

POSTER PRESENTATION

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In vivo assessment of dog subcutaneous fat depots by real time ultrasonography and image analysis

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Introduction

Obesity is the most common nutritional disorder in dogs and a main health and welfare concern worldwide; it links to a shortened lifespan and increased rate of secondary diseases. Surveillance of dog adiposity is a routine practice and is often estimated from body condition scoring (BCS). But BCS is subjective and fairly sensitive, reducing its utility during weight-loss plans. Substitute approaches, simple, cheap and reproducible, are foreseen.

Objective

This work aimed to assess real time ultrasonography (RTU) usefulness for analysis of sub-cutaneous body fat depots (SCF) in dogs.

Methods

Twenty-eight dogs were enrolled, representing different sizes (nain-4; small-10; medium-14), weights (BW; 5.2–33.0 kg) and BCS (2-4 in a 5 points scale). RTU images were taken with a multifrequency linear array (at 10 MHz) coupled to a GE scanner, from non-sedated dogs in right lateral recumbency, at five anatomical points: entry of the chest; over the ninth intercostal space; lateral abdominal wall; right inner thigh; and between the third and the fifth lumbar vertebrae. Images were analysed in Image J; means from 3-different locations per image were used to set SCF thickness. Using the JMP program correlation procedure was used to analyse SCF and BCS relationships.

Results

BW was poorly associated with SCF thickness (r between 0.21, $p > 0.05$, and 0.59, $p < 0.01$), while BCS and SCF were strongly correlated (r between 0.71 and 0.82; $p < 0.01$), particularly for data collected at lumbar and abdominal points.

Conclusion

Results stress that BW is a poor adiposity predictor and suggest that RTU is a valuable tool to predict dog adiposity.

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