarians. They must be mutually acceptable to you and to management. **One veterinary judge per 15 to 25 horses and**

one treatment veterinarian for 30 to 40 horses are usually recommended.

A larger number of veterinarians is required where the speed or stress level is high. If you are to contract with other veterinarians for their services, get signed agreements from the management for your team to complete and sign. Since management will ultimately be responsible for their care and compensation, the agreement will be with management rather than with you as Head Veterinary Judge.

Establish that treatment supplies will be sufficient in kind and quantity and make lists of who will provide what. Do NOT rely upon ride management to provide adequate medications or supplies; this is the responsibility of the head or treatment veterinarians. Also, establish the qualifications and preparedness of the treatment veterinarian(s) prior to the ride and consult closely with that veterinarian in setting up interaction between the judging and treatment services.

Establish the location and availability of an emergency veterinary referral hospital, and make contact with the veterinarians at that clinic so they are in readiness to admit a sick or injured horse. Get detailed written directions to the clinic as well as appropriate contact phone numbers. Make these readily available to members of the veterinary staff to distribute to the driver of the sick horse.

The Head Veterinarian sets pulse criteria and length of the holds, and is responsible for briefing the riders about criteria prior to the ride.

Associate Veterinary Judge

As an assistant veterinary judge, be sure you understand the level and limits of your responsibility for decision making. If the decision making process cannot be arranged to your satisfaction decline to serve.

Treatment Veterinarian

- Establish how injured or sick horses will be reached, transported, and kept for ongoing treatment.
- Establish an emergency protocol for the riders prior to arrival of help (e.g., stay in one place, go to nearest road, etc.). This should be discussed at the rider briefing.

- Establish who supplies, stores, and distributes the large bulk of materials such as fluids.
- The treatment veterinarian should determine the financial arrangements with ride management. Riders should be informed of financial responsibility for treatment of their horse.
- Veterinary students and trained veterinary technicians under direct supervision of a licensed veterinarian can help in ongoing care. **The responsibility for all medical decisions and choice of treatment options remains in the hands of the treatment veterinarian.**
- Establish a plan for referring a sick or injured horse to a referral veterinary hospital.

Combined Judging and Treatment Service

If this arrangement cannot be avoided, establish the priorities of treatment over judging. If the saving of a horse's life demands your full attention, specify that the ride will have to stop until you can return to control duties. If you must undertake combined duties, provide for bulk supplies to be available at each check point.

Preparation

Professional Review: If you are new to endurance judging, or have been away from it for more than a year or two, review the basic and recent literature and discuss recent developments with a member of the AERC Veterinary Committee or comparable colleague.

Read the Rules: Read the AERC rules as well as the rules as prepared by ride management. There are many items of local option in establishing and running rides that fall outside the AERC rules. Carry copies of both sets of rules with you while on duty in case you are unavoidably drawn into dispute.

Examine the course, at least on topographic maps. When possible, examine representative segments of the trail from the back of a horse or an ATV.

Draw up a veterinary flow chart for all vets. (See sample Veterinary Flow Chart, Appendix C.) **Make sure that scheduling allows for the fastest pos-**

sible arrival at a check point and the last permissible rider departure time. Have capable vehicles and knowledgeable drivers to transport veterinarians. **When possible, a veterinarian should remain at every vet check until every horse has departed from the vet check.** If this is not possible, be certain that a representative of ride management remains, and that communication to open vet checks is continued until the last horse has departed.

Prepare for the rider briefing, with notes to:

- Review the physical signs of stress that establish your rational basis for control procedures and criteria;
- Describe control procedures and criteria and detail the flow patterns through each check point. **Any changes to previously designated criteria must be posted in writing in a location accessible to all riders prior to the start of the ride as well as be mentioned at the rider briefing;**
- Describe the special concerns that you have about the terrain and/or weather in various sections of the trail which you feel should affect the riders' strategy and pacing;
- Describe the post-ride examinations for completion and Best Condition awards.

On-site before the veterinary check-in:

- Establish the competence of lay help to carry out assigned functions of taking temperature, pulse and respiration.
- Brief the veterinary and management staff on pre-ride, control, and post-ride criteria procedures.
- Distribute schedules and assignments to the veterinary staff.
- Lay out the pre-ride inspection site for efficient assessment of horses.

Pre-Ride Veterinary Examination

Have management provide marshalling to keep this orderly.

Principles: Assess the readiness of every entry to withstand the rigors of this ride. Rigorous screening at this point prevents problems during the ride. Concentrate on the essentials. You are not examining the horse for purchase; you are looking for evidence that the entry may not complete the ride in the time allowed due to metabolic fatigue, mechanical failure, or exterior injury.

Horses showing any degree of lameness should be re-presented for examination by the entire veterinary staff, if possible. **All horses with any degree of lameness should be reviewed by at least two veterinarians before eliminating the horse from starting.** In rides with excessive numbers of horses, two or three members of the veterinary staff should be designated to review questionable horses. Courtesy may suggest an explanation of reasons for elimination and review with the disappointed rider when, and if, time permits.

Procedure: Be systematic. **All parameters described on the rider card should be assessed and noted on the card at the pre-ride vet check, at every subsequent vet check, and at the finish line vet check even if the horse has been eliminated.**

Rectal temperature may be taken by members of the lay staff before each horse is presented for examination.

Evaluate the heart rate and rhythm at rest. Then the horse can be jogged for soundness. If he jogs unsound, ask the rider to return at the end of all the examinations for further evaluation and a decision. Firm consistent footing is desirable for jogging. In reexamining doubtful entries, detailed palpation, flexion tests, hoof testers, and other diagnostic procedures may help to segregate the innocently sore from the dangerously lame. Examine the heart and lung fields with a stethoscope just as the horse returns from jogging. The rapid decline of the pulse from the slightly elevated rates achieved at the jog will enable you to form an opinion about the quality of the organ as a pump and the rapidity with which it returns to resting rates. It will also enable you to pick up significant irregularities.

Complete the metabolic examination according to the order on the rider's veterinary card as shown on page 46 and 47. This has proved to be logical, easy to remember, and representative. If you practice it from the first horse, it will become second nature, and easy to complete rapidly during the ride at the vet checks. These largely subjective parameters are best rated ABCD rather than numerically. While not every veterinarian will draw the distinctions between grades at the same point, every other examiner will know whether the sign was rated (A) superior, (B) acceptable, (C) cause for concern, or (D) unacceptable and cause for elimination. Numerical or

descriptive notations are less informative. Start at the nose and mouth, assessing mucous membranes and capillary refill. Press over the jugular vein for venous refill time. Pinch up a tent of skin on the point of the shoulder; this is a more consistent location than using the side of the neck to assess this indication of dehydration. Any delay is noteworthy; a second or longer is definitely significant. As you move toward the rear, ballotte the triceps, glutei and ham muscles for tone and reaction. Palpate the back and loins. Stop and listen to all quadrants for gut sounds which need not be loud or numerous to satisfy but should be present. Step to the rear and lift the tail, evaluating tail muscle and anal sphincter tone. Make a quick tour of the horse for symmetry, for mechanical defects, and interference lesions to estimate obvious liabilities of locomotion.

The trot out should be straight out and back for a sufficient distance and the horse may be circled in each direction to observe that the horse shows no consistent gait aberrations under normal circumstances. Do not use severe maneuvers or flexion tests on this exam. Save these diagnostic procedures for re-evaluation. If the horse jogs sound, the legs can be examined in a cursory fashion. Don't get caught up in minute palpation of the legs. Inspect all limbs for signs of previous significant disease such as a thick joint, tendon or ligament, recent wound or severe interference. If necessary, quickly feel suspicious areas, but avoid deep palpation or strenuous manipulation of the legs. Pick up each foot and check the adequacy and type of shoeing. Similarly review saddle, girth, and bit areas for suspect or overtly painful lesions.

Do not omit a general impression of the horse; assign it an ABCD value on the rider's card.

Disqualification: The standard to advance at an endurance ride is "fit to continue." This involves all aspects of the horse, i.e., metabolic and/or lameness. It is not always possible to make a definite diagnosis as to lameness, however, it is incumbent upon the veterinarian to make a subjective evaluation of the horse's gait as to "fit to continue." The AAEP guidelines for lameness as defined below act as an aid in evaluating and determining if a horse is "fit to continue."

Before the ride, horses with Grade III or IV lameness are excused ir-

respective of diagnosis. Time pressures require judgments to be rapid and critical. However, many times the rider can be held until adequate time is available to better assess a questionable lameness. Horses with Grade II lameness should have the source of their problem identified if possible and a judgment made as to prognosis with work. A rider with a horse with Grade I lameness should be advised of the finding and an effort made to find the potential cause. If a brief examination fails to find any, such horses can usually proceed under careful surveillance. Many will complete the ride in satisfactory order, some will become lame enough to disqualify. Seek a second veterinary opinion when possible if considering disqualification of a horse at any time during a competition.

Lameness

Definition: Lameness is a deviation from the normal gait or posture due to pain or mechanical dysfunction.

Classification: Approved by The American Association of Equine Practitioners/ December 1981

- **Grade I.** Difficult to observe. Not consistently apparent regardless of circumstances (i.e., weight carrying, circling, inclines, hard surface, etc.).
- **Grade II.** Difficult to observe at a walk or trotting a straight line; consistently apparent under certain circumstances (i.e., weight carrying, circling, inclines, hard surface, etc.).
- **Grade III.** Consistently observable at a trot under all circumstances.
- **Grade IV.** Obvious lameness at a walk: marked nodding, hitching, or shortened stride.
- **Grade V.** Minimal weight-bearing in motion and/or at rest; inability to move.

In eliminating horses for condition before the ride, subjective judgment should be applied with caution. Obviously sick horses, coughing horses with or without nasal discharge, major heart murmurs or irregularities are to be held out from competition. Thin, fat, over- or under-trained horses are more difficult to eliminate without just cause; always feel free to express your concern to riders of horses with liabilities, and to order and conduct extra-close surveillance during the ride.

Rider Briefing

This is the time to establish the relationship between the control staff and the riders and should be undertaken seriously and systematically. Introduce all of the staff assisting in control, review the procedures and most importantly, the recovery **criteria** for control. Remind the riders that the veterinary control team is in partnership with the riders. Discuss the traffic patterns at the various check points and any special areas or features of the trail or conditions of competition that particularly concern you. Discuss the logistics of hauling eliminated horses out of check points back to base camp.

Advise the riders how to handle a horse that becomes seriously tired and/or lame on the trail between vet checks. Suggestions include: utilize shade, supply water when possible, cool the horse when possible, walk to nearest designated point. If the horse fails to recover to ride recovery parameters or is too lame to continue at a walk, then **STAY WHERE YOU ARE** until veterinary help can be brought to you. Inform passing riders of your situation and location and ask them to relay this information to officials at the next veterinary check.

Records and Recording

Riders have come to expect a record of their performance; management needs a record for reporting results, tabulating for awards and for adjudicating disputes and protests; veterinarians need records to provide reference during and after the ride for evaluation of fatigue and gait changes, for control and Best Condition awards. (See sample Rider Card, Appendix D.)

Usually recording assistants, sometimes referred to as veterinary secretaries or veterinary recorders, are designated by ride management to accompany each veterinarian. The veterinary secretary enters on the appropriate forms all observations and opinions dictated by the veterinary judge. The veterinarian should demonstrate to the veterinary secretary how to enter the data while examining the first few horses.

Riders should retain the original ride card throughout the ride. These cards enable veterinarians to carefully monitor any change in stress levels between vet checks.

Control

Entering the Veterinary Check:

- “Gate” into a timed hold (15-60 minutes). This is the commonly used procedure for entering veterinary checks. When entering the veterinary check, the horse is given an arrival time and it **must meet recovery criteria within 30 minutes of arrival**. The “hold” time designated for that particular check point starts as soon as the horse meets recovery criteria. This method discourages racing into check points at the anaerobic work rates that are contrary to optimal endurance performance. The “gate” tends to group together horses of like ability, and to slow those horses not capable of the pace at which they have been traveling. Most fit horses ridden within their level of ability recover within three to 10 minutes of arrival at the check.
- If pulse recovery parameters are not met at presentation, there may or may not be an additional time required before re-presentation is allowed. If criteria are not met at the second pulse check, then a third check is sometimes permitted with a veterinarian taking the pulse at that time rather than a P&R volunteer.
- If the criteria are met at the initial examination, the rider goes directly to the veterinarian for the rest of the fitness evaluation. The “gate” concept encourages competitors to compare their horses to other people’s horses and to choose the work rate that is most likely to approximate a reasonable goal for each horse.
- During the timed hold, riders and crews can rest and make adjustments to tack and equipment, and if necessary may re-present the horse to the judges for reassessment of “fitness to continue.” This enables the judges to monitor progressive recovery, hydration, and lameness within the horse’s mandatory hold time.
- The time of the mandatory hold may be extended or shortened during a ride if unexpected weather conditions or control problems arise. This must be modified prior to departure of the first horse at the check so all horses are subject to the exact same restrictions.

Spot Checks

A horse may be eliminated at any location on trail or in the vet checks.

Principles

- Examine horses regularly and often during the ride (at least two to three times during most 50-milers, five to eight times for 100-milers, with the greater frequencies recommended in difficult terrain or hot, humid weather).
- Recognize fatigue factors promptly and advise the rider how to modify the use and care of the horse to achieve completion. **Remember there are no conditional releases.** Remind yourself that there is no guarantee that the rider will follow your advice.
- Use progressive pulse recovery (to 64 bpm or less) as an indicator of fitness. P&R crews should be available to facilitate taking heart rates. When a horse arrives at a vet check during a ride, it has 30 minutes to meet pulse criteria and to present to the veterinarian.
- Evaluate respiration recovery rates; consider the minute volumes of air being moved more than the numerical rate, taking into account the ambient temperature and humidity and the horse's body temperature. Rectal temperature should be less than 103.5 degrees Fahrenheit and should drop within 10-20 minutes of stopping exercise.
- **A veterinarian should perform a complete hands-on exam of every horse.** Carefully examine and auscultate horses that present with poor recovery numbers or signs of fatigue. Use the Cardiac Recovery Index (see below) in conjunction with all other clinical parameters to determine "fitness to continue."

Criteria

Pulse: Pulse recovery with rest has become the main objective measure of "fitness to continue." When examining a horse with questionable parameters, refer to the in-time to see how much time has elapsed since arrival at the vet check. The less stressed horse achieves a pulse of 64 bpm or below within five minutes of rest. A recovery rate of 64 bpm or less within 10 minutes should be expected. A recovery rate of 52-60 bpm within 20 minutes

of arrival is a reasonable expectation. The palpable pulse and auscultable heart beat should be regular and full, not wandering, labile, thin or “slapping.” At “gates,” if the original criterion for pulse is not met at the first requested check there may be a time penalty of two to 10 minutes until the horse can be officially checked again. **The horse must recover to criteria within 30 minutes of arrival at the vet check.** This criteria for elimination should be discussed at the pre-ride briefing.

The Cardiac Recovery Index: The ability of the horse’s circulatory system to accommodate the level of exertion experienced at the event is monitored by use of the Cardiac Recovery Index (CRI). The CRI may be performed at all vet checks at endurance rides, including the finish line vet check. The horse is not presented until it has met recovery criteria established for that ride, usually of 64 bpm or less. The horse is then presented to the veterinarian, and a resting heart rate is taken. Then the horse is trotted 125 feet out and 125 feet back. (The gait can be observed during the jog out for soundness and impulsion.) At exactly one minute from the time the horse **started** the 250 foot trot out, the heart rate is taken again. Most horses complete the trot out within 25-30 seconds, allowing the horse to stand quietly for the remainder of the minute. (For a horse that does not object to being handled, the veterinarian can initiate evaluation of the metabolic parameters during the remainder of the minute.) A horse that is demonstrating adequate metabolic compensation should recover to the same resting heart rate taken before the 250 foot trot out, or preferably to a heart rate of four bpm less than the starting rate. If the heart rate elevates during the CRI, the horse should be asked to return for a recheck CRI within 10-15 minutes to monitor for progressive recovery. The veterinarian should take a second look at all metabolic parameters at that time, including a second CRI. **The CRI is not necessarily used to eliminate a horse from competition; the entire clinical picture is used to assess the ability of a horse to continue in the event.**

Respiration: Respiratory recovery varies with the weather conditions. It is the volume of air being moved per minute that is the critical factor. Under normal cooling conditions, the respiratory rate will subside parallel to and below the pulse rate. Since endurance effort produces high body

heat and since horses vary in their respiratory response to poor cooling conditions, panting in hot, humid weather can be entirely consistent with optimal performance. If pulse and other signs of recovery are prompt and progressive, panters with a true core temperature below 103.5° F are merely devoting respiratory effort to further cooling within the physiologic range. Any horse with a rectal temperature above 103.5° F should be closely scrutinized for other fatigue signs and made to reach and maintain cooler temperature to be “fit to continue” on the trail. Some panters can be recognized before the ride during the pre-ride inspection in hot, humid weather by their tendency to rapid shallow breathing with rates in the 40s or 50s when they are entirely at rest.

Body Temperature: At least 70% of the energy of muscle metabolism converts to heat within the working muscles. Horses working near their maximum aerobic rates (and faster) develop elevated body temperatures. Rectal temperatures of 101-103 degrees F are common and tolerable. Rectal temperatures above 103 degrees F for longer periods can be dangerous. Horses with temperatures above 103.5 degrees F should be subjected to supplementary cooling with water, both at the check points and on the trail provided the horse is deemed “fit to continue.” A horse with a rectal temperature remaining above 103 degrees for 30 minutes following cessation of exercise and despite external cooling may not be adequately compensating for the heat stress, and so may be deemed not fit to continue.

Take the rectal temperatures of all panters and horses with poor pulse recoveries. Horses with rectal temperatures greater than 103 degrees F should be subjected to external cooling and rechecked within the 30 minute time frame. A very slow bowel may accompany a high rectal temperature and must be considered when deciding if a horse is “fit to continue.”

Dehydration: The persistency of a skin fold **pinched at the point of the shoulder** may indicate body water lost in excess of 3% of the horse’s body weight. The skin pinch on the side of the neck is less reliable as a hydration marker since it is easily influenced by elasticity of the skin and fat content. Increased skin tenting, scant sweat, dry, injected mucous membranes, and sinking of the eyeball with consequent drooping of the upper lid are all signs of dehydration. When several of these abnormal signs are present,

dehydration may be complicated or may be “just the tip of the iceberg.” This is the time to start looking carefully for additional elements of fatigue or metabolic failure.

Capillary Refill and Mucous Membranes: Lightly blanch a spot on the gum just above an upper tooth with pressure from a thumb or finger. Undue finger pressure results in false information. Time the return of full color to the gum at that spot. Normally this takes one to two seconds. Refill time prolonged past two seconds denotes low blood volume and/or low blood pressure. Poor capillary refill often corroborates findings of dehydration, as do dry, tacky mucous membranes. Muddy or injected mucous membranes or purplish gum margination are reliable indicators of metabolic disease.

Jugular Refill: Jugular refill is delayed with falling blood volume and capillary perfusion. Block the vein and estimate how quickly it fills up cranial. Two or three seconds is usual and adequate. Note that horses with slow resting heart rates may give the impression of a delayed jugular refill time.

Gut Motility: The diversion of blood from visceral to muscle circulation can cause diminished gut sounds or even a complete ileus. Reduced gut sounds in an apparently healthy horse are of less concern than a horse with absent gut sounds accompanied by other metabolic abnormalities. Both of these horses should be monitored closely and brought back for a re-examination within the hold time following arrival at the vet check. There is no penalty for being cautious and the recheck may also benefit an anxious rider. Hyper-motile gut sounds may be a prelude to an ileus.

Expression and Behavior: Sleepy-looking eyes and droopy ears may be related to fatigue. Loss of attentiveness is significant. Loss of appetite is alarming. Loss of thirst in the dehydrated horse is seen with metabolic fatigue and electrolyte imbalances. Since experienced campaigners may stand quietly at rest and possibly alarm an inexperienced observer, it is important to determine which horses have passed a point of safe and reasonable fatigue.

Impulsion: The loss of elasticity, power and length of stride are proportional to muscle fatigue and often moderately deteriorate over the course. Electrolyte imbalances, dehydration, or any other physiological disease

process such as exertional myopathy, overheating, or glycogen depletion may adversely affect impulsion.

Gaits: Lameness on the trail or at a vet stop should be evaluated by the same AAEP grading outlined with the pre-ride criteria. Grades I and II can usually “go on” with caution. As in the pre-ride exam, consider the prognosis of the lameness with work. If the athletic future of the horse is threatened then consider disqualifying the horse. Grade III lameness or greater for any reason should be disqualified at any point at which it is revealed, including on trail and at the finish line vet check. The degree of lameness should be determined in a straight out and back trot out before any diagnostics are performed (i.e., flexions, palpation, circling, etc.)

Interference: Bleeding or tender interference injuries should be carefully assessed for ability to continue. Horses with severe interference wounds are not considered “fit to continue.” Re-shoeing the horse before or during the ride to relieve shoeing errors or interference is at the rider’s discretion.

Equipment rubs and/or discomfort: Severe saddle, girth, or bit injuries should be disqualified if a change in equipment will not relieve them. Improperly fitting saddles can contribute to severe discomfort and lameness and can be a cause for elimination.

A caution mark. Sometimes a horse will present with signs that give cause for concern but not disqualification. This entry can be marked for further scrutiny either with livestock marking crayon near the entry number and/or on the rider’s card. The signs of concern are noted on the card and signed by the veterinarian concerned. The rider is given any special instructions on pace or care to relieve or arrest the problem. **Note that there are no conditional releases; a horse is only to be let out of the vet check if he is demonstrating metabolic competence and progressive recovery based on a full physical exam.** If there is any doubt about a horse’s metabolic condition, the horse should be eliminated. **The objective of veterinary judging is to pull the horse showing undue fatigue or lameness rather than waiting until it is overtly sick and in need of treatment.**

A horse exhibiting synchronous diaphragmatic flutter (SDF or “thumps”) is NOT considered “fit to continue.” This is a warning sign of serious fluid and electrolyte derangements. The horse should be disqualified as with

any fatigue condition related to failure to recover.

Completion Examination

The same criteria and procedures that are applied throughout the ride should be applied at the finish line. The post-ride completion exam may be carried out as soon as the horse has finished and reached pulse recovery. This must be accomplished within one hour of crossing the finish line.

A horse should be certified for completion if it:

1. Demonstrates remaining reserves, can safely be ridden further, is capable of “going on,” i.e., is “fit to continue” even if at a reduced speed;
2. Has stable vital signs, and is demonstrating recovery within the limits of recovery criteria used throughout the ride;
3. Has not had nor urgently requires medication or treatment of any kind (see below);
4. Is not lame consistently at the trot on a straight line (Grade III), nor at the walk (Grade IV.)

Horses significantly fatigued or needing veterinary care should be listed and kept under veterinary observation until they have recovered or are referred to the treatment veterinarian. Any horse that has been treated or medicated prior to the final vet check is not eligible for completion. Any rider refusing treatment for a horse that a veterinarian has advised should be treated shall be denied completion status.

Note that a horse can be pulled aside at any point or at any time during the event (e.g., at vet checks even after “passing” a vet exam, as the horse is leaving the vet check, or along the trail if seen by a passing vet) and evaluated for questionable soundness and/or metabolic competence.

Best Condition Examination

This examination is to select the horse considered the most fit, freshest, and in the soundest condition at the end of the ride. **If no animal is in acceptable condition, the award may be withheld.** The evaluating procedures for Best Condition may be more demanding than the routine control procedures but should be sufficient to discriminate between contenders. The examination is usually performed one hour after the finish but may be

at such other time as the management may specify.

Guidelines for Veterinarians: Judging Best Condition (B.C.)

1. **Veterinary Definition:** It is recognized that there are many ways of defining best condition (e.g., against the ideal, against the group examined, against itself, condition throughout the ride, or condition at the time of examination). For the veterinary portion of the score the definition accepted by AERC is “the horse, at **the time of the Best Condition examination**, that is in the best condition and deemed most fit to continue...”
2. The actual award is modified to include finishing time and weight factors in addition to the veterinary aspect.
3. It is very important to use the **full** range of points allowed in each category. If only the upper end of the scale is used, a quite fatigued or lame horse ridden by an exceptionally fast or heavy rider will be the highest scoring horse after factors of weight and time are considered. This is not to minimize factors of weight and time but to prevent the award from going to an unfit or lame horse!
4. **Standard:** All horses judged for B.C. will be **judged against a standard of a well-conditioned, fit, sound and metabolically normal** endurance horse. **CAUTION:** With regard to gait and movement one must consider what is normal for the breed, type, and disposition (animation level).
5. Any horse with a severe abnormality in any category should not be considered for best condition. **Any horse that is Grade III or more at the time of the Best Condition exam cannot be considered for Best Condition judging.**
6. If all horses score “low” using these standards, recognize that it is possible that no horse meets acceptable standards for awarding a B.C. Award. **If none of the horses evaluated are worthy (in the opinion of the veterinary examining committee) they may elect not to award a Best Condition award.**
7. Consider what is only “showmanship” that serves to “hype” the horse and detracts from evaluating the animal’s true state of ability to continue. Note particularly if the horse’s head is held in such a way as to prevent easy observation of movement.
8. Horses should be evaluated for gait abnormalities, impulsion, etc., prior

to any palpation. Avoid excessive pressure when palpating during this exam. Remember that these horses are going to be tired and sensitive following a 50 or 100 mile ride. Undue pressure is unkind.

9. BE CONSISTENT!

Post-Ride Courtesy and Safety Check

Between the arrival of the last competitor and the distribution of awards, there is time to “cruise the camp” to make sure all horses are recovering well, that recommended treatments and care are being administered, and that rider concerns and questions have been answered. Problems can develop after the completion/Best Condition examinations. Horses eliminated on the course need to be seen again before leaving. It is appropriate to insist that no eliminated horses leave the ride site without authorization from the veterinarian. Riders appreciate the ongoing concern and assistance offered by the veterinarians. Documents of all treatments and recommendations for further care should accompany the horse on their departure from the ride.

Ride De-Briefing, Critique and Reports

Management and/or sanctioning bodies may request or require specific commentary on the event and veterinary control/service. This may be an oral de-briefing, a brief written critique, or a formal report on forms provided for the purpose. Be thorough, frank, and tactful. The evolution and spread of better veterinary service to the sport of endurance riding needs your thoughtful commentary.

Post-Ride Veterinary Report

The Head Veterinarian should complete the Post Ride Statistical Vet Report and return it to ride management to be submitted to the AERC Office. (See copy of this report, Appendix G.)

The Head Veterinarian should make a post-ride evaluation of the ride from a veterinary standpoint, and present his/her findings to management so that existing problems with trail and vet check logistics can be corrected and improvements implemented.

In the event of an equine death, a complete necropsy should be suggested

to the owner. Remind the owner that currently AERC will reimburse the owner for the costs associated with a necropsy up to a dollar limit—check with the AERC office for specific information on this. (See Appendix H for the necropsy protocol.) Understand the emotional distress that is occurring at this time and appreciate that this must be done in a considerate and caring fashion. It is often best if a reasonable period of time be given for emotions to settle before this suggestion is made. The objective in performing a post-mortem exam is to attempt to learn anything that may help to prevent such an occurrence again. Occasionally a necropsy will reveal pre-existing conditions over which no one had any control. If permission is granted, the necropsy should be conducted in an “out of the way” location as possible, in a diligent fashion. It may be helpful to photograph abnormal findings of gross lesions and to submit tissues and blood samples to a lab.

AERC DRUG RULE POLICY

AERC is resolutely and absolutely opposed to the presence of drugs in horses participating in endurance rides. Consequently, the AERC defines the detection of any drug, drug metabolite, or drug residue in body tissue or secretions of a horse to be *prima facie* evidence of drug administration. Riders and owners should note that some drugs may persist in the horse’s body for seven days or more. The owner and rider, if different, are absolute guarantors of the horse’s condition and are subject to disciplinary action, irrespective of demonstrable proof of their knowledge or intent of drug administration. If there are any concerns not covered in these guidelines, the veterinarian should refer to AERC Rule 13 and the supplement for clarifications regarding drug policy.

The owner(s) and rider of a horse demonstrated to have had drug(s) administered as defined in this rule are subject to a penalty up to revocation of all points, mileage, and AERC awards for the calendar year that the infraction occurred. **It is recommended that non-permissible substances be withdrawn for at least 96 hours prior to competition to minimize any likelihood of a substance being picked up on testing.**

The medications listed below are presented as a **guideline** to the endur-

ance riding public as examples of stimulants, depressants, anesthetics and drugs that interfere with chemical analysis for recovery of prohibited drugs.

THE FOLLOWING SUBSTANCES ARE **NOT** PERMISSIBLE:

- **Stimulants:** Medications or drugs stimulating the central nervous system, respiration, or blood pressure of horses, including but not limited to amphetamine, apomorphine, dexadrine, caffeine, theobromine, desoxyphedrine, ephedrine, nux vomica, benzadrine, methylphenidate, epinephrine, bronchodilators, etc.
- **Depressants:** Medications or drugs depressing the central nervous system, respiration, or blood pressure of horses, including but not limited to narcotics, barbiturates, tranquilizers, chloral hydrate, morphine, morphine derivatives and substitutes (the latter substances may also act as stimulants depending upon the dosage administered), phenothiazine and its derivatives.
- **Anesthetics** (including local anesthetics): Medications or drugs causing loss of sensation and relief from pain including but not limited to lidocaine, mepivacaine, benzocaine, and procaine. Products containing procaine such as procaine penicillin should not be administered.
- **Corticosteroids** including but not limited to cortisone, hydrocortisone, prednisone, prednisolone, methylprednisolone, flumethasone, isoflupredone, and dexamethasone.
- **Non-Steroidal Anti-inflammatory Medications** including but not limited to phenylbutazone, flunixin meglumine, naproxen, ketoprofen, aspirin and dipyrene.
- **Topical substances** including DMSO, menthol, or camphor. Note that rubbing alcohol is permissible to use.

THE FOLLOWING SUBSTANCES ARE ALLOWABLE preceding and during competition:

- **Vitamins**
- **Minerals**
- **Electrolytes** administered by syringe or in feed
- **Nutraceuticals:** The rider must familiarize him/herself with each product to ensure that it does not contain some naturally-occurring substance that will test. Many “natural” and “holistic” preparations containing

herbs, animal/insect extracts, etc., have no listed ingredients. Some may contain or react as substances that will be picked up either as prohibited or masking substances. No warnings are available regarding withdrawal times so these should be used with caution. Veterinarians should familiarize themselves with commonly used nutraceutical products.

SUGGESTED EQUIPMENT AND MEDICATIONS

Suggested List of Veterinary Equipment

1. Veterinary Guidelines for Judging AERC Endurance Competitions
2. AAEP Guide for Veterinary Service and Judging of Equestrian Events (The Blue Book)
3. AERC Rules and Regulations
4. Stethoscope
5. Watch with second hand
6. Thermometer
7. Twitch and/or lip chain
8. Nasogastric tube
9. Stomach pump
10. Bucket
11. IV catheters: 12 gauge 5-1/2" and/or 10 gauge for large volume administration e.g., Mila, Medicut
12. Pressure pump or hand bulb for accelerating the administration of intravenous fluids
13. IV tubes: Large bore (at least 12 gauge) for high volume fluid flow
14. Flashlight and extra batteries
15. Hoof knife and hoof tester
16. Equipment to remove shoes
17. Scrub preparations
18. Sterile surgical pack and suture material or stapler
19. Bandaging materials
20. Needles and syringes
21. Various types of vacutainer tubes
22. Formalin jars

23. Postmortem knife/culturettes
24. Rectal sleeves and lube
25. Towels
26. Lily pads or blue foam or Equithane for sole support
27. Kimsey brace and/or splinting material (PCV pipe)
28. Portable IV pole: Use two pieces of aluminum conduit screwed together to 8-10 feet in length. (When unscrewed, the two pieces store out of the way under the back seat of your truck.) Use set screws to hold the two conduit pieces together, an eye bolt at the top section, and a clip to hold the fluid bag.
29. ISTAT (with EC8 and creatine cartridges) or Abaxis Chemistry Analyzer would be of great benefit in treating horses. An arrangement with a local hospital may also serve as a source for laboratory testing if none is available on-site.

Suggested List of Medications

1. IV fluids: Multiple liter bags (3 to 5 liter bags) of physiological saline and a polyionic, non-alkalizing fluid (i.e., Ringer's) with a minimum total of 40-100 liters. More fluids may be required if a larger number of horses are expected or with elevated heat and humidity. A larger volume of fluids may also be needed at the higher stress of championship rides. A rule of thumb is 200 to 300 liters for 60 horses. Sodium bicarbonate solutions are almost uniformly contraindicated for the metabolic problems of endurance horses.
2. Oral electrolytes without bicarbonate
3. CMPK or Decaphos to serve as a source for Ca, K, Mg, etc.; calcium gluconate (dairy milk fever preparation)
4. Potassium chloride, 20-40 mEq/ml, may be used at the rate of 20-40 mEq/liter in horses with significant potassium deficiencies
5. Dantrolene as IV solution or capsules. As capsules, the horse may be dosed at the rate of 3-5 grams/1000 lbs.
6. 50% Dextrose solutions for IV and/or oral use
7. DMSO liquid for IV and/or oral use
8. Magnalax powder for oral supplementation as an antacid or salt laxative

9. NSAIDS (Phenylbutazone, flunixin meglumine, etc.)
10. Sedatives and Tranquilizers—Xylazine, detomidine, butorphanol, acepromazine
11. Diazepam (Valium) 25-50 mg IV for the treatment of seizures
12. Ophthalmic medications
13. Antibiotics. Suggested choices: ceftiofur, trimethoprim/sulfadiazine (powder, paste or tablets), gentamicin, K penicillin or Na penicillin
14. Oxytocin (for treatment of choke)
15. Wound supplies: antibiotic ointment, bandaging materials, local anesthetic
16. Hypertonic saline solution
17. Euthanasia solution

TREATMENT PRINCIPLES FOR METABOLIC CONDITIONS IN DISTANCE HORSES

Protracted endurance exercise places a huge physiologic demand on endurance horses, and occasions arise when treatment is necessary. With trial and error, each practitioner devises a treatment protocol which gives the best and most efficient results. Each horse presents a unique story and should be managed for its unique and specific problems. The philosophy of treatment at a ride should be to stabilize the horse to a point that the horse starts to eat and drink and take care of itself, while signs of fatigue and metabolic complications continue to improve.

It is important for all veterinarians participating in endurance rides to remember that there are situations that dictate the necessity of seeking a better environment for medical care than the ride base camp or vet check. Every effort should be taken in advance to make arrangements with a well-equipped and well-staffed equine hospital to receive referrals from the ride. Once the horse has been stabilized at the ride site, strongly consider a referral to such a facility in order to enhance the welfare of the horse. Prepare contact information including directions in advance of the ride. Make copies to give to the owner and don't forget to send written information about what medications and treatment you have given. (See Appendix F for the

Veterinary Treatment Form.) Your services are probably more important to the ride as a control veterinarian than long term treatment duties that will likely be better provided in a hospital setting.

The following is a brief review of common metabolic abnormalities, a review of treatment principles, and a discussion of a variety of drugs (some old, some new) that are available to ensure clinical recovery of fatigued and exhausted horses in distance sports. It is recommended that you familiarize yourself with treatment options and possibilities of metabolic complications of distance horses before you work a ride. The following material is meant as a reference guide of treatment protocols that can help to achieve successful resolution of metabolic problems and to hopefully reduce the possibility of secondary complications.

Recognition of the Exhausted Horse

Any of the following symptoms may be present in a horse experiencing metabolic stress or failure:

- Delayed HR recoveries—pulse persistently above 64 bpm or labile
- Poor Cardiac Recovery Index (CRI)
- Abnormal gut sounds, either hypermotility or hypomotility
- Dry, scant or mucous-coated feces, indicating intestinal stagnation
- Lack of appetite
- Disoriented attitude or no interest in surroundings
- Depressed posture
- Lack of thirst—in the presence of clear signs of dehydration
- Anxious facial expression: glazed or sunken appearance of eyes, wrinkled lips
- Oblivious to external stimuli such as insect bites, application of rider's aids, or physical threats
- Loss of impulsion and elasticity of gait; ataxic or weak
- Skin pinch test remains tented but note there is often poor correlation of skin pinch test with level of dehydration
- Mucous membranes showing margination around gum line, muddy color, or dryness
- Poor jugular refill

- Flaccid anal sphincter or relaxed penis
- Thumps (synchronous diaphragmatic flutter or SDF) is often associated with intestinal atony and is related to decreased ionized calcium
- Hyperthermia: Rectal temperature above 103 degrees Fahrenheit within 20 minutes of stopping exercise
- Decreased rectal temperature due to dilated anal sphincter
- Myoglobinuria—may or may not be accompanied with stiff or cramping muscles
- Exertional myopathy / muscle fasciculations / exertional rhabdomyolysis
- Signs of impending laminitis: increased digital pulses, camped-out stance, shifting weight, pointing foot, or overt Obel lameness
- Colic: anxious appearance, abnormal stance or lying down, gas distention, impactions, displacements, or any evidence of abdominal pain.

Assessment of Hydration

Skin turgor, known as the skin pinch test, is informative after three to five percent dehydration, but varies with the amount of subcutaneous fat present. Mucous membrane refill and moisture can be helpful, but are somewhat subjective. Urine concentration observed in the stops will help to determine hydration status but this information is not consistently available to the veterinarians.

Packed cell volume (PCV) and total protein (TP) are also reliable estimators of hydration status. In the field, a Mobile Spin centrifuge can be used to spin down blood for use with a refractometer and hematocrit card for the determination of circulating fluid volume. Note that the PCV may not rise as much as the TP in a very dehydrated horse.

To gain an estimation of electrolytes, glucose, and some enzymes in the field, an I-Stat device (SDI Devices, Inc.) or Vet Scan blood chemistry machine may be used. These machines, though considered expensive in certain contexts, inform us of the health parameters of the patients and the effects of our treatment. They may be extremely valuable if a pre-existing disease is present

Intravenous Fluid Therapy

The treatment of choice for metabolic disease in the endurance horse is the use of intravenous fluid therapy! Since the endurance horse can easily lose 10 to 15 liters per hour of fluid volume, horses in metabolic stress should receive *at least* 15-30 liters. Rapid fluid administration will not result in over-hydration provided kidney function is normal. Renal compromise that often accompanies myopathies can benefit from high volume flow. Urination should occur after the intravenous administration of 15-18 liters in hypovolemic conditions related to exercise, and it is a useful index of appropriate response to fluid therapy. If it has not, more measures may need to be taken to ensure adequate kidney function. These will be discussed below.

Choice of Catheters and Fluid Administration Sets: The best means of giving large volumes rapidly is with the **use of large bore intravenous catheters, 12 gauge or 10 gauge in size.** (Through a 12 gauge, 5-1/2 inch catheter, 21 liters of fluid will flow over a period of about one hour.) Thrombophlebitis subsequent to the use of a large bore catheter has not been a problem in the field thus far. The catheter should be sewn into or glued to the skin and a neck bandage applied so the catheter moves as little as possible. A large bore IV extension set can be attached to minimize handling and movement at the end of the catheter.

Remember that the rate of flow through a catheter depends on the bore size of the extension sets and IV lines. Any in-line tube smaller than 12 gauge will restrict flow rate. (A large bore catheter set that can be plugged into IV bags of pre-mixed fluids is made by Jorgensen Labs.)

Single liter bags can be used with an infusion pump to hasten flow, but this method is extremely time-consuming and not as cost effective as bulk fluids. They will, however, facilitate dispensing of specific medications into an IV line. When possible, warm fluids prior to administration of large volumes. This can be done with a microwave oven (from a nearby camper or convenience store) or bags of fluid can be immersed in the hot water baths to warm the fluids. The higher the fluids are hung, the faster the flow rate. In the field, some ingenuity may be necessary to find a fluid perch: Trees or tree branches work well, as does a horse trailer. A portable

IV pole is described under the Suggested List of Equipment.

Choices of Fluids: For the dehydrated horse/exhausted horse complex, the objective is to expand the extracellular fluid volume, preferably using isotonic fluids. Many commercial preparations make this objective quite easy. The fluid of choice is Ringer's solution which contains sodium, potassium, calcium, and chloride and is specifically indicated for correction of fluid and electrolyte deficits in the presence of metabolic alkalosis.

One of the more common fluids stocked in the clinic pharmacy is Lactated Ringer's solution. This fluid is really indicated for correction of mild acidosis due to its alkalinizing properties derived from the lactate buffer. In distance horses that are alkalotic due to losses of sodium, chloride, and potassium through the sweat, LRS may not be the best choice in all situations. However, if this is the only fluid on hand, a dehydrated horse would benefit from fluid of any type rather than none at all. The need for immediate volume replacement supersedes the acid-base condition of the horse, particularly when electrolyte imbalances can be corrected with potassium supplementation to return blood pH to normal.

Multisol[®] or Normosol[®] are often-used isotonic replacement fluid despite containing alkalinizing precursors of acetate and gluconate. To date, no adverse effects have been reported from administration of large volumes of these solutions to horses with metabolic alkalosis, and particularly if the potassium deficits are simultaneously replaced.

Normal saline (0.9%) is an excellent choice of isotonic fluid, however it will need to be supplemented with potassium and calcium to replenish those ions lost in sweat. If you run low on fluids, you can dilute one bottle of hypertonic saline (7% sodium chloride) with 7 liters of distilled water to make a physiologic 0.9% saline solution.

Intravenous Fluid Therapy Supplementation

One of the components of exhaustion in an endurance horse is depletion of energy. Because of this feature, it is critical to supplement at least part of the fluids with dextrose. By giving 50-100 grams/hour, blood glucose will be maintained at 150-250 mg/dl. Dextrose can be added at the rate of 100 cc/liter of 50% dextrose to make a 5% dextrose solution.

Potassium is lost in moderate quantities in the sweat of distance horses, and although supplied amply in hay and grass, the exhausted horse must receive supplementation to replenish acute losses, to maintain bowel motility, and to correct metabolic alkalosis. Signs of potassium depletion include muscle fatigue, elevated or irregular heart rate, and intestinal ileus. It is safe to give 20-40 mEq/liter of potassium chloride, with as much as 250 mEq/hour running through the fluids. Note when adding potassium to fluids that Multisol-R already contains 5 mEq/liter.

Calcium is another ion lost in large supply in the sweat. Signs of hypocalcemia include tachycardia, tachypnea, muscle fasciculations especially of the face (trismus) and triceps, dilated nostrils, and synchronous diaphragmatic flutter (thumps). Useful calcium supplements include CMPK or Cal-Dextro which may be given orally or intravenously. You may want to infuse this solution slowly through a separate IV catheter and monitor the horse's heart rate and rhythm as calcium overload will cause the heart rate to decrease.

Another supplement that may be added to the IV fluids is a 5-10% solution of DMSO liquid. A solution of greater than 10% may cause hemolysis. Split one pint of DMSO liquid between 12 liters of fluids and only give this concurrent with generous volume replacement. As a potent diuretic, DMSO dilates renal vascular beds. It also neutralizes some of the toxic effects of myoglobin so is useful to treat rhabdomyolysis and to prevent acute renal failure. DMSO acts as an anti-inflammatory drug as it is a free radical scavenger and quite effective against the effects of endotoxins. The easiest and safest method of DMSO administration is via a nasogastric tube provided no ileus is present. In this case DMSO is mixed in a 1:5 ratio (up to one pint of DMSO) to avoid gastric irritation.

Oral Fluid Supplementation

Oral fluids provide an excellent method of administering fluids provided the horse is not experiencing an ileus or gastric reflux. It is best to use isotonic fluids because hypertonic fluids irritate the GI tract and "pull" fluid out of the ECF into the bowel. By administering frequent amounts of small volumes, you can give 6-8 liters of fluids through a nasogastric tube

every 30 minutes as needed. Gravity may be used, or a stomach pump may be used with care. A stomach pump is useful to try to establish a siphon to check for reflux. To minimize the horse's discomfort, remove the tube between treatments. The persistent presence of the stomach tube may elicit a gag reflex or dilate the stomach with air, and it is unnecessary provided there is no gastric reflux. In addition, removal of the stomach tube allows us to observe if the horse will begin to eat and drink.

Commercially prepared electrolytes and home preparations are available for administration through a nasogastric tube. Enduralyte, Perform N'win, and Lyte Now are commercially available, to name only a few. CMPK (1 bottle of 500ml) + 50% dextrose (1 bottle of 500ml) + 1 tablespoon table salt + 1 tablespoon lite salt in 4-8 liters of water has been recommended as a stall side preparation that is an absorbable source of electrolytes and sugar.

Magnalax^R, a hypertonic salt laxative, will aid in circumstances of poor intestinal motility, or gas production by increasing the fluid in bowel contents and acting as an antacid. Use concurrently with IV fluid therapy.

Many times intestinal atony is related to electrolyte and fluid depletion in the endurance horse. However, once the cascade of an ileus begins, more may need to be done to stimulate intestinal motility provided there is not a serious impaction nor an intestinal displacement

Oral laxatives include: Magnalax as mentioned above and DSS (veterinary surfactant). These may helpful in softening bowel content. An effective dose of DSS is 4-8 ounces per gallon of water given orally. Mineral oil (paraffin) has minimal effect in breaking down an impaction, as it will ooze past a blockage giving a false impression that ingesta is moving through the bowel. However, mineral oil will minimize toxin absorption from the bowel. Unfortunately, at the same time it will also diminish the uptake of glucose, electrolytes, and water from the bowel lumen. If gastrointestinal toxins remain a concern, activated charcoal may benefit the horse.

Medications for Pain Relief

Nonsteroidal anti-inflammatory drugs (NSAIDs) provide pain relief but must be used with some caution. Phenylbutazone (2.2-4.4 mg/kg IV) is the least expensive NSAID, but is the most ulcerogenic and nephrotoxic NSAID, especially in a dehydrated horse. Flunixin meglumine (Banamine®, generics; 1.1 mg/kg IV) and ketoprofen (Anafen®; 2.2 mg/kg IV or IM) are more expensive but less associated with toxicity than phenylbutazone. In horses that are dehydrated or when rehydration will be delayed, initial NSAID dosages should be reduced by 25-50%. Fluid deficits should be corrected as soon as possible and horses should be carefully re-evaluated before additional doses are administered.

Sedatives like xylazine (100-300 mg IV) or detomidine (5 mg) have relaxing effects to manage intestinal pain or muscle spasms. Xylazine also has diuretic effects. Recurrent dosing with xylazine or detomidine should be done with caution as both can temporarily slow intestinal motility. This may add to the already present problem of an ileus. Butorphanol (5-10 mg) is a potent analgesic.

Tranquilizing with acepromazine (10-15 mg) is an excellent means of dilating the vascular beds in cramping muscles. However, its potent peripheral vasodilatory properties should be used with caution in a dehydrated horse as it could cause cardiovascular collapse and shock. For this reason, a dehydrated horse should receive adequate fluid replacement in conjunction with the use of acepromazine.

Corticosteroids are useful to inhibit the arachadonic acid cycle particularly related to effects of endotoxemia, however corticosteroids are not recommended in treatment of endurance metabolic disease because of the questionable influence on laminitis.

Rhabdomyolysis and Exertional Myopathy

Myopathy, as seen in the endurance horse at competitions, is often related to a problem in energy utilization and electrolyte imbalances. It may also be heat or stress related or a result of storage myopathy. Early onset of a myopathy or “tying-up,” within the first 5-10 miles, is one of the most challenging and unfortunately, an all-too-common problem seen in this sport.

These horses might originally be seen on the trail with a shortening gait and can be apparent as early as five miles out. On stopping, this will gradually develop into a tight, hard muscle cramp in the hindquarter, which can, and often does, progress in to a classic form of severe generalized tight muscle cramping. This results in reluctance to move, and an extremely painful animal. Some of these horses go down and should be left in place until some form of relief is administered. Any level of myoglobinuria is a sign of muscle trauma and should be a warning to the veterinarian to attempt to avoid renal compromise.

Treatment: Fluids are essential for flushing the kidney tubules and improving muscle and renal perfusion. Normal saline or other polyionic fluid would be the fluid of choice. A volume of 20-30 liters would be an appropriate amount to start with. Significant dehydration, if it is present, would require more fluid volume.

Oral fluid supplementation can also be used at a rate of 8-10 liters/ 30 minutes if IV fluids are unavailable or difficult to administer. Ileus must be ruled out and normal active intestinal motility must be present prior to using oral medications.

Tranquilizers, muscle relaxants, analgesics and non-steroidal anti-inflammatories are also beneficial to the tied-up horse under the appropriate circumstances. Useful drugs and their dosages follow. These are useful but because they can all be detrimental in the hypovolemic patient, care should be taken to use them only after a safe level of fluid volume has been established. These medications would include acepromazine (10 mg/400 kg IM *bid* to *qid* as necessary); xylazine (0.2 mg/kg IV); detomidine (10-20 mcg/kg IV) and flunixin meglumine (1 mg/kg IV). Butorphanol, as an analgesic, is also a good choice at the rate of 0.02-0.1 mg/kg IV.

Dantrolene is a non-centrally acting spasmolytic which acts by slowing calcium release from the sarcoplasmic reticulum. This results in muscle relaxation and is effective in treating the severe muscle cramping seen in the tied-up horse. The dose is 3-5 g orally. It comes in capsules and these can be opened and added to applesauce or administered by nasogastric tube. Slow IV dantrolene is also available and used at the dose of 15-25 mg/kg.

Heat, supplied over the cramped muscles, can come from many sources.

Warm water towels, chemically warm packs, or white's liniment will help increase the circulation and assist in the relaxation of the heavy muscles. Placing a space blanket or a plastic trash bag over the rump will help to hold the heat in over a long period of time.

Acupuncture may also prove to be beneficial, particularly in the pain management aspect.

Use of Muscle Enzymes for Prognosis of Healing

Creatinine Phosphokinase (CPK) has a high specificity for damaged muscle, peaking in serum within 4-6 hours of the insult. CPK is quick to return to normal once on-going damage has stopped and it is a helpful predictor to monitor improvement and to help decide when a horse can return to exercise. CPK should return to < 1000 micromoles/L before training resumes.

AST is slow to elevate, taking 24-48 hours to reach a significant elevation. AST takes weeks to return to normal and consequently provides poor predictive information.

Colic

Acute and sometimes severe colics are not unusual in the tired endurance horse. Abnormal motility can result from travel, overheating, dehydration or fatigue. The long-term exercise in endurance can result in a shift of blood from the bowel to muscles, resulting in poor bowel motility and considerable discomfort.

Timely assessment of the cause of the pain is important and the risk of the horse damaging himself, other horses, or the people around him in a field situation, must be addressed immediately. The pain is commonly caused by a slow bowel resulting in gas production, accumulation of fluid as in ileus, or impactions. Displacements, torsions, and intussusceptions have also been identified in the endurance horse. For these reasons, passing a nasogastric tube to diagnose and/or relieve gas or fluid from the stomach is important. Rectal exams are equally important. The danger of a fragile rectal wall due the dehydration is a real issue. A reminder of this is and the necessity of using good restraint and sufficient lubricant should serve to

caution the veterinarian but not to discourage him from using this highly important diagnostic methodology.

The above information suggests that we use caution when horses are presented with poor motility. Stopping horses early is probably the best defense for the majority of colics seen in our sport.

Development of Hyperthermia

A hyperthermic horse, with a persistent rectal temperature exceeding 105-106 degrees Fahrenheit, is at risk for more complicated metabolic disease. The following is a list of symptoms and suggested treatment.

Symptoms of Hyperthermia:

- Note other signs of exhausted horse syndrome as above
- Panting
- Poor heart rate recoveries
- Stumbling/ataxia
- May feel hot to the touch; may not be sweating adequately or effectively
- Loss of mental alertness
- Disinterested in surroundings or environmental stimuli
- Can lapse into convulsions or seizures due to sensitivity of CNS to high temperatures.

Treatment of Hyperthermia:

Intravenous fluids: Dehydration is a major contributor to heat stress so this must be addressed! Cooling strategies:

- Cold water immersion in a lake or stream
- Continual dousing with water or pressure sprays especially the head, neck, and lower limbs
- Fans or misting sprayers
- Ice boots on legs over large vessels
- Alcohol baths (one pint alcohol per gallon of water)
- Cold water enemas
- Stomach tube with cool water using small amounts at frequent intervals
- Remove all tack and equipment
- Shade.

Note that once rectal temperature drops below 103 degrees Fahrenheit, active cooling can be suspended for a time so the horse is not chilled too quickly.

Laminitis

The number of metabolic syndromes in the endurance horse makes the possibility of laminitis very real. There are multiple sources for this painful disease including concussion, endotoxins, exhausted horse syndrome, intestinal displacements and myopathies. Because metabolic disease may often be followed by acute laminitis, be prepared to treat both medically and mechanically at the outset. Supportive wooden wedge blocks, styro-foam blocks, or Lily pads can be taped to the bottom of the foot to stabilize the coffin bone.

Appendix A. Veterinary Contract Form (Page 1 of 2)

Veterinary Contract Form

Event _____ Date _____

Organization _____ Location _____

Ride Manager:

Name _____ Telephone _____ FAX _____

Address _____ City _____ Province _____ Postal _____

Ride Secretary

Name _____ Telephone _____ FAX _____

Address _____ City _____ Province _____ Postal _____

Ride Mileage(s) _____

Anticipated # of Riders _____

Fee: Head Veterinarian _____ Associate Veterinarian(s) _____

Associate(s) to be Hired by: Head Vet () Management ()

Dates and Times of Duties _____

Travel Arrangements: Self () Management () Reimbursement: Yes () No ()

Transportation on Course: Self () Management ()

Meals, Accommodations: _____

Maps: To Event: Yes () No () Trail Maps: Yes () No ()

Pre-ride Exam Time: _____ Closing Time _____

Ride Start Time(s): _____ Exceptions _____

Water Availability _____

Expected Ambient Conditions _____

Vet Check Lighting _____

Number, Location and Accessibility of Vet Check Sites _____

Secretary Supplies: Clipboards () Highlighters () Pens () Stock Crayons () Chairs ()

Treatment Veterinarian: Control vet () Other () Experienced: Yes () No ()

Major Veterinary Facility on Call: Yes () No () Name/Phone _____

Associate Veterinarians:

Name _____ Phone Number _____

Name _____ Phone Number _____

Name _____ Phone Number _____

Treatment Veterinarians:

Appendix A. Veterinary Contract Form (Page 2 of 2)

Name _____ Phone Number _____

Name _____ Phone Number _____

Check Point Supervisors:

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

Veterinary Secretaries:

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

Timers:

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

Name _____ Experienced: Yes () No ()

P&R Personnel: Number _____ Experienced: Yes () No ()

Communications: Experienced with Ride Events: Yes () No ()

Vet Check Criteria:

Posted in Writing at the Event: Yes () No ()

Pulse _____ Respiration _____ Maximum Rectal Temperature _____

Type(s) of Holds _____

Maximum Recovery Time _____

Finish Criteria _____

Best Condition _____

HRRI Post-Finish Time _____

Other Special
Criteria _____

Appendix B. Pre-Ride Checklist for AERC Head Vets (Page 1 of 2)

Pre-Ride Checklist for AERC Head Veterinarians

This checklist is helpful for reviewing ride information with the ride manager long before the day of the event. Advance knowledge of a ride's planned volunteer coverage, vet checks and supply availability, and predetermined veterinary criteria can make ride day much smoother for the ride veterinarian. Be sure to go over all information on this form, and let the AERC Veterinary Committee know if there are other items you would consider helpful to add.

Event _____ Date(s) _____

Organization _____ Location _____

Ride Manager:

Name _____ Telephone _____ Fax _____

Address _____

City _____ State/Province _____ Zip _____

Ride Secretary:

Name _____ Telephone _____ Fax _____

Address _____

City _____ State/Province _____ Zip _____

Ride Mileage(s) _____ Anticipated number of riders _____

Fee: Head Veterinarian \$ _____ Associate Vet(s) \$ _____ Associates to be hired by: Head Vet Management

Dates/Times of Duties _____

Travel Arrangements: Self Management Reimbursement: Yes No

Transportation on Course: Self Management

Maps: To Event: Yes No Trail Maps: Yes No

Pre-Ride Exam Time _____ Closing Time _____ Ride Start Time _____ Exceptions _____

Water Availability _____

Expected Ambient Conditions _____ Vet Check Lighting _____

Number, Location and Accessibility of Vet Check Sites _____

Secretary Supplies: Highlighters Pens Stock Crayons Chairs

Treatment Veterinarian: Control Vet Other Experienced: Yes No

Major Veterinary Facility on Call: Yes No Name/Phone _____

Appendix B. Pre-Ride Checklist for AERC Head Vets (Page 2 of 2)

Associate Veterinarians:

Name _____ Phone Number _____

Name _____ Phone Number _____

Name _____ Phone Number _____

Treatment Veterinarians:

Name _____ Phone Number _____

Name _____ Phone Number _____

Check Point Supervisors:

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

Veterinary Secretaries:

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

Timers:

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

Name _____ Experienced: Yes No

P&R Personnel: Number _____ Experienced: Yes No

Communications: Experienced with Ride Events: Yes No

Vet Check Criteria:

Posted in Writing at the Event: Yes No

Pulse _____ Respiration _____ Maximum Rectal Temperature _____ °

Type(s) of Holds: _____ Maximum Recover Time _____

Finish Criteria _____ Best Condition _____ HRRI Post-Finish Time _____

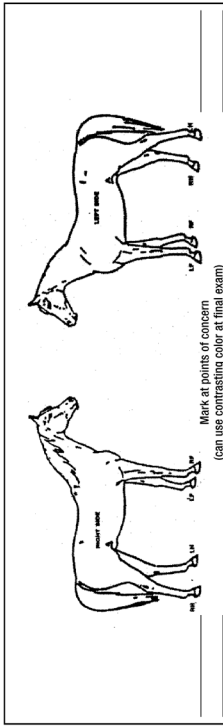
Other Special Criteria _____

Appendix C. Veterinary Flow Chart for Endurance Ride Judging
(Page 1 of 1)

VET	Vet Check 1		Vet Check 2		Vet Check 3		Vet Check 4		FINISH	
	<i>miles</i>	<i>minutes</i>	<i>miles</i>	<i>minutes</i>	<i>miles</i>	<i>minutes</i>	<i>miles</i>	<i>minutes</i>	<i>Arrive</i>	<i>Leave</i>
<i>Mileage</i>										<i>miles</i>
<i>Holds</i>										
<i>Open/Close</i>										
Veterinary Judges	Arrive	Leave	Arrive	Leave	Arrive	Leave	Arrive	Leave	Arrive	Leave
Dr. A										
Dr. B										
Dr. C										
Dr. D										
First/Last arrival from previous year										
Travel Time to Next Check Point										

Appendix D. Rider Card (Page 1 of 2)

RIDE NAME _____ DATE _____ DISTANCE _____ RIDER # _____
 Rider Name _____ Weight Division _____
 Junior Rider _____ Sponsor's Name (Juniors) _____
 Horse Name _____ Age _____ Breed _____ Color _____



Pre-Ride (First) Examination		Post-Ride (Final) Examination	
Parameter	A,B,C,D	Parameter	A,B,C,D
Mucus Membranes		Mucus Membranes	
Capillary Refill		Capillary Refill	
Jugular Refill		Jugular Refill	
Gut Sounds		Gut Sounds	
Skin Tenting		Skin Tenting	
Anal Tone		Anal Tone	
Muscle Tone		Muscle Tone	
Back Withers		Back Withers	
Tack Galls		Tack Galls	
Wounds		Wounds	
Gait		Gait	
Impulsion		Impulsion	
Attitude		Attitude	
Overall Impression		Overall Impression	
Signature of Examiner _____		Signature of Examiner _____	
Reason of elimination _____		Signature _____	



Heart Rate Recovery Index

P _____
 R _____
 T _____

File: RideCard 4/04-1.0

Appendix D. Rider Card (Page 2 of 2)

	#1	#2	#3	#4	#5	#6
RIDER # _____ NAME _____						
CHECK						
ARRIVAL TIME						
PR TIME						
PULSE						
OUT TIME						
Mucus Membranes						
Capillary Refill						
Jugular Refill						
Gut Sounds						
Skin Tenting						
Anal Tone						
Muscle Tone						
Back Withers						
Tack Galls						
Wounds						
Gait						
Impulsion						
Attitude						
Overall Impression						
COMMENTS						
Heart Rate Recovery						
#1						
#2						
Examiner						



BEST CONDITION EVALUATION

(instructions on reverse)

Ride Manager _____ Ride Date _____
 Head Vet _____ Region _____ Distance _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Rider Name _____ Horse Name _____
 Rider Wt. _____ Rider # _____
 Finish Place _____ Finish Time _____

A. VETERINARY SCORE SHEET

Standing Evaluation _____
 Recovery (Score 1-10) _____
 Hydration (Score 1-10) _____
 Lesions (Score 1-10) _____
 Movement Evaluation _____
 Soundness (Score 1-10) _____
 Qual. Mvmt. (Score 1-10) _____

Subtotal _____
Total Veterinary Score = _____
Subtotal x 10 _____

B. Time Factor

Ride Time, This Rider _____
 Ride Time of Winner _____
 Difference: _____
 Maximum _____ 200
 Less Difference (-) _____

Total Time Score _____

C. Weight Factor

Wt. of Heaviest Rider _____
 Weight of This Rider _____
 Difference ÷ 2 _____
 Maximum _____ 100
 Less Diff. ÷ 2 (-) _____

Total Weight Score _____
TOTAL SCORE = A + B + C = _____

Appendix E. Best Condition Evaluation Form (Page 2 of 2)

Instructions

A. VETERINARY SCORE SHEET

Maximum Score 500 Points

STANDING EVALUATION

Recovery:

Base upon ability to demonstrate recovery; e.g., the Cardiac Recovery Index; recommend use the CRI taken 10 or 15 minutes post-finish time. Base the respiratory aspects on quality of respiration as determined visually and by auscultation.

Hydration Factors:

Use all the metabolic parameters that indicate the state of hydration, i.e. skin tenting, mucous membranes, capillary refill time, jugular refill time and gut sounds.

Lesions Producing Pain and Discomfort:

Major concerns are back pain and pain/swelling in joints, tendons, and ligaments that may be indicative of potentially serious pathology. Also consider girth, saddle, and other tack-induced lesions and all wounds. Note: Do all but cursory palpation after the movement phase.

MOVEMENT EVALUATION

Soundness:

Note: Not eligible for consideration for B.C. if there is a pathological gait aberration greater than grade II. Consider: Regularity of gait and movement.

Quality of Movement:

Consider: Attitude, coordination and impulsion (deterioration exhibited as a reluctance or refusal to trot, stumbling, leg weariness, muscle fatigue and stiffness).

Parts B & C to be completed by Ride Management ONLY (to be done after veterinary completion of Part A)

B. TIME FACTOR

Maximum 200 Points (Awarded to Fastest Rider)

Riding Time of THIS Rider	_____	(Value one point per minute)	
Riding Time of Winner	_____	Maximum	_____ 200
Difference:	_____	Less Difference	(-) _____
(Calculate time in minutes – exclude hold time)		Total Time Score	_____

C. WEIGHT

Maximum 100 Points (Awarded to the Heaviest Rider)

Weight of Heaviest	_____	(Value one-half point per pound)	
Weight of THIS Rider	_____	Maximum	_____ 100
Difference:	_____	Less Difference ÷ 2	(-) _____
Difference ÷ 2	_____	Total Weight Score	_____

Total Score = A + B + C = Score _____

**The rider's finishing weight is determined at the conclusion of the ride with tack and the same clothes worn during the ride.

This score sheet must accompany AERC ride results for winner to be eligible for regional and national awards. Mail original copy to AERC with ride results.

Appendix F. Veterinary Treatment Form (Page 1 of 1)

AERC VETERINARY TREATMENT FORM

Horse's Name _____ Rider/Horse Number _____

Person Responsible _____ Date _____ Time _____

Reason for Referral _____

Refer from Vet Gate No. _____ Time _____ Treatment Vet Callback Phone _____

Description of Treatment (medications/amounts/route/time):

After examination/treatment of the above horse, this equine should be:

- Returned to base camp with immediate referral to treatment veterinarian on duty
- Returned to the horse's stabling area with horse brought to veterinarian for recheck in ____ hours
- Referred to surgical hospital on call for this event
- Released to care of person responsible, to return if symptoms recur

Name of Treating Veterinarian(s) _____

Signature(s) _____ Date/Time _____

To the Referral Clinic: In the unlikely event that this horse should not survive, the AERC Veterinary Committee strongly suggests a post-mortem examination be performed for purposes of collecting data. Currently, AERC will reimburse the owner for costs associated with a necropsy up to \$300.

Person responsible (owner/agent): I authorize release of medical reports on this equine, including any post-mortem examination report, to: AERC Veterinary Committee, P.O. Box 6027, Auburn, CA 95604.

Name (print) _____ Signature _____ Date _____

Person responsible (owner/agent): I hereby authorize that a post-mortem examination be performed on this equine.

Name (print) _____ Signature _____ Date _____

Appendix G. Veterinary Post-Ride Statistical Report (Page 1 of 1)

AERC Veterinary Post-Ride Statistical Report

To be filled out by the head veterinarian – Please complete a form for each distance

Ride Name _____ Region _____ Distance _____

Date _____ Manager _____ Head Vet _____

Ride Vets (please list):

Please note: RIDER OPTION, RIDER OPTION-LAME and RIDER OPTION-METABOLIC are only to be used in cases where the horse has cleared/passed veterinary inspection and is fit to continue, but rider elects to withdraw.

Instructions: For each category, please write in number of pulls attributed to each. Limit one category for each horse/disqualification.			
METABOLIC	Pulse criteria	LAMENESS	
	Rhabdomyolysis	Forelimb	Hindlimb
	SDF	Unknown	Unknown
	Fatigue/Exhausted	Hoof	Hoof
	Colic	Joint	Joint
TACK	Sore back	Tendon	Tendon
	Galls	Suspensory	Suspensory
		Other ligament	Other ligament
INJURY	Body laceration	Muscle	Muscle
	Body contusion	RIDER OPTION	
	Leg laceration		RO
	Ocular		RO-L
			RO-M

TRAIL CONDITIONS	Wet	TREATMENTS	# of horses requiring treatment
	Dry		Litres of fluid per treated horse
	Soft		
	Hard		
CLIMATE	High temp.	COMMENTS: _____	
	Low temp.	_____	
	Humidity	_____	
	Precipitation	_____	

Vet Post Ride Form • Version 3.0 / May 2006

Appendix H. Necropsy Protocol (Page 1 of 2)



Guidelines for Performing a Field Necropsy

The American Endurance Ride Conference (AERC) is interested in acquiring as much information as possible when the unfortunate event of an equine fatality occurs. To aid in this, limited funding is provided for necropsy exams.

- If possible, the horse should be sent to a pathology lab for the necropsy. However, if due to the location of the ride and the difficulty in transporting the horse, a necropsy performed by the attending veterinarian may be necessary.
- Please use the attached form to aid in performing the necropsy and providing the data necessary to determine the cause of death.
- Prior to beginning the necropsy exam the appropriate area and disposal of the animal should be considered. Areas away from public view and an adequate way to dispose of the body should be determined. AERC understands this may not always be possible and therefore a necropsy may not be performed.

Field Necropsy:

- A systematic approach should be used beginning with the suspected area of interest.
 - ✓ If an obvious cause of death is identified, document this.
 - ✓ If a spinal cord injury is suspected referral to a facility that can remove the spinal column is recommended.
- Abdomen:
 - ✓ A curved flank incision from the tuber coxae to the xyphoid cartilage will allow adequate exposure of the abdomen and permit closure of the abdomen.
 - ✗ Identify the positioning of the GI tract.
 - ✗ Ante-mortem rupture of bowel will result in peritonitis and the presence of fibrin and fibrin tags on the bowel surface. If ingesta is identified in the GI tract without peritonitis this is likely post-mortem rupture.
 - ✗ Identify any intestinal compromise and cause (ie strangulation)
 - ✗ If no obvious cause is seen full thickness samples of small intestine, stomach, large intestine and cecum should be taken.
 - ✗ At least one kidney should be removed and submitted for histo. If renal failure or rhabdomyolysis is suspected then both kidneys should be examined and submitted.
- Thorax:
 - ✓ From the abdominal incision the chest cavity may be entered by removing the rib cage.
 - ✓ The presence of blood in the pleural space should be investigated for either aortic or pulmonary ruptures.
 - ✓ Submit lung and heart tissue for histo.
- Musculoskeletal:
 - ✓ If rhabdomyolysis is suspected or confirmed then the muscles can be examined for evidence of necrosis and samples submitted.
- Any other system that appeared to be involved.

These are only guidelines. All information that can be obtained will be helpful towards the efforts to educate riders and veterinarians as to the possible causes of deaths in endurance horses and possible preventative measures.

Notes

1. This form is to be completed when a field or in hospital necropsy is performed.
2. Please submit to the AERC office along with the fatality report. If tissues have been sent for histopathology this form may be returned prior to those results and the pathologists report forwarded when available.
3. This form may be used as a guideline for the necropsy information. Please include those areas of clinical relevance to the cause of death. If a definitive cause of death is not apparent please perform as thorough a necropsy evaluation as the conditions will allow.

AERC • P.O. Box 6027 • Auburn, CA 95604 • 866-271-2372 • Fax 530-823-7805 • www.aerc.org • aerc@foothill.net
PostMortemExam 1.0 New 7/06

Appendix H. Necropsy Protocol (Page 2 of 2)

Gross Post-Mortem Examination Form

Identification

Owner Name _____ Animal Name _____ Age _____
Gender _____ Breed _____ Color _____ Markings _____
Brief History _____
Time of Death _____ Cause of Death _____ Euthanized (Y/N) _____

Gross Necropsy Findings

1. Musculoskeletal: External _____
Bones _____ Joints _____
Describe specific injuries if they were the cause of death _____

2. Respiratory System: Pharynx _____ Larynx _____
Trachea _____ Bronchi _____ Lungs _____

3. Circulatory System: Thoracic Fluid _____
Heart _____ Weight (if available) _____
Great Vessels _____ Vena Cava _____

4. Digestive System: Abdominal Cavity Fluid _____ Serosal Surface _____
Contents _____ Esophagus _____
Stomach _____ Small Intestine _____
Cecum _____ Large Colon _____
Small Colon _____ Specific Comments _____

5. Urogenital System: Urine (color) _____ Ureters _____
Urethra _____ Kidneys _____
Testicles _____ Ovaries _____

6. Nervous System: CNS (Brain)
Note gross findings if evaluated or clinical signs if brain case not opened _____
Pituitary _____
Spinal Cord (if evaluated, or clinical signs if suspected lesion site) _____

Gross Diagnosis _____
Tissues collected for histopathology _____

Laboratory _____ (attach pathologist's report)

* If an organ or system is not examined indicate with a N/E.

Veterinarian performing exam _____ Signature _____
Address _____ City/State/Zip _____
Phone Number _____ E-mail address _____

Notes

Notes