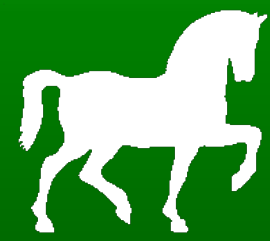
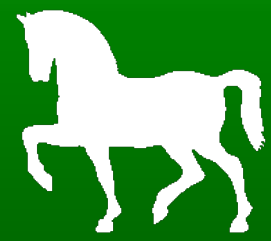


# Regular riding: possible new balance treatment



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## INTRODUCTION

Traditional balance exercises have **little adherence**(1). Research has shown that **horse riding has a beneficial effect on proprioceptive balance**(2), while also being a functional training for riders. However, no research has been done to discover how often riding should be done to have a positive effect.

## RESEARCH QUESTION

What is the difference in proprioceptive balance between horse riders who ride regularly, ride occasionally and a control group of other athletes?

## METHOD

In this cross-section research, healthy participants aged between 18 and 30 were checked for inclusion and exclusion criteria and divided into three groups:

Ride Regularly (RR): riding more than 3 times a week

Ride Occasionally (RO): riding once a week or once every two weeks

Control Group (CG): group of other athletes who participate in sport a similar amount as above groups.

Participants were tested using accelerometers in randomised order. All tests lasted 20 seconds and were repeated three times, with and without foam.

Functional reach test was also performed. Analysis was done with the Mann-Whitney test.

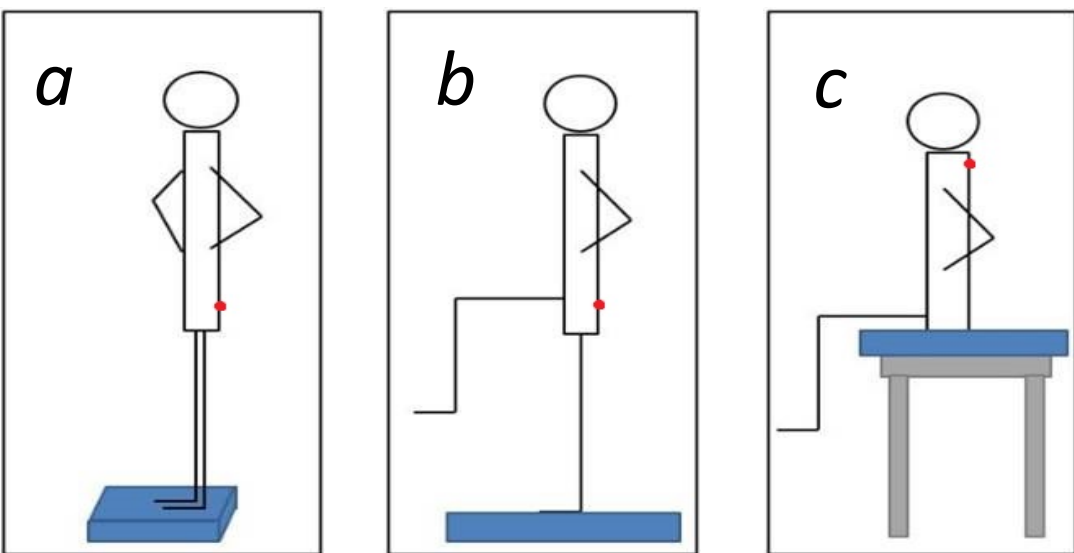


Figure 1: Standing (a), one-legged standing (b) and seated (c) testing positions, accelerometer locations indicated with red dot

## DEMOGRAPHICS

Table 1: Descriptive statistics of the population tested, showing the medians followed by the ranges in brackets

	RR	RO	CG
Age	24 (20-30)	23 (20-30)	22 (21-30)
Height (cm)	172 (159-184)	167 (161-177)	170 (161-185)
BMI	23,3 (19.7-33.5)	25,3 (19.0-27.3)	22,2 (19.8-28.5)
Years of participating in sport	15 (5-20)	10 (1-22)	6 (1-7)
Weekly sport specific training hours	4 (3-5)	1 (1-1)	3 (1-5)
Total training hours	5 (3-8)	2 (1-6)	4 (1-7)

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## RESULTS

Blue rows show the displacements in the X/Y directions where green rows show the acceleration in the Y/Z directions. **No results statistically significant except those in bold.**

Table 2: Results Showing Average Standard deviation of Displacement in the X/Y direction and Acceleration in the Y/Z direction.

		Average standard deviation		
		RR	RO	CG
2 legs, no foam	Displ.	0,244 / 0,192	0,257 / 0,198	0,267 / 0,208
	Acc.	0,016 / 0,007	0,016 / 0,008	0,017 / 0,008
2 legs, foam	Displ.	0,327 / 0,386	0,359 / 0,413	0,364 / 0,364
	Acc.	0,019 / 0,010	0,020 / 0,011	0,019 / 0,010
1 leg, no foam	Displ.	0,599 / 0,599	0,773 / 0,761	0,981 / 0,564
	Acc.	0,025 / 0,018	0,026 / 0,025	0,024 / 0,023
1 leg, foam	Displ.	<b>1,616<sup>1</sup> / 1,685<sup>2,3</sup></b>	1,176 / <b>1,098<sup>2</sup></b>	<b>0,911<sup>1</sup> / 0,911<sup>3</sup></b>
	Acc.	<b>0,052<sup>4,5</sup> / 0,048</b>	<b>0,039<sup>4</sup> / 0,035</b>	<b>0,034<sup>5</sup> / 0,029</b>
Seated, no foam	Displ.	0,377 / 0,235	0,297 / 0,195	0,753 / 0,363
	Acc.	0,017 / 0,010	0,017 / 0,009	0,020 / 0,014
Seated, foam	Displ.	0,342 / 0,235	0,335 / 0,208	0,514 / 0,269
	Acc.	0,017 / 0,010	0,018 / 0,011	0,019 / 0,012
Functional reach test		<b>38 cm <sup>(6)</sup></b>	<b>34,3 cm <sup>(6,7)</sup></b>	<b>38cm <sup>(7)</sup></b>

Legenda: <sup>(1)</sup>RR-CG, p=0,022. <sup>(2)</sup>RR-RO, p=0,043. <sup>(3)</sup>RR-CG, p=0,007. <sup>(4)</sup>RR-RO, p=0,038. <sup>(5)</sup>RR-CG, p=0,006. <sup>(6)</sup>RR-RO, p= 0,029. <sup>(7)</sup> CG-RO, p=0,025

## CONCLUSION

**No significant difference in proprioceptive balance between regular riders, occasional riders and a control group except for one-legged standing on foam.**

## RECOMMENDATIONS

### CLINICAL:

- Limited difference seen in proprioceptive balance between riding regularly and riding occasionally.
- Horse riding regularly or occasionally does not necessarily have to be prescribed to improve balance, rather an active lifestyle is advocated.

### RESEARCH:

- Test bigger groups, with less effects from other sports.
- More dynamic and functional tests for balance.
- Functional reach test limited reliability, more a test of flexibility than balance in youth.

### References:

- Forkan R. Exercise Adherence Following Physical Therapy Intervention in Older Adults With Impaired Balance. Physical Therapy. 2006; 86(3):401-410.
- Kim H, Lee C, Lee I, 10. Comparison between the Effects of Horseback Riding Exercise and Trunk Stability Exercise on the Balance of Normal Adults. J Phys Ther Sci. 2014;26(9):1325-132