# OBESITY, UREA, URIC ACID: DONKEYING AROUND WITH SUBCLINICAL METABOLIC IMBALANCES (PILOT STUDY)

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## Abstract

Background - Obesity is a key precipitating factor in laminitis development and frequent problem in many donkey farms across Europe. Stoic nature of donkeys makes laminitic changes often going unnoticed or mistakenly attributed to hoof neglect. Objectives - To investigate link between obesity, metabolic profile, inflammation, and laminitis, focusing on physical examination and serum biomarkers. Study design - Cross-sectional observational study. Methods - Ten randomly chosen lactating jennies over four years of age, from one farm, being fed with hay and bran, were enrolled in the study. Body condition score (BCS) was assessed using Pearson's system. Grading scales for fat accumulations and laminitic hoof deformities were developed. Welfare was assessed using AWIN protocol. Blood samples for biochemistry analysis were collected after fasting. Data were presented as median [minimum, maximum] and analysed with MedCalc® software, with p < 0.05 considered significant. Results - Laminitic hoof deformities (0.5 [0, 1]), were in strong positive correlation with BCS (7 [4, 8], p=0.008) and fat accumulations (1.5 [0, 2.5], p=0.017). The category of jennies with BCS[?]7 had higher insulin than group with BCS<7 (p=0.044). Insulin (34.86 pmol/L [8.33, 75]) showed positive correlation with glucose (4.12 mmol/L [3.8, 5.4], p<0.001), cholesterol (1.92 mmol/L [1.53, 2.38], p=0.008), and AST (461.6 U/L [379.1, 1037.6], p=0.023). Uric acid (0.20 mmol/L [0.09, 0.62]) showed positive correlation with BCS (p=0.033) and urea (6.46 mmol/L [3.84, 8.68], p=0.048). Urea levels exceeded reference range in eight, and globulins in all the jennies. Main limitations - Small sample size, unknown gestational state, unawareness of individual food intake. Conclusions - In lactating, normoinsulinaemic and normoglycaemic jennies, overconditioning is linked to subclinical laminitis. However, clear metabolic link is missing. Increased globulins suggest subclinical chronic inflammation, while the increase in urea and variable levels of UA suggest the need for thorough assessment of proper feeding management.

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