

# The Evidence Is Overwhelming – Or Is It?

A Review of Dog Training Tools and Methods Research

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## Analysis

<sup>6</sup> Cooper JJ, Cracknell N, Hardiman J, Wright H, Mills D. The welfare consequences and efficacy of training pet dogs with remote electronic training collars in comparison to reward based training. PLoS One. 2014;9.9:e102722.

### Is the study Correlational Research or Causal Research?

Because of the level of detail in the Study Design section, it is worthwhile to present it here in its entirety and then analyze whether the study is correlation or causal (**emphasis added** below). Some potential problems with the study are presented here.

*“The paper presents findings of two studies; a preliminary study involving nine dogs was used to generate initial qualitative data on the use of these devices under typical conditions and refine data collection techniques in the field. This was followed by a larger, **controlled study** which involved 63 dogs. For this, **volunteered subjects** who had been referred for problems commonly addressed using e-collars such as recall problems and livestock worrying [13] **were allocated with the informed consent of owners to one of three Groups, one using e-collars and two control populations where dogs were not exposed to e-collars** (Table S3 in File S2). The e-collar treatment Group (Group A) consisted of dogs referred to professional trainers who were experienced in the use of e-collars to improve off lead recall. Control Group B were dogs referred to the same trainers but trained without the use of e-collars, whilst Control Group C included dogs with similar behavioural problems to those in Group A, but referred to professional trainers who were members of a professional training association focused on reward based training, that do not allow use of e-collars (or other potentially aversive techniques or equipment) by their members (Association of Pet Dog Trainers, UK). Dogs in Groups B and C were subject to the same protocols as those in Group A but with no use of e-collars. Training focused on improving off lead recall when dogs were exposed to livestock (sheep, poultry) and other dogs. Behavioural and physiological data that related to dog’s emotional state [8,20] were collected during training to assess the immediate impact of exposure to e-collar stimulus in comparison to control Groups, as well as adaptation to training protocols. **Dogs were allocated to treatment Group A and control Groups B and C using owner’s pre-training assessment of the nature of the referred problem and its severity in order to balance these factors across the three Groups, and owners were surveyed following training to assess the efficacy of training.**”*

- 1) Two control groups were assigned, both of which did not use an e-collar for training. Control groups are a characteristic of true experimental research (causal).
- 2) The study design does not indicate that the subjects were randomly assigned, as would be the case in true experimental research (causal).
- 3) Additionally, the dogs were “allocated” to one of the three groups “using the owner’s pre-training assessment of the nature of the referred problem and its severity.” There is no discussion regarding the means of selection and assignment, either in the study design or Table S3.

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- 4) Using owner assessments (surveys) are characteristics of correlation research. Comparison of pre-training and post-training owner surveys were intended to evaluate the efficacy of the training.
- 5) There is no stated hypothesis in the study design, although the following statement was found in the “Main Study” section:  
*“The primary justification for the inclusion of the three Groups used was as follows: any significant differences between Group A versus B and C would most likely reflect the effect of the use of an e-collar in training; whereas differences between Groups A and B versus C would most likely reflect either trainer or environmental effects. As previously mentioned, the inclusion of Group C, ensured that we matched for trainer experience and familiarity with preferred training techniques (including their choice to include or exclude e- collar use). Therefore differences between A and C can be considered to reflect differences between best practice use of the e- collar and best practice which excluded the use of an e-collar.”*
- 6) Since there was no hypothesis, there was no prediction. Prediction is an element of causal research.
- 7) The study was not replicated as is the case with true experimental design (causal), although the authors stated, *“When trying to draw conclusions about the welfare implications of an intervention it is important to triangulate the available evidence in order to make the most robust inferences. Accordingly in the discussion below, we consider the significant effects after correction for false discovery and then evaluate these in light of the more marginal effects (i.e. effects that would have been significant if the difference observed had been replicated in a sample size twice that used).”*

Which sub-type of study best describes the research?

Not applicable for quasi-experimental.

Are there any potential problems with the study?

Yes. In addition to the potential problems identified in the first section of this paper, #'s 2-7:

- 1) The choice of stimulation levels on the two e-collars was vastly different. According to the operation manuals:
  - a. The SportHunter® 1825 Collar Receiver comes with 3 static stimulation ranges (low, medium and high). There are 8 stimulation levels within each range, with 1 being the lowest and 8 being the highest. The default range setting is 2 or medium (SD-1825\_SportHunter\_1825\_Manual.pdf).
  - b. Moving the dial from the zero setting in a clockwise manner, electrical stimulation will begin at a lower setting. Continuing clockwise will increase the stimulation level in a liner progression-no steps or increments up to the highest level (100) (DOGTRA DOC21\_20090821\_1200Series.pdf).

The two collars are vastly different in the levels of stimulation produced, which introduces a variable for which the research does not consider.

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- 2) The conclusions drawn by the authors were tentative (**emphasis added**):
  - a. *“Our results indicate that the immediate effects of training with an e-collar give rise to behavioural signs of distress in pet dogs, **particularly when used at high settings.**”*
  - b. *“...there are still behavioural differences that are consistent with a more negative experience for dogs trained with e-collars, **although there was no evidence of physiological disturbance.**”*
- 3) Other information provided in the study seem to contradict the overall conclusion, or at least weaken the conclusion to “further study is needed.”
  - a. *“Panting appeared to be twice as common in Group A dogs (20% of scans) as Groups B and C (both about 10%), **however, this was not a significant effect.**”*
  - b. *“Overall, lip-licking was similar between the three training approaches, however, when this was separated between lip-licking in association with food, then Group C dogs showed more food related lip-licking than dogs in either Group A or B. In contrast, differences in lip licking in absence of food were not significant at the sample sizes in this study.”*
  - c. *“Sudden movements away from trainer, including rapid turning away of head or body movements, appeared to be least common in Group C, **though this was not significant at the sample size of the study.**”*
  - d. *“Dogs in Group A appeared to engage in most yelping, **though yelping was rare in all Groups and most dogs were not recorded yelping in any training session.** It appeared to be about 5 times more common in Group A than in either Group B or C, **but this apparent difference was not significant.** As with panting, yelps appeared to be primarily observed in a small number of dogs in Group A;”*
  - e. *“Overall there was no significant difference in urinary cortisol to creatinine ratios between Groups before ... or after training...”*