

# Identifying equine metabolic syndrome in New Zealand

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## Introduction

Equine Metabolic Syndrome (EMS) is a common condition of insulin dysregulation manifesting in several clinical signs including laminitis. Early diagnosis allows for management modifications to prevent serious acute and chronic laminitic changes. A single blood insulin may, if elevated, indicate EMS but a normal insulin does not rule it out. The gold standard, dynamic, I/V combined glucose and insulin test (CGIT) is labour-intensive and costly. A simpler dynamic test is the in-feed oral glucose challenge assessing the insulin response to a glucose meal. Reference ranges for this test have not been determined for New Zealand horses. This study aimed to determine the insulin response to a glucose meal for normal horses and horses with EMS to determine a cut-off for assisting in diagnosis of EMS in New Zealand.

## Methods

Ten suspect EMS cases and 10 control cases were tested at home in familiar surroundings. Blood insulin and glucose were measured after an overnight fast. Dextrose powder (0.5 g/kg bodyweight) was fed in a small amount of low-glycaemic feed (e.g. chaff). Blood samples were harvested two hours after feeding to determine insulin and glucose concentrations. Insulin was measured using the Immulite assay.

## Results

Blood insulin post-challenge differed significantly between subjects and controls ( $p=0.0003$ ). The cut-off for the upper reference range for a normal blood insulin post-challenge was calculated to be 35 mIU/L.

## Conclusions

Determining the normal upper reference range of insulin will assist New Zealand veterinarians to diagnose EMS in the field. The results differed to a United Kingdom study which determined results  $>68$  mIU/L to be indicative of insulin dysregulation. The difference may be in part due to management factors, particularly the pasture-based systems predominant in New Zealand.

## References

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