Researchers at the University of Melbourne, Australia, evaluated the metabolic responses of different equine breeds when fed a cereal-rich or fat-rich diet.

**Insulin sensitivity by diet at weeks 0 and 20**
HOW DOES BREED, DIET & OBESITY AFFECT INSULIN SENSITIVITY?

OVERVIEW
Insulin dysregulation and obesity can increase the risk of horses and ponies developing pasture-associated laminitis, but this can also occur in non-obese animals. Therefore, researchers in Australia in collaboration with WALTHAM® examined if diet, obesity and breed may play a role in a horse or pony’s insulin sensitivity.

STUDY OBJECTIVES
To evaluate the effects of gaining weight by feeding either a fat/oil-rich or cereal-rich diet on body fat, insulin sensitivity and the level of “signaling proteins” secreted by fat tissue in different breeds of horses and ponies.

HORSES
11 Standardbreds, Andalusians and mixed breed ponies (33 total) were assigned 2 of the following diets over 2 study periods:
• Fat/oil-rich diet as vegetable oil
• Cereal-rich diet as micronized maize
• Control fed base ration only

The fat/oil-rich and cereal-rich diets provided 200% of their daily energy (calorie) requirements. The control diet was fed to maintain moderate body condition. All groups were fed the same ad libitum hay and a base ration of soaked soy hull pellets and a vitamin/mineral supplement.

RESULTS
• Feeding the fat/oil-rich and cereal-rich diets resulted in an increase in body condition score (BCS), body weight, total body fat and plasma leptin levels
• Obesity as a result of feeding a cereal-rich diet reduced tissue insulin sensitivity in all breeds while gaining weight through the fat/oil-rich diet did not
• Adiponectin concentrations were reduced following the weight gain on the cereal-rich diet
• Ponies and Andalusians had a lower level of insulin sensitivity compared to Standardbreds regardless of diet

TAKE HOME MESSAGE
Obesity alone presents a welfare risk to horses and ponies due to the effects on the skeletal and thermoregulatory systems.

Overfeeding a cereal-rich diet can cause obesity, reduce insulin sensitivity and reduce adiponectin, potentially putting horses and ponies at greater risk for the development of laminitis.