

## Nutritional management of equine metabolic syndrome: a case report

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**Introduction:** In human medicine, the criteria for diagnosis of metabolic syndrome are obesity, insulin resistance, dyslipidemia and hypertension (Alberti et al., 2006). In 2002, Johnson described a phenotype resembling this syndrome in horses and pony's. It includes a clustering of generalized or regional obesity, insulin resistance and current or historical problems of laminitis. Definitive diagnosis of EMS is rather challenging and includes a body condition score of 7-9/9 or neck crest fat accumulation, resting hyperinsulinemia (>20mU/l) or abnormal insulin dynamics in response to glucose challenge and evidence of laminitis such as founder lines on the hoof wall (Frank et al. 2010).

**Case history:** A 12 year old Pura Raza Espanola mare was presented at the Department of Internal Medicine of Ghent University with complaints of foot tenderness and difficulty to walk. A diagnosis of laminitis and concurrent equine metabolic syndrome was made. The horse weighed 510 kg and had a body condition score of 9/9 with a chest circumference of 195cm. The current diet consisted of 90 minutes turnout to lush pasture, 2.25 kg of hay, 450 grams Hartog grasmix®, 900 grams Agrobs Pre Alpin Aspero® and one apple a day.

**Discussion:** Dietary restriction is one of the cornerstones of the management of equine metabolic syndrome (Geor et Harris, 2013). In this case, the ideal body weight of the horse was estimated at 360kg. A weight loss program with a 20% restriction of the maintenance energy requirement was started and the horse was given 1.3% of its ideal bodyweight in dry matter forage. A target bodyweight loss of 1 to 2% per week was set. The diet consisted of 4 kg of good quality hay and 1.5 kg of wheat straw, and was divided in four meals per day. The forage was soaked in order to increase satiety and to decrease its water-soluble carbohydrate content (Longland et al., 2011). A double hay net was used in order to reduce mesh size and increase feeding time (Ellis et al., 2012). To meet NRC nutrient requirements (2007), 50grams of Cavalor Nutri Plus®, a vitamin and mineral supplement, was added. Water and a salt lick were provided ad libitum. To maintain a strict regimen, the horse was placed on shavings in order to prevent it from eating its bedding and pasture turnout was no longer allowed. To get the best results, weight loss programs normally consist of both energy restriction and exercise. Unfortunately, the latter was not possible due to laminitis.

**Follow-up:** After 6 weeks of hospitalization, the horse was able to leave the clinic having lost 70kg of body weight already with a remaining chest circumference of 182cm. Over the next month, the chest circumference decreased progressively to 179cm on the weight loss program which was continued at home. Unfortunately, 6 weeks after leaving the clinic, the horse developed an impaction colic and was presented again at the Department of Internal Medicine of Ghent University. At this time, the feeding advice was adjusted. The new diet consisted of 4.5kg of hay with a vitamin mineral supplement and added psyllium, which, apart from its laxative action, also has been reported in lowering blood glucose and insulin concentrations in horses (Moreaux et al., 2011). After a few days, the horse could return home and continue the weight loss program in order to reach its target weight and body condition score of 5/9. However, even once target bodyweight will be reached, an ongoing weight maintenance program will be needed in order to prevent reoccurrence.

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