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Effects of free versus scheduled feeding on shelter dogs exhibiting food-related aggression

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Effects of free versus scheduled feeding on shelter dogs exhibiting food-related aggression

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Background

In dogs, food can set the occasion for aggressive behavior (e.g. Overall, 1997). This behavior is characterized by stiffening, gulping, growling, freezing and/or biting while the dog is eating (Mohan-Gibbons, Weiss & Slater, 2012). For dogs that are homeless and in a shelter, exhibiting that behavior in the shelter environment is the most frequently cited reason for considering a dog unadoptable (Mohan-Gibbons, et al., 2012).

However, the variables that affect food-related aggression are not well understood. For example, dogs that exhibit food-related aggression in the shelter do not always exhibit the behavior in their adopted homes and dogs that do not show food aggression in the shelter may exhibit the behavior later in their adopted homes (Marder, Shebelansky, Patronek, Dowling-Guyer, D'Arpino, 2013). Of the many potential variables, perhaps one of the easiest for shelters to manipulate may be a change in degree of food access.

Research Questions

Does free access to food reduce food guarding behavior in shelter dogs?

Do repeated assessments increase food guarding behavior in shelter dogs?

Materials and Methods

Shelter dogs were assessed using the ASPCA SAFER® Aggression Assessment. Dogs that exhibited food guarding behavior during the assessment and showed no other aggression were placed in one of four experimental conditions. Dogs in Group A had free access to food for three days, were reassessed and then received twice daily meals (i.e. scheduled feeding) for three days followed by a final assessment. Reassessments were performed only on the food and resource guarding sections of the SAFER assessment. Dogs in Group B were exposed to the assessment followed by three days of scheduled feeding, then a reassessment followed by three days of free access to food, and then a final assessment. Dogs in Group C served as a control for repeated testing. Dogs who did not show any aggression in the initial assessment were placed in Group C, exposed to three days of scheduled feeding, reassessed, exposed to three more days of scheduled feeding, and assessed once more. To test for effects of length of exposure to free feeding, dogs in Group D were exposed to the initial assessment followed by nine days of free feeding and then reassessed. Finally, dogs in Group E were exposed to the initial assessment followed by nine days of scheduled feeding and then reassessed.

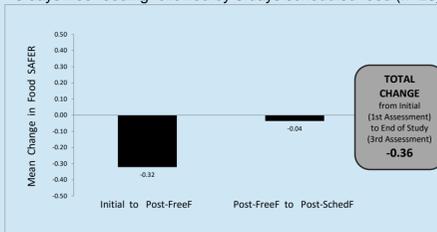
Mean scores on the food portion of the SAFER assessment were calculated for each group at each assessment. A one-sample *t* test was conducted on the mean change in Food SAFER score between assessments and from initial SAFER food score to final score.



Results

The mean change scores for all groups were calculated between assessments, as well as total change through the experimental period for groups A, B and C, which can be seen in the figures below. A one-sample *t*-test was conducted on the mean change in food SAFER scores between assessments and overall to determine if the change in score was significantly different than zero.

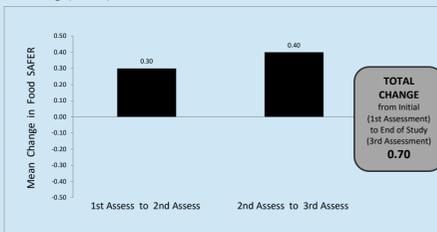
Group A — dogs initially showing food guarding behavior - 3 days free-feeding followed by 3 days scheduled feed (n=28)



From initial assessment to post-free-feeding: $t(27)=-1.88$, $p=.07$
From post-free-feeding to post-scheduled-feeding: $t(27)=-.33$, $p=.74$

Overall change in food SAFER score: $t(27)=-1.67$, $p=.11$
All of these results indicate there was no significant change in scores at any point in the study for dogs in Group A.

Group C — dogs that did not initially show food guarding behavior - 3 days scheduled feeding followed by 3 more days scheduled feeding (n=20)



From initial assessment to second assessment: $t(19)=2.35$, $p=.03$
From second assessment to third assessment: $t(19)=1.90$, $p=.072$
Overall change in food SAFER score: $t(19)=3.39$, $p=.003$
These results indicate there was a significant change in scores between initial assessment to second assessment as well as overall during the study period for dogs in Group C. Overall the food SAFER scores for dogs in Group C increased by 46.67%.



Group B — dogs initially showing food guarding behavior - 3 days scheduled feeding followed by 3 days free-feeding (n=39)



From initial assessment to post-scheduled-feeding: $t(38)=-0.85$, $p=.401$

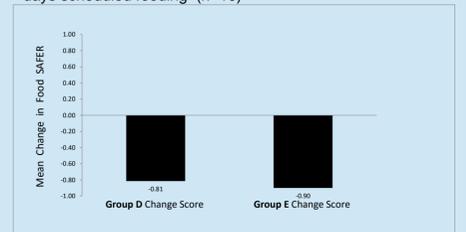
These results indicate there was no significant change in scores between initial assessment and post-scheduled feeding for dogs in Group B.

From post-scheduled-feeding to post-free-feeding: $t(38)=-2.04$, $p=.048$

Overall change in food SAFER score: $t(38)=-2.12$, $p=.041$
These results indicate there was a significant decrease in scores both from post-scheduled-feeding to post-free-feeding, and overall through the study period. Overall the food SAFER scores for dogs in Group B decreased by 10.38%.

Group D — dogs that initially showed food guarding behavior - 9 days free-feeding (n=27)

Group E — dogs that initially showed food guarding behavior - 9 days scheduled feeding (n=10)



Group D — from first assessment to second assessment: $t(26)=4.08$, $p<.01$

Overall the food SAFER scores for dogs in Group D decreased by 25.14%.

Group E — from first assessment to second assessment: $t(26)=-2.38$, $p=.041$

Overall the food SAFER scores for dogs in Group E decreased by 21.43%.

Both groups showed a significant change in SAFER scores.

Conclusions

There was no consistent decrease in food SAFER scores associated with free-feeding in this study. Over a nine-day period, dogs who were schedule fed were nearly as likely to decrease their score as the free-fed dogs. Both groups decreased significantly during the nine-day period regardless of their access to food. Dogs in Group C did show increases in their food SAFER scores, with an average change score of 0.70. This could indicate that repeated assessing does have an increasing effect on food SAFER scores, but there are other factors to consider, including that the dogs all started with very low scores (1 or 2), thus there may have been a floor effect.

Many dogs who initially showed food guarding behavior on their assessment, across conditions, had a decrease in their score by the end of the study period. Other dogs showed an increase in SAFER score. These changes were not determined by feeding schedule, however. As a whole, these findings bring into question whether free feeding can be used to reduce or eliminate food guarding in dogs.

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