Australian endurance Riders Association Inc.

# STUDY GUIDE FOR PROSPECTIVE TPR STEWARDS

## HOW TO BECOME A TPR STEWARD

1.1. All TPR Stewards must be accredited in accordance with the current AERA Inc. requirements. The AERA Inc. reserves the right to alter the TPR accreditation requirements from time to time.

1.2. Before you can become an accredited TPR Steward you must successfully complete the requirements of a probationary TPR Steward.

1.3. Becoming a probationary TPR Steward requires that you:

(a) have a thorough knowledge and understanding of the AERA Inc. Rule Book

(b) have an understanding of how affiliated rides are conducted;

(c) successfully complete a practical TPR training and test session with an accredited chief steward, which includes taking and recording equine temperature, pulse and respiration readings;

(d) successfully complete a TPR Steward theory examination process.

1.4. Once you have completed the requirements listed above, you will need to be a probationary TPR Steward at three full endurance rides, under the scrutiny of the ride Head Veterinarian and/or Accredited Chief Steward. The Veterinarian or Accredited Chief Steward will assess your skills and standards. If appropriate, the Chief Steward will have the details recorded in the AERA database.

1.5. Once you have successfully completed three probationary TPR Steward Rides, the division TPR portfolio holder will organise for you to be included on the AERA Inc. database and you will be issued with your TPR Steward Badge.

### 2. TPR STEWARD RESPONSIBILITIES

2.1. At a ride TPR Stewards are under the control of the Chief Steward.

2.2. TPR Stewards are responsible to assist the Veterinarian by checking, (and when directed, record the results of), a horse's Temperature, Pulse and Respiration according to parameters indicated by the veterinarian.

2.3. TPR responsibilities will be carried out in accordance with the AERA Inc. *Rule Book*.

2.4. In the event the TPR parameters are at or above the maximum allowable and a Veterinarian is called to confirm the parameter, the parameters taken by the Veterinarian will be recorded, but only if there is a large variation from the reading taken by the TPR.

2.5. To retain accreditation currency, each TPR shall officiate at a minimum of one ride per year.

2.6. A lapsed TPR can be reaccredited by a Chief Steward. The CS will ascertain that the TPR is up to date with AERA rules and is able to take a heart rate and Respiration correctly. If the CS is satisfied that the TPR is up to date, the CS will make a note of the TPR's name in the CS report and mark it passed. The CS/TPR registrar will update the division TPR list accordingly.

2.7. A TPR cannot vet out a horse or hint at a vet out.

2.8. A TPR cannot TPR a horse in which they may have an interest.

### 3. TEMPERATURE, PULSE AND RESPIRATION

The following Temperature, Pulse and Respiration parameters are generally acceptable for endurance riding:

| Parameter | Requirements |
|---|---|
| Temperature | Up to 38.5$^{O}$ C at pre-ride. |
| Pulse | • Standing rate can be between 20 to 40 bpm<br>• No stated maximum at pre-ride vetting.<br>• 55 bpm. or below at first end-of-leg standard vet check, then 60 bpm thereafter.<br>• Intermediate and Introduction Rides require 55bpm or below for all horses at end of all legs* |
| Respiration | At pre-ride a respiration rate can be 5 to 35 respiration's per minute. No parameter set |

* The terms 'intermediate', 'novice' and 'endurance' refer to both **horses** and **riders**. The heart rate requirements may be varied from time to time by the AERA Inc.

### WHAT A TPR NEEDS FOR TPR DUTIES

To conduct your TPR duties you will need:

- a stethoscope;
- a thermometer - either electronic digital or standard solid veterinary type;
- a stop watch;
- a biro - either black or blue (not a felt pen).

## 4. GENERAL INFORMATION NOTES

### THE HEART

Every body cell needs oxygen in order to live and function. The role of the heart is to deliver the oxygen-rich blood to every cell in the body. The arteries are the passageways through which the blood is delivered. The largest artery is the aorta, which branches off the heart and then divides into many smaller arteries. The veins carry the deoxygenated blood back to the heart and the blood is then pumped to the lungs to pick up oxygen, and then back to the heart once again. Blood flows continuously through the circulatory system, and the heart muscle is the **pump** which makes it all possible.

The heart is a four-chambered **muscular pump**. It is responsible for pumping blood to all organs of the body - muscles, legs, lungs, brain, etc.

The four chambers are:

The left and right atria. The top two chambers that receive blood. The right atria receives de-oxygenated blood from the body. The left atria receives oxygenated blood from the lungs.

The left and right ventricles. The bottom two chambers. The right ventricle pumps blood to the lungs to pick up oxygen. The left ventricle pumps blood to the rest of the body and is the strongest chamber.

**Heart Sounds**

There are four valves in the heart that help to direct blood flow. As they open and close, the valves produce sounds that can be heard with a stethoscope.

The slamming shut of the atrio-ventricular valve creates the first heart sound, **("Lub")**

Then, when the ventricles have completely contracted, the semi-lunar and tricuspid valves shut, resulting in the second heart sound, **("Dub").**

Missing heart beats may indicate:

(a) a partial heart block which may or may not cause concern;

(b) no impulse from the sino-arterial node; or

(c) the impulse is not transmitted on through the atrio-ventricular node.

(d) An irregular heart beat - fast then slow - often indicates some type of stress, although it may also indicate excitedness. If you have any concerns about the irregularity of the heart rate, notify the veterinarian.

The 'splitting' of sounds - fainter third and fourth beats - are due to the left and right sides of the heart contracting at different times.

### THE RESPIRATORY SYSTEM

As the body works, stored energy is burned up in the presence of oxygen to release useable energy and carbon-dioxide. The respiratory system has the function of replacing the oxygen and removing the carbon dioxide.

The primary function of the respiratory system is to supply the blood with oxygen in order for the blood to deliver oxygen to all parts of the body. The respiratory system does this through breathing. When we breathe, we inhale oxygen and exhale carbon dioxide. This exchange of gases is the respiratory system's means of getting oxygen to the blood.

As we saw from the information above, de-oxygenated blood is transferred to the lungs via the pulmonary artery from the right side of the heart.

Horse respiration is achieved through the nose, trachea, lungs, and diaphragm. The waste-rich blood from the veins releases its carbon dioxide into the alveoli. The carbon dioxide leaves the lungs when exhaling.

To obtain good gaseous diffusion it is necessary to have a good air supply, thin walls to the alveoli and capillaries and plenty of haemoglobin in the red blood cells.

The diaphragm's job is to help pump the carbon dioxide out of the lungs and pull the oxygen into the lungs. As the diaphragm contracts and relaxes, breathing takes place. When the diaphragm contracts, oxygen is pulled into the lungs. When the diaphragm relaxes, carbon dioxide is pumped out of the lungs.

The rate of respiration is not increased by lack of oxygen in the blood, but rather by an increase in carbon dioxide in the blood which then stimulates the brain to increase the respiration rate.

### ENERGY AND MUSCLES

Similar to the heart, muscles are stimulated to contract by electrical impulses. The energy used in the contraction is obtained from various sources, for example blood sugar and Glycogen (in the liver and muscles) and fat reserves.

Glycogen is a rapidly available source of energy which creates the byproducts carbon dioxide and water. If oxygen availability is limited, there is a major buildup of Lactic acid.

Fat is the 'reserve' energy which is used when the Glycogen reserves are depleted. This can often occur in events of 80 km plus - and more importantly, in events of 2 or more days.

## THE EFFECTS OF TRAINING

- Heart efficiency is increased.
- The heart rate increase resulting from work is less and the heart rate recovery is quicker.
- The number of blood vessels supplying the muscles will increase with continual work and so enhance the efficiency of oxygen supply and carbon dioxide removal.
- Also in response to continual work, muscle size and weight can actually increase by enlarging the muscle fibres leading to increased strength. This will lead to increased strength and stamina. However, muscle cells are not replaceable - once destroyed, they are permanently destroyed.
- Increased lung efficiency.
- Increased bone strength.

## HYDRATION-ELECTROLYTES

Large amounts of fluids including Electrolytes are lost through sweat, urine and diarrhoea. Up to 14 litres or more of fluid can be lost before signs of dehydration appear.

However at 6% of body weight loss, dehydration is quite obvious. The signs are:

- sunken eyes;
- tight and dry skin;
- dry and blue mucous membranes;
- cold extremities;
- rapid and weak pulse;
- muscular tremors;
- weakness;
- relaxed anus.

At 30% body weight loss, the Horse is **Dead.**

The most efficient way to become proficient at any skill is to practice it at every opportunity.

Use your own horse or any available to you to develop a feel for the procedures so you can perform your role efficiently and effectively.