

Abstract 8:

Sources of variation in digestibility values of privately-owned dogs tested in-home

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In-home digestibility testing can be advantageous compared to testing using dog panels in a kennel facility, but will likely yield more variable results as the study population's characteristics and living conditions are more variable. We aimed to determine sources of variation related to digestibility values among privately-owned dogs, as this is key information for the development of an in-home testing protocol. In a cross-over design, 53 privately-owned dogs of various breeds (34♀19♂; 5.1±3.2 yr; 21.2±12.0 kg) received two extruded dog foods with contrasting digestibility containing 0.1% TiO₂ as a marker. Dogs were fed at maintenance level (480 kJ × kg BW^{0.75}) for 7 days. Each day, owners collected the faeces of their dogs' and filled in a diary regarding food intake and faecal consistency. Foods and faeces were analysed for dry matter, ash, nitrogen, crude fat, starch, gross energy and titanium. Sources of variation in digestibility values among dogs during dietary days 2-7 were assessed using a multifactorial analysis of variance (ANOVA, Tukey's test) by repeated measures. Variation among dogs was shown to be explained by experimental food, dog age, body weight, sex, neuter status, body condition score and housing, but not by the dogs' daily activity. Identifying sources of variation in digestibility measures in dogs assists in the development and validation of in-home testing protocols. Improved understanding of variation will allow the appropriate study populations in terms of size and composition to be determined. Future studies should focus on other sources of variation, like participant compliance and sample contamination.