Pilot study on the OC(D) disease in Polish sport horse breeding population

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Aim

In the nowadays horse breeding with the high impact on health trait, the situatation of OC(D) status of Polish breeding population was investigated. The aim of the study was the recognition of the health status of different breed and sex groups in the beginning and in the end of their performance tests in the training centre.

Material and methods

In the years 2009-2010 a group of 114 mares and 87 stallions were examined twice for OC(D) - in the beginning and in the end of the training on young horses performances that were 60-days for mares and 100-days for stallions. Ten digital X-rays for fetlock (one for each limb), stifle (two plans for each limb) and hock (one for each joint) were made. Images were judged in the scale 0-3 where 0 was considered as no changes and 1,2,3 were considered as signs of OC(D) of different degree. The results were given in the binary scale as well (0 - no OCD and 1 – OCD with the highest degree meaning osteochondrosis dissecans). The data was transformed according to the threshold scale theory, then the analysis of variance was performed using SAS program procedure GLM. The statistical model included random effect of the horse, fixed effects of the training, breed and sex, as well as regressions on the age (in days), basic measurements and conformation.

Results
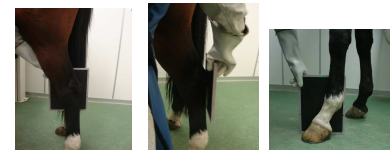
Results in tables are given in % of total scores, separately for stallions and mares before and after the training.

STALLIONS	Before training				After training				MARES	Before training				After training			
	0	1	2	3	0	1	2	3		0	1	2	3	0	1	2	3
Fetlock front right	36	36	20	8	24	44	22	10	Fetlock front right	31	38	27	4	22	41	34	3
Fetlock front left	33	46	15	6	24	51	19	6	Fetlock front left	27	43	28	2	18	48	32	2
Fetlock hind right	32	41	19	8	26	46	20	8	Fetlock hind right	20	36	36	8	12	40	40	8
Fetlock hind left	30	46	13	11	23	50	18	9	Fetlock hind left	11	52	30	7	5	45	40	10
Stifle left (lateral view)	81	13	3	3	76	16	7	1	Stifle left (lateral view)	82	8	6	4	80	10	5	5
Stifle left (AP view)	96	2	0	2	91	6	1	2	Stifle left (AP view)	96	3	1	0	99	0	1	0
Stifle right (lateral view)	80	16	0	4	73	23	0	4	Stifle right (lateral view)	78	12	5	5	72	13	10	5
Stifle right (AP view)	98	1	0	1	91	5	0	4	Stifle right (AP view)	98	2	0	0	98	2	0	0
Hock left	90	5	2	3	88	7	2	3	Hock left	97	1	1	1	97	1	1	1
Hock right	88	9	0	3	87	7	2	4	Hock right	96	2	1	1	96	2	1	1

No statistical changes were found between sex groups, breeds and investigations (before and after training) for the overall score of the OC(D) status of the horse. The frequencies of OCD free mares reached 74% before training and 73% after training. For stallions the frequencies were adequately 71% and 69%. Some differences between breeds and sex group were observed for single images and wider scale used. Sex group was statistically significant for hock and stifle images. The breed was significant for fetlock and stifle images. The conformation and age regressions were statistically significant for 0-1 scale, but no clear connections were found between other regressions and OCD observations using 0-3 scale.