Prevalence of obesity in riding horses in Scotland

C. A. Wyse, K. A. McNie, V. J. Tannahil, J. K. Murray, S. Love

OBESITY is a serious and largely underreported equine welfare issue. Obese horses are predisposed to the development of pathological conditions including laminitis, osteoarthritis and strangulating lipoma (Watson and others 1992, Treiber and others 2006). Obese horses may also be more likely to develop osteoarthritis, in a similar manner to other veterinary species and human beings. In addition to the increasing predisposition to disease, obese horses are also less capable of tolerating the physiological and psychological stresses of ridden exercise. Despite the significance of obesity for equine welfare, the current scale of the problem among riding horses in the UK is unknown; in contrast, obesity in small animals has been studied and increasing rates of obesity in pet dogs and cats have been reported (Edney and Smith 1986, Robertson 1999, 2003, Kuntz and others 2006). Edney and Smith (1986) suggested that at least 20 per cent of pet dogs in the UK were clinically obese and at associated increased risk of diabetes, neoplasia, exercise intolerance, and cardiovascular and degenerative joint diseases.

Unlike many other welfare problems, obesity in horses can be addressed by educating owners and by simple changes to husbandry practices. Reducing the rates of obesity is likely to reduce the prevalence of laminitis, osteoarthritis and hyperlipaemia in the UK horse population. However, before this issue can be addressed, documented evidence of the prevalence of obesity and the factors affecting body condition in UK horses is needed. This short communication describes a study to assess the prevalence of obesity in pleasure riding horses in south-west Scotland, and to investigate the association between horses’ body condition score and the owners’ perception of body condition.

The study was approved by the Animal Welfare and Ethics Committee of the University of Glasgow. The criteria for inclusion of a horse in the study were that informed owner consent could be obtained; the horse was considered to be healthy and had been free from serious (life-threatening) disease or injury in the six months preceding the study; the horse was kept for leisure riding and was not being used for competition at national level in any discipline; the horse was aged between four and 25 years; and, for mares, the horse was not pregnant or lactating.

All the equestrian establishments (n=40) located within a 30-mile radius of north-west Glasgow and listed in a local equestrian directory were invited to participate in the study by postal invitation; 22 positive replies were received.

The establishments were visited over a six-week period during June and July 2005, and the body condition of each horse was assessed by the authors according to a published scoring system (Webb and Weaver 1979). The owner was also asked to allocate each horse to one of the following categories: very underweight, underweight, correct weight, overweight or very overweight. The condition score as assessed by the authors was not revealed to the horse owners, and they were not given any guidance on assessing body condition. Statistics to describe the distribution of body condition scores among the sample of horses were calculated using Excel computer software (Microsoft).

A total of 319 horses kept at the 22 establishments were recruited on to the study. Their mean (sd) age was 11 (5) years; 208 (65 per cent) were geldings, 108 (34 per cent) were mares and three were stallions. The horses were of various breeds, with 28 per cent classified as native breeds or native crosses, 35 per cent as thoroughbreds or thoroughbred crosses, 15 per cent as cobs, 12 per cent as draught horses, 7 per cent as warmbloods and 3 per cent as other breeds.

The body condition scores assigned to the horses were summarised in Table 1; 45 per cent were classed as fat (score 5) or very fat (score 6). Body condition was expressed as a binary variable (obese or not obese) to enable a comparison of the owners’ perception of body condition against the condition score. For the purposes of the study, obesity was defined as a body condition score of 5 or 6, or an owner categorisation of ‘overweight’ or ‘very overweight’. The kappa statistic was calculated to estimate the agreement between the owners’ perception of obesity and condition scoring, which was taken as the reference method (Table 2). The kappa statistic expresses the proportion of agreement between methods or observers that is beyond that attributable to chance. In this case, the kappa statistic was 0.4, which indicated only fair agreement between the owners’ perception of obesity and the body condition score (Sim and Wright 2005). Overall, misclassification by owners was most commonly due to them underestimating their horse’s body condition; the owners of fat horses were most likely to score their horse incorrectly, and only 50 per cent of the owner estimates for fat horses were in agreement with the body condition score.

This is the first study to report the prevalence of obesity in any group of horses in the UK. Obesity is a qualitative term to describe the condition of being overweight, and the body condition score of 5 or 6. For the purpose of this study, horses with a body condition score of 5 or 6 were considered to be obese. A large proportion (45 per cent) of the horses examined were found to fall into this category, indicating a very high prevalence of obesity in this group of pleasure riding horses. This is far in excess of the prevalence of obesity previously reported in pet cats (25-8 per cent) (Allan and others 2000) and pet dogs (25-2 per cent) (Robertson 2003). The group of horses examined in this study was not representative of the UK horse population as a whole, as horses that were used for national-level competition in any discipline were excluded. These animals were excluded as the management factors that affect body condition in horses used for competitive sports are likely to differ considerably from those of pleasure riding horses. Furthermore, this study was conducted during the summer months, when horses are considered most liable to become obese. In common with many northern ungulates, the horse shows seasonal variation in metabolic rate, with food intake, gut transit time and energy expenditure increased in the summer months and decreased in winter (Arnold and others 2006, Kuntz and others 2006). This endogenous variation, together with increased summer foliage growth, accounts for the proposed predisposition of the horse to become obese in the summer months. It is likely that the prevalence of obesity in horses would exhibit seasonal variation, and this may partly explain the high prevalence of obesity observed in this study. Conversely, the exclusion of horses with serious disease may have resulted in an underestimation of the prevalence of obesity in horses.

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![Table 1: Body condition score of 319 pleasure riding horses kept at 22 establishments in south-west Scotland, assessed according to Webb and Weaver (1979).](image-url)
estimation of the prevalence of obesity, as obesity may predispose to the development of disease.

There was only fair agreement between the owners’ perception of whether their horses were obese or not and the body condition score. This finding indicates poor ability among horse owners to assess body condition accurately; and a tendency for owners of obese horses to underestimate their horse’s condition. In a survey of the prevalence of obesity in pet cats in New Zealand, Allan and others (2000) reported that owner underestimation of body condition was a risk factor for obesity in cats.

The fact that horses were recruited for this study from a very small geographical area, in close proximity to a major city, is a shortcoming of this study. The authors also acknowledge that selection bias may have occurred due to the inclusion of only equestrian establishments listed in a directory. Further studies of a larger group of randomly selected horse owners with more heterogeneous socioeconomic and demographic profiles would be required to establish the true prevalence of obesity in UK pleasure riding horses. Nevertheless, this study has presented evidence of the high prevalence of obesity among UK riding horses, and further work to establish the prevalence and the factors affecting obesity in this and other groups of horses is now warranted.

For epidemiological and clinical applications, the body condition of horses is generally assessed using measures of bodyweight (Ellis and Hollands 1998) and scoring systems based on defined morphological criteria (Webb and Weaver 1979, Henneke and others 1983). Scoring systems similar to those used in the present study provide crude, subjective information on body condition, while bodyweight alone is a poor predictor of body condition. In human medicine, body condition is quantified using body mass indices, which express bodyweight in relation to body size. The high prevalence of obesity in horses, in addition to the lack of awareness among owners, as shown in the present study, indicates that similar quantitative methods are required for use in horses, to facilitate management of the problem. Obesity can be addressed by education of owners, to change their perception of their horse’s body condition and encourage more appropriate rationing of feed. The development of simple and quantitative methods for assessing body condition in horses would provide important tools for the education of owners and management of obese horses.

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**References**


**TABLE 2: Contingency table comparing the categorisation of horses’ body condition as obese (+) or not obese (–) by the horses’ owners, compared with body condition scores**

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<tr>
<th>Body condition score</th>
<th>Owner’s perception</th>
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<td>+</td>
<td>91</td>
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Correction

Prevalence of obesity in riding horses in Scotland by C. A. Wyse, K. A. McNie, V. J. Tannahill, J. K. Murray, S. Love (VR, May 3, 2008, vol 162, pp 590-591). Ms Tannahill's name was incorrectly spelt; the correct spelling is given here. The error is regretted.
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