



# Obesity and Obesity Associated Metabolic Disease Conditions in Connemara Ponies in Ireland (Cross sectional study)

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## Introduction:

Equine obesity in combination with insulin dysregulation (ID) is a major risk factor associated with laminitis. Some pony breeds appear to be at increased risk. However, little is known regarding the prevalence of obesity or hyperinsulinaemia as evidence of ID in Irish ponies.

## Aim:

To investigate the prevalence of obesity and its associated endocrine/metabolic disease conditions in registered Connemara ponies.



Picture : Obese pony with localised adiposity and a cresty neck

## Methods:

- Ponies underwent a **physical examination** and information on their management and clinical history was obtained via **owner questionnaire**.
- **The body condition score (BCS)** was measured using the Henneke system; cresty neck score (CNS) and regionalised adiposity were also assessed.
- **Hyperinsulinaemia** was confirmed by measuring serum **basal insulin concentration (BIC)** or insulin concentration after an **oral sugar test (OST)**.
- Blood **glucose** and **triglyceride** concentrations were measured.
- Characteristics of hyperinsulinaemic and insulin sensitive ponies were compared by **logistic regression**.



See QR codes: Chronic laminitis associated divergent hoof rings compared to parallel hoof rings caused by change in diet. Note the wider spaces between the lines on the heel side

## Results:

**200** ponies were included;

- 59 ponies (**29.5%**) had a BCS  $\geq 7$
- 58 (**29%**) had a CNS  $\geq 2.5$
- 135 (**67.5%**) had regionalized adiposity
- Owner reported history or clinical evidence of chronic laminitis was found in 92 ponies (**46%**)
- Hyper-insulinaemia was confirmed in 32 ponies (**16%**)
  - 23 of 91 (**25.3%**) detected by an OST
  - 9 of 109 (**8.3%**) detected by BIC
- Hyper-triglyceridaemia: 12 of 198 ponies (**6.1%**) ponies
- Hyper-glycaemia: 11 of 197 ponies (**5.6%**) ponies

Variables associated with hyper-insulinaemia	Odds ratio (95% CI)
Body condition Score (BCS) $\geq 7$	6.53 (2.95, 15.21)
Owner reported history of laminitis	5.76 (2.29, 14.41)

Table: Variables associated with hyper-insulinemia

## Main Limitations:

The OST was not performed in all ponies.

## Conclusions:

Increased adiposity, laminitis and metabolic derangements are prevalent in this native Irish pony breed.

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## Ethical approval:

The study was approved by the UCD Animal Research Ethics Committee (reference AREC-21-02- Duggan) and was performed under license from the Health Products Regulatory Authority (HPRA) (reference AE18982/P198). Every pony's owner's consent was obtained, and a consent form was signed.