

DIETARY SUPPLEMENTATION IN THE DOG BREEDING: INFLUENCE ON THE SEMEN QUALITY, ENDOCRINE FUNCTIONALITY AND BEHAVIOUR

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The influence of a diet supplemented with antioxidants on semen quality and reproductive function has been documented in numerous animal species, especially those of economic interest (cattle, pigs, horses, and dogs), as well as in humans, in recent scientific works (1,2,3,4) and increase the metabolic activity. Given the growing interest in using supplemented diets to improve semen quality, the aim of this study was to compare the changes in endocrine function over time, and the main parameters of semen quality and quantity in response to the administration of a diet enriched with specific phytochemicals, vitamin E acetate, carotenoids, folic acid, and zinc chelate from amino acids hydrate.

The study involved 14 male dogs of various races, divided into four age groups, selected after a general and clinical examination to rule out any anatomical or functional disorders, or behavioral issues affecting the reproductive sphere.

The animals were from 1 to 10 years old. Research lasted nine months, divided into two phases of 90 and 135 days respectively (PRE SUPPLEMENTATION – use of previous diet- WITH SUPPLEMENTATION - supplemented diet). During each phase, biological material was collected 3 times, every 45 days (T-3, T-2, T-1 - T1, T2, T3): (I) quantitative evaluation (blood sample) for endocrine activity Tst (ng/ml), fT4 (pg/ml); (II) evaluation of semen; (III) general examination; (IV) follow-up with owners (potential changes in behaviour) and Body Condition Score evaluation. Pearson correlation and Student T test ($p < 0,05$) were performed.

Data show a rapid response to the new diet: (T1) constant increase in metabolic activity (fT4, Tst) within 45 days, which has a positive influence on thyroid activity and reproduction; the data on behaviour showed an increase in territoriality (80%) and dominance (60%), and the BCS underlines increased muscle tone could be due to the testosterone increase. All subjects (T basal vs - T1, T2, T3) showed significant difference in body weight, Tst level, semen concentration, volume and motility. Instead in the 2-7 year group (PRE SUPPL/WITH SUPPL)

significant differences were in Tst level, semen volume, motility and vitality.

The diet was created especially for dog between 2-7 years. Supplementation does not seem to positively influence the semen values in mature (senior) subjects.

The diet was created especially for 2-7 years aged group because this group reaches a peak in performance. Supplementation does not seem to positively influence the semen values in mature subjects: probably due to the ageing in tissues or metabolism. Considering this encouraging outcome, the diet should be used for dog breeding, to maximize reproduction management.

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