Differences in judging of young horse free jumping

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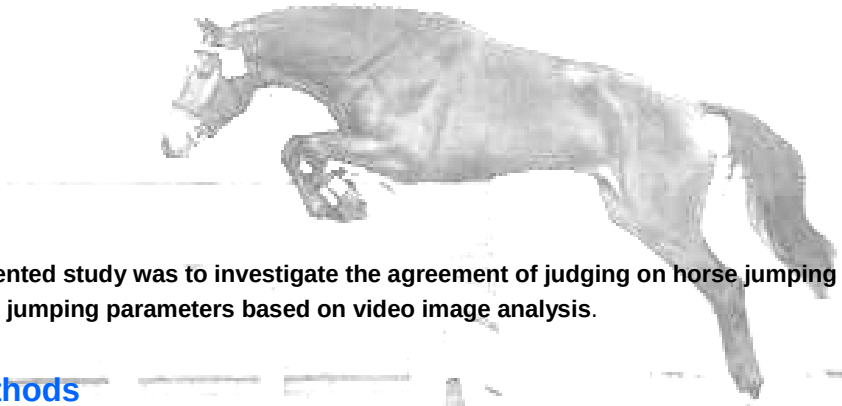

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Aim

The aim of presented study was to investigate the agreement of judging on horse jumping skills and relations of judges' notes with measured jumping parameters based on video image analysis.

Material and methods

In the end of 100 days performance test, the group of 32 warmblood stallions was judged in free jumping by six experienced judges in following traits: "willingness to jump", "easiness of jump", "work of front", "work of hind" and "work of trunk, head and neck". Simultaneously, horses were filmed (25fr/sec) during jumping and following linear parameters were measured: taking off, landing, lifting of limbs and elevation of bascule points above the obstacle. Horses jumped the doublebarre obstacle (height 0.9-1.2m and fixed width 0.8m) placed in the line for the free jumping evaluation.The statistical analysis consisted of calculation of judges' notes repeatability using procedure Mixed of the SAS program, calculation of Pearson correlations between notes of individual judges as well as calculation of correlations corrected for the height of the jump and successive number of jump between judges' notes and jumping parameters. The statistical model for repeatability calculation included fixed effects of judge and random effect of the horse.

Results

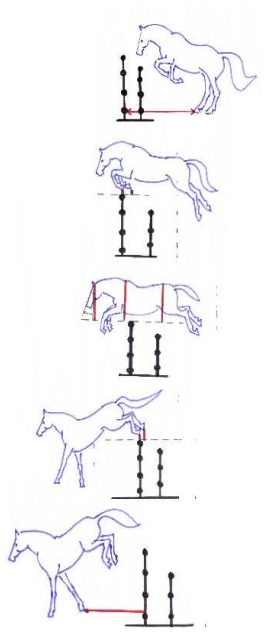
Correlations between notes of six judges for every evaluated trait

Trait	Judge	Work of trunk, head and neck		Work of back		Work of front		Ease of jump		Willingness to jump	
		other judges		other judges		other judges		other judges		other judges	
		Range of correlations	Mean	Range of correlations	Mean	Range of correlations	Mean	Range of correlations	Mean	Range of correlations	Mean
Willingness to jump	1	0-0.48	0.33	0-0.52	0.37	0-0.50	0.42	0-0.46	0.51	0.36-0.57	0.81
	2	0-0.38	0.34	0-0.55	0.32	0-0.66	0.50	0.19-0.62	0.53	0-0.58	0.63
	3	0.31-0.53	0.58	0-0.54	0.45	0.24-0.47	0.51	0.29-0.53	0.52	0-0.36	0.51
	4	0-0.63	0.39	0.22-0.64	0.66	0.33-0.56	0.60	0.34-0.69	0.72	0.34-0.49	0.71
	5	0.20-0.63	0.46	0-0.53	0.51	0.30-0.62	0.60	0.38-0.77	0.69	0.30-0.58	0.78
	6	0.17-0.65	0.56	0.27-0.50	0.58	0.24-0.54	0.53	0-0.66	0.61	0.30-0.58	0.68
mean			0.62		0.68		0.75		0.85		1.00
Ease of jump	1	0-0.73	0.56	0.40-0.73	0.82	0.32-0.77	0.67	0.45-0.73	0.86		
	2	0-0.52	0.47	0-0.62	0.58	0.32-0.70	0.62	0.37-0.56	0.69		
	3	0.33-0.65	0.71	0.29-0.56	0.66	0.24-0.77	0.80	0.34-0.53	0.74		
	4	0.19-0.78	0.65	0.18-0.63	0.66	0.36-0.66	0.66	0.56-0.71	0.84		
	5	0-0.66	0.49	0.19-0.61	0.55	0.29-0.71	0.66	0.37-0.63	0.72		
	6	0-0.76	0.61	0.38-0.63	0.76	0.31-0.54	0.60	0.34-0.73	0.75		
mean			0.77		0.88		0.88		1.00		
Work of front	1	0.26-0.62	0.60	0.30-0.59	0.68	0.38-0.69	0.85				
	2	0-0.56	0.47	0-0.63	0.46	0 -0.49	0.51				
	3	0.32-0.58	0.70	0.21-0.52	0.55	0.35-0.55	0.71				
	4	0.15-0.62	0.48	0.15-0.91	0.63	0.35-0.72	0.79				
	5	0-0.81	0.54	0.35-0.69	0.68	0-0.72	0.84				
	6	0-0.63	0.51	0.16-0.49	0.50	0-0.61	0.72				
mean			0.77		0.79		1.00				
Work of back	1	0-0.36	0.31	0.30-0.42	0.63						
	2	0-0.44	0.40	0.21-0.58	0.62						
	3	0.31-0.50	0.63	0.21-0.38	0.64						
	4	0-0.63	0.53	0.34-0.58	0.75						
	5	0-0.61	0.42	0.21-0.68	0.75						
	6	0.25-0.68	0.49	0.20-0.68	0.70						
mean			0.70		1.00						
Work of trunk, head and neck	1	0.24-0.56	0.66								
	2	0.31-0.61	0.73								
	3	0-0.56	0.70								
	4	0.32-0.61	0.75								
	5	0.35-0.63	0.75								
	6	0-0.63	0.63								
mean			1.00								

Correlations between the individual judges' notes and measured jumping parameters

Trait	Willingness to jump		Easy of jump		Work of front		Work of back		Work of trunk. head and neck	
	Judge 1-6 range	Mean	Judge 1-6 range	Mean	Judge 1-6 range	Mean	Judge 1-6 range	Mean	Judge 1-6 range	Mean
1. Taking off			0.0-0.19		-0.15-0.30		0-0.29		0-0.28	
2. Landing	0.27-0.31	0.40	0-0.45	0.37	0-0.20	0.18	0-0.41	0.30	0-0.40	0.36
3. Lifting FL	0-0.20	0.15	0-0.23	0.18	0-0.24	0.18	0-0.24		0-0.24	0.21
4. Lifting FR	0.14-0.24	0.24	0.14-0.37	0.36	0-0.32	0.31	0-0.30	0.27	0.20-0.38	0.37
5. Lifting HL	-0.16-0		-0.11-0				0-0.23	0.14		
6. Lifting HR	-0.20-0		-0.17-0				0-0.16			
7. Elevation- head	0-0.33	0.25	0-0.25	0.17	-0.24-0.32		0-0.24	0.14	-0.29-0	
8. Elevation – withers	0-0.25	0.21	0-0.27	0.21	-0.17-0.31		0-0.19	0.20	0-0.21	
9. Elevation -croup	0-0.24	0.24	0-0.28	0.24	-0.14-0.35		0-0.27	0.23	0-0.23	
10. Symmetry - jump	-0.36-0	-0.31	-0.16-0							
11. Symmetry - front	-0.17-0		-0.26-0	-0.21	-0.21-0		-0.20-0	-0.22	-0.29-0.17	-0.19
12. Symmetry - hind	0-0.15		0-0.18		0-0.20				0-0.18	
13."Work" of head	-0.18-0				0-0.21		0-0.16		0-0.33	0.22
14. "Work" of croup	-0.17-0		-0.18-0		-0.23-0		-0.20-0		0-0.16	
15. Curve- upper line	-0.15-0				0-0.23		0-0.20		0-0.31	0.24
16. "Work" of front limbs	0.15-0		-0.18-0		-0.29-0	-0.16	-0.16-0		-0.19-0	
17. "Work" of hind limbs	0-0.42	0.28	0-0.32		0-0.39		0-0.22		0-0.18	

Linear parameters of the jump



Correlations between the individual notes of different judges were not equal. Notes for the specific traits were in some cases more correlated with other traits like with notes for the same trait. Repeatability of judges notes was calculated on the low level 0.33-0.48. Correlations between notes for jumping and measured jumping parameters were low and medium. Some differences in style of judging could be noticed on the basis of the correlation between the individual judge's score and the mean for the traits. It seems that two tendencies could be observed for the traits "ease of the jump – willingness to jump". The relationships between individual judge's scores and the mean of all judges were more differentiated for "work of the front" and "willingness to jump" than for other traits.

TAKE HOME MESSAGE

The style of judging could be predicted on the basis of correlations between measured jumping parameters and the judges' scores. Diversified results of individual judges let recognise some different tendencies in judging. Comparison of judges' notes within and between the evaluated partial traits and measurements indicates that free jumping note is not precisely defined.