

OVERWEIGHT/OBESITY IN YOUR FRIESIAN HORSE: HARMLESS CONDITION OR A PROBLEM THAT NEEDS TO BE TACKLED?

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PART 2

Is My Horse Too Fat?

Out of experience we know that it is quite difficult for a horse owner to estimate the ideal weight for his or her horse and to evaluate whether the horse is becoming overweight or even obese. The problem is that the horse owner sees the horse every day and so will be less likely to notice the subtle changes over time. Therefore we always advise horse owners to take a picture of their horse with their cell phone on a monthly basis. Always in profile position, from the left and the right. In that way you create a visual longitudinal follow up of the body condition of your horse.

A more difficult technique is to assess the Body Condition Score (BCS) of your horse. By means of visual assessment of specific regions of your horse's body in combination with palpation to assess presence of fat depots, you can actually assign a certain score in between 1 and 9 to your horse. The main goal is to determine the amount of fat covering areas of the body including the neck, ribs, withers, backbone and tail head. Five is the most ideal score. A value that equals 1 stands for extremely thin, 6-7 stands for overweight, 9 stands for full blown obese. You can find many tutorials on YouTube© that explain how to assess BCS of your horse. It requires some training and your veterinarian will be able to help you with this.



Figure 1: The red circles mark the main focus regions to determine the body condition score of the horse: cresty neck (a), withers (b), behind the shoulder (c), over the ribs (d) along the back (e), tailhead region (f). The white line is the ribbon tape. They measure the body length (BL straight) from the point of the shoulder to a point perpendicular to the point of the buttock in a complete straight line. In this Friesian mare, e = 168 cm.

Another additional method you can use is the ribbon meter and the formula below to estimate the body weight of your horse. Determining the horse's ideal body weight is a challenge for most owners in the absence of a scale. On top of that, the ideal body weight depends on the breed and discipline, but this information is very important to establish the perfect diet for your horse. Isn't there a trick to estimate the body weight and find out if your horse is obese? Yes, there is: Even without a scale, you can estimate your horse's body weight by using weight tapes or ribbon tapes and the following formula:

$$\text{Weight (kg)} = [(\text{Heart girth in cm})^2 \times (\text{Body length in cm})] / 11.880 \text{ cm}^3$$

Measure the Heart girth around the midsection, immediately behind the elbow and the highest point of the withers. Measurement of the body length determines the distance from the point of the shoulder to the point of the buttock. It is best to use this method in conjunction with assessment of BCS and the cell phone pictures.

A second formula exists to estimate the ideal body weight for the more light breed horses (not yet tested in Friesian horses):

$$\text{Predicted optimal BW (kg)} = \text{starting BW} - [(\text{starting BCS} - \text{desired BCS}) + 22.5 \text{ kg}]$$

Another formula exists to estimate the ideal body weight for warmblood horses:

$$\text{Predicted ideal body weight (kg)} = \{[4.92 \times \text{BL straight (cm)}] + [4.64 \times \text{height (cm)}] - 1,016\}$$

Your veterinarian can also perform certain blood tests to detect signs of insulin resistance. Let's take one of our Friesians as an example. This Friesian mare is 8 years old and suffers from chronic laminitis due to obesity. Figure 1 shows the different regions that are palpated to score the body condition of the mare. With her cresty neck, fat deposits behind the shoulders, soft fat around the tailhead and palpable ribs with noticeable filling in between, she gets a score of 7/9. Her real body weight according to the scale is 600 kg. Both figures show how to use the ribbon tapes to estimate the weight and where exactly you need to place the tape. Let's try the measurements combined with the formulas to estimate her weight:

$$\text{Her current BW} = (b^2 \times d) / 11880 = (203^2 \times 180) / 11880 = 624.38 \text{ kg}$$

$$\text{Current BW} = [(b1.528 \times e 0.574 \times c 0.246 \times a0.261)]/1209 \\ (2031.528 \times 168 0.574 \times 1650.246 \times 1080.261)/1209 = 626.29 \text{ kg}$$

$$\text{Her predicted ideal BW} = 624.38 - ((7 - 5) + 22.5) = 600 \text{ kg}$$

$$\text{Predicted optimal BW} = [(4.92 \times e) + (6.64 \times c)] - 1016 = \\ [(4.92 \times 168) + (4.64 \times 165)] - 1016 = 576.16 \text{ kg}$$

As you can see, both formulas to estimate the current body weight slightly overestimate the real body weight. The predicted optimal body weight is a good estimation. So based on these results, it is perfectly possible to design an ideal diet plan and management changes to make sure that your Friesian horse will lose some weight.

How can you develop a suitable weight loss plan?

Once you know the BCS and the optimal body weight of your horse, you can start making a plan. The best thing to do is to monitor your horse's body weight, decrease the caloric intake and increase the amount of activity. Ideally, we would try to lose 1% of the total body weight per week. In general, the most important message is to apply changes in the management very gradually to prevent occurrence of complications such as colic due to dietary

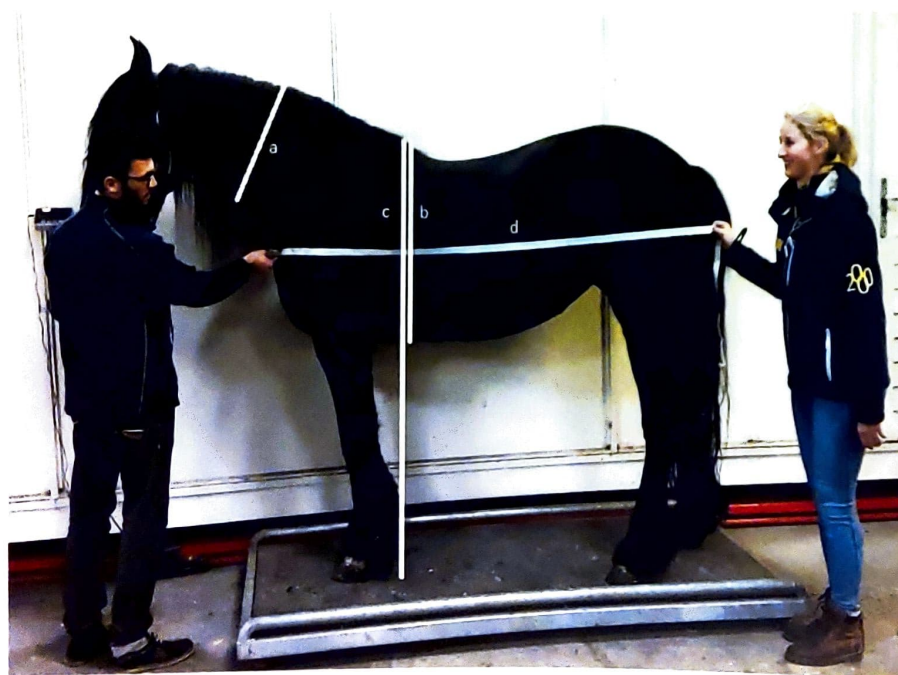


Figure 2 shows all the others measurements with the ribbon tape including neck circumference located halfway between the poll and the withers (a), girth circumference at the third thoracic vertebra (b), height at the third thoracic vertebra (c) and the body length (body length wrap) from the point of the shoulder to the point of the buttock. The results of the measurements are: a = 108 cm, b = 203 cm, c = 165 cm, d = 180 cm.

changes or hyperlipidaemia, which is a term that describes massive mobilization of fat towards the systemic circulation. Hyperlipidaemia can occur when an obese horse, and more often an obese pony, is put on an aggressive diet or stops eating all of a sudden for another reason such as extreme pain due to laminitis. In the case of hyperlipidaemia you can literally see the fat droplets in the blood when it's looked at under the microscope, so it needs very little explanation that that's a life-threatening situation.

Most important, but perhaps the most difficult measure, is to change the dietary intake of the horse in such a way that it can start losing weight. Never change a horse's diet from one day to the other, but rather perform the dietary changes gradually over a period of 10 to 14 days. In an ideal situation, an equine nutritionist would first analyze the composition of the roughage that is being fed, because, unlike what many people think, depending on the source, roughage can be quite rich in energy. Alfalfa hay, for example, can be particularly rich in proteins and thus represents an important part of the total energy content of a horse's diet. Another example is haylage and silage. There are specialized calculation programs available that can help calculate the exact energy need of your horse, depending on breed, age, gender and use. But in general, there are basic rules that we should always keep in mind when feeding horses: Forage should always be the main component of the diet, because this ensures good health of the intestinal microbiome. Eating roughage stimulates saliva production, which promotes good digestion, and neutralizes gastric acid, which is good to prevent formation of gastric ulcers. On top of that, eating roughage keeps the horse occupied during the day, as it would be in free nature. To prevent horses from eating their roughage too fast, slow feeders are available in many forms and dimensions. You can find many types on the Internet.

Horses that need to lose weight still need a minimum of 1-1.5% of their body weight in hay per day (dry matter based). Dry matter is the weight of the food elements when completely dried. This corresponds with each day feeding a minimum of 1.2-1.8 kg hay/100 kg BW. For a horse that needs to lose weight, always choose hay or haylage from a source that provides good quality but is higher in fiber and lower in sugar and starch, thus reducing the overall energy content of the forage that's chosen to be fed. Having your forage analyzed by a reputable lab can help reduce the guesswork and provide valuable information useful for choosing an appropriate forage source. Spread out the meals as much as possible during the day by using, for example, a slow feeder.

The next step to start the weight loss program is to set the energy intake at 70% of the maintenance needs. Especially avoid energy- and sugar-rich concentrates. Even perfectly healthy horses have been shown to sometimes suffer from lower insulin sensitivity and they may develop problems later on in life. Sugar and starch should be reduced in insulin-resistance prone horses to less than 1.1 g starch/ kg BW/meal; in proven insulin resistant horses you may need to feed at a level even below 0.3 g starch/kg BW/meal. Try to adjust the calories while preserving proper vitamin, mineral and protein intake. Nowadays there are many vitamin, mineral and trace element supplements available without caloric content. We don't want

to create a lack of protein that leads to loss of muscle mass instead of fat loss. Possible required supplements might be 7-10 gr Lysine (essential amino acid) and Vitamin E. Most horses for recreational purposes don't need concentrates and can absorb more than enough energy from a strictly forage-based diet. However, if you still think your horse needs a pellet, switch to a low-calorie high vitamin-mineral supplement. There even exists feed especially designed for Friesian horses (Frysk, Equifirst). These feeds contain a low energy, low sugar- and starch content combined with a high protein content from high quality protein sources and provides minerals and vitamins in a balanced way. Zinc contributes to skin health and colour.

Access to pasture is actually not preferred for horses that need to lose weight. The grass contains too much energy and sugars. We often hear the question: 'Can't we give the horse access to pasture for just 2 hours a day?' The reason why we often encourage the horse owner to look for other options is that horses are champions when it comes to compensatory grazing. Elegant studies have shown that when you reduce the time that a horse is allowed to graze and you give that horse a shorter pasture turn out time, it will subsequently eat in two hours time the same amount of grass as it would have when grazing time hadn't been reduced. This means that horses can eat just as much grass in a couple of hours than they do in one day. When that happens in a lush pasture, one can understand that this is absolutely counter productive for effective weight loss. A better solution is to give horses that need to lose weight access to dry lots combined with feeding their roughage from slow feeders. This way you avoid the ingestion of sand and guarantee animal welfare. However, if you have no other housing possibilities and you need to turn out your horse on the pasture, you can always outfit him or her with a grazing muzzle.

Finally, slowly increase the amount of exercise, such as riding or lunging, with only 5%/week in duration, frequency and intensity. Try to stimulate activity of the horse as much as possible for example by putting their water and food in different areas or corners of their paddock or stable. Increasing activity stimulates muscle growth and loss of excessive fat deposits. The muscle tissue has a higher metabolic rate that contributes to higher energy expenditure and especially Friesian horses have a huge capacity to generate lots of muscle tissue.

Take home message

Avoiding obesity is always a better option than the need for slimming down. You have to think in months rather than weeks for reaching the optimal body weight. Monitor the body weight regularly and adjust feeding in relation to realistic current activity levels. Before you start with your diet plan, contact your veterinarian to ask for her/his advice. Finally, a healthy body weight is not only better for the health of your horse, it will also allow you to obtain better results in competition.

