

Kentucky Equine Research Performs Study of Miniature Horse Weights

BY ROBIN STANBACK

Knowledge of body weight is essential for proper management of horses and ponies. Feeding and veterinary regimes often hinge on the accurate assessment of body weight. Unfortunately, many veterinarians do not have adequate experience in estimating the body weight of horses, particularly when evaluating horses at each end of the weight spectrum such as Miniature horses and draft horses. With the exploding popularity of Miniature horses in the United States and the limited research involving them, the staff of Kentucky Equine Research (KER) designed a study to establish an accurate method of weight determination for Miniature horses.

Kari Hoekstra, KER research farm manager, stated, "There are a number of reasons for needing to know the exact weight of Miniature horses. Gross errors in weight estimates can have detrimental practical implications. For instance, dosages of many anthelmintics and medications are based upon body weight. Inaccurate weight estimation can lead to serious, if not fatal, consequences if the horse is overdosed. Additionally, because Miniature horses are now competing in more performance-oriented events it is essential to maintain a program of balanced nutrition. Balancing a ration for any horse requires an accurate determination of body weight in order to reduce the influence of other variables such as digestive and metabolic differences, nutrient availability, reproduction, and performance capabilities of an individual."

Exhibitors competing at a national Miniature horse show were asked to volunteer their horses for body measurement and weight determination using a KER Equimetrics Portable Equine Scale. KER researchers took measurements of heart girth, body length and height for each horse. A body condition score was determined and the owner was asked to give an estimate of their horse's weight. Many owners reported that they used their veterinarian's visual determination of their horses' weights; some used weight tapes, and others had attempted to use regression tables.

The findings of the study indicated that, for Miniature horses, standard regression equations, weight tapes and visual determinations did not provide accurate assessments. Of the 49 Miniature

horses evaluated (15 mares, 14 geldings, and 20 stallions between the ages of 1 to 12), the researchers found the average difference between the estimated weight and the actual scale weight to be +/- 45 lb, a 20% difference. Of the 37 owners who offered an estimated weight for their horses, 51% (19 people) underestimated the weight of their horses by an average of 36.7 lb, and 48.6% (18 people) overestimated by an average of 54.3 lb. Body weights averaged 213 lb (range 127 to 315). The mean body condition score was 5.4.

Drawing from this information, KER staff members designed three regression equations that provide a more accurate weight assessment for the Miniature horses in the sample population. These equations predicted body weight within 5% of the actual scale weights.

$$1. \text{ BW (lb)} = (9.36 \times \text{girth, in}) + (5.01 \times \text{length, in}) - 348.53; R^2 = 0.94$$

$$2. \text{ BW (lb)} = (11.68 \times \text{girth, in}) + (2.85 \times \text{height, in}) - 357.26; R^2 = 0.92$$

$$3. \text{ BW (lb)} = (13.18 \times \text{girth, in}) - 326.07; R^2 = 0.90$$

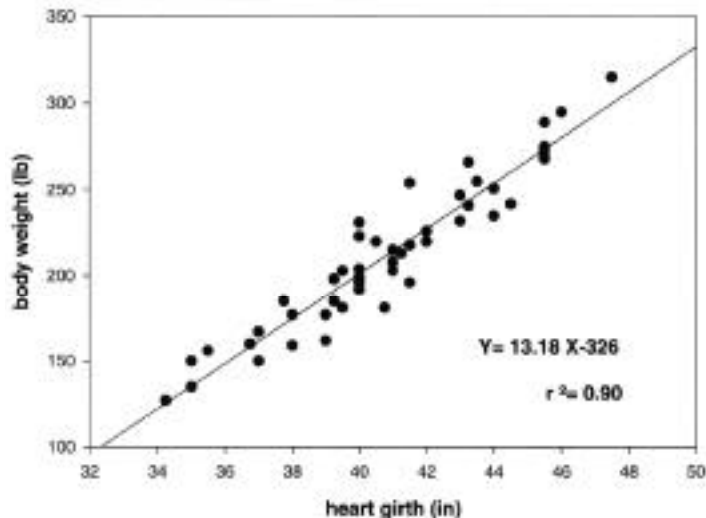


Figure 1. Linear relationship between actual Miniature horse body weights and heart girth.