BODY CONDITION SCORING - FAT OR FICTION?

Body Condition Scoring (BCS) systems were originally developed for use in production animals for the **assessment of** both **muscle and fat reserves**, but are now widely used in companion animals (dogs, cats and horses) to estimate only 'fatness'. It should be emphasised, however, that BCS systems were not originally developed to assess just fatness, and none of the systems in current use has yet been proven to reliably quantify body fat content in all horse and pony breeds and across all sexes and ages.

Equine body condition scoring systems use ranked descriptors to enable subjective appraisal of 'fleshiness' at several **externally** visible and palpable anatomical sites, but therefore **take no account of internal fat deposits**.

All BCS systems require that the assessor appraises the animal at various body sites – the most commonly used are shown in the diagram below.
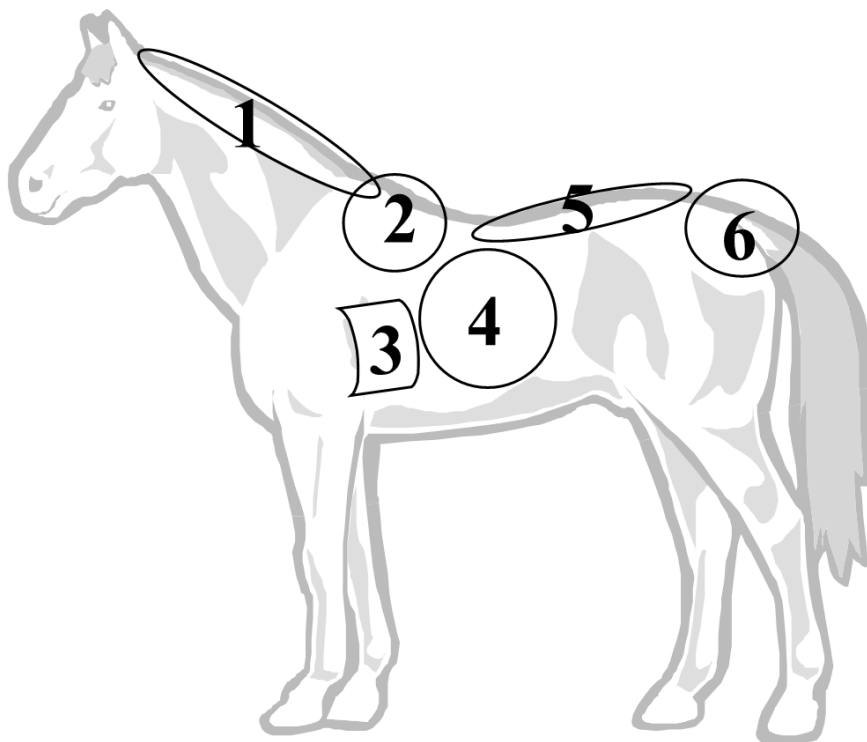Site 1 = neck crest.
Site 2 = withers.
Site 3 = behind the shoulder.
Site 4 = over the ribs.
Site 5 = along the midline of the back.
Site 6 = at the tailhead.

The two main BCS systems in common use are:-

- The **9-point system** (devised by Henneke, later modified by Kohnke):-
    - 1 (emaciated) to 9 (obese).
        - BCS 1-3 = thin
        - BCS 4-6 = moderate (although as BCS of 6 is considered overweight)
        - BCS 7-9 = fat
- The **5-point system** (devised by Carroll & Huntingdon, and promoted by the National Equine Welfare Council):-
    - 0 (emaciated) to 5 (obese).
        - 0-1 = thin
        - 2-3 = moderate
        - 4-5 = fat
    - This system is sometimes misused as only a 5-point scale (from 1 [emaciated] to 5 [obese]), although a 1 to 5 scale has been suggested for donkeys.

The optimum number of points within a BCS system has been suggested to be between 5 and 9 and, in fact, 7-point scales are popular for dogs and cats. However, no current BCS scale can reliably differentiate anything more than 3 separate categories, such that a simple 3-point system can be a good starting place; and most people, even untrained observers, can usually distinguish between these categories:-

- Thin
- Average ("About right")
- Overweight

It's easy to see how this 3-point system becomes a 5-point system when categories are added in between 'thin' and 'average'; and between 'average' and 'overweight'. Furthermore, to make a 7-point system from a 5-point system, extra categories are simply added below the lowest score and above the highest score. Or, a 9-point system can be created from a 5-point system, by adding categories between the 5 existing scores.

You can download instructions for body condition scoring of horses, ponies and also donkeys from the National Equine Welfare Council at:-

http://www.nationalequinewelfarecouncil.co.uk/www/newc/wp-content/uploads/2012/01/Body_Score_Charts_-_Horses__Donkeys_NEWC1.pdf

It should be noted that one scoring system has been developed which focuses on only one site of fat deposition, that is the neck crest. This "Cresty Neck Score" (CNS), has a range from 0 (no palpable crest fat) to 5 (extremely cresty). Scores of 3 or greater have been associated with an increased likelihood of laminitis. However,

stallions may often be 'cresty' and other genetic and disease influences can affect the CNS and so it is not a reliable replacement for *whole body* condition appraisal.

Research at Liverpool University has highlighted the **non-linear association of the present whole body BCS systems with body fat content**. That is, increasing BCS is not associated with a steady increase in body fat content, rather, there is a larger difference in fat content between higher BCS scores than lower ones. This means that obese animals must lose relatively more fat in order to decrease their BCS, than horses of thin BCS must gain, to increase their BCS.
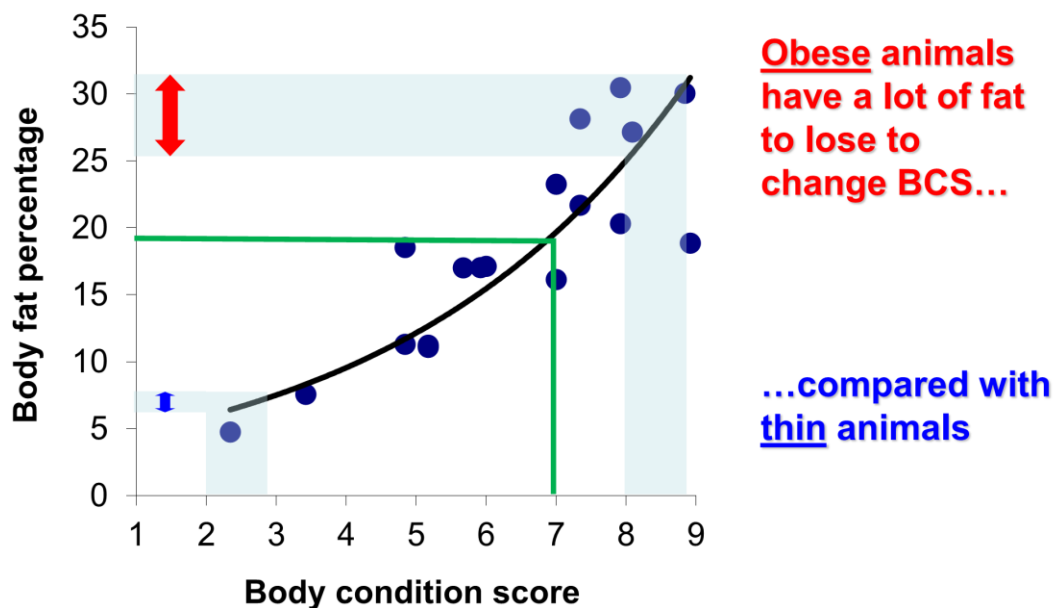
The graph above illustrates the non-linear (it is actually exponential) relationship between BCS and body fat content. At BCS values of 7, or greater (on the 1-9 scale), the slope of the graph increases and the reliability of BCS as a predictor of fat content decreases.

Interestingly, BCS values of 7 and greater (out of 9), have been shown to be associated with insulin dysregulation and an increased risk of pasture-associated (endocrinopathic) laminitis.