

## PREVALENCE AND RISK FACTORS OF OVERWEIGHT IN PORTUGUESE DOGS

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Obesity is the most common canine dietary disorder in developed countries and its prevalence is increasing, as it is in humans<sup>1,2</sup>. Obesity has been associated with some severe medical conditions, and even moderately overweight dogs are at greater risk for early morbidity and having a shortened lifespan<sup>3,4,5</sup>. Studies like the one presented here are important to make the veterinary clinician aware of this highly prevalent disease and of its risk factors. The main aim of this study was to determine the prevalence and the risk factors of canine overweight in Portugal.

All the dogs presented for consultation between April 16<sup>th</sup> and June 27<sup>th</sup> of 2014, over 1 year of age and observed for the first time in the sampling time were considered. The life-threatening emergency cases and in occasions that the patient's owner refused or was not able to provide the required data were excluded. It was registered the dog's house holding, feeding habits, body condition score (BCS, in a 9 points scale), weight, age, breed, sex, neuter status and iatotropic stimulus. All the statistical analyses were carried out in R version 3.1.0 of 2014 (The R Foundation for Statistical Computing). It was used univariate and multivariate logistic regressions, odds ratios (OR) – as an approximation of relative risk – and 95% Confidence Intervals. To build the multivariable model, all variables with a P-value <0.2 were included in the stepwise selection.

The sample included 155 dogs with ages between 1 and 17 years old. The majority of the dogs, 52.3%, were overweight (BCS $\geq$ 6), and 13.6% were Obese (BCS $\geq$ 8). This high prevalence of overweight is a matter of concern, despite being within the range of previous studies that took place in other countries: 34%- 59.3%<sup>1,5,6,7</sup>.

Overweight (BCS $\geq$ 6) dogs were more likely to be within ages of 4 and 7 years old, neutered, and from the breeds of the group of *Retrievers*, *Flushing Dogs* and *Water Dogs* (Classification of the Fédération Cynologique Internationale). Age has been documented as a risk factor for overweight<sup>1,5,6</sup>. The observed nonlinearity, as also referred by McGreevy et al. (2005)<sup>6</sup>, can be explained by dogs losing weight in advanced ages, as consequence of some disease processes of elderly age, or even, as has been demonstrated<sup>3</sup>, by a shorter lifespan of overweight dogs. Neutering is a well-known risk factor, and the results of this study emphasize it. Breeds embraced by the group of *Retrievers*, *Flushing Dogs* and *Water Dogs* are documented as in higher risk of overweight<sup>1,5</sup>. And once again, the results of this study suggest that genetics play a role in overweight. For instance, targeting obesity prevention counseling at the time of spay or neuter surgery may be prudent, especially in breeds prone to overweight.

This study, carried out within the Portuguese Dog population, revealed a high prevalence of overweight; and age, breed group and neutered status were identified as risk factors. Body condition is under valorized as a health parameter, and it is imperative to recognize overweight as a disease or at least as a real problem before it compromises the patients' health.

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