Lameness in Standardbred racehorses: a three years retrospective study on causes of lameness occured at the racetrack of Turin

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Riassunto- *La zoppia nel cavallo trottatore rappresenta la principale causa di riduzione della performance atletica e uno dei principali motivi di ritiro dalle competizioni sportive per questi cavalli. L'elevato impatto economico delle patologie muscolo-scheletriche sull'industria ippica del trottatore ne condiziona l'interesse scientifico, allo scopo di prevenire e trattare con maggiore efficacia le patologie ortopediche che si riscontrano nei cavalli sottoposti a questo tipo di disciplina sportiva. In questo lavoro abbiamo eseguito un'analisi retrospettiva delle cause di zoppia in 282 cavalli da trotto in allenamento nel medesimo ippodromo (Torino-Vinovo), esaminati dagli autori nel corso di tre anni.*

Summary- Lameness in Standardbred (STb) racehorses is the main cause of reduced athletic performances and it is one of the main reasons for retiring horses from competitions. The scientific interest towards STb racehorses musculo-skeletal pathologies relies on the high economic impact on equine industry. The principal goal is the prevention of musculo-skeletal diseases and the analysis and improvement of treatment protocols to promote healing of traumatic lesions typical of STb racehorses. In this work we submitted to retrospective analysis the lameness examination sheets of 282 STb racehorses in training on the same racetrack (Turin), examinated by the authors during a period of three years.

Introduction- STb racehorses are exposed to hard training since they are young and the innatural gait they use when competing at high speed contributes to the development of typical pathologies. These can be put in correlation to the great effort their musculo-skeletal structures are exposed to when it is still too early and they are not completely developed. Clinically, it means that we have the same stress lesions reported in almost all the horses.

Material and Methods- A number of 282 STb racehorses lameness cases have been analysed retrospectively to evaluate the main causes of lameness. All the horses included in this study were in training on the racetrack of Turin at the time of the examination. The age ranged from 2 to 10 years old for male and gelding and from 2 to 6 years old for female. All the animals were evaluated for lameness score from one veterinarian and in a small percentage of cases from a second veterinarian. All the data have been reported on a lameness examination sheets. A grading system with a lameness score from 1 to 5 on 5 has been used. Clinical diagnosis has been performed by standard lameness investigation (examination of the horse trotting on hard surface, examination on the racetrack, flexion tests, nerve blocks and/or intra-synovial anaesthesia) associated with diagnostic imaging (digital radiography and ultrasonography). Horses with a follow-up lower than six months after the first clinical examination were excluded from the study. On examination sheets we registered the sex and age of the animals, medium lameness score, and

outcome, exercise level in which the horse was competing after the treatment, rehabilitation program and average exercise rest.

Results and Discussion- In the 282 STb racehorses population considered in this study the commonest clinical problems identified are: fetlock traumatic arthropathy (56/282), tarso-metatarsal arthrophaty (30/282), suspensory branch lesion (24/282), carpal lameness (22/282), medial femoro-tibial joint synovitis (20/282), suspensory ligament insertional lesion (16/282), core lesion suspensory ligament (16/282), sacro-iliac joint lameness (14/282), curb (12/282), SDFT tendonitis (12/282), recurrent miopathy (10/282), traumatic lesion of the digital sheath (10/282), DIP joint arthropathy (8/282), fracture P1 (6/282), sesamoid bone fracture (6/282), not-traumatic lesion of the digital sheath (4/282), tibial stress fracture (4/282), tarso-crural arthropathy (4/282), proximal metacarpal fracture (4/282), P3 fracture (2/282). No sex predisposition has been observed in these horses. The average lameness score was registered with a standard grading system ranging from 1 to 5/5. Male are more represented than female and gelding. Stress fracture and desmitis of the suspensory branches were the most painful conditions registered. A percentage of 19.8% of lamenesses in STb racehorses were related to fetlock traumatic arthropathy, with horses showing a lameness responding more to 4-point block than to intra-articular anaesthesia (subchondral bone pain). The outcome of the horses examined after a specific treatment for the clinical condition has been analysed and reported in Table 1. In general, superficial digital flexor tendonitis is related to poor outcome. All the clinical conditions diagnosed were analysed and evaluated on the basis of the exercise level of the horse after the specific treatment. Exercise level was considered RP (reduced performance), SP (same performance) or IP (improved performance) according to the chronometric results in the race following rehabilitation of the horse. The medium exercise rest period has been reported in Table 1 for every group. The longer rest period is required for healing of P3 fracture, P1 fracture, core lesion of suspensory ligament and superficial digital flexor tendonitis.

Conclusion- Lameness score in STb racehorses needs to be analysed with the horse trotting on a hard surface and running in the racetrack in all the clinical condition with a lameness score of 1 or 2/5. Horses with 4-5/5 lameness do not require lameness investigation other than observation at walk. Clinical conditions observed in STb racehorses have a different distribution compared to orthopaedic problems noticed in Thoroughbred (Tb) racehorses. Stress fracture are less represented than in Tb racehorses. STb racehorses are more prone to desmopathy of the lateral suspensory branch and to core lesion/insertional lesion of the SL in hindlimbs. Fetlock arthropathy is the commonest diagnosis for young horses in training (2-3 years old). The outcome after lameness is considered positive for the majority of the clinical conditions. One of the poorest prognosis is the one related to SDFT tendonitis (negative outcome 10/12 cases). Lameness in STb do not lead to a reduced performance of the animal in all cases but in a high percentage of cases an improved performance is possible after proper treatment and rehabilitation. This is probably related to the young age of the animals. The average exercise rest in the STb racehorses is slightly shorter than in other sport horses for the same clinical condition. This is related both to the clinical indication coming from the re-examination and to the pressure coming from the need to return the animals in training as soon as possible, more than in other sports.

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Table 1 Distribution of the lameness cases (282 Standardbred)

Clinical problem	Number horses	Sex (M=male, F=female, G=gelding)	Average Lameness Score (0-5/5)	% of the horses examined (T=282)	Outcome (P=positive, N=negative)	Performance-related outcome (RP/SP/IP)	Average Exercise Rest
P3 Fracture	2	M 2	3/5	0.7%	P 2 N 0	RP 0 SP 2 IP 0	8m
TMT Artrophaty	30	M 18 F 8 G 4	2/5	10.6%	P 28 N 2	RP 2 SP 16 IP 12	4d
Proximal Metacarpal Fracture	4	M 2 F 0 G 2	3/5	1.4%	P 4 N0	RP 1 SP 0 IP 3	5m
Traumatic lesion digital sheath	10	M 2 F 5 G 4	4/5	3.5%	P 7 N 3	RP 4 SP 3 IP 3	3m
Not-traum. lesion digital sheath	4	M 0 F 0 G 4	1/5	1.4%	P 2 N 2	RP 0 SP 4 IP 0	12d
Fetlock traumatic artropathy	56	M 19 F 9 G 28	1/5	19.8%	P 42 N 14	RP 16 SP 19 IP 11	8d
Suspensory branch lesion	24	M 11 F 6 G 7	4/5	8.5%	P 21 N 3	RP 2 SP 18 IP 4	4m
Tendonitis superficial digital flexor tendon	12	M 5 F 4 G 3	0/5	4.2%	P 2 N 10	RP 8 SP 2 IP 2	7m
Tarso-Crural Artropathy	4	M 2 F 2 G 0	1/5	1.4%	P 4 N 0	RP 0 SP 4 IP 0	3w
Suspensory Ligament Insertional lesion	16	M 4 F 3 G 9	1/5	5.6%	P 14 N 2	RP 2 SP 8 IP 6	6w
Core Lesion Suspensory ligament	16	M 5 F 5 G 6	3/5	5.6%	P 9 N 7	RP 3 SP 9 IP 4	5m
DIPJ Artropathy	8	M 3 F 3 G 2	1/5	2.8%	P 7 N1	RP 2 SP 4 IP 2	4d
Medial Femoro-Tibial joint synovitis	20	M 6 F 6 G 8	2/5	7.1%	P 16 N 4	RP 0 SP 14 IP 6	8d
Sacro-iliac joint lameness	14	M 6 F 2 G 6	2/5	4.9%	P 12 N 2	RP 3 SP 8 IP 3	3w
Recurrent Miopathy	10	M 3 F 4 G 3	4/5	3.5%	P 10 N 0	RP 0 SP 8 IP 2	2w
Curb	12	M 8 F 2 G 2	3/5	4.2%	P 12 N 0	RP 0 SP 7 IP 5	3w
Carpal lameness	22	M 8 F 9 G 5	2/5	7.8%	P 19 N 3	RP 6 SP 12 IP 0	6w
Fracture P1	6	M 2 F 3 G 1	3/5	2.1%	P 4 N 2	RP 4 SP 0 IP 2	8m
Sesamoid bone fracture	4	M 0 F 2 G 2	4/5	1.4%	P 4 N 0	RP 0 SP 0 IP 4	4m
Tibial stress fracture	4	M 2 F 2 G 0	4/5	1.4%	P 4 N 0	RP 0 SP 2 IP 2	6w
Others	4	M 2 F 1 G 1	0/5	1.4%	- -		-