

## OBESITY: is my horse overweight?



Many of us acknowledge that under feeding and poor nutrition are a welfare issue, yet few of us realise that over feeding and obesity are too. Obesity is defined as: 'the state of being grossly fat or overweight'. It is a medical condition in which excess fat accumulates to such an extent that it may have an adverse effect on health. While we all like our horses to have a healthy, rounded cover over their ribs and top line; how much is too much? What are the side effects of having an overweight horse?

It seems that the term 'good condition' has become synonymous with fat and horses for sale and show purposes tend to be fat in order to be in 'good condition'. We should rather strive for ideal body condition.

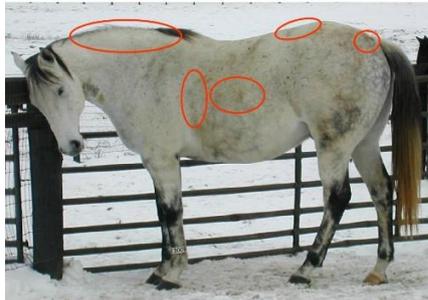
### **Consequences of obesity:**

- Exercise/ performance compromise: over conditioned horses carry more weight and thus place more stress on their joints and cartilage. They are also inclined to become sluggish due to the weight gain and thus owners tend to feed more to supply more energy thus worsening the situation
- Hypelipaema: occurs in fat horses that are deprived of energy and thus have increased mobilisation of fat that can result in death.
- Insulin resistance/ equine metabolic syndrome: defined as a collection of risk factors that are associated with increased susceptibility to laminitis. A complex of endocrine and metabolic abnormalities that result in increasing insulin resistance.
  - The hormone insulin promotes the uptake of glucose, amino acids and lipids in the body. When food is plentiful (high glucose concentration in the blood), the body is driven into storage of energy and deposition of fat. When this occurs in excess there is a resultant resistance to the actions of insulin at the site of uptake. This leads to decreased uptake of glucose and thus

- release of fat and lipids in order to provide for the energy starved tissues. This however does not occur in muscle and fat and they are therefore driven into storage mode – a vicious circle.
- Fat is a metabolically active endocrine organ that secretes inflammatory proteins resulting in a state of inflammation in the body – possibly linked to the onset of laminitis, skin allergies and more.

### **Diagnosis:**

- Signalment and body condition score. Middle aged to older horses are more prone as well as ponies and donkeys. When supply exceeds demand, surplus energy is stored as fat. Common storage sites are the neck crest, shoulder, base of the tail and gluteal muscles, and sheath or udder.



- Blood tests: hyperinsulinaemia after being starved for 6hours.

### **Management and weight loss:**

- Identify those horses that have lower energy needs. I.e.: ponies, donkeys, mixed and indigenous breeds. They often require only low quality roughage and very little to no concentrates.
- Provide adequate exercise
- Maintain an ideal body weight using the standardised body condition scoring system (BCS):

**Equine Body Condition Score**





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SCORE	DESCRIPTION
<b>1</b>	<b>POOR</b> Horse is extremely emaciated. The backbone, ribs, hipbones, and tailhead project prominently. Bone structure of the withers, shoulders, and neck easily noticeable. No fatty tissues can be felt.
<b>2</b>	<b>VERY THIN</b> Horse is emaciated. Slight fat covering over vertebrae. Backbone, ribs, tailhead, and hipbones are prominent. Withers, shoulders, and neck structures are discernible.
<b>3</b>	<b>THIN</b> Fat built up about halfway on vertebrae. Slight fat layer can be felt over ribs, but ribs easily discernible. The tailhead is evident, but individual vertebrae cannot be seen. The hipbones cannot be seen, but withers, shoulder, and neck are emphasized.
<b>4</b>	<b>MODERATELY THIN</b> Negative crease along back. Faint outline of ribs can be seen. Fat can be felt along tailhead. Hip bones cannot be seen. Withers, neck, and shoulders not obviously thin.
<b>5</b>	<b>MODERATE</b> Back is level. Ribs can be felt, but not easily seen. Fat around tailhead beginning to feel spongy. Withers are rounded and shoulders and neck blend smoothly into the body.
<b>6</b>	<b>MODERATELY FLESHY</b> May have a slight crease down the back. Fat on the tailhead feels soft. Fat over the ribs feels spongy. Fat beginning to be deposited along the sides of the withers, behind the shoulders, and along the neck.
<b>7</b>	<b>FLESHY</b> A crease is seen down the back. Individual ribs can be felt, but noticeable filling between ribs with fat. Fat around tailhead is soft. Noticeable fat deposited along the withers, behind the shoulders, and along the neck.
<b>8</b>	<b>FAT</b> Crease down back is prominent. Ribs difficult to feel due to fat in between. Fat around tailhead very soft. Area along withers filled with fat. Area behind shoulders filled in flush with the barrel of the body. Noticeable thickening of neck. Fat deposited along the inner buttocks.
<b>9</b>	<b>EXTREMELY FAT</b> Obvious crease down back. Fat is in patches over rib area, with bulging fat over tailhead, withers, neck, and behind shoulders. Fat along inner buttocks may rub together. Flank is filled in flush with the barrel of the body.

ILLUSTRATIONS BY DR. ROBIN PETERSON, BASED ON TAMU BODY CONDITION SCORE

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- One can also use the Cresty Index in conjunction with BCS. It was found that ratio of mid neck circumference to height at the withers gave a measurement of crestiness.

Score	Description
0	No palpable crest.
1	No visual appearance of a crest, but slight filling felt with palpation.
2	Noticeable appearance of a crest, but fat deposited fairly evenly from poll to withers. Crest easily cupped in one hand and bent from side to side.
3	Crest enlarged and thickened, so fat is deposited more heavily in middle of the neck than toward poll and withers, giving a mounded appearance. Crest fills cupped hand and begins losing side to side flexibility.
4	Crest grossly enlarged and thickened, and can no longer be cupped in one hand or easily bent from side to side. Crest may have wrinkles or creases perpendicular to the topline.
5	Crest is so large it permanently droops to one side.

Carter et al 2009.

### **Weight loss programs:**

- Diet restriction: provide 1.5% of actual body weight as total ration per day. Lower quality roughage or soaked roughage (leeches out some of the carbohydrates)
- Restricted grazing or no grazing in severe cases (hard to quantify intake when grazing). Can reduce hay intake by 0.02% for every hour the horse is grazing.
- Moderate exercise (if not laminitic). Low level exercise is equivalent to 30-45 minutes of walk and trot.
- Remember horses are trickle feeders and thus intake should be spread throughout the day. Provide hay in hay net to slow down intake. One can even hang the hay net higher to make it harder to get the hay (increases effort and decreases boredom).

### **References:**

Knottenbelt, D.C. Tubby or not tubby: fat is the question; The Equine Metabolic Syndrome.

Hinchcliff, K.W et al; Equine Sports Medicine and Surgery, Basic and clinical principles of the Equine Athlete. 2004.