

EPIDEMIOLOGY OF CATASTROPHIC RACEHORSE INJURIES
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A constant increasing interest on fatal injuries in horses during racing is paid because of the dramatic nature of these hurts, public perception, increasing concern on animal welfare and then the controversy in the media. Despite horse racing competitions are widespread in Italy there are not official statistical data on the fatal injuries that occur in these events.

This study, sustained by UNIRELAB, aims to review and analyse the typologies and the circumstances that characterise these fatal events in Italian horseraces. Data, with detailed information on racecourses, races, horses and specific causes of death, were provided by Unione Nazionale Incremento Razze Equine (U.N.I.R.E.) on all flat races (trot and gallop) started during a year between April 2003 and March 2004. Over 207.000 horses started in the 44 official Italian race-courses during this period of time. In 683 circumstances the involvement of an official Veterinarian was requested and thus specific information was filled in an expressly designed form. Data were first analysed using a common descriptive statistic together with simple graphics analysis useful to describe a large amount of data; then the main measures of position and dispersion were drawn with the description of the values of incidence and prevalence. Because the analysis of each single fatal injury included a number of variability described by the veterinarian it was considered useful to examine the phenomena also by using some crosstabs (tables showing the joint distribution of two or more categorical variables). In order to perform a deeper statistic analysis of so numerous variables a bivariate logistic regression was used. The fit of these models has been assessed using the Hosmer Lemeshow, the R^2 of Nagel Kerke and the -2 *Log Likelihood* statistic tests. The model seems to fit the data and could predict the fatality rate with a reasonable accuracy (the 87,2% of injuries could be predicted by this model).

During the period analysed the injuries were:

- Gallop: 175 per 51.073 starts (incidence of injuries of 0.34%), from these 29 were fatal (death incidence of 0.057%);
- Trot: 506 per 156.183 starts (incidence of injuries of 0.32%), from these only 3 were fatal (death incidence of 0.002%);

In one occasion the typology of the race was not reported so the fatal events were 33 during a year, so that the total flat race death incidence was of 0,1592 per 1000 starts

(round data of 0.16‰). The reasons of death are summarised in table n°1 where the orthopaedic reasons (fractures, ligament ruptures and luxation) represent the main cause of mortality with the 75.76% of the total. From these the anatomic areas involved are: the limbs 66.6% (distal limb 57.57% and proximal limb 9.1%), cervical vertebrae 6.1% and the pelvis 3%.

The most relevant result shows that the risk of death for the horses decreases strongly if an official veterinarian performed a pre-race inspection. In fact 32 of 33 fatal events occurred in horses for which a pre-race visit inspection was not requested. Moreover, because the pre-race visit inspection was mostly not followed by a fatal injuries, it seems possible to assert that the inspection by an appointed veterinarian is fundamental to prevent injuries, especially those with catastrophic consequences.

In conclusion the fractures were recognised to be the main cause of death, especially in thoroughbred, and these injuries were recorded more frequently in the distal limbs when the horse was in the straight line of racetrack. This last consideration suggests other deep analysis on the effects of racetrack surfaces and of bone remodelling and training methodologies.

