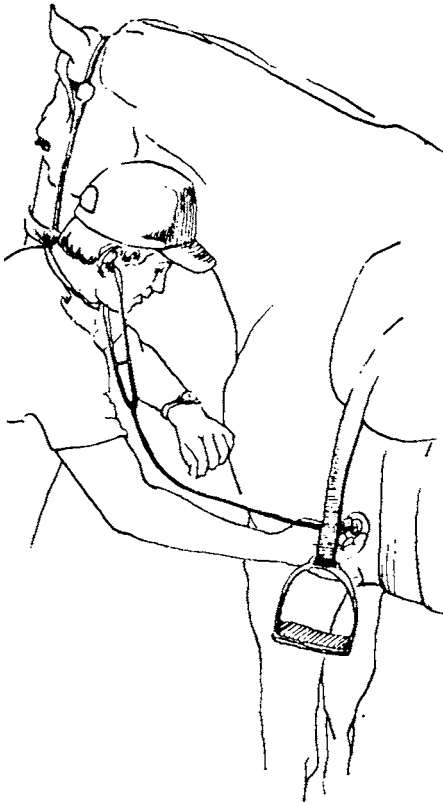




American Endurance Ride Conference

# **Guidelines for Control Judges and Treatment Veterinarians at AERC Endurance Competitions**



Revised April, 2016

Published by the  
**American Endurance Ride Conference**  
P.O. Box 6027 • Auburn, CA 95604  
866-271-AERC • 530-823-2260 • Fax 530-823-7805  
E-mail: [office@aerc.org](mailto:office@aerc.org)  
Website: [www.aerc.org](http://www.aerc.org)

Originally prepared by:  
Matthew Mackay-Smith, DVM  
Bill Bentham, DVM  
Mort Cohen, DVM  
Todd Nelson, DVM  
Kerry Ridgway, DVM  
Jim Steere, DVM

Revised by:  
AERC Veterinary Committee Members

Jeanette Mero, DVM, Chair  
Duane Barnett, DVM  
Jim Bryant, Jr., DVM  
Julie Bullock, DVM  
Trisha Dowling, DVM  
Wesley G. Elford, DVM  
Greg Fellers, DVM  
Langdon Fielding, DVM  
Susan Garlinghouse, DVM  
Jerry Gillespie, DVM  
Lynne Johnson, DVM  
Nick Kohut, DVM  
Julia Lynn-Elias, DVM  
Greg Fellers, DVM  
Robert Marshall, DVM  
Troy "Ike" Nelson, DVM  
Dave Nicholson, DVM  
Melissa Ribley, DVM  
Olivia Rudolphi, DVM  
Dennis Seymore, DVM  
Meg Sleeper, VMD  
Thomas R. Timmons, DVM  
Alina Vale, DVM  
Martin Vidal, DVM

# TABLE OF CONTENTS

Introduction .....	3
Control Judging Guidelines .....	5
Duties and Responsibility: Head Control Judge .....	6
Course Control .....	8
Ride Control .....	8
On-Site Before Checking in Horses .....	8
Rider Briefing .....	9
“Judge and Jury” .....	10
Special Awards .....	10
Duties and Responsibility: Associate Control Judge .....	10
Duties and Responsibility: Treatment Veterinarian .....	11
General Principles for Control Judging and Safety .....	12
Pre-Ride Control Judge Examination .....	12
Control Checks .....	13
Protocols for Treatment .....	13
Principles and Procedures for Control Check Examinations .....	14
Entering the Control Checkpoint .....	15
Criteria .....	16
Examination Procedure .....	21
Principles and Procedures for Elimination .....	23
AERC Pull Codes .....	23
Completion Examination .....	26
Best Condition Examination .....	27
Post-Ride Courtesy and Safety Check .....	28
Ride Debriefing, Critique and Reports .....	29
Post-Ride Control Judge and Veterinary Treatment Report .....	29
The AERC Drug Rule .....	30
Suggested Equipment and Medications .....	31

Treatment Principles for Metabolic Conditions in Distance Horses.....	33
Recognition of the Exhausted Horse .....	34
Assessment of Hydration .....	35
Intravenous Fluid Therapy.....	35
Intravenous Fluid Therapy Supplementation.....	37
Oral Fluid Supplementation.....	37
Medications for Pain Relief .....	38
Rhabdomyolysis and Exertional Myopathy.....	39
Colic .....	40
Development of Hyperthermia.....	41
Laminitis .....	42

## Appendices

A. AERC Control Judge Contract Form .....	43
B. Pre-Ride Checklist for AERC Head Control Judges.....	45
C. Flow Chart for Endurance Ride Judging.....	47
D. Rider Card.....	48
E. Best Condition Evaluation Form.....	50
F. Veterinary Treatment Form .....	52
G. AERC Post-Ride Control Judge and Veterinary Treatment Report.....	53
H. Equine Fatality Report.....	54
I. Necropsy Protocol.....	55

## **PREFACE**

The rapid expansion of distance riding throughout the world requires an ever-increasing number of qualified control judges. This handbook serves as a guideline for the effective 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](http://www.aerc.org), or see a copy of *Endurance News* for the list of current Veterinary Committee members.

# INTRODUCTION

The purpose for knowledgeable control judge 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 control judge sees the horse only periodically. Therefore, the responsibility of the horse's welfare and performance clearly remains with the rider.

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 guidelines have been developed by experienced and knowledgeable endurance control judges. It is the duty of every control judge to know the rules to the best of their ability and to consider the medical safety and health of the horse participants. The arrangement of personnel and supplies for medical treatment or a referral system for medical treatment and the dissemination of this information to riders is the responsibility of the head control judge working in consultation with ride management.

The ride control 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.

We have made an effort to make these guidelines readable and understandable, and they have been prepared to provide assistance to the ride control judges, but do not constitute or replace the professional 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 is 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.

As control judges, it is our duty to note clinical signs of metabolic or mechanical distress and to refer those horses in need of diagnostics and treatment to appropriate personnel. As control judges, we are not employed to be providing diagnostic or treatment services. Guidelines for diagnostic and treatment principles are included in this handbook to assist those control judges who choose to provide these veterinary services in addition to their duties as control judges. 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.

*2016 AERC Veterinary Committee*

### **Control Judge: A Definition**

Control judges are persons that have graduated with a Degree in Veterinary Medicine or its equivalent from an institution of recognized accreditation. A control judge will provide judgment as to an equine's ability to remain in competition. Control judges are not hired to provide a diagnosis, and should refer equines identified as requiring diagnostics and treatment to a veterinarian legally licensed to practice in the relevant jurisdiction. A control judge who is a veterinarian legally licensed to practice may perform concurrent duties outside the role of control judge, such as providing a diagnosis and/or medical treatment.

## CONTROL JUDGING GUIDELINES

**Qualifications:** Control judges 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.

**Familiarization:** It is not advisable for a control judge 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 through literature, becoming AERC certified through the open-book exam process, discussions with other control judges or by observation or providing assistance at other endurance rides. Likewise, if you have been away from the sport for a period of time, it may be beneficial to attend a ride to see if there has been an evolution in judging since you were last active.

**Professional Qualifications:** Control 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. The Veterinary Continuing Education provided at the annual AERC Convention is an ideal opportunity for education and interaction with other certified control judges.

**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 challenges and problems.

**Personal Qualifications:** The control judge should be tolerant, objective, firm and fair, with a personality that is consistently pleasant, helpful, good-humored, kind and concerned. No alcoholic beverages or recreational drugs should be consumed during the competition. This cannot be too strongly stressed: the credibility of one's judgment under the influence of liquor or drugs is rightfully suspect.

**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.

**Rules:** Read the AERC Rules as well as any additional regulations set by ride management. Many local and regional organizations provide ride rules that fall outside those established by AERC. Carry copies of all applicable rule books in case you are unavoidably drawn into mediating a dispute.

**Equipment:** The amount of equipment will vary with the circumstances and whether or not you are serving as head control judge, assistant control judge, or sole control judge/treatment veterinarian for judging and treatment. For simple

judging, you will require a stethoscope, thermometer and watch with a second hand or digital stopwatch. A list of additional useful tools is listed under Suggested Equipment and Medications on page 30.

## **DUTIES AND RESPONSIBILITY:**

### **Head Control Judge**

Taking on the task of being control judge implies a commitment to the horses, riders, and ride management. In accordance with AERC rules, at least one control judge is required to remain on-site from the start of the pre-ride check until one hour after the last horse has safely completed the course or been eliminated from competition. You should arrange coverage for any other professional responsibilities so there is no interference with your duties as head control judge. Ride management should arrange for a local veterinary referral service for horses remaining on-site overnight if all control judges have departed an hour following the close of competition.

**Pre-Ride Planning:** Prior to the ride date, the head control judge should offer to participate with management in all phases of planning that affect the stress levels which the horses may experience. These include: layout of the trail; location, duration of hold times and staffing of control checkpoints; provision of emergency care; and arrangements for ambulance transportation for horses being transferred to regional treatment facilities.

Draw up a Control Judge Flow Chart for all control judges (see sample Control Judge Flow Chart, Appendix C). Make sure that scheduling allows for the fastest possible arrival at a control checkpoint and the last permissible rider departure time.

**Agreements:** Well in advance of the ride date, it is the head control judge's responsibility to confer with ride management to discuss and confirm in writing:

- Date and location of the ride
- Duration of service required
- Duties to be undertaken by head control judge, associate control judges and treatment veterinarians
- Assistance to be provided by ride management
- Compensation, including meals, travel, accommodations and/or expense reimbursement.

Good communications and signed, dated written agreements with the ride manager, if possible, will prevent most miscommunications on ride day. Misunderstandings can cause liability issues and increase the risk to participants. Also confirm that similar written agreements have been negotiated and completed between ride management and associate control judges and the treatment vet-



erinarian(s). Remind the associate control judges and treatment veterinarian to get signed agreements from management. Since management will ultimately be responsible for their care and compensation, the agreement will be with management rather than with you as head control judge.

**Associate Control Judges and Treatment Staff:** In most cases, ride management will assume the duties to secure and compensate for the services of additional control judges and treatment veterinarians. However, it is important that the head control judge work closely with ride management to determine the number of additional staff needed, based upon the difficulty of the trail, the expected number of entries, anticipated weather conditions and logistics of transporting staff and supplies between checkpoints.

A recommended rule of thumb is to provide one control judge per 15 to 25 horses, and one treatment veterinarian per 30 to 40 horses. However, this number may vary based upon the layout and expected stress level of the course, and the number of active control checks throughout the event.

In some cases, the head control judge may wish to contact and procure the services of mutually acceptable additional veterinary staff after consultation with ride management. Under such circumstances, responsibility for compensation remains with ride management, and a signed agreement should be provided to specify the details of the contract between management and the associate staff.

While it is ultimately ride management's responsibility to provide sufficient control judges and treatment veterinarians, bear in mind that it is the head control judge's absolute duty to ensure the safety and well-being of the participating horses.

**At no time should financial constraints take precedence over ensuring the welfare and safety of participating horses.**

Provision for initial triage and treatment services, including intravenous fluids, must be present at every ride. Confirm that ride management has provided one or all of the following:

- A designated treatment veterinarian on-site
- A control judge who is licensed, willing and able to provide emergency treatment on-site
- A local on-call veterinarian who will provide emergency treatment on-site
- Identification of nearby veterinary facilities that are qualified and available throughout the entire duration of the event to provide emergency referral services if needed.

A few days prior to the ride, confirm that the referral facility remains available and has been reminded of the upcoming event. Ensure that ride management has provided detailed written directions and contact information, and that this information is readily available to competitors and ride staff at all control points.

Have capable vehicles and knowledgeable drivers to transport control judges.

When possible, a control judge should remain at every control check until every horse has departed from the control check. If this is not possible, be certain that a representative of ride management remains, and that communication to open control checks is continued until the last horse has departed.

Confer with ride management that all competitors have signed and dated a release form with an acknowledgement of assumption of the risks associated with endurance riding.

## **Course Control**

It is the head control judge's responsibility to review trail maps and previous ride statistics as available. Whenever possible, examine representative segments of the trail firsthand. At the very least, review the course on topographic maps.

Ensure that the course:

- Provides a significant physical test without unreasonable risk of mechanical injury or metabolic exhaustion
- Provides an appropriate number of sufficiently accessible control checkpoints with ample hold time
- Can reasonably be completed within the time allowed, taking into account climate, terrain and altitude. These conditions increase the stress levels and require careful consideration of the relationship between course length and time allowed for completion.

## **Ride Control**

In the event of unexpected conditions that create unacceptable hazards to the safety and welfare of participants, it is within the head control judge's scope of responsibility to delay start time, modify holds and judging parameters, or even cancel the ride entirely. Extreme weather, unexpected damage to or changes in trail safety, insufficient control judge or treatment staff, or other conditions threatening the safety of riders and horses are examples that justify changes to ride plan. Work closely with ride management to find the best solution for all concerned.

## **On-Site Before Checking in Horses**

- Confirm that lay staff is competent and familiar with protocols to collect and record arrival time, time to reach the pulse parameter, calculated out-time, pulse data and where to direct riders to control judges, crewing areas and out-timers.
- Brief the control judging, veterinary treatment and management staff on pre-ride, control, and post-ride criteria procedures.
- Distribute schedules and assignments to the control judge and treatment veterinary staff.
- Lay out the pre-ride inspection site for efficient assessment of horses.

## Rider Briefing

It is the responsibility of the head control judge to set judging parameters including, but not limited to pulse criteria. Ride management, control judges, treatment veterinarians, control staff and riders should all be briefed on these parameters prior to the ride start. Since the ambient conditions are of prime concern in the setting of parameters, these parameters should not be finalized more than 24 hours prior to the ride start. Most problems arising from poor planning can be prevented by careful thought and judgment before the ride. Control judges must have absolute and complete control over all matters affecting the welfare and safety of horses. Riders should be reminded that at small rides where only one veterinarian is present, the ride may be significantly but unavoidably delayed by the provision of emergency treatment.

The rider briefing is the time to establish the relationship between the control staff and riders and, as such, should be undertaken seriously and systemically. Use notes to ensure that all important information has been relayed to participants.

- Introduce yourself, the associate control judges and treatment veterinarian(s), and briefly describe the role of each during the ride.
- Discuss the specific pulse recovery parameters set for this ride. Any changes to previously designated parameters, such as time allowed to reach pulse after crossing the finish line, must be posted in writing in a location accessible to all riders prior to the start of the ride as well as announced at the rider briefing.
- Describe control procedures and describe the flow patterns through each checkpoint, including discussion of whether each checkpoint is a “gate into hold,” “hold only,” “pulse and go” or “trot-by.”
- Review for riders (and especially for novices, for whom this may be new information) the physical signs of an overly stressed horse, how they relate to the individual parameters on the vet card and contribute towards evaluating the overall criteria of “fit to continue.”
- Discuss the logistics of hauling eliminated horses out of checkpoints back to base camp.
- Describe any 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.

Advise the riders how to handle a horse that becomes seriously tired and/or lame on the trail between control checkpoints. Suggestions include: utilize shade, supply water for cooling and drinking as available, and hand-walk to the nearest designated checkpoint. If the horse is too lame or metabolically unstable to continue at a walk, then riders should **stay where they are** until help can arrive. Riders should inform passing riders of their situation and ask them to relay the

information to officials at the next control check.

Remind the riders that the control staff is in partnership with the riders in order to better ensure a safe and successful event for all. Rider cards should not be confused with medical records or a pre-purchase exam.

An individual horse's condition is dynamic and can deteriorate very rapidly, regardless of the excellence and accuracy of grades assigned at previous checkpoints.

Discuss with the riders that they are most familiar with their own horse and, unlike the control judges, remain in contact with their horse throughout the ride. As such, good communication between the rider and control staff is a vital part of protecting the well-being of the horse. Remind riders to resist the temptation to let a competitive spirit replace good judgment and decision-making. Finally, remind riders that they, not the control staff, are ultimately responsible for the well-being of their horse.

## **“Judge and Jury”**

Ride management may sometimes wish to add adjudication of all disputes to the duties of the head control judge. Resist this tendency. Management should handle all complaints and protests relating to the trail markings, timing and all non-control judging matters. Control judgment should be confined to matters relating only to the horses' health and safety.

## **Special Awards**

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

## **DUTIES AND RESPONSIBILITY:**

### **Associate Control Judge**

As an assistant control judge, be sure you understand the level and limits of your responsibility for decision making. Review AERC rules and any additional rules established by ride management so that you are familiar with them. Review the guidelines to ensure a systematic, methodical and consistent examination. Review the descriptions herein of the duties and responsibilities of the head control judge in order to provide support for optimum efficiency throughout the event. Confer with the head control judge ahead of time to review the parameters established for the event, the type and length of holds at each checkpoint, and protocols for evacuating eliminated horses or referring horses to the treatment

veterinarian. Clarify your mutual understanding of notations made on vet cards and procedures to be followed throughout the day. If the decision-making process cannot be arranged to your satisfaction, decline to serve. Throughout the event, if you are unsure about whether an individual horse meets the criterion of “fit to continue,” do not hesitate to request assistance from the head control judge or other associate control judges.

## **DUTIES AND RESPONSIBILITY:**

### **Treatment Veterinarian**

As a treatment veterinarian you should be prepared for a variety of possible medical conditions and injuries. The appropriate equipment and supplies should be kept organized, readily available, and transported from each location as the treatment veterinarian moves throughout the event. An extensive list of Suggested Equipment and Medications is provided in this handbook. It is possible, though unlikely, that under extreme circumstances, there may be insufficient veterinary treatment staff or control judges available to assist in treatment of multiple horses. In such events, it is strongly recommended that ride management assist in arranging transport and referral to a local veterinary facility to ensure the best possible prognosis and outcome for all concerned.

- Confer with ride management and the head control judge to 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 materials, such as intravenous 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.

# GENERAL PRINCIPLES FOR CONTROL JUDGING AND SAFETY

Dependent upon ride management's ability to provide a sufficient number of helpers, the following control judging support staff is recommended:

- Two P&R crews per control judge to gather objective data. Good personnel double the control judge's efficiency.
- A marshal to direct horses, staff, pit crews, spectators and vehicular traffic at control checkpoints and road crossings.
- Timers at control checkpoints at both in- and out-gates.
- Scribes to assist in written records.
- Communications system between officials and between control checkpoints.
- Ambulance (transport) for horses pulled from competition.
- Treatment veterinarian(s) or arrangements for prompt emergency coverage by a local equine veterinary practice.

If available, additional support staff to further optimize efficiency and flow is highly desirable:

- Marshal to direct horses and riders entering and exiting the control judge exam area for efficient traffic flow
- In- and out-gate timer assistants
- Extra P&R crews and recorders at busy control checkpoints
- Staff otherwise providing assistance may also act as a driver for each control judge, but **must** be familiar with the route between checkpoints
- Radio network for emergency communication
- Trail-sweepers, mounted patrol, drag riders
- Go-fers to run errands and facilitate communications among officials.

## Pre-Ride Control Judge Examination

Have management provide marshaling to keep this process orderly. The purpose of the pre-ride examination is not to carry out a comprehensive pre-purchase exam, or to render subjective judgments as to the suitability of an individual horse for endurance, but to screen out those individuals unlikely to safely withstand the rigors of this specific event. Any horses with any degree of lameness should, whenever possible, be reviewed by at least two control judges before eliminating the horse from starting. In rides with a large number of entries, two or three members of the veterinary staff, including the head control judge, should review questionable horses.

As time permits, it would be courteous to provide a review and explanation of the judges' reasons for elimination with the disappointed rider.

## Control Checks

Endurance competition is in and of itself a stressful event which carries some unavoidable risk for equine injury despite every precaution. The purpose of the control check is to identify and remove from competition those horses which present an unacceptably high risk of developing subsequent and more serious metabolic or biomechanical lesions before those injuries actually occur.

- A pre-ride examination should identify and exclude from competition horses that are unsound, metabolically or mechanically compromised or otherwise medically incapable of safely attempting the ride.
- On-course examinations detect signs of excessive levels of stress.
- A post-ride examination qualifies a horse for completion and is a chance to consult with the rider about their horse's clinical condition, 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.
- Ongoing inspections in camp assess the safety and suitability of arrangements and care before and after the ride.

## Protocols for Treatment

Whenever possible, a control judge should NOT also be the primary treatment veterinarian. Even small rides should be encouraged to have a treatment veterinarian available. At larger rides, the head control judge should designate which of the control judges will switch to treatment duties in the event of problems. 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 checkpoint, or ensure that equipment and supplies are transported with you between checks throughout the day.

Treatment is almost universally a fee-for-service arrangement between the rider and the treating veterinarian. If and when a control judge transitions into the role of a veterinarian providing treatment services, the doctor/client/patient relationship becomes operative. Just as in private practice, medical and treatment records should be kept and, as appropriate, a release or informed consent form should be available. If indicated, the client should be required to sign off that he/she has declined the offered treatment or suggested referral to an off-site veterinary clinic or hospital.

Ride management should provide adequate recording personnel as needed to assist the treatment veterinarian in the proper recording and organization of all medical records. However, in a pinch, most current models of smart phones include a voice memo utility application that is useful for recording findings and treatment

records until they can be transcribed into permanent records.

Details of the signs and recommended treatments for various diseases of exertion are provided under the Treatment Principles section.

## **PRINCIPLES AND PROCEDURES FOR CONTROL CHECK EXAMINATIONS**

### **Principles:**

- Examine horses regularly and often during the ride—at least once for any ride over 25 miles; two to three times during most 50-milers; and five to eight times for 100-milers, with the greater frequencies recommended in difficult terrain or hot and/or humid weather.
- Recognize fatigue factors promptly and advise the rider how to modify their ride strategy accordingly.
- Remember there are no conditional releases. Remind yourself that there is no guarantee that the rider will follow your advice after leaving the vet check area.
- 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. Horses must recover to the established pulse recovery parameter within 30 minutes of arrival, or are eliminated from further competition.
- Evaluate respiration recovery rates; consider minute volume more than the respiratory rate alone, taking into account the ambient temperature, humidity and the horse's body temperature.
- Rectal temperatures up to 103.0°F are expected and tolerable, but should be expected to drop soon after stopping exercise. Horses with rectal temperatures of 103.5°F or higher should be provided with aggressive cooling measures (sponging or scooping and repeated scraping, fans, ice boots, etc.) and should drop within 10 to 20 minutes of stopping exercise. Horses with a rectal temperature of 103.5°F for 30 minutes or longer are not considered “fit to continue” and should be assigned a Metabolic pull code.
- A control judge should perform a complete hands-on exam of every horse. Carefully examine horses that present with poor recovery numbers or signs of fatigue. Use the Cardiac Recovery Index (see below) in conjunction with other clinical parameters to determine “fitness to continue.”
- Do not hesitate to ask the rider to return for a recheck exam prior to continuing on if warranted and time allows. However, horse and rider may not be held beyond the pre-established hold time for that check; at or before the designated out-time, a final decision must be made as to either allow the horse to continue without conditions, or be pulled from further competition.

**Records:** Riders have come to expect a record of their performance; manage-



ment needs a record for reporting results, tabulating for awards and for adjudicating disputes and protests; and control judges 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.)

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

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

## **Entering the Control Checkpoint**

Most control points are a “gate” into a timed hold (15 to 60 minutes). This is the commonly used procedure for entering control checkpoints, although other checkpoints, including “straight hold” (timed, but with no pulse recovery requirement), “pulse and go” (horses reach criteria and are allowed to continue on without a full examination), or “trot-by” (a visual evaluation of gait as horses pass through a control point) are also sometimes utilized. When entering the control checkpoint, the horse is given an arrival time and must meet the previously established pulse parameter within 30 minutes of arrival. The “hold” time designated for that particular checkpoint starts as soon as the horse meets the pulse parameter.

This method discourages racing into checkpoints at the anaerobic exertion levels contrary to optimal endurance performance. The “gate” tends to group together horses of like ability, and to slow those horses not capable of sustaining their previous or current pace. Most fit horses ridden within their level of ability recover within three to 10 minutes of arrival into the check. However, horses are allowed up to 30 minutes to recover to the pulse parameter. If they fail to do so, they are eliminated from further competition and assigned a Metabolic pull code.

If pulse recovery parameters are not met at initial presentation, there may or may not be an additional time interval required before re-presentation is allowed. In most cases, horses that have not yet recovered sufficiently are simply sent to the “back of the line” before a recheck. If the pulse parameter is still not met at the second pulse check, then a third check is generally permitted with a control judge taking the pulse at that time rather than a P&R volunteer.

If pulse parameter is met at the initial examination, the rider may, if he/she chooses, go directly to the control judge for the remainder of the fitness evaluation, unless otherwise directed at the pre-ride briefing to present the horse after a

pre-determined delay. Delaying examination within the time hold is at the discretion of the HCJ, and should be applied consistently by all control judge staff. The “gate” concept is an opportunity for riders to make a comparative observation of the recovery and condition of other horses performing at the same level of exertion, and make good management decisions on behalf of their horses accordingly.

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 arrival of the first horse at the check so all horses are subject to exactly the same restrictions. If warranted, control judges may recommend to a rider that they stay for additional time at a check if doing so may benefit the horse. However, control judges cannot mandate different hold times as a condition for continuing in competition. Otherwise borderline horses must either be adjudged as unconditionally “fit to continue” by the end of the individual’s hold time or be pulled from competition. Riders voluntarily opting to remain at checks beyond their out-time should understand that doing so does not extend the total ride time available for completion of the course.

**Spot Checks:** It is important to note that while most control examinations will routinely take place at designated checkpoints, all control judges have the duty and responsibility to recheck, and even eliminate, horses which appear not to meet the criteria of “fit to continue,” even if that horse has previously passed the relevant checkpoint examination and is awaiting an out-time. In instances where another control judge has previously passed the horse in question at the same control point, it is extremely important to confer with that judge to compare findings and mutually agree upon a course of action. In such instances, the head control judge should be consulted to make a final decision.

Likewise, horses may be spot-checked, and potentially eliminated, at any other location on the trail. In such cases, good communication with the rider is important to avoid misunderstandings or feelings of being “ambushed” between control points.

## **Criteria**

**Pulse:** Pulse recovery with rest has become the main objective measure of “fitness to continue.” While examining a horse with questionable parameters, refer to the individual’s in-time to evaluate the amount of elapsed time between arrival and reaching pulse criteria. A well-conditioned horse exercising within its fitness level should be expected to recover to a pulse of 64 bpm within 10 minutes

(or sooner) of arrival at a checkpoint, and below 60 bpm within 20 minutes. The palpable pulse and auscultable heartbeat should be regular and full, not wandering, labile, thin or “slapping.” At “gates,” if the original pulse recovery parameter is not met upon initial presentation, ride management and the head control judge may, at their discretion, establish a required time penalty of between two to 10 minutes before the horse may be officially checked again. In such cases, such protocols should be applied to all competitors consistently. At most rides, however, horses failing to meet initial pulse parameter are simply sent to “the back of the line” if other horses are waiting to be checked.

AERC rules mandate that all horses must recover to pulse criterion within 30 minutes of arrival at all control checkpoints, including the finish line, regardless of distance. However, for distances of 50 miles or longer, the head control judge, working in conjunction with ride management, may set time allowed to reach the finish line pulse parameter to between 30 and 60 minutes if they determine doing so best suits the particular circumstances, finish line location and distance from base camp and serves to further protect the horses. Adequate notice of changes in the maximum time to meet final pulse rate and any other more stringent criteria should be provided to riders by posting the changes in writing in a conspicuous location at least 12 hours prior to the start of the ride, as well as announced at the pre-ride briefing.

**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 control checkpoints at endurance rides, including the finish line control check.

The horse is not presented until it has met recovery criteria established for that ride, usually 64 bpm or less. The horse is presented to the control judge, and a resting heart rate is taken. The horse is trotted 125 feet out and 125 feet back. The jog-out can also serve to observe the gait 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 to 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 control judge can initiate evaluation of the metabolic parameters during the remainder of the minute. A horse that is demonstrating satisfactory metabolic compensation should recover to the same resting heart rate taken before the trot-out, or preferably to a heart rate of four beats per minute 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 to 15 minutes to monitor for progressive recovery. The control judge should recheck all metabolic parameters at that time, including a second CRI. The CRI is generally not used as a sole parameter to eliminate a horse from competition; the entire clinical picture

should be 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 horses vary in their respiratory response to poor cooling conditions, panting in hot, humid weather can be entirely consistent with optimal performance and good metabolic stability. If pulse and other signs of recovery are prompt and progressive, panting horses with a rectal temperature below 103.5°F can be assumed to be 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 efforts made to restore cooler core temperature before being adjudged as “fit to continue.” Some “panthers” 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, and must be dissipated via evaporative, conductive, convective and radiation pathways. Horses working well below their maximum aerobic rates will nevertheless develop elevated body temperatures. Rectal temperatures of 101°F to 103°F are common and tolerable. Rectal temperatures above 103°F for longer periods can be dangerous. Horses with temperatures above 103.5°F should be subjected to aggressive supplementary cooling with water, both at the checkpoints and on the trail, provided the horse is deemed “fit to continue.” A horse with a rectal temperature remaining above 103°F for 30 minutes following cessation of exercise and despite external cooling may not be adequately compensating for the heat stress, and so should be deemed not “fit to continue.”

It is advisable to take the rectal temperatures of all panting horses, as well as those with poor pulse recoveries. Horses with rectal temperatures greater than 103°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 assessing the overall clinical picture.

**Body Condition Score:** Research into endurance horse physiology has demonstrated that horses in excessively thin body condition or excessively fat are at significantly greater risk for both metabolic and biomechanical failure during endurance competition. Ideally, endurance horses should demonstrate a BCS between 4 and 5 on the Henneke scale. However, AERC rules dictate that horses must be eliminated from competition if, during the pre-ride examination only, the horse is adjudged to be less than 3 or greater than 8 on the Henneke scale.

Prior to an event, control judges should familiarize themselves with the technical aspects of visual and manual assessment in order to consistently and accurately

judge body condition score during the check-in exam.

It is important to note that assessing a BCS and determining whether an individual horse falls outside the acceptable guidelines for AERC competition is performed **ONLY** during the initial check-in examination. Horses adjudged as outside the acceptable BCS range of 3 to 8 cannot be allowed to start the competition in any distance. Although changes in gut fill and hydration may erroneously appear to affect BCS as a ride progresses, it is important to recognize that these parameters do not directly affect changes in body fat cover during the relatively short duration of endurance competition. As such, once a horse has been judged during the pre-ride check-in exam to meet minimum and maximum BCS standards, that horse may not be subsequently pulled from competition or at the finish line, even if another control judge subsequently assesses BCS to fall outside of accepted guidelines.

In instances where the unavoidable subjectivity of assessing BCS makes a clear ruling for a borderline horse difficult, it is advisable for two or more control judges, including the head control judge, to assess the animal to reach a mutual consensus.

When considering a borderline BCS, as with questionable gait abnormalities, take into consideration the proposed distance, terrain and climate in making a safe decision. At certain times, “letting the trail sort it out” is acceptable, but such horses should be closely monitored for deterioration in their metabolic status. As always, good communication with the rider in explaining the findings and concerns for potential injury is a prudent strategy to minimize misunderstanding and frustration as much as possible.

**Dehydration:** The persistency of a skin fold pinched at the point of the shoulder may indicate body water lost in excess of 4% 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, decreased gut motility, scant sweat, dry and/or injected mucous membranes, and sinking of the eyeball with consequent drooping of the upper lid are all signs of dehydration. When these abnormal signs are present, dehydration may be just the tip of the metabolic iceberg. It is critical to remember that virtually every incidence of metabolic disease encountered during an endurance event will originate, or be further complicated by, dehydration and warrants close monitoring for additional elements of fatigue or metabolic failure.

**Capillary Refill Time:** 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.

**Mucous Membranes:** Dry, tacky mucous membranes also support a finding of

dehydration. 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 cranially. 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. Auscultate all four quadrants and grade and record those findings on the rider card. Hypermotile gut sounds may be a prelude to an 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. In both cases, monitor closely for progressive signs of metabolic deterioration, and do not hesitate to ask for a recheck exam prior to allowing the horse and rider to continue. There is no downside to being cautious, and anxious riders will generally be appreciative of confirmation that their horse is fit to continue.

**Attitude:** Sleepy-looking eyes and droopy ears may be related to fatigue. Apathy and loss of attentiveness is significant, and lack of appetite is alarming. Absence 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 are simply resting versus those that 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. Be careful not to confuse an inexperienced horse unaccustomed to jogging on a loose lead with a horse that is truly showing signs of fatigue.

**Gaits:** Lameness on the trail or at a control checkpoint should be evaluated by the same AAEP grading outlined with the pre-ride criteria. Grades I and II can usually continue with caution and careful monitoring. As in the pre-ride exam, consider the prognosis of the lameness with continuing work. If the athletic future of the horse is threatened, then consider pulling the horse. Grade III lameness or greater for any reason should be pulled at any point at which it is revealed, including on trail and at the finish line control 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.). Decisions to pull a horse with a lame code should be based on an exam in which the lameness can be localized to one or more legs with a reasonable degree of confidence. Doing so improves consistency of decision-making between individual control judges and helps avoid

nebulous lameness pulls.

**Interference:** Bleeding or tender interference injuries should be carefully assessed for ability to continue. Horses with severe interference wounds are not “fit to continue.” Re-shoeing or otherwise correcting hoof and leg protection issues during the ride in an effort to resolve the interference problem is at the rider’s discretion, but does not guarantee that they will necessarily be allowed to continue if the horse does not meet the criteria of “fit to continue.”

**Equipment Rubs and/or Discomfort:** Severe saddle, girth, or bit injuries can lead to a pull if a change in equipment will not relieve them. Improperly fitting saddles can contribute to severe discomfort and lameness and are a justifiable reason for elimination.

**A caution mark.** Sometimes a horse will present with signs that give cause for concern but not necessarily immediate elimination. This entry can be marked for further scrutiny with an appropriate notation on the rider’s card. Advise the rider of your concerns, along with recommendations as to how to prevent the problem from progressing to the point of elimination. **Note that there are no conditional releases; horses should only be allowed to continue on if they are demonstrating metabolic competence and progressive recovery based on a full exam.** If there is any doubt about a horse’s metabolic condition, the horse should be eliminated. The objective of control judging is to identify and pull horses showing undue fatigue or lameness rather than waiting until they are overtly sick and in need of treatment.

**SDF:** Synchronous diaphragmatic flutter (“thumps”) is a warning sign of significant fluid and electrolyte derangements, and horses demonstrating these symptoms are not considered “fit to continue.” However, many mild cases in horses that otherwise appear to be metabolically sound will resolve with rest and access to alfalfa hay or other sources of oral calcium. At the discretion of the control judge, riders may be offered the opportunity to care for their horse during the remaining hold time and then re-present the horse for a recheck. Severe or persistent symptoms of SDF justify a Metabolic pull code and should be aggressively treated to correct the condition.

## **Examination Procedure**

For all examinations, be systematic and consistent. Each individual parameter on the rider’s vet card should be assessed and noted on the card at the pre-ride judging examination, at every subsequent control checkpoint and at the finish line judging examination, even if the horse has been eliminated.

Evaluate the heart rate and rhythm at rest, prior to jogging the horse over firm, consistent footing, to evaluate soundness and impulsion. In some cases, either during or after completion of the ride, a Cardiac Recovery Index (described on page

17) may be performed to evaluate cardiac stress levels and assess how rapidly the pulse returns to its previous resting rate.

Auscult the lung fields to assess for any respiratory abnormalities. During the pre-ride check, this is especially important in identifying horses which may have arrived in camp with symptoms suggesting contagious respiratory disease.

Complete the metabolic examination according to the order on the rider card as shown in the handbook appendix. 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 control checks. These largely subjective parameters are best rated A-B-C-D rather than numerically. While not every control judge 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. Additional notations (i.e., "CRT 2 seconds") may be added to the comments portion of the vet card to provide as much objective data as possible.

Start at the nose and mouth, assessing mucous membranes and capillary refill. A quick assessment of age can be made at this time. Note that horses must be 48 months of age to enter limited distance rides. Horses must be 60 months of age to enter rides of 50 miles or more, with the exception that horses must be 72 months of age to enter a one-day 100-mile ride.

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 towards the rear of the horse, ballot the triceps, palpate back and loins, glutei and semi-membranosis/tendinosis muscles for tone and reaction. Auscult all four quadrants for gut sounds, which need not be loud or numerous to satisfy, but should be present. Make a quick tour of the horse to evaluate for symmetry, mechanical defects, and significant interference lesions.

The trot-out should be straight out and back for a sufficient distance to observe that the horse shows no consistent gait aberrations under normal circumstances. Do not use severe maneuvers or flexion tests on this exam. 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. Similarly review saddle, girth, and bit areas for suspect or overtly painful lesions.

Do not skip providing a general impression of the horse; assign it an A-B-C-D value on the rider card.



## **Principles and Procedures for Elimination**

The criteria which all horses must meet before starting or continuing beyond a control point is “fit to continue,” and applies to both metabolic and lameness parameters. It is not always possible or necessary to make a definitive lameness diagnosis; however, it is incumbent upon the control judge to make a subjective evaluation of the horse’s gait specifically as to whether the standard of “fit to continue” has been met. The AAEP lameness guidelines below are an aid in evaluating and determining if a horse is “fit to continue.”

During any examination, horses with Grade III or IV lameness are excused, irrespective of cause. Time pressures require judgments to be rapid and critical. However, many times the rider can be asked to return before their out-time to reassess 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 for further work. A rider with a horse with Grade I lameness should be advised of the finding. If a brief examination fails to find the cause, such horses can usually proceed under careful surveillance. Many will complete the ride in satisfactory order; some will subsequently become lame enough to eliminate them from competition. Seek a second control judge’s opinion whenever possible if considering disqualification of a horse at any time during a competition.

Subjective judgment should be applied with caution before preemptively eliminating horses during the pre-ride examination. Horses that are obviously sick, or present with significant respiratory or cardiac abnormalities, should justifiably be eliminated from competition. Horses that subjectively appear to be too thin, too fat (but still fall within guidelines), over- or under-conditioned or conformationally unsuited to endurance competition are more difficult to disqualify without just cause. Bear in mind that many successful endurance competitors do not necessarily fit into the classic description of an “ideal” distance horse. Always feel free to discuss your concerns with the rider, and carry out increased monitoring during the ride.

## **AERC Pull Codes**

There are eight pull codes available to define and/or describe why an equine or owner did not complete an endurance or limited distance event.

- L – Lameness
- M – Metabolic
- OT – Overtime
- SF – Surface Factors
- DQ – Disqualification
- RO – Rider Option
- RO-L – Rider Option-Lameness
- RO-M – Rider Option-Metabolic

The **Lame** code is used when any equine is found to be consistently observably lame by the control judge, generally considered at least Grade III lameness as defined by the AAEP standards. Where possible it is beneficial and advisable to have two control judges confer on the presence and degree of lameness before retirement of the horse from competition.

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

**Classification of Lameness:** 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. At endurance competitions, this generally means consistently observable in both directions of a straight out-and-back trot. (Note: as a general rule of thumb, “consistent” can be defined as observable more than 70% of the time.)
- **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.

The **Metabolic** code is used for a variety of reasons, all pertaining to the equine’s ability to cope cardiovascularly and metabolically with the endurance work at hand. Examples of horses not coping well with the stress of endurance competition can be: a failure to recover the heart rate in a timely manner, poor hydration status, excessive fatigue, poor CRI (Cardiac Recovery Index) scores, poor gut sounds, symptoms suggestive of colic, synchronous diaphragmatic flutter (“thumps”), choke, hyperthermia or exhausted horse syndrome.

In general, horses should not be eliminated based solely upon one individual metabolic parameter. Consider the entire clinical picture in making an assessment. However, while the adage, “Let the trail sort it out,” may apply to minor gait inconsistencies, always err on the side of caution in regards to any horse in questionable metabolic condition.

**Overtime** code is applicable to riders who fail to finish the course within the time allowed by AERC rules, or fail to reach individual checks prior to a previously established cutoff time.

The **Surface Factor** code is used for galls or soreness caused by tack, lacerations, abrasions or other superficial wounds that result in being not fit to continue.

The **Disqualification** code is most often used by ride management for a rule infraction by the rider including, but not limited to, unsportsmanlike conduct,

unruly or unsafe behavior that puts others at risk of injury, deliberately cutting or sabotaging trail or trail markings, or any other violation of the rules and regulations established by AERC and ride management.

**Rider Option** is an entirely separate category of pull codes that have historically been the most commonly misunderstood and misapplied. Rider Option is appropriate when the horse has satisfactorily passed a control check, but for various reasons, the rider chooses to withdraw from further competition. It is imperative that the control judge understand that before any equine is potentially eligible for any Rider Option code, the horse must first pass a routine control check exam and be judged “fit to continue.” The Rider Option code itself pertains solely and exclusively to the health of the rider and is used when the rider deems themselves unable or unwilling to continue the ride.

**Rider Option-Lame** is appropriate when a horse has passed a control check exam as “fit to continue,” but the rider chooses to withdraw for reasons associated with biomechanical issues that are not apparent or consistent during the control judge’s exam. Problems with shoeing or other hoof protection, changes in willingness or way of going, or minor injuries or inconsistencies that do not necessitate a Lame code are all examples for an appropriate Rider Option-Lame code.

Likewise, the **Rider Option-Metabolic** is appropriate after a horse has passed the control check exam as “fit to continue” but, in the rider’s opinion, is metabolically “not quite right.” Unwillingness to eat or drink adequately, changes in urination, defecation or sweat patterns, or changes from expected heart rates during or after exercise are examples of the often ambiguous metabolic issues that would appropriately be assigned Rider Option-Metabolic.

Problems and misuse of RO, RO-L and RO-M often arise when a problem is initially identified by the rider prior to presenting the horse for examination at the veterinary control point. Riders will often point out their concerns to the control judge for discussion and confirmation, but sometimes erroneously feel that noticing an issue first thereby entitles them to a Rider Option code. Unfortunately, some riders feel penalized for pointing out a problem before the control judge does and may become angry or hostile if a Lame or Metabolic code is justifiably assigned.

It is imperative that the control judge understands and explains in a compassionate manner to the disappointed rider that assigning a Rider Option code is not based on who initially noticed the problem, but whether or not the horse meets the standard of “fit to continue.” A horse that does not meet the criteria of “fit to continue” is ineligible for any Rider Option, Rider Option-Lame or Rider Option-Metabolic code, regardless of the circumstances.

Both control judges and riders should understand that accurate assignment of pull codes is a vital data-gathering tool to better understand the issues, diseases and injuries of why some horses will fail to finish or later develop more serious

pathologies. Explain to the rider that accurate statistics are an indispensable tool in developing practices to better ensure equine safety and welfare. As such, do not succumb to the temptation of gifting a rider with an inappropriate Rider Option code for the sake of their or their horse's AERC record. Call it what it is, and explain your rationale to the rider for doing so.

## 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. Pulse recovery (64 bpm) must be met within 30 minutes of crossing the finish line. An extension allowing extra time may be made at rides where the finish line is far away from the final vet check location.

Riders will have a maximum of 60 minutes from the time of crossing the finish line to meet the remaining criteria and present for the final completion exam. If the finish pulse recovery criteria is set lower than 64 bpm or if the riders will be allowed more than the standard 30 minutes for recovery, then a notice must be posted in a conspicuous place at the ride site and announced at the rider briefing.

In some cases, the finish line may be located a significant distance away from base camp, or otherwise adversely affect the normal and expected recovery to pulse parameters. In these circumstances, the head control judge may, working in conjunction with ride management, allow 30 to 60 minutes to meet pulse parameters. This completion criteria must be posted pre-ride and discussed at the pre-ride briefing.

A horse should be certified for completion if it:

1. Demonstrates being "fit to continue" in that it possesses remaining reserves, and could be safely be ridden further, even if at a reduced speed.
2. Has stable vital signs, and is demonstrating progressive recovery. As with criteria used throughout the ride, the completion criteria are set at the discretion of the head control judge. However, a criterion of 64 bpm is the maximum completion pulse criteria set by AERC rules.
3. Is not consistently lame at the trot on a straight line (Grade III) nor at the walk (Grade IV or V).
4. Has not been administered nor requires urgent medication or treatment of any kind. Horses significantly fatigued or needing veterinary care should be kept under control judge observation until they have recovered or are referred to the treatment veterinarian. Any horse that has been treated or medicated prior to the final control check is not eligible for completion. Any rider refusing treatment for a horse that a control judge or treatment 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 control checkpoints even after “passing” a control judge’s exam, as the horse is leaving the control checkpoint, or along the trail if seen by a passing control judge), evaluated for questionable soundness and/or metabolic competence and, if justified, pulled from further competition.

## **BEST CONDITION EXAMINATION**

The purpose of the Best Condition examination is to identify the horse which completed the ride within the Top Ten finishers, and is adjudged to be the most sound, fit and freshest among those being judged. It is recognized that there are many ways of defining Best Condition—against the ideal, against the group examined, against itself, on its condition throughout the ride, or only upon its condition at the time of final examination. For the horse judging (“Veterinary Score”) portion of the examination, the definition accepted by AERC is “the horse that, at the time of the Best Condition examination, is in the best condition and deemed most fit to continue . . .”

The total score used to award Best Condition is based upon a mathematical equation which also evaluates time and weight factors in addition to the horse judging score. 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 significantly fatigued or lame horse ridden by an exceptionally fast or heavy rider will receive the highest total point score after factors of weight and time are considered. This is not to discount the factors of weight and time, but to prevent the award from going to an overly fatigued or lame horse, which is anathema to the concept of the Best Condition award.

All horses judged for Best Condition are compared against a standard of a well-conditioned, fit, sound and metabolically normal endurance horse. When evaluating gait, movement and animation, keep in mind what is normal and expected for that individual’s breed, type and disposition. Take into consideration any “showmanship” on the part of the handler which serves to hype the horse and present an inaccurate picture of the horse’s impulsion, true ability and willingness to continue. Likewise, also be alert for abnormal positioning of the horse’s head by the handler which alters their way of going and potentially masks deficiencies in gait. Overt “hazing” of the horse is not allowed during Best Condition judging, and should be penalized accordingly.

Horses should be evaluated for soundness and quality of movement 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. Reserve use of hoof testers for diagnostics in eliminated horses, not for judging Best Condition.

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. Horses showing symptoms of synchronous diaphragmatic flutter (“thumps”) during Best Condition judging are not considered “fit to continue,” and should be dismissed from further judging for the award.

If all horses judged have a low veterinary score, recognize that it is possible that no horse meets acceptable standards for awarding a Best Condition award. If, in the opinion of the judging committee, none of the horses evaluated are worthy of receiving this coveted recognition of superior fitness, they may elect not to give a Best Condition award. If so, recognize this announcement at the award meeting is better utilized as an educational opportunity, rather than as an opportunity to harshly criticize riders for their mistakes.

***Be consistent!***

## **POST-RIDE COURTESY AND SAFETY CHECK**

Between the arrival of the last competitor and the distribution of awards on shorter (less than 75 miles) rides, there is generally time available 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. Riders appreciate the ongoing concern and assistance offered by the control judges and treatment veterinarians. Problems can sometimes develop hours after the completion and Best Condition examinations. Horses eliminated on the course should be seen again before departing. Advise riders of eliminated horses that it is their option and responsibility to have the horse rechecked before leaving the ride site and that they are accepting any risks that may be associated with the failure to have a horse reexamined before control judges are discharged after a ride’s conclusion. Documents of all treatments and recommendations for further care should accompany the horse on their departure from the ride.

Whether eliminated on course or not, all riders should be encouraged to voluntarily bring their horses to see a control judge before leaving the ride site. This is especially critical when there are any concerns at all regarding drinking, eating, urinating and defecating, or if the horse will be facing a long trailer ride.

Preferably, this exam would occur at least two hours after finish. However, problems can potentially develop many hours after completion. It is important to take every opportunity to educate riders on the importance of monitoring the horse carefully after completion, especially during homeward travel.

## **Ride Debriefing, Critique and Reports**

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

## **Post-Ride Control Judge and Veterinary Treatment Report**

The head control judge must complete the AERC Post-Ride Control Judge and Veterinary Treatment Report and return it to ride management to be submitted to the AERC Office. (See copy of this report, Appendix G.)

The head control judge should make a post-ride evaluation of the ride from a control judge's standpoint, and present his/her findings to management so that existing problems with trail and control checkpoint logistics can be corrected and improvements implemented.

In the event of an equine death, a complete necropsy should be discussed with the owner. Remind the owner that AERC will reimburse the owner for the costs associated with a necropsy up to a specific dollar limit—check with the AERC office for current 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 postmortem exam is to attempt to collect information that may help to prevent such an occurrence again. Occasionally, a necropsy will reveal pre-existing conditions which could not be predicted or controlled. If permission is granted, a diligent and thorough necropsy should be conducted in as “out of the way” location as possible. It may be helpful to photograph abnormal findings of gross lesions and to submit tissues and blood samples to a lab. If there is reason to believe the cause of death may be challenged or result in litigation, photographs, tissue and blood samples and other relevant studies or tests should be collected and preserved carefully.

A Fatality Report must be completed and submitted to the AERC office immediately following the ride.

## THE AERC DRUG RULE

AERC is resolutely and absolutely opposed to the presence of prohibited substances in horses participating in endurance rides. AERC defines the detection of a prohibited substance or metabolite of a prohibited substance in body tissue or secretions of a horse to be *prima facie* evidence of prohibited substance administration. Riders and owners should note that some prohibited substances may persist in the horse's body for extended periods of time which may vary significantly between individual animals. 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 the administration of a prohibited substance. The control judge should refer to AERC Rule 13 and its appendices for clarifications regarding the drug rule.

The list of prohibited substances and categories of prohibited substances are quite extensive and, as such, are not included in these guidelines. The current list of prohibited substances can be obtained from the AERC office or referenced on the AERC website.

The following substances are **ALLOWED** preceding and during competition. For the purposes of definition, a horse is considered "in competition" after passing the pre-ride control judge examination until after elimination from the ride, passing the final completion examination, and/or Best Condition evaluation, if applicable.

- Vitamins and minerals administered at levels as dictated for good nutrition management, but not at levels to provide, or attempt to provide, a performance-enhancing effect
- Electrolytes administered by syringe or in feed
- Topical agents such as liniments and wound dressings that do not contain a prohibited substance
- Topically applied isopropyl alcohol
- Ice and ice water administered orally and/or topically, but not intra-rectally
- Progesterone and similar acting progestagens such as altrenogest (Regu-mate®) only in mares to control estrus cycles
- Omeprazole (Gastrogard®, Ulcergard®) at preventative dose of 1 mg/kg only
- Pergolide
- The following chondroprotective agents: glucosamine, chondroitin sulfate, polysulfated glycosaminoglycan, sodium hyaluronate—not to be administered by needle/syringe while competing in an endurance ride
- Acid neutralizers including aluminum hydroxide (Maalox®, Neighlox®), calcium carbonate and kaolin/pectin suspensions
- Anthelmintics (dewormers)
- Vaccines and immunostimulants.



## **SUGGESTED EQUIPMENT AND MEDICATIONS**

1. Guidelines for Control Judges and Treatment Veterinarians at 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. Digital or analog watch with second hand, or stop watch
6. Thermometer

### **Additional Suggested List of Equipment for the Treatment Veterinarian**

7. Twitch and/or lip chain
8. Nasogastric tube, multiple sizes
9. Stomach pump
10. Bucket
11. IV catheters: 12 gauge 5.25", 14 gauge 5.25", 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 Administration set: Large-bore (at least 12 gauge) for high volume fluid flow, e.g., IWIN i-STAT set
14. Flashlight or head lamp and extra batteries
15. Hoof knife
16. Hoof testers
17. Equipment to remove shoes
18. Scrub preparations
19. Sterile surgical pack with suture materials or stapler
20. Bandaging materials
21. Needles and syringes
22. Various types of Vacutainer® tubes
23. Formalin jars
24. Postmortem knife/culturettes
25. Rectal sleeves and lube
26. Towels
27. Lily pads, blue foam or Equi-Pak™ for sole support
28. Kimzey splint and/or splinting materials (i.e., PCV pipe)
29. Portable IV pole: Use two pieces of aluminum conduit screwed together to 8 to 10 feet in length. (When unscrewed, the two pieces are easily stored out of the way.) 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.

30. i-STAT® (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 for the Treatment Veterinarian**

1. IV fluids: Multiple liter bags (3-5 liter bags) of balanced electrolyte fluid and a polyionic, nonalkalizing fluid (i.e., Normosol R™, Plasmalyte™) with a minimum inventory available of 60-100 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 100-150 liters per 30 horses in competition. Solutions containing sodium bicarbonate are almost uniformly contraindicated for the metabolic problems of endurance horses.
2. Oral electrolytes without bicarbonate
3. CMPK or Decaphos® as a source of Ca, K, Mg, etc.; calcium gluconate (dairy milk fever preparation)
4. Potassium chloride, 20-40 mEq/ml
5. 50% Dextrose solutions for IV and/or oral use
6. DMSO liquid for IV and/or oral use
7. Magnalax® oral powder for use as an antacid or laxative
8. NSAIDs (Phenylbutazone, flunixin meglumine, etc.)
9. Sedation and tranquilizing drugs—xylazine, detomidine, butorphanol, acepromazine, diazepam, romifidine
10. Anesthetics – ketamine
11. Ophthalmic medications
12. Antibiotics. Suggested choices: ceftiofur, trimethoprim/sulfadiazine (powder, paste or tablets), gentamicin, K penicillin or Na penicillin
13. Buscopan® as a smooth muscle relaxant
14. Wound treatment supplies: triple antibiotic ointment, bandaging materials, local anesthetic
15. Hypertonic saline solution
16. Euthanasia solution or other method of humane euthanasia.

## **TREATMENT PRINCIPLES FOR METABOLIC CONDITIONS IN DISTANCE HORSES**

Protracted endurance exercise places a huge physiological demand on endurance horses, and occasions arise when treatment is necessary. The sick endurance horse has now been recognized as having unique treatment needs and, with trial and error, each practitioner devises a treatment protocol that gives the best and most efficient results. Each horse presents a unique story and should be managed for its unique and specific problems. This handbook and the accompanying reference treatment sheets can help guide the treatment veterinarian on appropriate care for the sick endurance horse.

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 progressively improve. Active and early care for the sick endurance horse at the ride site has elevated in recent years, with easily available intravenous fluids, ride site labs and shared knowledge between veterinarians that has been gained over many years of treating endurance horses.

If at all possible, it is no longer advisable to refer a sick, stressed metabolic endurance horse to an off-site hospital setting. Transportation subjects the horse to further stress, as well as the possibility that it will be received at the referral site by staff that do not have an appreciation of the sub-specialty that a sick, metabolic endurance horse presents. Unless an animal requires immediate surgery, or the treatment availability at the ride is primitive or otherwise unavailable, it is optimal to stabilize the metabolic endurance horse at the ride site.

Recent studies have shown that the majority (over 80%) of sick endurance horses, regardless of the metabolic reasons for the illness, will improve with as little as 20L of intravenous fluids and appropriate medical management at the ride. However, in the event of a necessary referral, 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.

Confirm with ride management that they have prepared contact information, including directions, in advance of the ride. Management should have copies to give to owners. Send written information about what medications and treatment you have given. (See Appendix F for the Veterinary Treatment Form.)

If at all possible, the head control judge or the treatment veterinarian should contact the staff at the selected referral site well before the ride to establish a good working relationship in the event a horse must be sent to the hospital.

The following is a brief review of common metabolic abnormalities, a review of treatment principles, and a discussion of a variety of drugs (some tried-and-true, some new) that are available to enable clinical recovery of fatigued and exhaust-

ed horses in distance sports. It is recommended that treatment veterinarians familiarize themselves with treatment options and possibilities of metabolic complications of distance horses before working a ride. If at all possible, shadow a seasoned treatment veterinarian at several rides to gain experience before providing treatment at a ride on your own.

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. The following treatment principles are not meant to supersede or replace clinical judgment or the practical restrictions and limitations commonly experienced at the endurance ride environment.

Please also reference the “Emergency Treatment of Endurance Horses—General Guidelines” sheets, as this is a handy reference tool to carry to rides with you for quick access of medications, dosages, fluid rates, etc., while treating sick endurance horses.

## **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, hypomotility, or entirely absent
- Dry, scant or mucus-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, either tense or drooping ears
- Oblivious to external stimuli such as insect bites, application of rider’s aids, or perceived physical threat
- Loss of impulsion and elasticity of gait; ataxic or weak
- Skin pinch test remains tented; however, note there is often poor correlation of skin pinch test with level of dehydration
- Mucous membranes showing red margination around gum line, muddy or pale color, dryness or other signs of being poorly perfused
- 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 electrolyte derangements and decreased ionized calcium

- Hyperthermia: Rectal temperature above 103°F 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, including yawning or a flehman response.

## **Assessment of Hydration**

Skin turgor, known as the skin pinch test, is informative after 3% to 5% percent dehydration, but varies with age and the amount of subcutaneous fat present. Mucous membrane refill and moisture can be helpful, but is somewhat subjective. Urine concentration observed in the stops will help to determine hydration status but this information is not consistently available to the control judges. Endurance horses are often more dehydrated than we clinically appreciate.

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 (Abaxis) or VetScan 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 prompt and aggressive administration of intravenous fluid therapy.**

Since the endurance horse can easily lose 10 to 15 liters of fluid volume per hour of exercise, horses in metabolic distress should receive at least 15-30 liters intravenously. 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 15-20 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. Ten, 12, or, in some cases, 14 gauge catheters are best suited for rapid fluid administration. A 12-gauge, 5.25" catheter will deliver approximately 20 liters per hour. Large-bore catheters, and any catheter placed under conditions where asepsis is not achieved, should not be left in place for more than 24 hours. The catheter should be sutured in place or glued to the skin, with a neck bandage applied to stabilize the catheter as much as possible. A large-bore IV extension set should be attached to minimize handling and movement at the end of the catheter.

Remember that the rate of flow through a catheter depends not only upon the gauge of the catheter, but also the gauge of the extension set 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, if available, not as cost effective as bulk fluids. They will, however, facilitate dispensing of specific medications into an IV line. Whenever 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 by immersing bags in 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 suitable fluid perch: trees or tree branches work well, as does a horse trailer or motor home roof ladder. 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, primarily using isotonic fluids. Many commercial preparations make this objective quite easy. The fluid of choice is Normosol R™ or Plasmalyte™, which contains sodium, potassium, and chloride, and is specifically indicated for correction of fluid and electrolyte deficits.

Multisol-R™ or Normosol-R™ 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 another 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 seven liters of distilled water to make a physiologic 0.9% saline solution.

## **Intravenous Fluid Therapy Supplementation**

Potassium is lost in moderate quantities in the sweat of distance horses. Although available in ample amounts in hay and grass, the exhausted horse must receive supplementation to replenish acute losses, maintain or restore bowel motility, and correct electrolyte deficiencies. Signs of potassium depletion include muscle fatigue, elevated or irregular heart rate, and decreased intestinal motility or ileus.

It is typically safe to give 10 mEq/liter per hour of potassium chloride in an average-sized horse, but the overall administration rate should never exceed 0.5mg/kg/hour. 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® that may be given orally or intravenously. Calcium gluconate (23%) may be administered at a rate of 1 ml/kg/hour diluted in isotonic fluids.

DMSO is another supplement that may be added to the IV fluids as a 5%-10% solution. A solution of greater than 10% may cause hemolysis and should be avoided. Split one pint of DMSO liquid between 12 liters of fluids and only give this concurrently 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. Up to one pint of DMSO is mixed in a 1:5 ratio with isotonic fluids to avoid gastric irritation.

One common component of exhaustion in an endurance horse is depletion of energy. To correct this depletion, it is possible to give 50-100 grams/hour of dextrose to maintain blood glucose. Dextrose can be added at the rate of 100cc/liter of 50% dextrose to make a 5% dextrose solution.

## **Oral Fluid Supplementation**

Oral fluids provide another 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 may 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 hour or as needed. Gravity may be used, or a stomach pump may be used with extreme care to avoid potential gastric rupture. 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 the treatment veterinarian to observe if the horse will begin to voluntarily eat and drink.

Commercially-prepared electrolytes and home preparations are available for administration through a nasogastric tube. CMPK (1 bottle of 500ml) + 50% dextrose (1 bottle of 500ml) + 1 tablespoon table salt + 1 tablespoon "No Salt" (potassium chloride) in 4-8 liters of water has been recommended as a stall-side preparation that is an absorbable source of electrolytes and sugar.

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 a not a serious impaction nor an intestinal displacement. Oral laxatives include: Magnalax and DSS (veterinary surfactant). These may be 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 the 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 extreme caution, and avoided completely in the dehydrated endurance horse.**

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, NSAIDs should not be used until the horse's fluid deficits are corrected. Once hydration levels have been improved, cautious use of NSAIDs—usually at no more than half doses, such as 0.5 mg/kg of flunixin meglumine—may be added to the treatment plan.

Sedatives like xylazine (0.2-0.5 mg/kg IV) or detomidine (0.01 mg/kg) provide significant pain relief, with less risk in the dehydrated horse than the NSAIDs. Xylazine also has diuretic effects. Recurrent dosing with xylazine or detomidine should be done with caution as both can temporarily slow intestinal and esophageal



motility. This may add to the already present problem of an ileus and present an increased risk for choke. Butorphanol (0.01-0.02 mg/kg) can be a potent analgesic.

Acepromazine, while a tranquilizer, has potent peripheral vasodilatory properties and should be used with caution in a dehydrated horse as it could cause cardiovascular collapse and shock.

Corticosteroids are not recommended in the treatment of endurance metabolic disease because of the questionable risk of development of 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 five to 10 miles, is one of the most challenging and, unfortunately, an all-too-common problem seen in this sport. However, it should be remembered that, while less common, exertional myopathy can develop at any point during the ride. These horses might originally be seen on the trail with a shortening gait which 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 into 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 control judge or treatment veterinarian to attempt to avoid renal compromise.

**Treatment:** Fluids are essential for flushing the kidney tubules and improving muscle and renal perfusion. Normosol R™, Plasmalyte™, or other polyionic fluid are the fluids of choice. Avoid using normal saline, as recently it has been shown that high chloride levels can cause renal damage. 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/hour 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 are listed below.

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)
- Flunixin meglumine (0.5 mg/kg IV)

Butorphanol (0.02-0.04 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 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. Take environmental conditions and the presence of hyperthermia into consideration if the myopathy occurs later in the ride. 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 ongoing 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 much slower to elevate and can take weeks to return to normal concentration.

## Colic

Acute and, sometimes, severe colics are not unusual in the tired and excessively stressed endurance horse. Colic is one of the most common conditions encountered during endurance competition and is the primary cause of 80% of fatalities within the sport. One of the best strategies in preventing the development of colic is in eliminating the metabolically stressed horse with poor gut motility from further competition before the condition reaches the point of requiring more than the opportunity to rest and re-fuel.

Abnormal GI motility can result from the combined stressors of travel, hyperthermia, dehydration or fatigue. During competition, the further metabolic stresses of protracted exercise and loss of body fluid, especially if beyond the current abilities of the horse, can result in a shift of blood from the bowel to vital organs and muscles, resulting in poor bowel motility and considerable discomfort.

Timely assessment of the cause of pain is important and the risks of the horse causing damage to itself, other horses and the people around it must be addressed

immediately. Pain is commonly caused by impaction, gas or fluids accumulation and subsequent distension of the bowel. Surgical colics are less common in the endurance horse, but displacements, torsions, and intussusceptions have been identified. For these reasons, passing a nasogastric tube to diagnose and/or relieve gas or fluid from the stomach is important. Significant reflux can occur from ileus, requiring serially refluxing of the stomach to remove the excess fluid and relieve pain.

Rectal manual examination can provide important diagnostic information, but the danger of tearing a fragile rectal wall due to dehydration is significant. Good restraint (both physical and pharmacologic), generous lubrication and extreme caution is warranted.

The cornerstone of treatment of colic in the endurance horse should focus on pain relief, sedation and **early administration of intravenous fluids**. Research has demonstrated that the majority of colicking endurance horses will improve significantly with as little as 20 liters of intravenous fluids and appropriate adjunctive care at the ride site. Horses with significant reflux will do better with a nasogastric tube left in place to facilitate periodic refluxing as needed. Serial refluxing and intravenous fluids should continue until the horse is urinating regularly and is no longer refluxing. These horses should then be offered small amounts of wet feed, and not released from the treatment area until they are passing manure and showing good appetite.

Horses that are clearly surgical, or are beyond the scope of the treatment abilities provided at the ride site, should be transported to the referral center with a nasogastric tube secured in place to prevent gastric rupture.

## **Development of Hyperthermia**

A hyperthermic horse, with a persistent rectal temperature exceeding 105°F to 106°F, 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 primary contributor to heat stress, so this issue must be addressed immediately and aggressively.

#### **Cooling strategies:**

- Cold water immersion in a lake or stream
- Continual dousing with water via sponge or hose, especially the head, neck, and lower limbs. It is important to continuously scrape water off the body and re-apply. Leaving a layer of water on the body removes a small amount of heat, but then acts as an insulating layer if not removed.
- Fans or misting sprayers
- Ice boots on legs over large vessels. Some styles of boots are conducive to being applied over the jugular veins.
- Alcohol baths (one pint alcohol per gallon of water)
- Cold water enemas, being extremely careful of potentially dehydrated, and thus fragile, rectal walls.
- Stomach tube with cool (**not** cold) water in small amounts at frequent intervals.
- Remove all tack and equipment
- Shade.

**Note that once rectal temperature drops below 103°F, 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 subsequent laminitis very real. There are multiple sources for this painful disease including concussion, endotoxins, exhausted horse syndrome, intestinal displacements and myopathies. Due to the close relationship between metabolic disease and acute laminitis, be prepared to treat horses at risk both medically and mechanically at the outset. Supportive wooden wedge blocks, styrofoam blocks, or Lily pads can be taped to the bottom of the foot to stabilize the coffin bone. Counsel the owner that the onset of laminitis symptoms may be delayed for hours or days and caretakers should be vigilant in monitoring after leaving the ride site.

## **AERC Control Judge Contract Form**

Event \_\_\_\_\_ Date \_\_\_\_\_

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 # of Riders \_\_\_\_\_

Fee: Head Control Judge \_\_\_\_\_ Associate Control Judge(s) \_\_\_\_\_

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 \_\_\_\_\_

Control Check Lighting \_\_\_\_\_

Number, Location and Accessibility of Control Checkpoints \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Secretary Supplies:  Clipboards  Highlighters  Pens  Stock Crayons  Chairs

Treatment Veterinarian:  Control Judge  Other Experienced:  Yes  No

Major Veterinary Facility on Call:  Yes  No Name/Phone \_\_\_\_\_

Associate Control Judges:

Name \_\_\_\_\_ Phone Number \_\_\_\_\_

Name \_\_\_\_\_ Phone Number \_\_\_\_\_

Name \_\_\_\_\_ Phone Number \_\_\_\_\_

## Appendix A. AERC Control Judge Contract Form (Page 2 of 2)

### Treatment Veterinarians:

Name \_\_\_\_\_ Phone Number \_\_\_\_\_

Name \_\_\_\_\_ Phone Number \_\_\_\_\_

### Checkpoint Supervisors:

Name \_\_\_\_\_ Experienced:  Yes  No

Name \_\_\_\_\_ Experienced:  Yes  No

Name \_\_\_\_\_ Experienced:  Yes  No

Name \_\_\_\_\_ Experienced:  Yes  No

### Control Judge 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

### Control 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 Control Judges (Page 1 of 2)

### Pre-Ride Checklist for AERC Head Control Judges

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, control checks and supply availability, and predetermined ride criteria can make ride day much smoother for the control judge. 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 Control Judge \$ \_\_\_\_\_ Associate Judge(s) \$ \_\_\_\_\_

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 \_\_\_\_\_ Control Checkpoint Lighting \_\_\_\_\_

Number, Location and Accessibility of Control Check Sites \_\_\_\_\_

Secretary Supplies:  Highlighters  Pens  Stock Crayons  Chairs

Treatment Veterinarian:  Control Judge  Other Experienced:  Yes  No

Major Veterinary Facility on Call:  Yes  No Name/Phone \_\_\_\_\_

## Appendix B. Pre-Ride Checklist for AERC Head Control Judges (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 \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



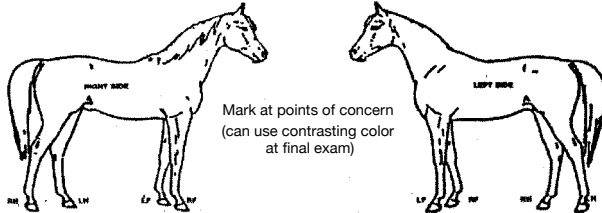
**Appendix C.** Flow Chart for Endurance Ride Judging (Page 1 of 1)

CONTROL JUDGE	Control Check 1		Control Check 2		Control Check 3		Control 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>miles</i>	<i>minutes</i>
<i>Mileage</i>										
<i>Holds</i>										
<i>Open/Close</i>										
<b>Control Judges</b>	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 Name \_\_\_\_\_ Weight Division \_\_\_\_\_  
 Junior Rider \_\_\_\_\_ Sponsor's Name (Juniors) \_\_\_\_\_  
 Horse Name \_\_\_\_\_ Age \_\_\_\_\_ Breed \_\_\_\_\_ Color \_\_\_\_\_

RIDER #
---------

<p><b>Body Condition Score</b>          (Must be between 3 &amp; 8)          Circle Score</p> <ol style="list-style-type: none"> <li>1 – Poor</li> <li>2 – Very Thin</li> <li>3 – Thin</li> <li>4 – Moderately Thin</li> <li>5 – Moderate</li> <li>6 – Moderately Fleshy</li> <li>7 – Fleshy</li> <li>8 – Fat</li> <li>9 – Extremely Fat</li> </ol>	 <p style="text-align: center;">Mark at points of concern (can use contrasting color at final exam)</p> <p style="text-align: center;">FINISH TIME: _____</p>
---	--

Pre-Ride (First) Examination			Post-Ride (Final) Examination		
P _____	R _____	T _____	P _____	R _____	T _____
				Cardiac Recovery Index (CRI)	<input style="width: 50px; height: 50px; border: 1px solid black;" type="checkbox"/>
Parameter	A,B,C,D	Comments	Parameter	A,B,C,D	Comments
Mucus Membranes			Mucus Membranes		
Capillary Refill			Capillary Refill		
Jugular Refill			Jugular Refill		
Skin Tenting			Skin Tenting		
Gut Sounds <small>Grade each quadrant</small>			Gut Sounds <small>Grade each quadrant</small>		
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 _____		

file: RiderCard2015 1.0

## Appendix D. Rider Card (Page 2 of 2)

RIDER # \_\_\_\_\_ NAME \_\_\_\_\_

CHECK #/NAME						
MILEAGE						
ARRIVAL TIME						
PR TIME						
PULSE						
OUT TIME						
Mucus Membranes						
Capillary Refill						
Jugular Refill						
Skin Tenting						
Gut Sounds <small>Grade each quadrant</small>						
Anal Tone						
Muscle Tone						
Back Withers						
Tack Galls						
Wounds						
Gait						
Impulsion						
Attitude						
Overall Impression						
COMMENTS						
Cardiac Recovery Index (CRI)	/	/	/	/	/	/
Examiner						

# Appendix E. Best Condition Evaluation Form (Page 1 of 2)

Ride \_\_\_\_\_ Ride Date \_\_\_\_\_  
 Ride Manager \_\_\_\_\_ Head Vet \_\_\_\_\_ Region \_\_\_\_\_ Distance \_\_\_\_\_



Rider Name _____ Horse Name _____ Rider Wt. _____ Rider # _____ Finish Place _____ Finish Time _____	Rider Name _____ Horse Name _____ Rider Wt. _____ Rider # _____ Finish Place _____ Finish Time _____	Rider Name _____ Horse Name _____ Rider Wt. _____ Rider # _____ Finish Place _____ Finish Time _____	Rider Name _____ Horse Name _____ Rider Wt. _____ Rider # _____ Finish Place _____ Finish Time _____
<b>A. VETERINARY SCORE SHEET</b> 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 _____ <b>Total Veterinary Score = _____</b> Subtotal x 10 _____	<b>A. VETERINARY SCORE SHEET</b> 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 _____ <b>Total Veterinary Score = _____</b> Subtotal x 10 _____	<b>A. VETERINARY SCORE SHEET</b> 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 _____ <b>Total Veterinary Score = _____</b> Subtotal x 10 _____	<b>A. VETERINARY SCORE SHEET</b> 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 _____ <b>Total Veterinary Score = _____</b> Subtotal x 10 _____
<b>RIDE MANAGEMENT SCORE SHEET</b> <b>B. Time Factor</b> Ride Time, This Rider _____ Ride Time of Winner _____ Difference: _____ Maximum _____ 200 Less Difference (-) _____ <b>Total Time Score _____</b>	<b>RIDE MANAGEMENT SCORE SHEET</b> <b>B. Time Factor</b> Ride Time, This Rider _____ Ride Time of Winner _____ Difference: _____ Maximum _____ 200 Less Difference (-) _____ <b>Total Time Score _____</b>	<b>RIDE MANAGEMENT SCORE SHEET</b> <b>B. Time Factor</b> Ride Time, This Rider _____ Ride Time of Winner _____ Difference: _____ Maximum _____ 200 Less Difference (-) _____ <b>Total Time Score _____</b>	<b>RIDE MANAGEMENT SCORE SHEET</b> <b>B. Time Factor</b> Ride Time, This Rider _____ Ride Time of Winner _____ Difference: _____ Maximum _____ 200 Less Difference (-) _____ <b>Total Time Score _____</b>
<b>C. Weight Factor</b> Wt. of Heaviest Rider _____ Weight of This Rider _____ Difference ÷ 2 _____ Maximum _____ 100 Less Diff. ÷ 2 (-) _____ <b>Total Weight Score _____</b> <b>TOTAL SCORE = A + B + C = _____</b>	<b>C. Weight Factor</b> Wt. of Heaviest Rider _____ Weight of This Rider _____ Difference ÷ 2 _____ Maximum _____ 100 Less Diff. ÷ 2 (-) _____ <b>Total Weight Score _____</b> <b>TOTAL SCORE = A + B + C = _____</b>	<b>C. Weight Factor</b> Wt. of Heaviest Rider _____ Weight of This Rider _____ Difference ÷ 2 _____ Maximum _____ 100 Less Diff. ÷ 2 (-) _____ <b>Total Weight Score _____</b> <b>TOTAL SCORE = A + B + C = _____</b>	<b>C. Weight Factor</b> Wt. of Heaviest Rider _____ Weight of This Rider _____ Difference ÷ 2 _____ Maximum _____ 100 Less Diff. ÷ 2 (-) _____ <b>Total Weight Score _____</b> <b>TOTAL SCORE = A + B + C = _____</b>

## 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	_____	<i>(Value one point per minute)</i>	
Riding Time of Winner	_____	Maximum	_____ <i>200</i>
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	_____	<i>(Value one-half point per pound)</i>	
Weight of THIS Rider	_____	Maximum	_____ <i>100</i>
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.

## 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. AERC Post-Ride Control Judge and Veterinary Treatment Report

(Page 1 of 1)

## AERC Post-Ride Control Judge and Veterinary Treatment Report

**To be filled out by the head control judge – Please complete a form for each distance**

(Send completed form to AERC, P.O. Box 6027, Auburn, CA 95604 or fax to 530-823-7805)

Ride Name \_\_\_\_\_ Region \_\_\_\_\_ Distance \_\_\_\_\_

Date \_\_\_\_\_ Manager \_\_\_\_\_ Head Control Judge \_\_\_\_\_

Ride Control Judges and Treatment Veterinarians (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 control judging and is fit to continue, but rider elects to withdraw.

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

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

Post Ride Report • Version 4.2 3/16

## Appendix H. Equine Fatality Report (Page 1 of 1)



American  
Endurance Ride  
Conference

**IMPORTANT!** Please attach the rider card to this form. Send to the AERC office with the post-ride statistical report.

### AERC Equine Fatality Report

Ride \_\_\_\_\_ Distance \_\_\_\_\_ Date \_\_\_\_\_

Ride Location: City \_\_\_\_\_ State \_\_\_\_\_ Region \_\_\_\_\_

Ride Manager \_\_\_\_\_ Phone \_\_\_\_\_

Head Veterinarian \_\_\_\_\_ Phone \_\_\_\_\_

Rider \_\_\_\_\_ Owner \_\_\_\_\_

Address \_\_\_\_\_ Phone \_\_\_\_\_

Horse \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_ Breed \_\_\_\_\_

If known: Horse/Rider miles \_\_\_\_\_ / \_\_\_\_\_ Horse/Rider miles in last six months \_\_\_\_\_ / \_\_\_\_\_

History of previous problems at a ride \_\_\_\_\_

Ride conditions and history \_\_\_\_\_

Events leading up to problem \_\_\_\_\_

What happened \_\_\_\_\_

Treatment (describe details of treatment only if the owner/rider has authorized release of treatment records to AERC)

Tentative cause of death \_\_\_\_\_

Person/facility performing AERC-subsidized necropsy \_\_\_\_\_ Phone \_\_\_\_\_

If necropsy not performed, please state reasons \_\_\_\_\_

Witnesses (list name and phone #) \_\_\_\_\_

Fax or mail immediately to AERC, P.O. Box 6027, Auburn, CA 95604 • Fax 530-823-7805 • Phone 866-271-2372

*NOTE: A member of AERC's Veterinary Committee will be contacting the head veterinarian.*

EquineFatalityReport  
2.2 Rev. 6/15



## Appendix I. Necropsy Protocol (Page 1 of 2)



### American Endurance Ride Conference

#### 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](http://www.aerc.org) • [office@aerc.org](mailto:office@aerc.org)  
PostMortemExam 1.2 Rev. 4/16

# Appendix I. 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 \_\_\_\_\_