

## The Skinny on UK Dog Diets: Early findings from the Generation Pup cohort study

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**Introduction.** Generation Pup (GenPup) is a longitudinal cohort study, which offers an opportunity to study the diet, exercise patterns and human behaviours that may affect a dog's weight over the course of its lifetime [1]. Pet obesity (and associated health issues) is one of the leading welfare concerns for companion animals in the UK [2]. Here, we report data collected so far on diet and feeding practices, and initial findings on body condition scores (BCS) at 12 months.

**Animals, material and methods.** Surveys (designed with consultation from subject specialists) were completed by 476 owners from the UK or Republic of Ireland for a single dog in their household at repeated timepoints up to age 12 months. Data relating to diets and feeding practices were extracted for analysis from surveys completed when dogs were 7 and 12 months of age. Comparative BCSs from veterinarians and owners were also available for 36 of these dogs at age 12 months. Descriptive statistics and Cohen's kappa co-efficient for agreement between owner and veterinary BCS (using a nine-point scale [3]) were reported. Gamma coefficients were used to assess association between three variables of interest (use of filled food toys, number of meals/day, feeding human food scraps) and age (7 months and 12 months).

**Results and discussion.** Feeding twice a day was reported most commonly (64% of dogs at 7 months, increasing to 74% at 12 months). Use of filled food toys more than twice a week was 45% at age 7 months and 34% at age 12 months, while feeding human food scraps was 9.6% and 11.5%, at 7 and 12 months of age, respectively. When analysed using the gamma statistic there was evidence of a strong association between age and frequency of feeding/day ( $\gamma=-0.338$ ), moderate association between age and use of filled food toys ( $\gamma=-0.166$ ), and weak association between age and feeding human food scraps ( $\gamma=0.088$ ). Agreement between owner-reported and veterinarian-reported BCS at 12 months was minimal (kappa=0.29) [4]. It's suggested that disparity between owner and veterinary assigned BCS assessment is a risk factor for the maintenance of an optimal BCS throughout a dog's life; veterinary assigned BCSs being considered more reliable than those assigned by owners [5]. It was acknowledged that at 12 months larger breeds of dog could still be growing, which was a limitation of using BCS assessment over standard growth charts for monitoring weight gain at this age [6].

**Conclusion.** Within this sample, owners' behaviours related to feeding and diet began to change when puppies reached 12 months of age. Some of these changes were predictable according to standard feeding guidelines for adult dog foods (e.g. meal feeding frequency). Whereas some changes were less advisable due to their association with obesity (e.g. feeding human food) [7] or were missed opportunities to increase mental stimulation and positive experiences in dogs' daily routines (e.g. use of feeding enrichment). Future research should compare these feeding and diet variables alongside BCS and body weight at later timepoints in a dog's life to assist in the understanding of their association with canine weight gain, and to help identify timepoints for recommending interventions.

**References:** [1] Generation Pup (2018) Generation Pup [online]. Available at: <https://generationpup.ac.uk/>; [2] Peoples Dispensary for Sick Animals (2018) *PSDA Animal Wellbeing Report 2018* [online]. Available at: <https://www.pdsa.org.uk/media/4371/paw-2018-full-web-ready.pdf>; [3] Laflamme, D. (1997) Development and validation of a body condition score system for dogs. *Canine Practice* **22**(4); [4] McHugh, M. (2012) Interrater reliability: the kappa statistic. *Biochemia medica: Biochemia medica* **22** (3): 276-282; [5] White, G., Hobson-West, P., Cobb, K., Craigon, J., Hammond, R., & Millar, K. (2011) Canine obesity: is there a difference between veterinarian and owner perception? *Journal of Small Animal Practice* **52**(12), 622-626; [6] Salt, C., Morris, P., German, A., Wilson, D., Lund, E., Cole, T. & Butterwick, R. (2017) Growth standard charts for monitoring bodyweight in dogs of different sizes. *PLoS ONE* **12**(9): e0182064; [7] Kienzle, E., Bergler, R., & Mandernach, A. (1998) A comparison of the feeding behavior and the human–animal relationship in owners of normal and obese dogs. *The Journal of Nutrition* **128**(12), 2779S-2782S.