



MAXIMUM SPEED AND SERUM LACTATE IN CASPIAN MINIATURE HORSES

MEHDI SAKHA

FACULTY OF SPECIALIZED VETERINARY SCIENCES, SCIENCE AND RESEARCH BRANCH,
ISLAMIC AZAD UNIVERSITY, IRAN, MSAKHA@YAHOO.COM

Introduction

The association between velocity during a standardized, maximal 1000 m exercise test and blood lactate concentration after exercise were investigated in 20 Caspian miniature horses of two genders (12 mare and 8 stallion) and between 4-13 years old on sand racetracks.

Material and methods

All horses underwent careful examination of both cardiovascular and respiratory systems and were deemed clinically healthy. The heart rate, respiratory rate and a blood sample were taken before and after the exercise test. Plasma was harvested immediately for lactate measurements.

Results

The results of the hematocrite (PCV), lactate concentration, heart rate and respiratory rate are shown in table 1. All measurements significant increased after exercise ($p < 0.05$). The mean PCV increased more than 20% in horses after exercise. There was no significant difference between lactate concentrations between the

two genders. The maximum heart rate in the horses reached 180 bpm although there were some seconds left, up to the detection of heart rate. Horses that had more speed, showed less lactate concentration.

Conclusion

Although horses ran as fast as they can, their speed did not exceed 6.6 m/s. Horses that had lower heart rate, more velocity and lower lactate concentration at maximum speed were selected for training program and probable competition events.

RR (min)	HR (bpm)	Lactate mmol/l	PCV (%)	
23.83±7.4	30.68±6.2	3.30±0.7	45.77±4.33	BE
92.53±15.6	158.61±17.3	23.90±6.4	55.11±5.7	AE

Table 1. Mean values of some performance criteria in the Caspian miniature horses.

BE=before exercise, AE=after exercise, HR=heart rate, RR=respiratory rate