Positive Reinforcement is More Effective at Training Dogs than an Electronic Collar, Study Shows

By Zazie Todd, PhD

New research got professional dog trainers to train dogs who had issues with off-leash disobedience. Positive reinforcement worked better than an electronic collar, without the risks.

We've known for a while that training dogs with aversive methods, including electronic collars, has risks for animal welfare. Positive reinforcement training is effective and does not have those risks. New research from the University of Lincoln, published today in Frontiers in Veterinary Science, finds that in a typical situation where proponents of electronic collars often recommend them, positive reinforcement training by trainers who specialize in reward-based training works better than training with or without a shock collar by trainers who would normally use a shock collar.

The scientists say, *"These findings refute the suggestion that training with an E-collar is either more efficient or results in less disobedience, even in the hands of experienced trainers. In many ways, training with positive reinforcement was found to be more effective at addressing the target behavior as well as general obedience training. This method of training also poses fewer risks to dog welfare and quality of the human-dog relationship. Given these results we suggest that there is no evidence to indicate that E-collar training is necessary, even for its most widely cited indication."*

Three groups of dogs (63 dogs in total) were trained over 5 days. All of the dogs had issues with obedience off-leash, mainly with recall (coming when called). The study compared three groups:

- Training using an electronic collar by trainers who were nominated by the Electronic Collar Manufacturer's Association

- Training by the same trainers but not using an electronic collar, using the methods they would normally use in that situation (control group 1)

- Training by professional trainers who normally use positive reinforcement (control group 2, reward-based training)

All of the dogs wore an electronic collar so that the observers who assessed their body language on video would not know which group they were in. For the dogs in the two control groups, the collars were deactivated prior to being put on the dogs.

The data was collected as part of a study funded by DEFRA in the UK (which I wrote about here). An earlier report looked at stress levels in the dogs and how well owners rated the results of the training (Cooper et al 2014). It found behavioural signs of stress in dogs trained with the shock

collars, and no difference in owner's reports on the success-fulness of training.

The current study looks at how quickly dogs responded to the commands "Come" and "Sit", how often the commands were said before getting a response, and how often the dog disobeyed by not doing the command within a 10s time-frame.

While all of the groups successfully taught the dogs the two commands, there were some important differences. Dogs in the reward-based group were more likely to respond to the commands the first time they were said, and less likely to have commands repeated to them. As well, they were quicker to respond when they heard "Come" and quicker to get their bottom on the ground in response to "Sit".

The scientists write, "This suggests that the reward-based training was the most effective approach not only for recall which was the target behavior in training, but also for other commands, even though the reward based trainers did not spend as much of their time training on sit command as the other two training groups."

There were some differences in training style that are worth mentioning. The number of verbal signals given was the same across all of the groups, but control group 1 gave more hand and lead signals than the electronic collar group. The reward-based trainers gave the least hand and lead signals. While the trainers in control group 1 sometimes used food rewards, they did not use as many as in the reward-based group. Trainers in the electronic collar group and control group 1 sometimes used jerks to the leash and contact with the dog (such as pushing the dog into a sit). These methods were not used by the reward-based trainers.

The trainers in the electronic collar group and control group 1 tended to work on both recall and sit, while the reward-based trainers mainly concentrated on recall, using food as a reward. The scientists sum up the difference in styles by saying, "In summary, this group appeared to use the simplest and clearest contingencies for associative learning."

The study took place in the UK, where use of electronic collars has gone down significantly in recent years and is estimated at 1% of pet dogs. This is according to a 2019 survey from the PDSA who nonetheless estimate that this means around 100,000 dogs in the UK are trained with shock collars. Both the English and Scottish parliaments have already announced plans to ban the use of electronic collars (not yet enacted in law), and Wales banned them (including electronic fences) in 2010.

An earlier review of the literature from a different group recommended that electronic collars be banned throughout Europe (where some countries, but not all, already have a ban). This research will add weight to that call, and will also add to calls in other countries to introduce bans.

Another implication is for dog trainers who currently use electronic collars but would like to move towards reward-based methods. To those trainers, I would suggest investing in education and learning more about the use of positive reinforcement as a technique. There are many trainers who have made the crossover to reward-based methods, and there is plenty of room for more.

The full paper by China et al is open access (link below) and is well worth a read if you would like to know more about the training methods used and the results.

References

China, L., Mills, D.S. & Cooper, J.J. (2020) Efficacy of dog training with and without remote electronic collars vs. a focus on positive reinforcement. Frontiers in Veterinary Science, https://doi.org /10.3389/fvets.2020.00508.

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