

Race-induced weight loss and its post-competition recovery time in Trotters: factors of variation

LELEU C., MIOT M., RALLET N., MAILLIOT PIVAN AS.

EQUI-TEST, Grez en Bouere (53), France.

Introduction

Competitions, as maximal efforts, induce dehydration leading to a variable weight loss depending on the type of equine sport. In racing stables, regular measurements of body weight is an indirect way to evaluate the impact of a competition in term of dehydration and also to precise the time to recover weight after a race.



The objective of this study was to analyze retrospectively some individual and environmental factors related to race-induced weight loss and weight recovery in Trotters.

Materials and Methods

In one stable of trotters, 28 competing horses, aged from 3 to 10 years were weighed daily over several years. The follow-up of the pre-race weight and 24 hours post-race allowed the calculation of a standardized weight loss in race (WL) as well as the number of days required to return to pre-race weight (recovery time: RT). These two variables were calculated from 648 competitions. The influence of individual factors: horse, age and temperament (calm vs nervous) and that of environmental factors: transport time (short: less than 2h vs long: more than 2 h), running distance (short: less than 2500 m vs long: more than 2500 m), type of race (harnessed vs mounted), outside temperature (normal: less than 25°C vs hot: more than 25°C) were studied by analysis of variance and multiple regression analysis.



Results

The table 1 presents the means, sd, min and max values of absolute weight loss, relative weight loss and recovery time. The figure 1 shows the influence of individual factor on weight loss. The age of the horse significantly decreased WL, without influencing RT. The figure 2 shows an example of weight loss decrease with aging. A nervous temperament significantly increased WL and RT. High temperatures and long transports significantly increased WL but not RT, with interaction (figure 3). Race types (harnessed vs mounted) or race distance (short or long) had no influence on WL and RT.

	Mean	sd	Min - max
Number of races /horse	23	14	7 - 56
Weight loss (kg)	9,4	4,2	0 - 26
Relative weight loss (%)	1,9	0,8	0 - 4,9
Recovery time (days)	3,3	1,8	1 - 9

Table 1 : Means, sd, min and max values of absolute and relative weight losses and recovery time

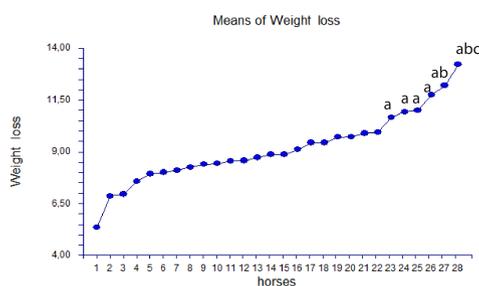


Figure 1 : Means weight loss per horse
a: diff from horse 1, b: diff. from horses 2 and 3; c: diff. from horses 4 to 10.

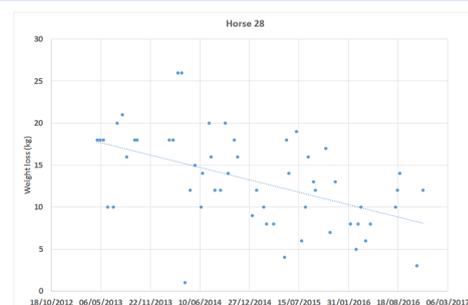


Figure 2 : Example of age effect on weight loss in horse 28

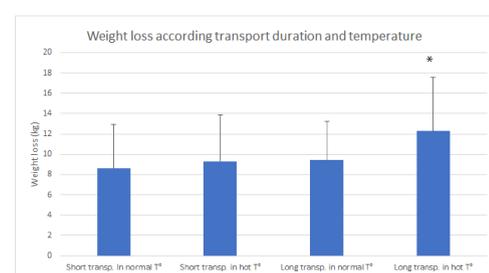


Figure 3 : Means weight loss according transport duration and outdoor temperature
*: significantly different (p<0.05)

Conclusion



Monitoring body weight is an easy and practical way to evaluate some impacts of competitions on horses' body. Race induced weight loss and post-race recovery time are influenced by both individual factors including age and temperament and also by environmental factors such as outdoor temperature or the duration of transportation. As rehydration is a key element of glycogen resynthesis in muscles, the follow-up of weight loss and its recovery is highly important in long lasting equine activities (endurance, eventing, battery racing...) and can help trainers in programming of training session and competitions.