

The Project Hope Horse Welfare Guide to Managing the Fat Horse.



Managing the overweight horse.

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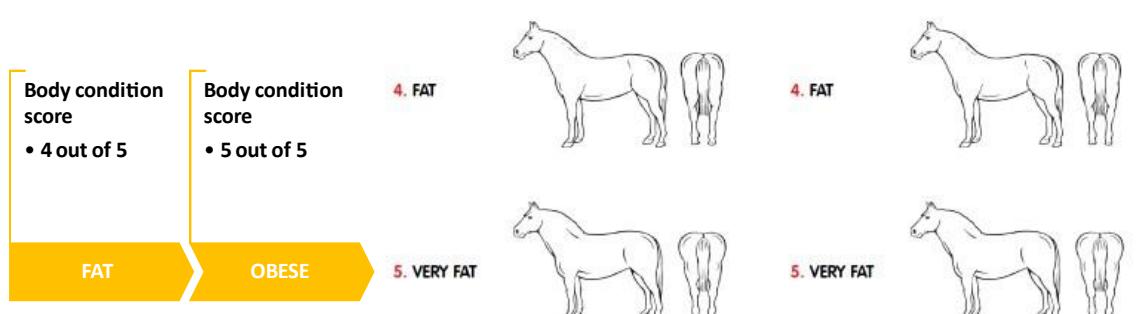
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In short - not like this picture. This is Gem. Gem was the first horse I started from scratch. Gem was only ten years old when I had to euthanase her due to unrelenting and painful laminitis. She is my driver of my passion to manage overweight horses much, much better.

First of all what IS a fat horse? Most of you would be familiar with the body condition score (BCS) system we use at Project Hope Horse Welfare. It is a five point scale based on separate assessment of the three parts of the horse - rump, abdomen and neck/shoulder areas. You score each of these and then average your scores and round up to the nearest 0.5.

Body condition score



<https://www.redwings.org.uk/bodycondition-scoring>



Any horse that has a body condition score over 3.5/ 5 is considered overweight. Recent research by Furtado et al in 2018 suggests that most of us are really good at assessing the shape of the whole horse but really bad at appraising the horse's real condition. Part of the reason for this is we don't take the time to assess each part of the horse but take a short cut to look at the whole horse. The so called "topline" prized by many can actually be FAT - not muscle! By taking the time to assess each third of the horse you are less likely to fall into that trap. The other trick is to lay your hands on the horse and feel the following areas of the horse.

What is an overweight horse?



Modified from Fat Horse Slim, www.bluecross.org.uk

- **FAT DEPOSITS** determine if your horse is overweight and at risk of disease.
- Horses can have a **lower** body condition score and still have **FAT DEPOSITS** (regional adiposity)

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Fat feels different to muscle. It is softer and spongier. Muscle tends to be bouncy under your finger tips. Feel around the tail head, over the ribs and either side of the shoulder. These are where these fat deposits lurk.

Why is being overweight PARTICULARLY dangerous for horses?



Figure 10.1 Laminitic pony with the crest neck and abnormally large fat deposits around the base of the tail (arrowed); typical of insulin resistance, hyperinsulinaemic obese ponies.
Photo: Sue Black

Watts, K. & Pollitt, C., 2010 Equine Laminitis
Managing pasture to reduce the risk
Rural Industries Research and Development Corporation.

Regional fat deposits release inflammatory substances which are associated with:

- Insulin resistance (like diabetes)
- Equine metabolic syndrome

These lead to:

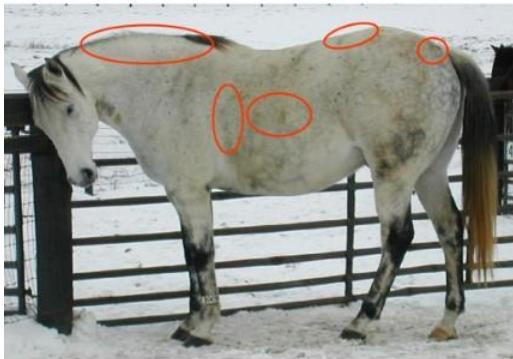
- Laminitis
- Cushings disease
- Exercise intolerance (poor performance)
- Arthritis
- Infertility

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EYES and HANDS



Modified from Fat Horse Slim, www.bluecross.org.uk

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- Focus on these areas when evaluating your horse's condition
- Use your hands to FEEL the flesh
- Spongy, soft = FAT,
- Score the pelvis (rump) first (see chart)
- Increase body condition score by half a point for fatty deposits around the girth, over the ribs, **in front of the shoulders**
- Increase the body condition score by one point if your horse has a upward curve over the top of its neck*
- (saddle fit)

If you are having trouble finding a saddle that is wide enough for your horse AND stable enough on your horse's back you really need to consider your horse may well be overweight. Ask your saddler for an honest opinion - roly poly is not only unsafe when trying to stabilise a saddle but also unhealthy for your horse.

An upward curve of the neck on the top (dorsal) side is a particularly tell tale sign that your horse is overweight. If your horse DOES have a crest (even stallions) please check it daily by putting your hand over it and wobbling it backwards and forwards. If it is soft and mobile it is not an emergency but you still need to work on it. If the crest becomes hard and resistant to wobbling - especially if your horse begins to resent you wobbling the crest - then that is a sign that the inflammatory processes leading to laminitis have commenced. Do not muck around - call your vet and ask for advice.

What body score would you give this horse?



<https://www.equisearch.com/articles/diabetesin-horses-21174> Accessed 03/01/2021



Once horses develop fatty deposits they are in danger of developing Equine Metabolic Syndrome which is akin to insulin resistance in humans. It makes them more vulnerable to a variety of diseases and conditions including Equine Metabolic Syndrome, laminitis, early onset arthritis, infertility, and poor performance. This is because the adipose tissue in the fatty tissue release chemical messengers that promote inflammation throughout the horse's body.

The other problem with the fatty deposits is that once they are established, they can be very difficult to shift. For horses with a fat deposit on their neck you should add one whole body condition score point and for horses with fat deposits on their body or rump you should add a half a body condition score point. So, the horse in this picture is probably a lovely 2.5 BCS he gets an extra half score for his fatty deposits on his rump and body and a further half a BCS for his cresty neck. This gives him a BCS of 4! He is probably suffering Equine Metabolic Syndrome. It may take getting this horse to a body condition score below 2 in order to shift those fatty deposits. This is very challenging and hard for both horse and owner.

Why is weight management in horse so challenging!

Horses are built to eat for at least 16 hours a day. Every day. They have a really, really strong drive to chew and swallow. They can also BINGE if they are concerned that the food is going to be rationed. Horses can eat a day's worth of nutrition in FOUR hours if pushed while ponies, little monsters, will scoff down over THREE TIMES their nutritional requirements in a day if allowed. That is 12 big macs in human terms! Binging seems to result in increased risk of laminitis too.

The other problem is if you deprive a horse of food they produce increased stress hormones. The very same hormones that are implicated in equine metabolic syndrome and insulin dysregulation.

Weight management in horses is challenging.

- Horses are physiologically designed to eat all day
- Depriving horses of food increases stress hormones that are implicated in equine metabolic syndrome and insulin dysregulation
- Horses can eat 24 hours worth of nutrition in four hours
- Binge grazing increases the risk of laminitis
- Ponies will eat 3X their actual nutritional requirements in a day if allowed

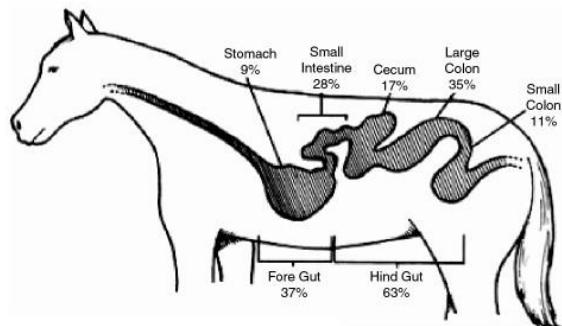
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Horses are designed to eat all day

- Dentition is designed to chew continuously on low grade forage
- Stomach is relatively small and empties quickly
- Continuously produce bile (no gall bladder)
- Intestines need flow through to maintain muscle tone
- Cecum – blind sac with both inflow and outflow at the top so needs to be continuously topped up to maintain function



Relative capacities of parts of the equine digestive tract. From <https://extension.okstate.edu/factsheets/feeding-management-of-the-equine.html>

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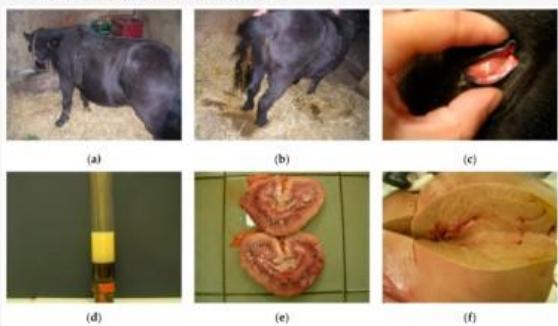
Metabolically horses are designed to eat low grade food that is predominantly digested by the bacteria in the horse's hind (back) gut. The horse mostly lives off the by-products of the work of these bacteria. You can think of the horse having a fermentation vat (just like in a brewery where beer is made) in the back half of its digestive tract. It is made up of the large intestine and caecum (equivalent to our appendix) and contains TRILLIONS of bacteria

Horses literally have their cake and eat it too when it comes to digestion. Their small intestine which is at the start of their digestive tract is very much like our small intestine. This is the part of the digestive tract where easy to process food, like cake, is digested. Simple sugars and proteins are broken down in the small intestine and absorbed very quickly into the blood stream. The combination of an effective small intestine and a fermenting vat in the hind gut probably reflects the

horse's evolutionary history. If they came across some easily digestible food such as some seeds or green thistles, they could absorb the foodstuffs relatively quickly via the small intestine while the usual coarse grasses of the plains travelled through to the hind gut for fermenting and processing. There is a down side to this approach. If too much of the high value food is eaten, it can overwhelm the capacity of the small intestine and go through to the hindgut. If this happens the horse can become very sick because some of the unhelpful bacteria that lurk in the fermenting vats love simple sugars and take over.

DO NOT STARVE YOUR HORSE

Figure 3. Clinical signs of hyperlipidemias in ponies: (a) profoundly depressed pony with hyperlipidemia; (b) diarrhea as a sign of hyperlipidemia; (c) hepatic icterus; (d) blood sample from a pony with hyperlipidemia showing marked opalescence of the plasma; (e) lipid accumulation in the kidneys due to hepatic dysfunction; (f) damaged fatty liver of hepatic steatosis. Source: author's private collection.



<https://www.mdpi.com/2075-1729/11/12/1406/html#> Accessed 03/01/2022

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Withholding food from horses can kill them - **hyperlipidemia**

- Starvation stimulates the fat cells to dump their fat into the horse's blood stream
- Leads to liver and kidney damage
- **Call your vet immediately if your horse stops eating.**

Please do not starve your horse. It may very well kill it. Horses truly do need to eat regularly to live. There is also some evidence that horses that have restricted feeding lose their ability to self regulate their eating so that if and when they are allowed free access to grazing they simply cannot stop eating.

So what do you feed your slimming horse and how much do you need to feed it?

The answer is FORAGE that has very low simple sugars in it.

Feed the slimming horse FORAGE only*

- HOW MUCH FORAGE?

- Properly cured hay has about 20% water content
- So you have to feed $1.2 \times (1.5/100 \times \text{wt})$ to get enough dry matter
- E.g. Ideal weight of hay to be fed to a horse that should be 500kg is:

$$\begin{aligned} & 1.2 \times (0.015 \times 500 \text{ kg}) \\ & = 1.2 \times 7.5 \text{ kg} \\ & = 9\text{kg per hay per day} \end{aligned}$$

- WEIGH the forage

1.5%

Of the horses

IDEAL

body weight

DRY MATTER equivalent

**FORAGE
per day**

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The forage should be low quality mixed pasture hay or native grass hay if you can get it. Teff hay is good if your horse will eat it. The low quality refers to the nutritive value of the hay i.e. low non structural carbohydrates or sugars. These are the natural enemy of the slimming horse. Low quality does not mean mouldy or dusty though.

In an ideal world you would get the hay you are intending to buy tested so that you know there are less than 10% non-structural carbohydrates are present but for those of us who live in a less sophisticated world try to get hay made from mature warm season stalky grass hay as ideal as the stalks do not have non structural carbohydrates in them. If there are seed heads in the hay, make sure they are empty. Seeds have lots of non-structural carbohydrates. Wheat or barley straw is good too IF there are no seeds in it. It is my understanding that straw should only make up 50% of the ration in total and introduced slowly to allow the horse's gut biome to adjust to the new feed.

Regardless of the type of hay you are feeding you MUST get some scales to measure your forage rations. You can get fish weighing scales that do the trick at camping and fishing stores. You want to feed the equivalent of 1.5% of the horse IDEAL weight (see here for a useful guide) in forage derived dry matter. Don't forget to multiply by 1.2 for correctly cured hay to account for the water content.

Forage solutions for fat horses

- 1.5% of bodyweight of hay does not go far when it has to cover 24 hours
- For a 500 kg horse that is two full Gut Busta nets per day of stalky grass hay*
- Always provide good quality vitamin and mineral supplement
- SALT and CLEAN WATER
- Spread as much over 24 hour period so close to adlib



Approximately 4 kgs of grass hay

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* <https://gutzbusta.com.au/>

You must supply a good vitamin and mineral supplement balancer for all horses (fat and healthy) who are on a forage based diet particularly if they are not permitted to graze on fresh grass.

Horses will get frustrated with small aperture hay nets so you may have to introduce them gradually. The frustration will appear as increased interhorse aggression, demonstrated frustration (pawing, neighing, fence walking, eating frantically). It is important to try to minimise the time that the horse is without forage. This period should never be greater than four hours. It is almost impossible to achieve without some sort of automatic feeder.

Slow down feed intake

- Small aperture hay nets but beware inter horse aggression and frustration (stress → ulcers, cortisol)
- Puzzle feed balls (good for supplements)
- Hide treats but only use sparingly
- “Hide” the feed by splitting forage into multiple portions and spread along tracks
- Browsing options and gnawing branches
- Place feeds a long way from water so horse has to move
- Manage sand exposure



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GRAZING

- ONLY if BCS is 3.0 or less and there are **no** fat pads.
- Graze when the grasses are USING their sugars (not storing them i.e. AT NIGHT (Pre dawn to 10.00 AM)
- Cultivate pastures that are low in soluble sugars (native grasses) and/or growing in shade
- Keep pastures longer and more mature
- Do not graze stressed pastures (overgrazing, drought, cold frosty nights)
- Use a muzzle
- Restrict grazing to a few hours at most.
- **Implement sacrifice or dry lot area and manage for boredom**
- **CUT DOWN HAY**



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Grazing should only be permitted for horses that are already successful slimmers.

Friends

- Give your slimming horse a friend
 - Isolation causes stress which increases corticosteroids → stops good insulin regulation
- Give yourself a friend- buddy up.
- Your slimming horse will be **HANGRY.....**
- Consider using Ulcer Gard™ to **prevent** gastric ulcer formation for the first 6 weeks of weight management program.



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Horses are not the only ones who need friends. Buddy up with someone else who is battling the equine bulge so you can compare notes, have weigh ins and generally support each other.

Do be prepared for behaviour changes in your horse. They are no different to us when they are asked to undergo lifestyle changes. They may offer more undesirable behaviours than usual. Stay safe.

Introduce horse keeping systems that encourage incidental exercise

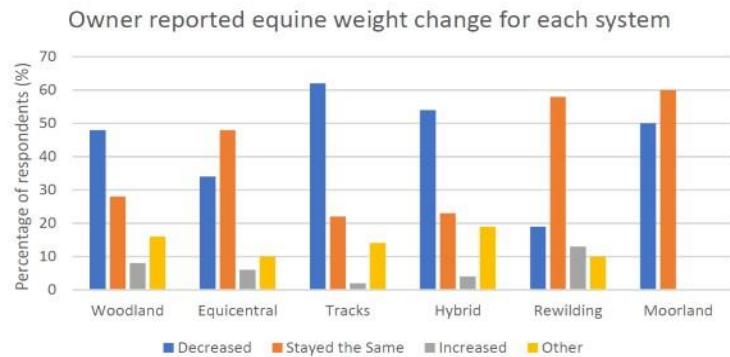


Figure 4: graph showing reported change in equine weight depending on the type of system used (typical comments in "other" category related to respondents saying some horses had lost and others gained, or that condition score had remained the same but the horse had more muscle than previously)

Furtado, T; King, M; Pinchbeck, G (2021) The Use of Alternative Grazing Systems in the UK. Report developed in collaboration with Equine Obesity Working Group, UK

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Weight loss only occurs when the calories burned are greater than the calories imbibed. Sadly. The old-fashioned approach to horse keeping in Australia, i.e., set stocking, does not work for good doers (easy keepers). They usually do not have to exercise very much in order to access their food and water. We need to encourage incidental exercise. There are a wide variety of alternative horse keeping system ideas available that are built on incidental exercise and environmental enrichment principles. If you look at the blue bar on this graph the "tracks" system produced the most weight change in this study. You do have to do what works for you and your circumstances, but it is worth while looking at the alternatives these days. Now we have solar powered electric fences it is both easy and reasonable cost wise to implement one of the systems described above. Mix and match to achieve an outcome that works for you and your horse. At the very least make sure your water point is some distance from feeding points so that the horse has to move in order to drink and eat. There is plenty of resources on the internet in this area. Please do be aware than some horses can find these systems quite stressful initially especially if they are coming from a radically different management system. Introduce change slowly and in short bursts. Use higher reward treats even - a carrot here and there will not cause too many problems.

Incidental exercise: Track ideas



Copyright: <https://femkedolle.nl/>



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Safe chewing

- Choose branches and logs with bark on them so the horse can strip the bark off them
- Sacrifice trees?
- Acacias –some good, some toxic



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Slimming horses often exhibit wood chewing. This indicates that they are not being supplied with sufficient forage (and often that IS the case through necessity) or enough chew time. Think about allowing sacrifice trees or supplying branches for the horse to chew on in this time. Just make sure the source of the wood is not toxic to the horse (or, as the case was here, involves particular trees that are important to the non-horsy gardeners of the family.....).

Deliberate Exercise

- Planned exercise such as leading or riding will normalise body condition (and insulin metabolism) faster
- Not for lami cases*
- Options include:
 - Ground work (include obstacles and puzzles)
 - Ponying off another horse
 - Riding (yay)
 - Horse walkers/treadmills
 - Lunging * no hooning
 - Long reining
 - Driving
 - In hand hacking or jogging with horse
- Overweight horse are more likely to get soft tissue and joint injuries.
- Slow and steady wins.



By Martin Bodman , CC BY-SA 2.0, <https://commons.wikimedia.org/w/index.php?curid=9260760>

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Real weight loss will only be achieved by adding in planned exercise to the incidental exercise the horse is experiencing in his new track or paddock paradise system. Exercise burns energy and seems to be the most important factor for keeping horses in a healthy weight range. Sadly, most horses are not motivated to exercise unless they have to! Like me, they would prefer the equine equivalent to sitting on the couch, watching Netflix and eating chocolate.

This planned exercise can be anything including swimming (which can be used on horses with laminitis if you are lucky enough to be close to a beach or rehabilitation facility). The bad news is that you have to step up the exercise load every 10 days or so because the horse will adapt to the exercise demand and even PUT ON weight. Horses are designed to move many kilometres a day. Feral horses are known to travel over 50 kms a day to find water.

Another way to get more calories burned is to hack the horse's own metabolism. Allowing the horse to self-regulate his body temperature ensures that he burns calories keep warm. Do NOT rug unless you absolutely have to. Remember horses have a huge vat sitting in their abdomen brewing away and creating heat. They do not get as cold as us!

Horses are SUPPOSED to lose weight in late winter and probably late summer. This prepares them for the influx of new grass in Autumn and Spring. You should plan that your horse drops half a BCS in late winter and summer if he has a BCS in excess of 2.5. Trust me it takes a while to get your head around this concept. Don't panic if you see a rib or two in late summer and late winter.

Hack the horse's own metabolism

- Do not rug
- Do not use fly rugs in summer (horse has to move to get flies off them)
- Clip horse in winter*
- Aim to see ribs at the end of winter so horse is prepared for spring grass



Mejdell, C.M., Bøe, K.E. and Jørgensen, G.H., 2020. Caring for the horse in a cold climate—Reviewing principles for thermoregulation and horse preferences. *Applied Animal Behaviour Science*, 231, p.105071.

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RUGGING

Only rug IF:

- BCS is less than 2.5 and there is **no regional adiposity***

AND

- Horse is clipped
- There is no shelter in paddock (another issue)
- There is continuous rain so horse cannot get dry in a 24 hour period
- There are cold winds and the horse cannot get shelter from them.

REMEMBER:

- Horses are supposed to lose weight over winter



Photo by PatWhelen from Pixels

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* Thoroughbreds.....

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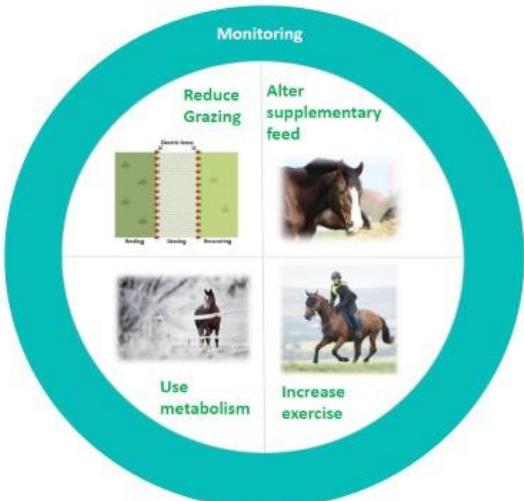


Thin, old, sick horses that cannot maintain their body condition in cold weather should be ruggeded. I strongly urge you NOT to rug any horse with a BCS over 3. There is some evidence that ruggering so that a horse does not experience sufficient temperature variation may result in dysregulated insulin metabolism.

You could consider clipping your good doers soon after they bring their winter coat in. The clip should be only partial so that the horse has normal water run off capacity in its coat. I personally think the trace clip is smart and very practical for the horse in work. See here for inspiration: <https://www.horseandhound.co.uk/features/types-horse-clip-clipping-horses-635941> By clipping early in the season the horse will have some hair growth back when the weather really deteriorates.

Healthy weight loss

- BUDDY UP!
- Monitor and record weight loss with scales or tapes weekly
- **No more than 1% of body weight per week (after initial week)**
- Pregnant mares need veterinary help
- Monitor fatty deposits monthly (photos?)
- Reward yourself when you achieve goals



https://www.liverpool.ac.uk/media/livacuk/equine/documents/Equine_Weight_Management.pdf

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How much weight is 1% of YOUR current horse's body weight? A 360 kg pony would have a safe weight loss program of about 3.5 kg per week although they may lose a bit more in the first week. Do NOT go for dramatic weight loss (see hyperlipidaemia). Weight tapes (available online and at your local saddlers) will give an accurate enough value indication if you do not have access to scales for your horse.

Summary

- Managing slimming horses can be challenging both physically and mentally
- Low sugar forage is the foundation
- Exercise is mandatory if the horse is well enough
- Get help
- Prevention is better than cure.
- Dr Lesley A Hawson
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- www.saferhorses.com.au



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