



## ***A pilot study on the effectiveness of problem solving games in reducing timorousness in dogs.***



**Marcella Zilocchi\***, Chiara Mariti, Jessica Cimminisi, Francesca Papi, Claudio Sighieri, Angelo Gazzano.  
Department of Physiological Sciences, University of Pisa, Viale delle Piagge, 2 - 56124 Pisa (Italy).  
Corresponding author: [\\*zilocchi@vet.unipi.it](mailto:*zilocchi@vet.unipi.it)

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### **INTRODUCTION**

The problem solving games were often recommended in cognitive behaviour therapy for timorous dogs.

### **AIM**

In the current study behavioural changes in timorous dogs after attending problem solving sessions were assessed.

### **MATERIALS, METHODS AND SUBJECTS**

The sample consisted of 8 female dogs (1 Bichon frisé, 1 Weimaraner, 1 Chihuahua, 1 Rottweiler, 1 Bolognese and 3 mixed-breeds); the mean age was  $23.75 \pm 11.71$  months. The degree timorousness was evaluated through four subtests belonging to the Dog Mentality Assessment, assessing behaviour toward people.

The test exposed the dogs to a number of different situations and the handler (the owner or another familiar person) accompanied the dog during the whole test (K. Svartberg, B. Forkman, 2002):

the first subtest consisted of social contact with a stranger (test leader, TL) who approached the handler and then tried to walk the dog.

In the second, another TL was hooded and encouraged the dog to play moving in front of him/her and shaking a rope.

In the third a manikin suddenly appeared in the dog's path.

In the last subtest, Passive situation, a third TL spent 3 minutes talking to the dog handler without interacting with the animal.

In each subtest the dogs behaviour score was assigned by two trained observers and it varied from 1 (extreme display of timorousness) to 5 (no timorousness).

After the test, all dogs underwent problem solving sessions with games of increasing difficulty in which they had to gain the tasty food hidden by: upside down glass (fig. 1), bin, rolled towel (fig. 2), cage, twister, doggy brain train cube, roulette, inclined tube (fig. 3), and pull-the-plate.

The number of sessions needed to solve all the games was  $5.63 \pm 0.92$ .

Sixty days after the first test, dogs underwent though all tests again to assess possible behavioural changes toward proposed stimuli.

Data were statistically analyzed by using the Wilcoxon and X<sup>2</sup> test ( $p < 0.05$ ).



**fig. 1** level one for inexperienced learners



**fig. 2** level two for medium learners



**Fig.3** level tree for advanced learners

### **RESULTS**

After the problem solving sessions we noticed the tendency to increase the score of single step in every subject, for example:

fig. 4

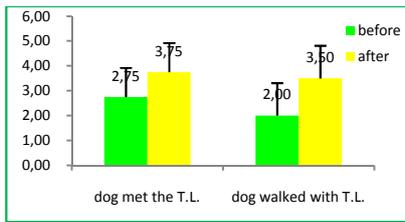
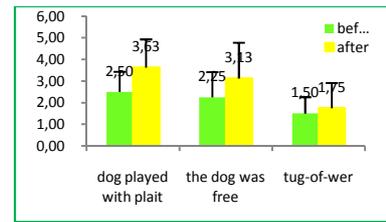


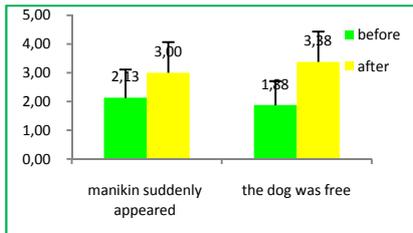
fig. 5



In the first subtest the experimental data showed a great improvement (in the first step:  $2.75 \pm 1.16$  vs  $3.75 \pm 1.16$ ; in the second step:  $2.00 \pm 1.31$  vs  $3.50 \pm 1.031$ ).

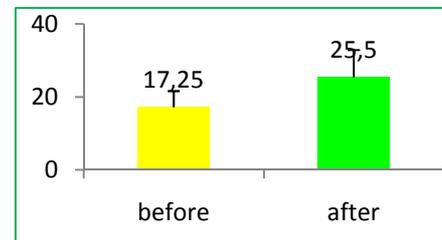
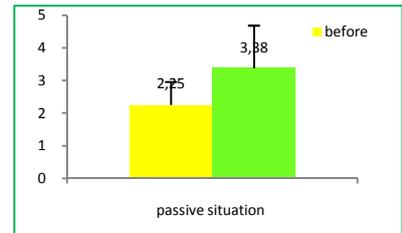
In the second the T.L. was hooded and incited the dog to play. Subsequently the owner unleashed the dog and the T.L. encouraged the dog to play tug-of-war.

fig. 6



In the third subtest we tested the dog's reactions when the manikin suddenly appeared and when the dog was off-leash.

In the last subtest, the passive situation, the owner held her/his dog by the leash for three minutes while talking to the T.L..



Dogs were found to be less timorous in the second test: the total score increased (17.25 vs 25.50;  $W = -36.0$ ;  $p < 0.024$ ) and the number of times dogs showed no sign of timorousness (score=5) was statistically higher (8 vs 0;  $X^2 = 6.533$ ;  $p = 0.011$ ).

fig. 8: the data in the second test after the problem solving sessions

## DISCUSSION AND CONCLUSION

Anxiety is the feeling of apprehension due to the anticipation of some unidentified threat or danger. For most dogs, this means a temporary stressor is present and recovery occurs quickly. (B.V.Beaver, 2009).

A general tendency of fearfulness, which influence approach and avoidance behaviour in a range of situations has also been found earlier in dogs (Goddard, Beilharz, 1984).

Obviously the dogs had the capacity and the necessity to do mental experience. If a dog was inactive for all the day, he/she was bore. In this case these dogs could have a behaviour problems. (Hallgren A., 2003).

In this study the problem solving allowed a behavioural modification, in fact dogs improved their response to a stressful stimulus.

These preliminary data suggest that problem solving sessions where dogs are successful may be effective in reducing timorousness.

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