



BALL FEEDING INCREASES PHYSICAL ACTIVITY AND REDUCES BODY WEIGHT REGAIN AFTER A WEIGHT LOSS DIET IN CATS

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INTRODUCTION

After a weight loss program, cats have difficulties to maintain body weight (BW) and usually they regain their initial BW quicker than desired. A lack of owner compliance and a decrease in energy expenditure are the main causes for this quick regain¹. Feeding enrichment with puzzle feeders, from which food has to be obtained by rolling, have been proposed to help obese cats to lose BW² while improving physical well-being³. The purpose of this study was to evaluate if enrichment with a feeding ball would increase objectively-measured physical activity, food intake and its repercussion on BW after a weight loss diet.

RESULTS

As there was no difference between diets, data from both diets were pooled and only feeding condition and period effects are discussed. A significant effect of the cross-over period was observed on food intake and BW regain independently of the type of feeding. During the first 3-months period, food intake was higher (55 ± 7 kcal/kg BW vs 46 ± 7 kcal/kg BW; $p=0.000$, fig. 1) and BW regain was faster (0.8%/week vs 0.09%/week; $p=0.000$) than in the second period in both diet groups, probably due to a seasonal effect and/or a compensatory effect after energy restriction. Mean temperature in the first period (April-July) was $18,7^\circ\text{C}$, while in the second period (July-October) was $21,2^\circ\text{C}$. Feeding ad libitum with a FB versus CB resulted in an increased physical activity (+34%, $p=0.000$, fig. 3a), in a reduced food intake (-3.74 kcal/kg BW, $p=0.000$, fig. 3b) and in a lower BW regain of the cats ($3.8 \pm 2.2\%$ vs $7.6 \pm 2.5\%$, $p=0.014$, fig. 3c).

SUMMARY AND CONCLUSIONS

In conclusion, ball feeding could be an interesting strategy to apply in overweight cats after weight loss programs to increase physical activity and reduce food intake, slowing down BW regain. The higher physical activity seen with ball feeding could also be a useful tool to improve the well-being of normal or overweight cats.

MATERIALS AND METHODS

Eleven healthy colony cats were used for this study. Cats had been firstly energy-restricted for 3 months to induce a 15% BW loss with 2 different low-fat energy-restricted diets [diet A (n=6), as is, measured metabolizable energy (ME) 3290 kcal/kg, protein 40%, fat 11%, starch 17%, total dietary fiber (TDF) 22%; diet B (n=5), as is, ME 3310 kcal/kg, protein 36%, fat 8%, starch 28%, TDF 18%]. Then, in a cross-over design, each group of cats received during 3 months their low-fat diet *ad libitum* in 2 different feeding systems: in a conventional bowl (CB) or in an interactive feeding ball (FB). Daily physical activity was monitored by accelerometers placed in cats' harness (Actical® from Philips Respironics). Daily food intake and weekly body weight were recorded. A general linear model (GLM) with repeated measures was performed to assess feeding condition, period and diet effects on physical activity, BW regain and food intake. Values were considered as statistically significant for P value < 0.05 (SPSSv17.0).

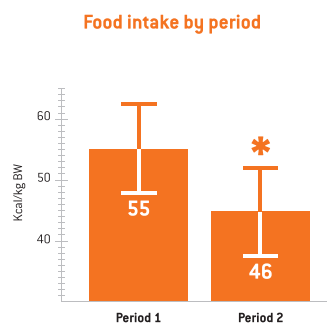


Fig. 1. Mean food intake comparison in both periods of the cross-over. ** $p<0.001$

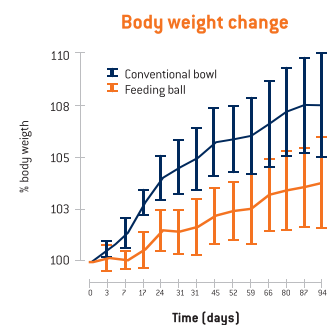


Fig. 2. Percent change of body weight during the 3 months study depending on the feeding system used. Values are means \pm sem. (n=11)

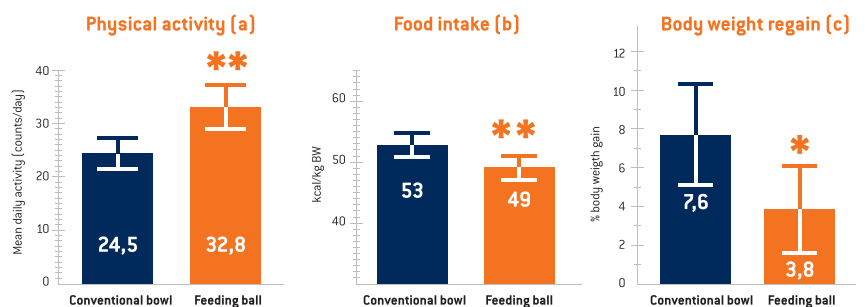


Fig. 3. Mean daily physical activity registered by accelerometers (a), caloric food intake corrected by animal body weight (b) and percentage of body weight gain (c) of the cats depending on the feeding system used. Values are means \pm sem. (n=11) ** $p<0.001$, * $p<0.05$

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CONFLICT OF INTEREST DISCLOSURE STATEMENT

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