

## **A COMPARATIVE STUDY OF CONDITIONING PROGRAMS IN RELATION TO PERFORMANCE OF MALAYSIAN ENDURANCE HORSES**

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### **Abstract**

Conditioning provides physiological adaptation, resulting increase in fitness of athletic horses, which eventually increase their performance. The primary aim of a conditioning program is to produce the best performing athletic horse with minimal injuries. A survey was conducted using a questionnaire to identify various conditioning programs practiced by the local endurance horse establishments with regards to techniques and duration of the program. Fifteen athletic endurance horses with three horses each representing five equine establishments were used in this study. The duration of every conditioning program were recorded. Performance parameters that were monitored were the average recovery time, the average speed, the completion rate and the level of performance. Kruskal-Wallis test was used to compare conditioning programs practiced by different establishments in relation to their performances. The mean of the average speed of horses from different establishments ranged from 9.30 to 15.20 km hr<sup>-1</sup>. Stable A that practices all basic endurance conditioning techniques with a duration period of conditioning of >3 months showed the highest speed (15.20 ± 0.05 km hr<sup>-1</sup>) and the shortest mean of the average recovery period (12.28± 1.18 min) with a 100 % completion rate in 120 km endurance race category. Therefore, the conditioning program practiced by Stable A is suggested to be an optimal conditioning program suited for horses under Malaysian conditions in producing good and competitive endurance horses locally.

**Keywords:** endurance horse, conditioning program, performance level

### **INTRODUCTION**

In an endurance race, the horse needs to maintain its speed over a long ride without encountering any health problem that commonly occurs due to metabolic ailments and lameness (Robert *et. al*, 2011). As such, conditioning program needs to be planned to ensure horses are fit and well-prepared to compete in an endurance race. The ultimate aim of a conditioning program is to produce the best performing endurance horses with minimum risk of injuries. Formulating conditioning program is very subjective and

produces different performance levels of endurance horse. Effect of conditioning depends on different techniques – long-slow distance (LSD), flatwork, strength training and speed play; and the exercise volume – intensity, duration and frequency. Establishment that practices the most optimal conditioning program produces the best performing endurance horse. Therefore, it is important to identify such establishment in order to obtain important information for the formulating conditioning regime for endurance horses particularly under Malaysian condition. The objective of this study was to identify and compare the conditioning programs practiced by different establishments in relation to their endurance horses' performance under Malaysian conditions.

## **MATERIALS AND METHODS**

Various conditioning methods practiced by local endurance practitioners were observed and recorded. After gaining the information, the performance of endurance horses from that particular establishment were monitored and assessed in actual endurance races. At the end of the study, a conditioning program that produced the most performing endurance horses at races was identified and was justified as to why it was considered as an optimal conditioning program formulated and suited for endurance. Equine establishment with poor conditioning program and did not produce good performing endurance horses were also identified and advice was given accordingly to improve and benefit the local horse endurance society.

### *Animals*

Fifteen horses from different establishments practicing diverse types of conditioning programs were used in this study. Competing horses were first being inspected by the event veterinarian to ensure that these horses were fit to participate in an endurance race. Three horses from five different establishments were included in this study in a 1\* endurance ride event under FEI rules.

### *Conditioning Programs*

Information and details of conditioning program were obtained for all horses from different establishment participated in the 1\* Endurance Ride in January 2012 at the Terengganu International Endurance Park (TIEP), Lembah Bidong, Setiu, Terengganu. Conditioning programs practiced by different establishments consisted of LSD, flat work, strength training and speed play. Various ranges of frequency, duration and intensity of the conditioning programs were noted and recorded.

### *Average Recovery Time and Average Speed*

Average recovery time and average speed of each horses participated in the race were recorded as to evaluate the performance during actual event. Average recovery time is the average time taken of an individual horse to have a heart rate of 64 beats min<sup>-1</sup> within 20 min of maximum recovery period while the average riding speed is the average riding velocities of each individual horse to finish the race.

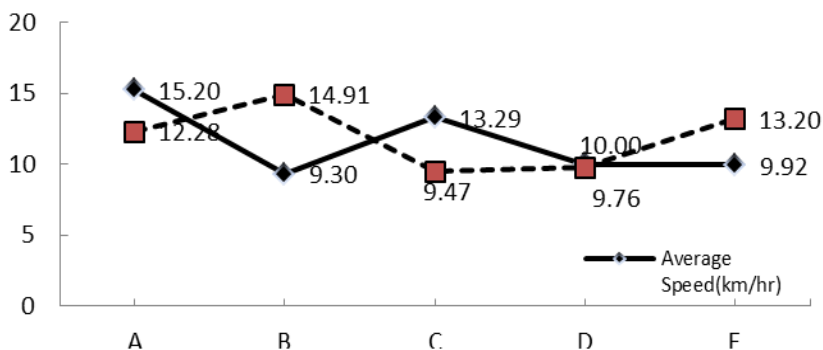
### *Completion Rate*

Completion rate was based on the numbers of horses from a particular establishment that have completed the race successfully. The highest completion rate was reflected by a

high percentage of horses from similar establishment successfully completed the race in good condition within required time. Data was presented as mean  $\pm$  standard deviation. The effect of conditioning techniques and duration of the conditioning program on performance – the completion rate, placing, the average speed and the recovery time were evaluated using Kruskal-Wallis. Significance was inferred at  $p < 0.05$ .

## RESULTS AND DISCUSSION

Only 40% of the local endurance horse establishments practiced proper conditioning programs, while the rest practiced incomplete conditioning programs. This shows that only a few local horse owners are aware of the importance of having an appropriate conditioning program to prepare horses for and to prevent the occurrence of health problem during competitions. An optimal conditioning program is the most important factor in stimulating the physiological adaptations within the animal's body to improve performance of equine athletes (Rogers *et al.*, 2007). Forty percent of establishments, represented by Stables A and C had proper conditioning program using all basic conditioning techniques for duration of 3 months or more. Other establishments practiced either one, two or three basic technique(s). Duration of conditioning program practiced by the local endurance establishments ranged from less than a month to more than 3 months. Optimal conditioning program duration is very subjective although adaptation changes as explained by Hiney *et al.*, (2004) occurred within as least 8 weeks. Figure 1 shows the comparison among establishments based on performance in races. Stable A had the best average speed ( $15.20 \pm 0.05 \text{ km hr}^{-1}$ ) and recovery time ( $12.28 \pm 1.18 \text{ min}$ ) among establishments. The average recovery time among establishments were insignificantly different ( $p > 0.05$ ). The performance of establishment based on the completion rate and level of category are illustrated in Table 1. From 15 horses participating in the study, 13 (87%) completed the race while 2 (13%) were unable to complete the race due to metabolic problem and lameness.



**Figure 1.** The average speed and the average recovery time for different equine establishments practicing different conditioning program

**Table 1.** Completion rate and racing category in endurance races for horses from different establishments practicing different conditioning program

Equine Establishment	Completion Rate (%)	Racing Category (km)
A	100	120
B	67	40
C	100	40
D	100	80
E	67	40

## CONCLUSION

Conditioning program practiced by Stable A is suggested to be optimal based on a few factors – it consisted of all basic conditioning techniques, horses were participating in higher racing category and 100% completion rate in endurance race.

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