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Behavioural aspects in ass during the end of pregnancy and ass and their foal during the first week post-partum in Martina Franca breed

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ABSTRACT

The study was carried out to investigate behavioural pattern in ass during the end of pregnancy and in asses and their foals during the first week after foaling. The study was performed on a total of 17 asses and 8 foals of Martina Franca breed reared outdoors free-ranging over the natural scrub area. In particular, for the behavioural observations on ass before the foaling 9 asses on the last month of pregnancy were considered, while, during the first post-partum week the observations were performed on 8 couples of dams and their foals. The behavioural observations were performed in a fenced area (4000 m²) from 08:00 to 20:00 using scan sampling with 5 min intervals. The data were collected by trained observers and recorded on a protocol form which considered the following main behavioural aspects: eating, drinking, walking, resting up, standing, and other behaviours. Within the class of other behaviours it was included secondary behaviours as grooming, vocalisation, playing, defecation, sniffing. For the foals the other behaviours included also suckling, interactions with their dams or other foals. The results show that the status of end of pregnancy or post-partum had a low impact on the main behaviours of ass. Percentage of time for eating in ass was higher (P<0.01) during the p.m. hours respect to the a.m. hours. During the first week, foals spend a higher (P<0.01) time for suckling during a.m. hours versus p.m. hours of the day. The suckling frequency was higher in a.m. (32 min vs. 41 min of p.m. hours). The results of this study represents preliminary data of etogram of ass and foal reared in semi-extensive conditions.
Growth curves of Thoroughbred horses: 13 years of measurement

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ABSTRACT

Young thoroughbred horses should have a regular and harmonic growth to develop a correct muscle and skeletal structure. Growth rate, nutrition and management are basic factors in order to prevent developmental orthopaedic disease. Breeders should have access to a simple tool to better understand if a foal or yearling is growing regularly. With this aim we have studied the growth of 532 thoroughbreds raised in five Italian studs in northern Italy under traditional management conditions calculating body weight, wither height, thorax and cannon bone circumference regression and percentile curves. The percentile curves are an easy tool to monitor the growth of each single horse, similar to that currently used in paediatric practice to follow the correct development of babies’ weight, height and head circumference. From 1990 to 2002 more than 14,500 records on body weight, wither height, thorax and cannon bone circumference of thoroughbred foals and yearlings were recorded every month, at about 30 day intervals, from 8 to 18 months of age with the exception of the cannon bone circumference recorded every two months. Growth regression models for each somatic measurement, separately for colt (n. 271) and fillies (n. 261) were calculated at different ages to elaborate the curves of 10⁰, 25⁰, 50⁰, 75⁰ and 90⁰ percentile for the above reported ages. Here we show the general regression curve equations of height at withers, respectively for colt and fillies: y (cm) = 118,6 + 0,109 age (d) – 0,00008 age (d)²; y (cm) = 115,975 + 0,1125 age (d) – 0,00008 age (d)². Higher value for colts as expected for the gender dimorphisms, also revealed by ANOVA analyses at different ages and confirmed by American literature, was observed. The authors show the percentile curves obtained that are graphical descriptive statistics useful in detecting diverging growth. Each single colt or filly should follow the proper percentile line, an example is given. A deviation from the percentile lines showing irregular growth is easy to detect and, especially if several measurements are implicated, could represent a warning to intervene by correcting possible dietary errors or other environmental conditions.
Incidence and causes of osteochondrosis in Italian Trotter horses

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ABSTRACT

Correct skeletal development is important especially in athlete horses, since structure abnormalities and problems may lead to pathological conditions and affect race performances. OCD (osteochondrosis dessicans) is a developmental orthopaedic disease that involves a local or generalised failure of endochondral ossification affecting the epiphyseal and/or metaphyseal cartilage. OCD can be a consequence of several events: - development of a cartilaginous flap (chip); - abnormal differentiation and maturation of cartilage cells; - failure of cartilage matrix to calcify and its related thickness; - nutritional disorders. Its incidence and economic losses related to the surgical treatment are attracting increasing interest in Italy. Aim of the research was to assess sex and stallion’s influence on OCD in Italian Trotter foals and on the agonistic careers. The records of 735 foals from different stables born over 8 years from 55 stallions and 215 mares were studied. Foals were subjected to radiological screening (10-16 months old) and surgical removal of bone chips was performed in those affected by OCD. Subjects were divided into 2 classes: A) absence of OCD; B) presence of OCD, regardless of severity and location. For each foal data regarding genealogy, date of birth, sex, age at surgery, utilisation in competitions, races run and competitive career were analysed. Overall, 14.3% of the foals had OCD, in line with the literature. There were significant differences attributable especially to the stallion effect. Four stallions had more offspring with OCD (30-45%) than the mean; 4 more had consistently normal offspring (>96%). The proportion of foals used in competitions was slightly, but not significantly, greater in Class A than Class B. There were no differences in age at 1st race, and competitive survival curves were substantially similar. In conclusion even if subjects with OCD are not to be considered unsuitable for competitions, it is extremely important to continue OCD monitoring via early evaluation by breeders and veterinarians as well as to focus on nutritional aspects to obtain the best possible growth of foals.
A methodological approach to the estimation of faecal and urinary losses in horses

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ABSTRACT

The aim of this work was to evaluate the urinary and faecal losses in horses fed three diets differing for forage/concentrate ratio (diet 1: 100% hay, diet 2: 75% hay + 25% of a mixed feed, diet 3: 50% hay + 50% of the same mixed feed) at a feeding level close to maintenance. The trial was performed on 4 saddle horses weighting about 550 kg, over a 6 day faeces and urines total collection period after a previous 14 day adaptation period. A horse diaper was utilised for the faecal and urine collection. Food consumption was recorded daily. Before analysis, the faecal and urinal samples were freeze-dried and ground. Analyses on all samples for dry matter and N were carried out according to the standard methods of Association of Official Analytical Chemists 1990. The gross energy was determined with an adiabatic calorimeter bomb (IKA C7000, Staufen, Germany). The percentages of nitrogen retention and nitrogen digestibility, the metabolisable energy (ME) and digestible energy (DE) percentages on gross energy were measured by the ingesta/excreta procedure and by taking into account the urinary losses for all the rations. The nitrogen digestibility and retention increased (P<0.01) with increasing amounts of the mixed feed in the ration; the same trend, even if not significant, was found for the metabolisable energy and digestibility of gross energy percentages. The urine energy was very low. The digestible crude protein of the diet 1 (100% hay) determined by difference between nitrogen intake and nitrogen in the faeces was compared with the data obtained with the regression equations formulated by Martin-Rosset (1994), the result were found to be similar. The digestibility of energy of the diet 1, determined from digestibility of organic matter by the equations and the ME/DE ratio was also near to the one measured in the trial.
Preliminary results on “Grigio Siciliano” donkey morphometry

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ABSTRACT

The origins of the “Grigio Siciliano” asinine population, generally called “Ferrante”, are very old. Chicoli (1870) in the book “Riproduzione, Allevamento e Miglioramento degli animali domestici in Sicilia” reports some information on the presence of two asinine races in Sicily: one, the “Siciliana” race, used for transport and agricultural activities, characterised by small size, non-uniform coat and lower body regions always white; the other one, “Pantelleria” race, saddle-animal, is a privilege of the aristocracy. Successively, Mascheroni (1927) describes the sicilian donkey as a small-size subject, characterised by a grey coat and by such unelegant features as the “Pantesco” donkey, and he identifies in this population two sub-races, one of the Eastern provinces (similar to the “Pugliese” donkey – “Martina Franca”) and the other one of the Western provinces (similar to the “Pantesco” donkey). Nowadays, there are about 100 “Grigio Siciliano” donkeys in the Island, characterised by high rusticity, which live in extensive condition together with other autochthonous animal species. The aim of the study has been to characterise the morphological type of this asinine population in order to give useful information for its ethnic identification. The most significant morphometric traits on thirty “Grigio Siciliano” asses (4 to 14 years), in an erect position, using Lydtin’s stick, flexible meters and calliper, were measured and the most significant bio-metric indices were calculated for a correct identification of the morphologic type. The mean values (±SD) of the Height-length proportion index (97±0.05), Thoracic index (55±0.03) and Body proportion index (87±0.03), tend towards diametrical proportions of the mesodolichomorphic type, while the results (mean ± SD) of the Chest proportion index (66±0.01), Thorax height index (44±0.01), Index of the pelvis (23±0.02), Chest length index (91±0.05), Dactylo-thoracic index (11±0.005), quite different from those of the other well-known Sicilian asinine race (“Pantesco” and “Ragusano”), point out the work aptitude and the strain resistance of this animal.
Composition of whey proteins in ass milk during the early 60 days of lactation

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ABSTRACT

The study was performed with the aim to evaluate possible modifications in whey protein composition of ass’s milk during the first two months of lactation. Twelve nursing asses of Martina Franca breed reared outdoors were considered. Milk was taken by milking machine from a single mammary gland in presence of the foal that was previously prevented from suckling for two hours by a muzzle. On days 8, 15, 30, 45 and 60 of lactation, the individual totally-milked udder was sampled for the analysis of whey proteins. Milk samples were immediately skimmed by centrifugation and fractionated by isoelectric precipitation of caseins to separate whey proteins. The concentration of whey proteins was determined by Bio-Rad protein assay. Their average concentration was 9.7 mg/mL with a maximum at 60 day and minimum a 8 day. The sodium dodecyl sulphate (SDS) polyacrylamide gel electrophoresis of whey proteins from 5 lactation days considered per animals showed some modification of which the most interesting was at 45 days. In this case the mono-dimensional patterns showed that the bands with a molecular weight of 21 and 19 kDa changed their proportion from 20/80, occurring in the other lactation days, to 60/40 respectively. To a better understanding of this phenomenon a two dimensional gel electrophoresis was performed. The first dimension was realized by isoelectric focusing in immobilized pH gradient 4-7 with dry strip gel of 13 cm. The second dimension was performed by vertical electrophoresis in polyacrylamide gradient gel 8-18% in presence of SDS. Comparing two dimensional maps the spots corresponding to the bands of 21 and 19 kDa as well as that of 14.4 kDa were excised a digest in situ with trypsin. The peptide digest was analysed by matrix assisted laser desorption ionization-time of flight (MALDI-TOF) mass spectrometry. The peptide mass spectra of spots at 21 and 19 kDa were identified as β-lactoglobulin while the spectrum of spot at 14.4 kDa was identified as α-lactalbumin.
Hematology of Murgese horse as a breed native of a TBD enzootic region

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ABSTRACT

Murgese is the typical saddle horse used mainly for country pleasure and harness. This horse has a rustic nature necessary for survival in a difficult environment, such as Le Murge (the rocky hills of Apulia from which it takes its name), characterised by a harsh climate, poor pastures, and the presence of enzootic pathogens. Similarly to the other profitable native Apulian animals, the Murgese is TBD-tolerant, while there is evidence of differences in susceptibility, compared with other imported breeds. This investigation is the starting point for a research project whose aim is to identify, characterize and map new genes associated with non-susceptibility/susceptibility to disease and with immune responses, to detect polymorphisms in these genes and to determine the extent of their genetic variability in the horse populations. The variability of the hematological parameters of Murgese horses was investigated as a function of the occurrence of enzootic piroplasmosis. Blood samples were collected from 109 Murgese horses bred in four central Apulia herds. For each subject, data about genealogy, management and pharmacological treatments were collected and clinical signs were recorded. The investigation was carried out from June to July 2004. Blood smears were prepared for microscopic examination of parasites in red blood cells and hematological parameters were analysed. Variance analysis was performed to evaluate the effect of piroplasmosis on hematological values, with simultaneous adjustment for age, sex, and herd. The following classification of piroplasmosis was used: infection-free horses (class 0), infected horses (presence of Theileria equi and/or Babesia spp in the red cells) without any clinical signs (class 1), and horse suffering from clinical sickness (class 2). When class 0 and 1 animals were compared, very similar blood values were found thus suggesting that the reactivity of class 1 animals allows them to coexist with parasites without apparent energy expenditure or evidence of sickness, except for slight lower blood values.