

UK studies of obesity in equines

Research has shown that owners of overweight horses are more likely to underestimate their horse's Body Condition Score (BCS) when compared to scores taken by trained researchers. There was poor agreement between scores given by owners and those given independently by the researchers in a Scottish study (Wyse *et al.*, 2008) – with only 50% of owners of overweight horses giving them an appropriate BCS. In a Leicestershire & Nottinghamshire study (Stephenson *et al.*, 2001), from a random subset of 15 owners visited by the researchers, 8 of the 15 owners (53%) scored their horse at least one grade lower than the researchers. When this underestimation error was applied to the rest of the study population, the estimated frequency of overweight horses jumped up to 54%, similar to the earlier Scottish study (*Table 1*).

Giles *et al.* (2014) were one of the first to consider risk factors for obesity in equines. They found that risk of obesity was dependent on breed, age and injury status during the study period. Native cobs were over 13 times more likely to be obese when compared to lightweight breeds; youngsters were less likely to be obese than older horses and animals that had an injury between the summer and winter measurement were 5.5 times more likely to be obese compared to horses that were not injured during this time period.



Recent findings

More recently the Animal Health Trust has published a study that looked at equine obesity in Britain, including risk factors, based on owner-reported information. Lead author, Charlotte Robin, answers some questions about the research.

How were horse owners asked to evaluate the body condition score of their animals? Owners were requested to estimate their horse's body condition based on images corresponding to each score from a modified Carroll and Huntington scoring system (*Fig. 1*). This 6-point scale has been shown to be quicker and simpler for owners to use compared to other more complicated methods of body condition scoring.

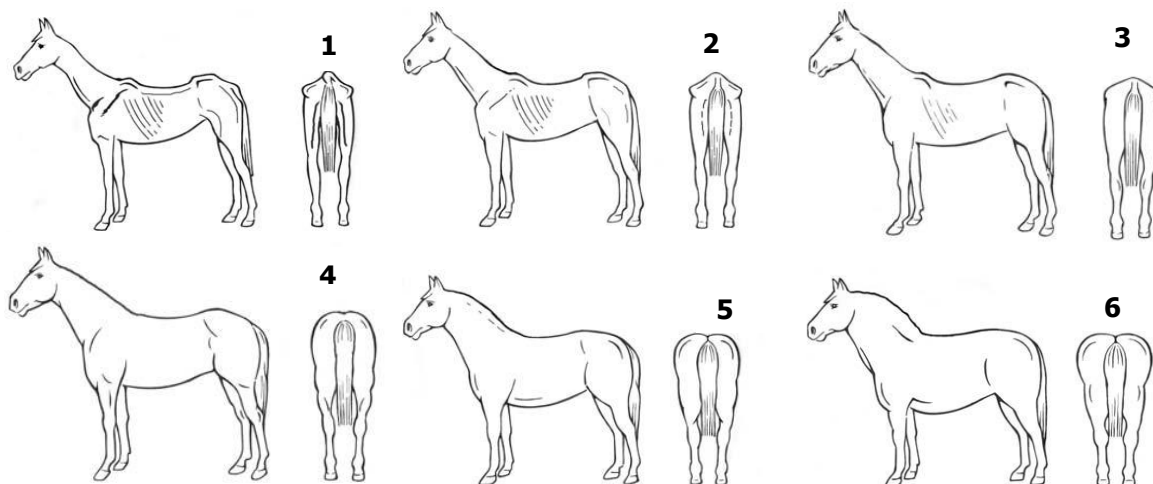


Fig. 1 The modified Carroll and Huntington scoring system (Source: modified from National Equine Welfare Council)

Table 1 Summarised results from six studies on equine obesity carried out in Britain over the last few years.

Study	Location	Horses and ponies		Method(s) used	BCS scored by	Study season	% Over-weight [#]	Risk factors
		Number	Type					
Wyse <i>et al.</i> , 2008	Scotland (within 30 miles of Glasgow)	319	Non-competition leisure riding	6 point BCS (1-6)	Researchers and owners	Summer (June/July)	45%	Not assessed
Stephenson <i>et al.</i> , 2001	England (Leicestershire & Nottinghamshire)	160	Clients of an equine-veterinary practice*	6 point BCS (0-5)	Owners	Summer (August/September)	21%	Not assessed
Harker <i>et al.</i> , 2011	United Kingdom	331	Qualifiers for national unaffiliated championships	9 point BCS (1-9)	Researchers	Summer (July)	62%	Not assessed
Ireland <i>et al.</i> , 2012	North west and Midlands areas of England and north Wales	200	Animals older than 15 years	6 point BCS (0-5)	Researchers	Summer – Autumn (June – October)	26%	Not assessed
Giles <i>et al.</i> , 2014	North Somerset (England)	127	Leisure animals turned out in herds (from charitable organisations/ riding club members)	9 point BCS (1-9) & belly girth measurement	Researchers	Summer & winter (February – March; July – September)	27% in winter 35% in summer	<ul style="list-style-type: none"> • Breed • Youngster or not • New injury between winter & summer measurements
Robin <i>et al.</i> , 2014	England, Scotland and Wales	792	Veterinary-registered animals	6 point BCS (1-6)	Owners	All year	31%	<ul style="list-style-type: none"> • Breed • Ease of maintaining weight • Primary use

* The study excluded owners of breeding and livery/riding stables and those competing professionally

Overweight represents animals given both an overweight or obese BCS

Do you think that 31% is a good indication of the true prevalence of obesity in the British equine population? Our study sampled a wide geographical area, included animals of a wide range of ages, breeds and activity levels and collected information throughout the seasons thus providing a good representation of the national equine population. Although one-third of owners in our study scored their horse or pony as overweight or obese, it is likely that this figure underestimates the true prevalence of obesity in the British horse population. We already know from previous research that owners are more likely to underestimate the body condition of their horse if it is overweight. We often misperceive our own size and body shape and this has shown to be a limiting factor in studies of human obesity, with research demonstrating discrepancy between perceived and actual body shape. It is possible that we are projecting similar misconceptions on to our horses.

Which breeds were most at risk of being obese from the results of your study? The breeds most at risk of being obese were identified as draught and draught crosses and cobs and cob crosses. In fact, draught breeds were more than 7 times more likely to be obese, and cob breeds were more than 5 times more likely to be obese when compared with Thoroughbreds. Additionally, Welsh and other UK native breeds were over 3 times more likely to be obese compared to Thoroughbred horses.

Why do you think this is? The majority of UK native breeds, draught and cob type horses are believed to be adapted to thrive on sparse or poor quality grazing. Researchers have suggested that this had led them to develop a so-called “thrifty genotype” meaning they are genetically better adapted to survive in harsh conditions. The risk of obesity increases if we then manage these horses in environments where food is of better quality and readily available throughout the year.

Were activity levels related to the risk of obesity? Competition horses were less likely to be obese than non-ridden or pleasure horses. They were more likely to receive hard feed, and to be fed more frequently than pleasure or non-ridden horses, but they were also exercised at increased intensity and for longer compared to non-competition horses. In our study, competition horses were exercised for an average of 6 hours per week, compared to an average of 3 hours per week for non-competition horses. In humans, the more exercise you do, the greater the improvement in your insulin sensitivity. The increased intensity and duration of exercise received by competition horses is likely to have a similar beneficial effect by reducing their fat mass and maximising insulin sensitivity, contributing to their reduced risk of obesity.

Did you identify any feeding regime factors related to the risk of obesity? Initially, several individual feeding and grazing factors were associated with an increased risk of obesity. Animals that were turned out at pasture fulltime were nearly twice as likely to be obese than those that were stabled part-time. Interestingly, horses that received hard feed and those that were fed twice a day/more were at a decreased risk of obesity compared to horses that never received hard feed. We know that supplying excess energy in feeds will result in weight gain, so these findings may appear counterintuitive. However, “good-doers”, or already overweight animals, are less likely to be fed a large amount of hard feeds. Hence the finding that animals described as 'good doers' were also more likely to be obese than those described as readily maintaining normal weight. We also know from previous research that animals less frequently receive hard feeds during summer when they spend longer periods at grass. Additionally, owners are likely to give hard feeds more frequently if their horse or pony is underweight, and therefore at a low risk of obesity.

However, when a number of individual factors were analysed together, individual feed-related factors alone were no longer the best predictors of obesity. This means that the risk of obesity was better explained by a different factor – in this case, whether the horse was used for competition or not. Competition horses were more likely to receive hard feed, and to be fed more frequently than pleasure or non-ridden horses, and were also at decreased risk of obesity. Thus the type of activity, when feeding regime was taken into account, better predicted the risk of obesity than feed-related factors alone.

Did you know? This obesity study used data collected from 792 horses and ponies during Claire Wylie’s PhD project on laminitis in Britain (see the [Study Background](#) for a brief summary of Claire’s project). Data from the same project has also been used to publish other very useful scientific articles regarding the management and health of the British equine population. The CARE about laminitis study builds upon the results of Claire’s research into laminitis. Therefore by submitting your information and participating in the CARE about laminitis study – you will be contributing towards our understanding of not only laminitis but also other relevant equine health issues.

What does this research tell us?

While there are risk factors for obesity that we cannot change – such as breed and an individual animal’s genetic predisposition to weight gain/loss – there are certainly management-level changes that we can implement. Increasing the intensity and duration of exercise gradually in the sound animal would decrease the risk of obesity. Although pasture turnout increases exercise and movement, it also means you lose control of how much your animal consumes. Restricting access to grazing does not necessarily have to mean restricting turnout and having access to a grass-free area would allow movement while maintaining dietary control. It is advisable that dietary restrictions are applied gradually and that time spent foraging is increased as much as possible – in order to alleviate boredom and maintain a healthy gut. Individual turnout also promotes more sedentary behaviour so turning out in compatible groups may increase exercise. Soaking hay can reduce its caloric content but also means that you have loss of beneficial nutrients so supplementing these lost nutrients may be necessary. Additionally, avoidance of unnecessary feeds and reducing the sugar and starch content in your feeds as much as possible will reduce dietary excess.

Regularly monitoring weight gain or weight loss, and keeping a record, will help you adjust your horse or pony’s management regimes accordingly.

References

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