

HOW IS DIET RELATED TO THE DEVELOPMENT OF EQUINE METABOLIC SYNDROME ?



Obesity is an important factor in the development of equine metabolic syndrome (EMS). It is associated with regional deposition of crest neck adipose tissue, with or without obesity, and the development of regional adiposity, particularly EMS and laminitis. It is generally assumed that obesity results from an imbalance between energy intake and expenditure. Many factors affect this imbalance, including the hours of going out, activities during the horse, the amount and type of exercise, genetic factors and the stage of the horse in life. Obesity is a major contributing factor to the development of insulin resistance in EMS, but non-obese horses also develop EMS. Obese horses have higher circulating concentrations of inflammatory cytokines – an important finding in the pathogenesis of metabolic syndrome in humans.

There is evidence to suggest that insulin resistance is the key factor associated with EMS and laminitis. In the UK, ponies with high insulin concentrations have the greatest risk of developing laminitis when body condition scores are similar. Insulin infusion causes laminitis in horses. Laminitis-prone ponies are given higher concentrations of fructan, improve circulating insulin. Horses adapted to high glycemic index feeds had reduced insulin sensitivity and higher insulin responses to dietary carbohydrates compared with horses fed high fiber and fat diets with similar caloric content. Although not conclusively proven, this combined evidence suggests that feeding high-glycemic feeds may increase the risk of developing laminitis by increasing insulin concentrations.

Consequently, feeding low-glycemic feeds lowers plasma insulin concentrations and improves insulin sensitivity, reducing the risk of laminitis.



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