

# **Advances in Equine Nutrition**

## **Volume I**

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## WHAT DOES YOUR HORSE WEIGH?

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Determining what a horse weighs is the foundation of a logical feeding and management program. In addition to helping calculate daily intake requirements for hay and grain, accurate assessment of each horse's weight is necessary for the proper dosage of dewormers and other medications.

In mature horses, keeping track of weight gains or losses can help identify health problems related to teeth (which become worn and need periodic floating) or decreased digestive capability, either due to increasing age or disease. But older horses are more likely to be obese rather than too thin. Since an owner in most instances observes a horse daily, it is often easy to overlook the fact that the mare or stallion has become too fat. Obese horses are more prone to colic and founder, and fat mares have more difficulty foaling as well as getting back in foal. Recent studies also indicate that performance horses have ideal bodyweights at which they compete at their best, and minor fluctuations of as little as 30 pounds can mean the difference between victory and defeat.

### Grow slow

In growing horses, there is a difference between maximum growth and optimum growth. Many breeds have been selected for early maturation, but if too much weight is gained daily (as opposed to skeletal growth), a variety of developmental ills can result, including osteochondritis dissecans (OCD) lesions, wobbler syndrome, rotational deformities and epiphysitis. Some of these problems are mechanical, and are the result of growth plates failing under the added strain of the overweight weanling or yearling. Some of these problems have a variety of origins, but are complicated by too rapid growth. Again, bimonthly or even weekly monitoring of the growing horses' weight can help identify which horses are at risk of these and other problems, and need to have their feed intake reduced to slow their weight gain. Since it has been found that skeletal growth is difficult to slow, there should be little concern that the horse's eventual size can be compromised. It is only the control of too rapid weight gain (i.e. fat) that is the intent of monitoring each individual's growth curve.

### **Guess your weight?**

Yet while the old adage, “the eye of the master fattens the ox,” has been repeated since antiquity, recent surveys have found that even experienced horsemen routinely underestimate bodyweight. Two groups, one made up of 77 horsemen (average experience was 15 years) and the other of 62 equine practitioners were asked to participate in the University Of Florida study.

In response to a questionnaire, both groups were asked why and how they determined bodyweight. Both groups (100% of veterinarians, and 94% of the horsemen) responded that determining appropriate dosages of medicines was their most important use of how much a horse weighed. Determining feed levels was second in importance to both groups (69% of the veterinarians, 72% of the horsemen), with about half of both groups being interested in weight assessment to help monitor growth rate.

Only 10% of the veterinarians and 12% of the horsemen used a scale to weigh their horses. Although some in each group said that they did use a weight tape (21% of the veterinarians, 53% of the horsemen), the majority of the veterinarians (96%) and horsemen (68%) said they primarily made a guesstimate of the horse's weight.

Each group was then asked to estimate the weight of 5 mature horses, which had been weighed just before the test. Over 85% of both groups underestimated all the horses weights, by an average of 150 to 185 pounds. When the data were analyzed, it was found that there was no correlation between the accuracy of the estimations and years of experience. This led the researchers to conclude that underestimation of bodyweight was a common error among both lay horsemen and equine veterinarians.

### **Scales don't lie**

Fortunately, even the most inexperienced horsemen can use several methods to determine how much their horses weigh. The most accurate method is to use a large portable scale. Such scales are now available which are relatively light (150 pounds), and can be easily loaded by two people into the bed of a light pick up, for transit. They are low to the ground (less than 4 inches), and horses of all ages soon learn to walk on, while a digital readout gives their weight in either pounds or kilograms. The process takes only minutes per horse, and yields a great deal of information, particularly if the data are then compared to the preceding weighings. Several computer programs can then take these data and graph the growth curve of that individual, as well as calculate daily gain (or loss) since the last weighing.

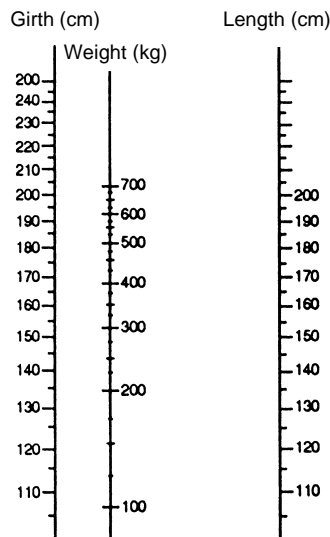
Unfortunately scales are pricey (around \$3500) and so beyond the average farm's budget. However, some feed companies have purchased scales and provide regular weighing of their customers' horses for a nominal fee per head, at the same time recording the weights and keeping track of growth rates for the herd. They then can

identify potential problem horses, and in consultation with the manager or owner, develop a strategy to manage the problem.

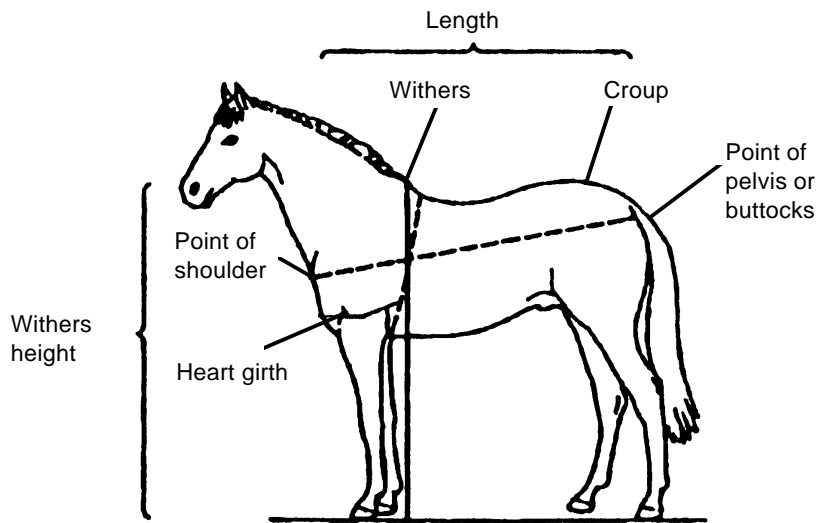
### Tale of the tape

But there are alternatives to the purchase of a scale. The simplest is the weight tape. It has been long known that there is a correlation between girth measurement and weight. Many horses have had their girth measured and then had that figure compared to their weight as calculated on a scale. The averages of all these measurements were compared with the actual weights, and formulas were developed that translated a girth measurement into an actual weight. Weight tapes are not marked in inches, but in pounds, thus eliminating the calculation step and in many instances these weight tapes can provide a reasonable assessment of weight change.

However, because they only measure one parameter, girth, weight tapes alone are not the most accurate alternative to weighing. Weight tapes can be as much as 5% or more off (50 pounds per 1000 pounds), and thus are not accurate enough for small, but potentially important, weight changes. There is also a certain amount of error possible depending on who is actually making the measurements, and whether they are taken in a consistent manner. Also, horses can be long backed or short coupled, and while they might share the same heart girth, the horse that stood over more ground could be assumed to weigh more. Similarly, the amount of flesh a horse is carrying can significantly affect any weight estimation.



**Figure 1.** A simple way to estimate bodyweight, using girth and length measurements (as taken at the points in Figure 2). A ruler is used to connect the appropriate values, and the weight is read where the ruler crosses the weight scale.



**Figure 2.** Where to measure girth and length.

### **A better weigh**

To help eliminate some of these inaccuracies, researchers at Texas A&M and elsewhere have developed descriptions to contrast the differences in horse's relative fatness or thinness graded in a scale of 1 to 10 ( or in some instances 1-5). Such condition scoring gives the observer a framework by which horses can be compared which, although not entirely objective, is an improvement over the pure guesstimate.

A combination of girth measurement, overall length and condition score is the most accurate alternative to actual weighing. Although it may take some time to be able to develop a system where the points are measured each time, this will come if care is taken. Similarly, familiarity with the condition score will increase the accuracy of the weight estimates, and will improve the horseman's eye, which will reap benefits in other areas of husbandry as well.

### The condition score

Absolute weight is not the only important criterion by which to evaluate the horse. Appearance and condition have always been used as indicators of fitness and health. This condition score system was developed in an attempt to standardize these descriptions, to allow for easier comparison and communication.



#### **0-Very poor**

- ✓ Very sunken rump
- ✓ Deep cavity under tail
- ✓ Skin tight over bones
- ✓ Very prominent backbone and pelvis
- ✓ Marked ewe back



#### **1-Poor**

- ✓ Sunken rump
- ✓ Cavity under tail
- ✓ Ribs easily visible
- ✓ Prominent backbone and croup
- ✓ Ewe neck-narrow and slack



#### **2-Moderate**

- ✓ Flat rump either side backbone
- ✓ Ribs just visible
- ✓ Narrow but firm neck
- ✓ Backbone well covered



#### **3-Good**

- ✓ Rounded rmp
- ✓ Ribs just covered but easily felt
- ✓ No, crest, firm back



#### **4-Fat**

- ✓ Rump well rounded
- ✓ Gutter along back
- ✓ Ribs and pelvis hard to feel
- ✓ Slight crest



#### **5-Obese**

- ✓ Very bulging rump
- ✓ Deep gutter along back
- ✓ Ribs buried
- ✓ Marked crest
- ✓ Fold and lumps of fat

