



DEVELOPMENT OF A PROTOCOL TO EVALUATE CANINE SATIETY THROUGH INTAKE AND BEHAVIORAL PARAMETERS

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OBJECTIVE

To create and validate a protocol to evaluate whether a diet is satiating for dogs or not by combining intake and behavioral parameters.

INTRODUCTION

- **Obesity** rate is increasing → orthopedic, metabolic and cardiovascular disorders → lower life quality and life expectancy.
- Nutritional management: **energy restriction**. Main challenge: **maintaining the feeling of satiety** → if not, increased food-seeking behavior and demand of more food → stressed dog and owner → **diet abandonment**.

Need to find useful tools to assess the satiating potential of new foods.

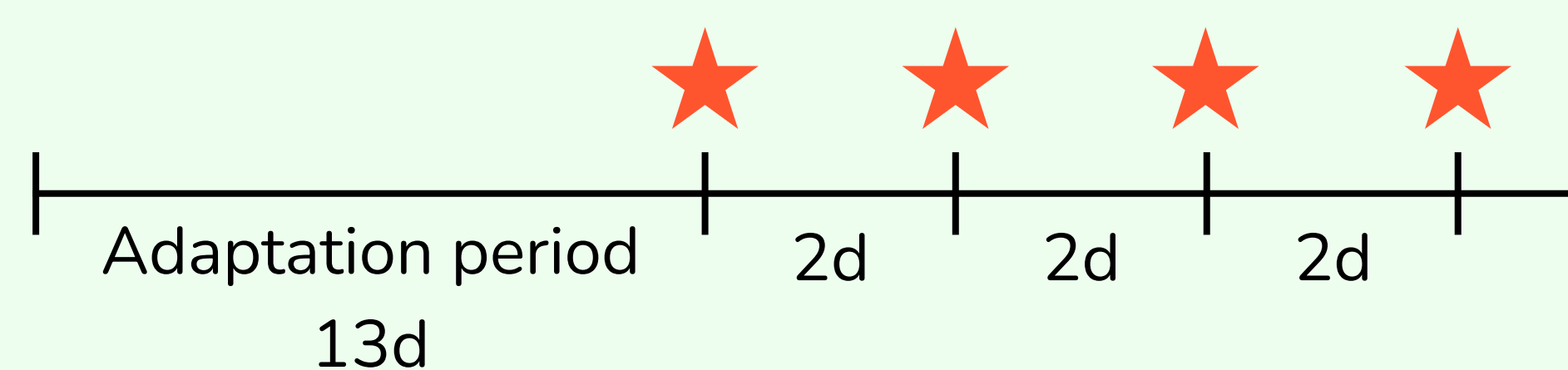
MATERIALS AND METHODS

12 Beagle dogs → 2 groups of 6 dogs each:

Satiety diet (SCTY): EM = 2.540 kcal/kg

Control diet (CTR): EM = 3.850 kcal/kg

- Food is served at 10am during 7 minutes every day → intake of each dog is recorded.
- **Test days** ★: second meal 4 hours later during 7 minutes using an anti-gulping feeder → intake and ethogram parameters are recorded.



- **Statistical analysis**: Mann-Whitney non-parametric test, Fisher's exact test, and repeated measures analysis.

Table 1. Ethogram parameters: units and definition.

Hesitation (seconds)	Time from when the food is given until they begin to eat.
Interruptions (units)	Number of times the dog interrupts its meal and focuses its attention on something else.
Time to eat it all (minutes : seconds)	Time it took them to eat all the food in the bowl, if they did.
Interest in keep eating (0, 1, 2)	If they finished the food: time they spend licking the bowl. If they didn't: attitude towards the bowl and reaction to removing it.

Table 2. Dietary intake and weight gain along the study.

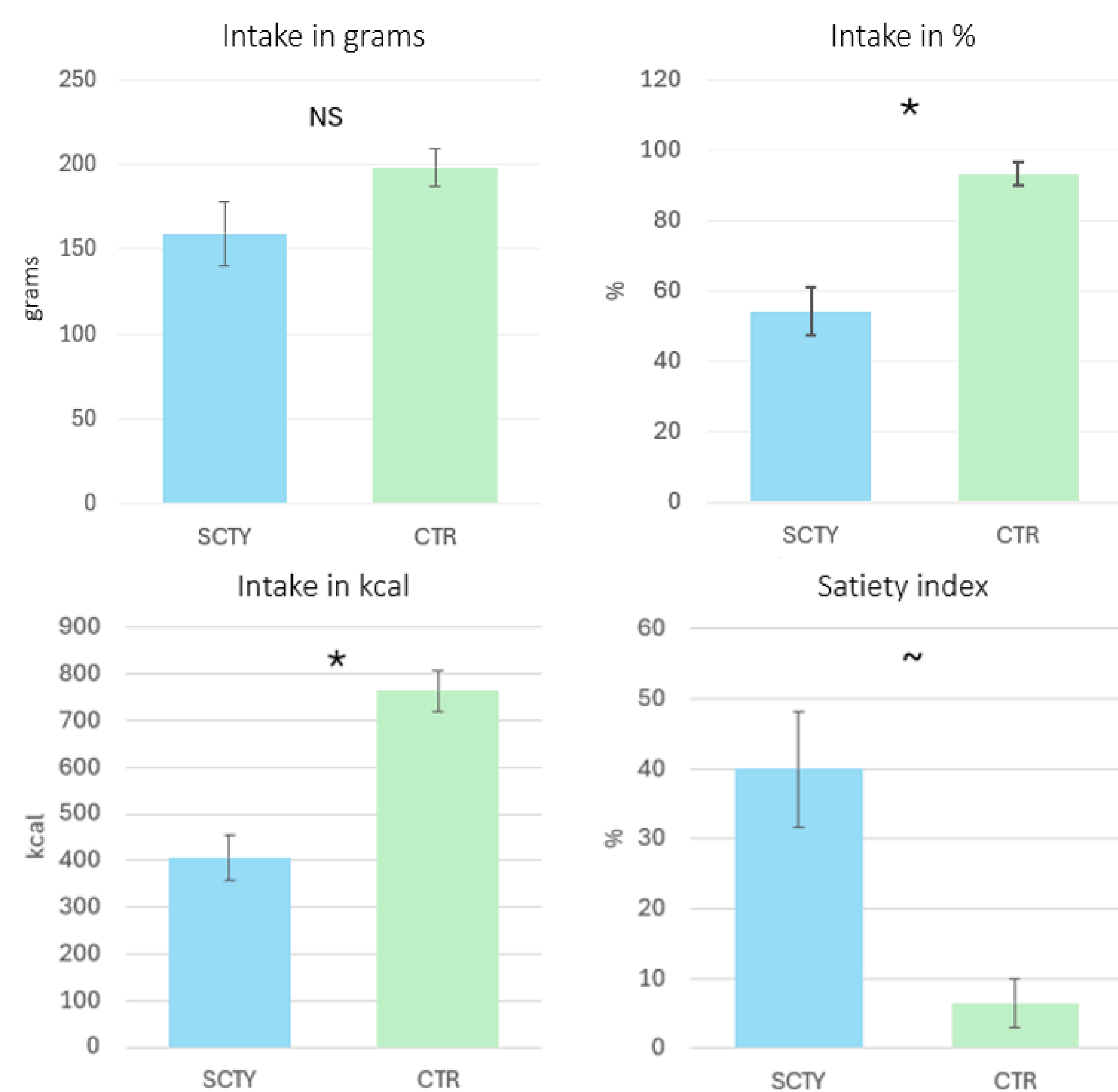
	CTR	SCTY	p value
ADFI (g/d)	210 ± 39,16	291,8 ± 43,19	0,008
ADFI (%)	100	94,22 ± 7,04	0,008
ADEI (kcal/kg PV ^{0,75})	97,75 ± 12,72	112,72 ± 16,39	ST (0,074)
ADG (g/d)	57,67 ± 19,73	32,67 ± 14,12	0,027

ADFI: average daily food intake. ADEI: average daily energy intake. ADG: average daily gain. ST: statistical trend.

RESULTS

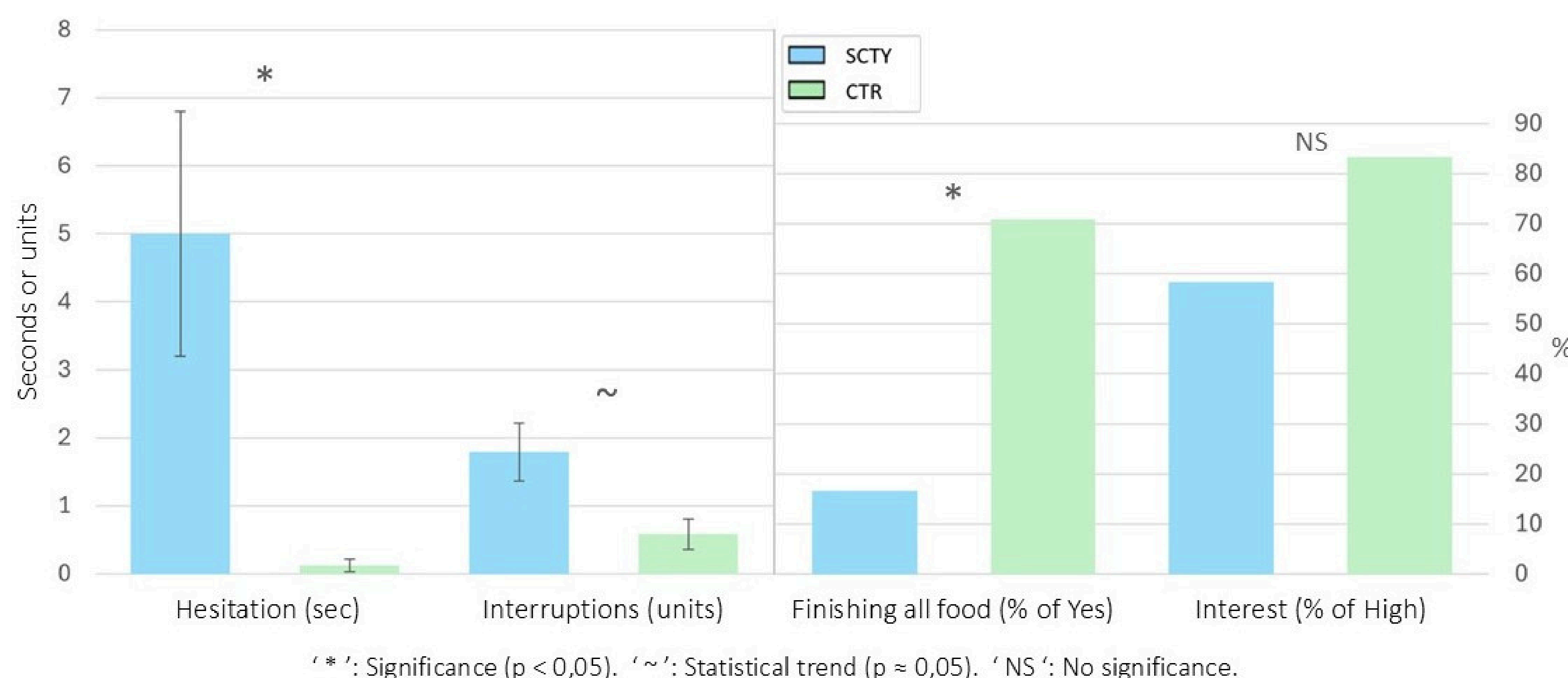
Along the study, the SCTY group showed a lower ADFI and ADG than the CTR group (Table 2).

During test days, SCTY feed consumption was lower, also when comparing to the first feeding (SI) (Figure 1). Behavioral differences were found, especially in hesitation time, % of finishing all food and interruptions (Figure 2).



* *: Significance (p < 0,05). '~': Statistical trend (p ≈ 0,05). 'NS': No significance.

Figure 1. Test days: average feed intake (in grams and %) and average energy intake (kcal) in the second meal, together with satiety index (%).



* *: Significance (p < 0,05). '~': Statistical trend (p ≈ 0,05). 'NS': No significance.

Figure 2. Ethogram: hesitation (seconds), interruptions (units), finishing all food (% of yes) and interest in continuing to eat (% of high).

CONCLUSIONS

- The combination of intake measurements together with behavioral parameters was effective in assessing the satiating effect of a dog diet.
- Despite limitations such as small sample size, limited sensitivity of some behavioral variables, and the lack of comparison with other types of feeders, it remains a useful model.