

Managing Weight Loss in Horses and Ponies

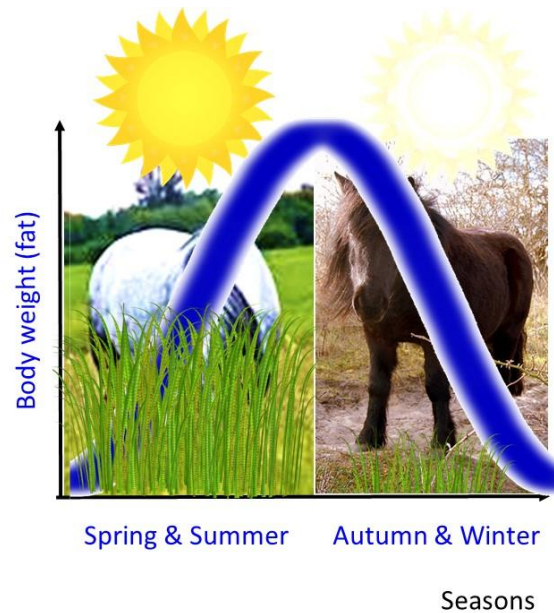
Equine obesity now affects almost 50% of pleasure horses, ponies and donkeys and its most devastating consequence on equine health and welfare is the increased risk of laminitis.

But why is obesity such a common problem?

Horses and ponies, especially of native breeds, are the archetypal yo-yo dieters.

Natural yo-yo-ing of Body weight

- **Summer** - Increased day length encourages forage growth and increases appetite
 - → weight (fat) gain
- **Winter** - Decreased day length discourages forage growth and decreases appetite
 - Weight (fat) loss



Spring / Summer - Positive Energy Balance

Long day length encourages forage growth and also the horse's appetite, to make use of the increased food availability. The result is that the horse eats a lot of food, enabling it to replace any lean tissue lost over the previous winter and then, if it remains in a **positive energy balance**, it lays down fat.

Energy in > energy requirements (lean tissue loss from the previous winter is restored, excess energy is then stored as fat)

Autumn / Winter - Negative Energy Balance

Short day length mean less forage growth and also the horse's appetite is reduced. The horse now can't eat enough food to maintain its body tissues (i.e. it is in **negative energy balance**), so it uses up its summer-stored fat reserves to survive, such that by the following spring, it should be in lean body condition. If it is a particularly harsh winter, the horse may lose some lean (muscle) tissue too.

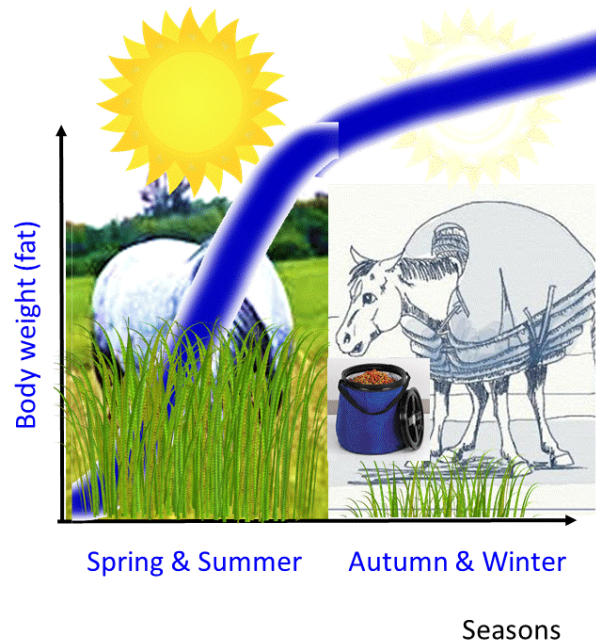
Energy in < energy requirements (fat and even lean tissues are used to enable survival)

The problem with domestication is that we tend to promote the spring/summer weight gains and reduce or totally prevent the natural winter weight loss. This means that over as few as 2 or 3 successive years, obesity can develop and laminitis can result.

Domestication and loss of yo-yo

Year round positive energy balance

- over-feeding (excess quantity and quality of food)
- inadequate exercise
- mollycoddling



How Does Our Modern Husbandry Promote Obesity and Laminitis?

1. Year-round over-feeding and under-working

Year-round, the majority of our companion horses and ponies are leisure animals, that is, they no longer have to work hard for their living unlike the draught horses or pit ponies of old. Most of us over-estimate their work-load and so over-feed them by a large margin... not only in terms of feeding **excess quantities** of daily rations, but also usually in terms of providing them with very **high quality**, highly digestible rations, which is alien for their alimentary system. Horses and ponies are designed to survive on very scrubby, fibrous, poor quality forage, and that, with a seasonal availability. Most horses and ponies tend to graze or eat conserved forages from pastures which have been 'improved', that is managed so as to support high milk-yielding dairy cattle – and these foodstuffs are like rocket fuel to leisure horses and ponies.

2. Provision of worm (endoparasite) and louse/mange etc. (ectoparasite) control

In the natural state, no such 'healthcare' provision exists. These are, however, important for the health and welfare of our horses and ponies, and such healthcare is, rightly, promoted. BUT, it should be borne in mind that these treatments increase the chance that anything an animal eats is not diverted to the parasites, but likely adds to the positive energy balance of the horse or pony itself.

3. Mollycoddling

By stabling horses and ponies, and putting feeds of good quality, and often in excessive quantities, right in front of their noses, they no longer have to spend hours a day searching for food (which itself requires energy), and, by keeping them in relatively warm, dry stables, especially if we smother them in layers of insulated rugs, we also reduce the energy they would otherwise require to keep themselves warm (called thermoregulation).

Weight Loss Management

In order to manage obesity, we need to be able to assess and monitor adiposity. Body condition scoring, although a subjective appraisal of the superficial fleshiness of an animal, is at least able to separate 'thin', from 'moderate/average' from 'fat/obese' animals; and whether obese animals can be further sub-divided into 'L, XL, and XXL' seems less of a worry since, once animals are overweight/obese (BCS $\geq 7/9$), their risk of developing endocrinopathic laminitis is sufficiently increased to warrant intervention. Regional adiposity, especially of the neck crest region, is easily recognised and animals with a cresty neck score $\geq 3/5$ are at increased risk of developing laminitis.

The mainstay of management for overweight/obese animals is dietary restriction to promote weight loss, combined with physical exercise.

Weight Reduction Programmes

- The owner/carer must be committed for the long-term and must be aware that there is no quick fix. Veterinary or veterinary nutritional specialist input is vital, and the starting point is consideration of the current feeding protocol and work level of the animal.
- It should be emphasized that in order to control dietary intake, keeping horses stabled, or in tanchip or similar graze-poor paddocks, so that all their feed provision can be accurately weighed, is paramount to success. However, this is not always possible, and exercise is also important, such that grazing muzzles might need to be considered.
 - See the National Equine Welfare Council website re: grazing muzzles at the following link:- <http://www.newc.co.uk/advice/horse-and-donkey-care/grazing-muzzles-2/>
 - And NEWC also have a leaflet regarding grazing muzzles to download at:- <http://www.newc.co.uk/wp-content/uploads/2015/09/NEWC-Grazing-Muzzle-rev-2-website-download-final-040216.pdf>
- Feed analysis (hay/haylage) enables more accurate calculations of feed provision.
 - The readily available carbohydrate content of the feed also requires careful consideration for laminitis-prone animals.
- Monitor:-
 - Body Mass (weighbridge or weight tapes [accurate to $\pm 50\text{kg}$]), at least monthly, and preferably weekly.
 - Heart and belly girths can be measured, usually at weekly intervals as these tend to show relatively rapid changes with dietary restriction. (Weight tapes can be used like tape measures to get these measurements)
 - BCS, no more frequently than at monthly intervals at first, because BCS is slow to change in obese animals and owners can get a bit despondent. This is because obese animals, with high BCS, have to lose more fat to 'drop a dress size', than a skinny horse has to gain, to increase a dress size.

What to Feed

- Removal from pasture (until laminitis is under control) is preferable to enable good control of food intake.
 - Advice on environmental enrichment for stabled horses can be found at the following website:- <http://www.ebta.co.uk/faq-enrichment.html>
- Offer a forage (low energy density)-based diet, ideally with Non-Structural Carbohydrate content <10-12% (i.e. Water Soluble Carbohydrate content <8%). Avoid high starch/sugar diets and tit-bits which can result in rapid increases in blood glucose and, subsequently, in insulin, which can trigger episodes of laminitis.
 - Forage analysis can be helpful.
 - Caloric elution by soaking hay for ~12hrs *can* reduce its WSC content by ~50%, but ideally, another sample should be analysed after soaking to determine the true loss.
 - Caloric dilution can be achieved by substitution of a part of the hay ration with oat straw (relatively indigestible fibre), but, as with all dietary changes, straw should be introduced slowly and some types of horses, e.g. Thoroughbreds, are suggested to be more prone to impaction colics and stomach ulcers when fed straw.
 - To avoid over-restriction of protein/essential amino acids, a balancer with protein, vitamins and minerals is usually recommended, but this again should be based on the results of forage analysis (Your equine nutritional specialist/feed company should be able to help you).
 - Feed little and often (if practical) to reduce boredom and extend total eating time.
 - Each portion must be weighed.
 - Divide the totally daily ration between at least two meals, and more if possible; and split each meal into two or three parts. Each part can be presented to the horse or pony in doubled, small-hole haynets (or commercially available products like the hay grid-feeder™), hung at different positions in the stable.
 - Stable toys may reduce boredom.
- Use winter as the natural aid to weight loss, but beware sudden cold stress which may precipitate laminitic episodes:-
 - turn out as much as possible (as long as pasture is sparse)
 - don't rug up (Native breeds are good at growing a thick, highly effective insulating coat)
 - consider trace-clipping to increase the requirement for the animal to have to use up some of its fat reserves to help it keep warm

How Much To Feed

Grazing horses eat around 2-2.5% of their body mass (BM) as dry matter per day, so, for weight reduction, initial restriction to less than this is necessary. A 'safe' rate of weight loss is often advocated as 1% of BM per week. Several equine studies targeting such a rate suggest that dietary restriction can safely (without complications such as stereotypies, stomach ulcers and hyperlipaemia), be initiated at 1.25% BM as daily dry matter intake (DMI), with further restriction to 1% BM as daily DMI if weight loss is negligible after the first month.

If using hay, which has a dry matter content of around 85%, *initial dietary restriction* to 1.25% of body weight as daily DMI, is equivalent to feeding 1.5% of the animal's body mass as 'fresh' hay.

If you wish to then soak the hay, beware, as soaking will remove some of its dry matter content, so it's preferable to start with 1.75% of the animal's body mass as 'fresh' hay, because after a 12hr soak, it will effectively be 1.25% of BM as dry matter.

Exercise

Exercise combined with dietary restriction will promote weight loss, but may be contra-indicated in some animals due to laminitis. As a guide, at least 30min exercise at trot or canter (excluding warm-up and cool-down), and at least every other day, is suggested.

Other Strategies

For laminitic animals unable to exercise and/or where weight loss is very slow despite severe dietary restriction, additional treatments may be considered:- thyroid hormone supplementation or metformin.