



## INTRODUCTION

Optimal training requires understanding of exercise variables to achieve enhanced performance and progression. Rating of perceived exertion scales (RPE) are validated as proxy measures for physiological workload in human sport, alongside Edwards' training load. Edwards' methodology measures the product of the accumulated training duration (in minutes) of five heart rate (HR) zones by using a coefficient relative to each zone and then summing the results. Both methods are validated to monitor Training load (TL) in human athletes [1].

**Research objective:** to investigate if training load calculations derived from HR and RPE scales could potentially offer a simple measure of workload in equine training regimens.

## METHOD

- Sample: 32 horses; 16 Warmblood/part-bred sport horses and 16 Thoroughbred racehorses; aged:  $7.5 \pm 2.8$  years
- HR data (Fig. 1) were obtained during exercise across a range of equestrian disciplines: dressage/showjumping (n=16) and thoroughbred race training (n=16).
- Based on Edwards' TL, duration (mins.) spent within five pre-defined training zones (Fig.2 & 4) were factored to obtain internal TL.
- RPE (Fig.3) were collected from experienced riders and trainers who were blinded to the HR data, reflecting horses' RPE for entire sessions then multiplied by exercise duration to determine session RPE TL.
- Spearman's correlations ( $p < 0.05$ ) identified if relationships existed between session RPE and internal TL.

ZONE	HEART RATE (BPM)
1	<80
2	81-120
3	121-160
4	161-200
5	>200

Rating	Work level
1	Very very easy
2	Easy
3	Moderate
4	Somewhat hard
5	Hard
6	
7	Very hard
8	
9	
10	Maximal

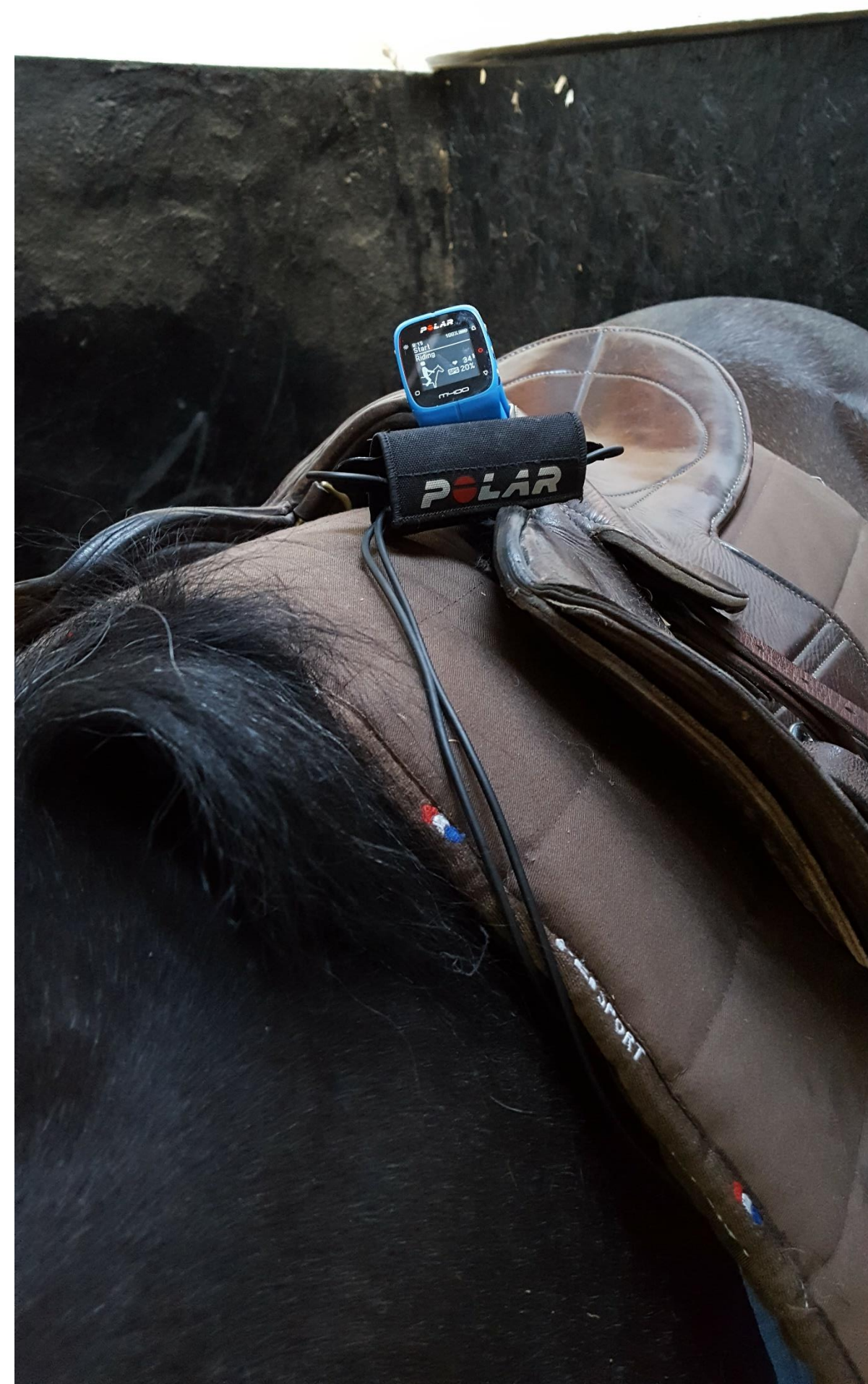


Fig. 1 (above): Polar HR electrodes and watch.

Fig.2 (top right) Heart Rate Zones

Fig.3 (right) Rating of Perceived Exertion (RPE)

Foster's modified Borg scale

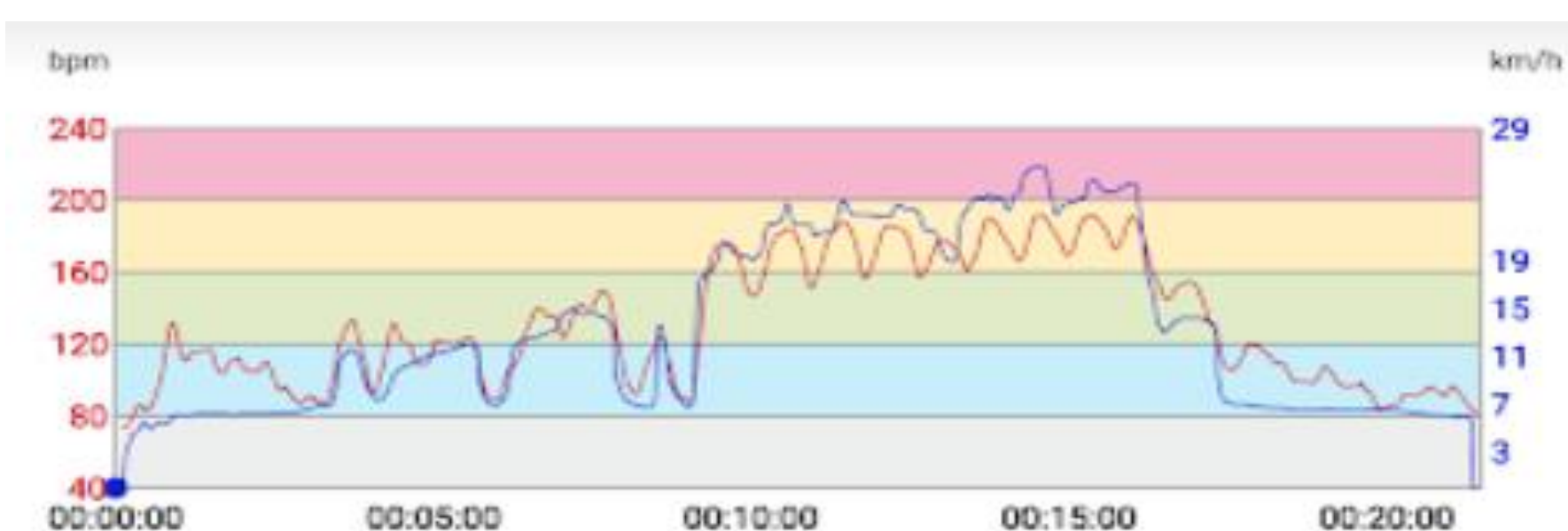


Fig. 4 Example graph demonstrating the five heart rate zones

## RESULTS

- Statistically significant positive correlations between session RPE TL and internal TL were found for both riders and trainers ratings of TL (Fig. 5)
- Riders: cohort:  $r=0.80$   $p=0.0001$ 
  - sports-horses:  $r=0.81$   $p=0.0001$
  - racehorses:  $r=0.72$   $p=0.002$
- Trainers: cohort:  $r=0.82$   $p=0.0001$ 
  - sports-horses:  $r=0.89$   $p=0.0001$
  - racehorses:  $r=0.94$   $p=0.0001$

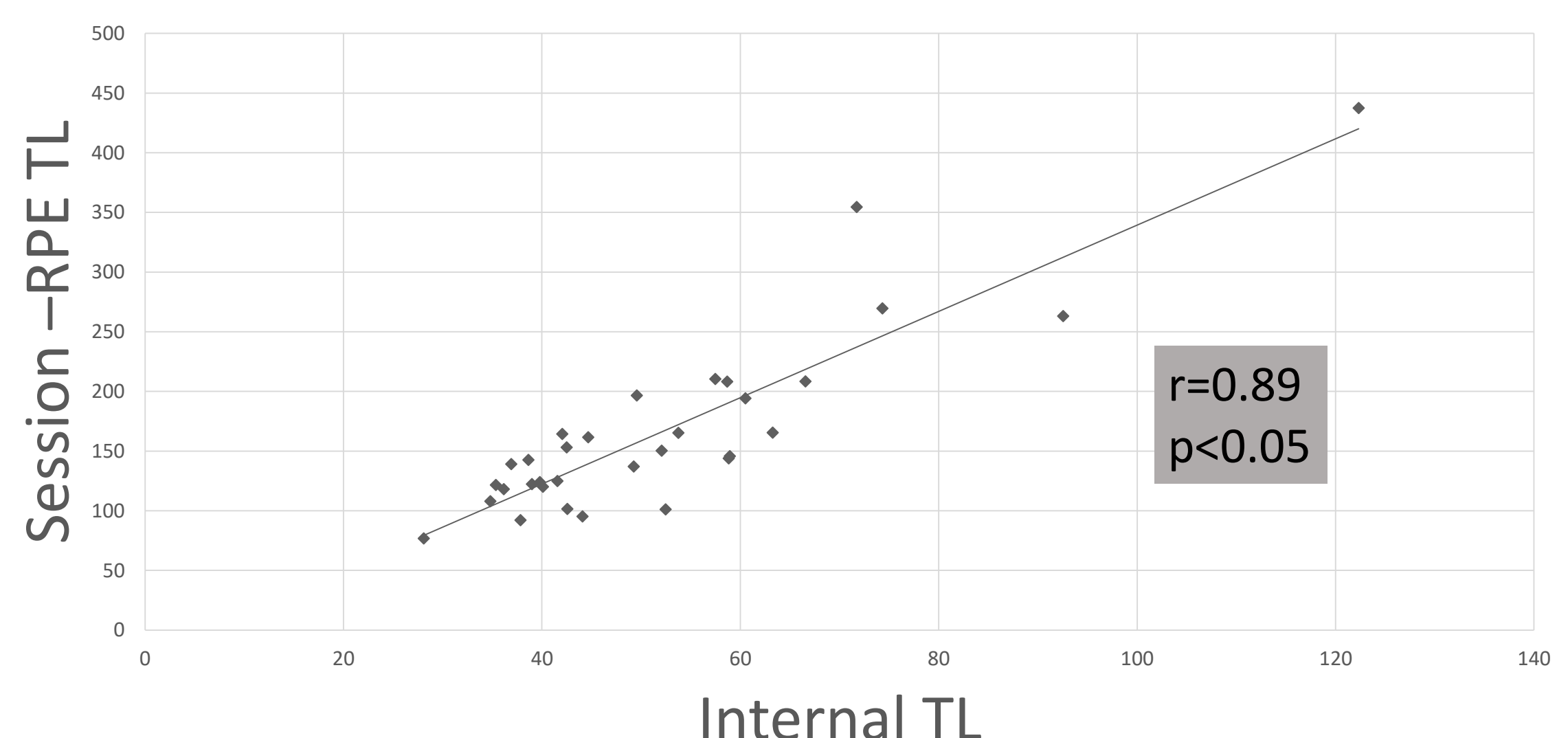


Fig. 5: Correlation between all cohorts session-RPE TL and Internal TL

## DISCUSSION AND CONCLUSIONS

The results suggest session RPE TL and internal TL can be used as inexpensive and easy tools to quantify TL and objectively assess progress in training. Further study of novice owners and riders use of session RPE could determine if experience level determines ability to assess TL. In addition, exploration of optimal HR zone allocation for specific ages, disciplines and breeds, alongside application of TL monitoring within equestrianism, is warranted.

**REFERENCES:** [1] Clarke, N., Farthing, J.P., Norris, S.R., Arnold, B.E. and Lanovaz, J.L., 2013. Quantification of training load in Canadian football: application of session-RPE in collision-based team sports. *The Journal of Strength & Conditioning Research*, 27(8), pp.2198-2205.