

# The Evidence Is Overwhelming – Or Is It?

*A Review of Dog Training Tools and Methods Research*

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## Analysis

<sup>5</sup> Deldalle S, Gaunet F. Effects of 2 training methods on stress-related behaviors of the dog (*Canis familiaris*) and on the dog–owner relationship. *J Vet Behav.* 2014;9(2):58-65.

Is the study Correlational Research or Causal Research?

Correlational Research

From the Abstract: *“This exploratory study reveals the differential effects of the 2 training methods on dogs’ behaviors; it suggests that training methods based on positive reinforcement are less stressful and potentially better for their welfare.”*

The research is presented as an “exploratory study.” “Suggests” and “potentially” are used because a causal relationship cannot be established. However, intentionally or not, the authors used language “experiment/experimental” which implies causal research.

In the Methods Section: *“For the experiment, the dogs came from advanced classes in both schools.”*

Which sub-type of study best describes the research?

Case-control study: Case-control studies analyze people exhibiting a certain outcome, referred to as the cases, with those not exhibiting the outcome, or the controls, to compare the levels of exposure of an agent in each group. **Researchers in case-control studies want to determine if an association exists between exposure (training methodology) and a certain outcome (stress).**

Are there any potential problems with the study?

Yes.

- 1) The main problem with the study is that subjective observations (From *“Table 3 The 4 types of behaviors of the dog recorded (1-0 sampling) according to the 2 training exercises observed”* such as mouth licking, yawning, gaze, posture, etc. were all evaluated by one person. In Olympic diving events, there are seven judges evaluating a quality of a dive, which is a subjective measure. The process for becoming a certified judge is extensive (<https://learning.fina.org/wp-content/uploads/2022/03/2022-02-10-DV-Certification-Pathway-2019-2022.pdf>) and is governed by World Aquatics, formerly known as FINA (Fédération Internationale de Natation), <https://www.worldaquatics.com/about>. Because of the variability of subjective interpretation, multiple judges, seven judges in the case of Olympic diving, are making an assessment. The same holds true for the evaluation of stress in dogs by observation. This concern **is not** at all calling into question the expertise of the observer in this study. Also, the accuracy and precision of the subjective measures were not determined, as should be the case with any measurement system.

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- 2) The bias of the single observer may have played a role in the results as well. A hypothesis was stated twice in the Discussion Section:

*“Third and more importantly, the results for the dogs’ behaviors support our hypotheses: in the group trained with the method based on negative reinforcement, a greater proportion of dogs displayed stress-related behaviors, low postures, and avoidance behaviors (though no statistics could be computed for the latter behavior) during the sit command, and a smaller proportion of dogs gazed toward the owners during both exercises than in the group trained with the positive reinforcement-based method.”*

*“These results thus confirm our hypothesis: dogs involved in the positive-training program displayed a greater propensity to visually interact, which in turn suggests a more stable relationship within those dyads.”*

The evaluations were not “blind,” in that the observer knew the methodology (R+ or R-) being used at the time of the observation. There is no conclusive way to determine if bias was a factor, but blind observations would have reduced the effect of possible observer bias.

To their credit, the authors recognized bias as a potential problem: In the Discussion Section: *“Involving an additional blind observer for part of the data collection in a masked manner would dismiss any potential observational bias...”*

### Additional Comments

Recommendations were made about improving the research methodology in the Discussion Section:

- 1) *“We suggest increasing the sample of training schools to compensate for possible school individual variations.”*
- 2) *“Increasing the number of measures by dog and exercise would strengthen these preliminary results.”*
- 3) *“Involving an additional blind observer for part of the data collection in a masked manner would dismiss any potential observational bias and limit the risk of intrusiveness that may affect behaviors of owners and trainers.”* (Previously mentioned in the Potential Problems Section of this paper)
- 4) *“Finally, replicating the study in beginners, as for assessing the effect of the novelty of the situation for the dogs and of the greater number of R+ and R- stimuli, as well as in more advanced dogs when food reward has disappeared from the owner’s behavioral repertoire, would provide a comprehensive view on the effect of the training methods.”*

Implementation of these recommendations on their own would not move the research from correlation to causal.