

A survey on the relationship between body condition score with lipid profiles and serum testosterone concentration in dog

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Abstract

Several factors play a role in the development of obesity in animals, which is the most important of them lack of exercise, excessive feeding, and hormonal disorders. Testosterone is responsible for many of the physical characteristics specific to males. Body condition score (BCS) is used to determine the body status. Body weight increases significantly with castration in dogs. The purpose of the present study was to investigate the relationship between body condition score with lipid profiles and serum testosterone concentration in obese, normal and thin dogs. This survey was accomplished on one hundred and fifty intact male dogs referred to Veterinary Hospital of Shahid Chamran University of Ahvaz. The owned dogs were divided into three equal groups: group A (obese), group B (normal) and group C (thin). There were fifty dogs in each group. Body condition score system was used from number one to nine. The dogs were selected from large breeds (German shepherd and Doberman Pinscher), male and in the age range 1-7 years-old. Serum lipid profiles (triglyceride, total cholesterol, HDL-C, LDL-C and VLDL-C concentrations) were measured using spectrophotometric method. Testosterone concentration was also determined by ELISA method. Body condition score and testosterone concentration had an effect on lipid profile levels, so that the increase of BCS caused a significant increase of triglyceride (122.06 ± 67.99 mg/dl), total cholesterol (241.08 ± 67.25), LDL-C (134.18 ± 63.10) and VLDL-C (23.96 ± 13.42) in obese dogs (A) and a significant decrease of HDL-C (82.98 ± 26.86) and testosterone (3.36 ± 0.57). It was also identified that the decrease of BCS in thin dogs (C) caused a significant decrease of serum triglyceride (76.24 ± 29.67 mg/dl), total cholesterol (203.54 ± 59.89), LDL-C (89.99 ± 55.99) and VLDL-C (15.25 ± 5.93) and a significant increase of HDL-C (97.64 ± 35.65) and testosterone (9.00 ± 0.82). Means of testosterone concentrations were obtained 3.36 ± 0.57 , 5.71 ± 0.55 and 9.00 ± 0.82 ng/ml in the obese, normal and thin dogs, respectively. The results showed that serum testosterone concentration decreased with obesity (increase of BCS), and increased with emaciation (decrease of BCS). Further investigations are necessary to be determined the better understand of relationship between obesity and hormonal changes.

Key words: Body condition score, Dog, Lipid profiles, Testosterone

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