



ANIMAL BEHAVIOUR AND WELFARE CASES

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Cooperative Care Does Not Scare – Use of Cooperative Care Training in Routine Husbandry in Dogs

This case study reviews the impact of training for choice and control on the stress levels of dogs during routine nail clipping. Considering behavioural signals of stress and wider considerations of the application of choice and control for routine husbandry procedures.

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Abstract

Empowering animals with choice, which increases predictability and control during husbandry procedures, has the potential to increase their well-being and the safety of the handler. This case study will consider differences in dogs' clinical signs indicating stress during nail clipping when done with or without choice and control. Dogs were in two independent groups based on owner's current husbandry routine – group 1, where the dogs had been trained with choice and were not restrained during nail clipping and group 2, where the dogs were restrained during nail clipping. Group 2 showed more stress signals. These findings suggest that offering choice and control to a dog during husbandry procedures will most likely lower the clinical sign of stress, possibly having a beneficial impact on their own and their handler's welfare.

Why is this Case of Value?

Coercive interactions for basic husbandry procedures can lead to interactions that the dog could perceive as a threat. This could increase bite risk and be detrimental to the welfare of both the dog and the owner if regularly having to engage in a stressful interaction to clip nails or other husbandry procedures. Nail clipping was chosen for this study as it is one of the most common husbandry procedures performed on any domestic dog to keep them healthy (Meyers, 2020). Nail clipping includes physical touch and sometimes restraining. Restraining can be aversive to the dog, making them feel stressed and negatively affecting their welfare (Mellor *et al.*, 2020). Handling animals always pose a risk for injuries and the more carefully people read the signals from animals, the safer they are likely to be.

This will show the benefit of training for cooperative care in advance of routine husbandry procedures and help identification of early stress signals from dogs.

Learning Outcomes

1. Describe the main stress signals in domestic dogs.
2. Discuss how to train an animal for choice and control.
3. Critique the benefit of choice and control for routine husbandry procedures.
4. Assess how this information could be communicated to a client.

Background and Context

Dogs have lived with humans in a symbiotic way for at least 18,000 years (Thalmann *et al.*, 2013). Some studies suggest that dogs can share a similar bond with their owners as infants and their mothers, with the same regions of the brain being activated in dogs interacting with caregivers and seen in infants with their mothers (Berns *et al.*, 2015; Gábor *et al.*, 2021). This relationship is meaningful for both parties (Horowitz, 2021) and the welfare of the animal and its caregiver must be considered.

Nail clipping is one of the most common husbandry procedures performed on any dog (Meyers, 2020) and includes physical touch and sometimes restraint. This restraint can be perceived as aversive, increasing stress and negatively impacting welfare (Mellor *et al.*, 2020). Stressed dogs may behave aggressively and be a risk to caregiver health (Polo *et al.*, 2015).

Traditional husbandry procedures like nail clipping are often seen as something that just has to be done to pets. There is an increasing interest in how to train dogs properly, but many outdated beliefs are still present (Todd, 2018). Beneficial and predictable interspecific communication is linked to enhanced animal welfare and an animal with a history of positive emotions from handling by humans is more likely tolerant and resilient in other interactions with humans, than an animal which has learnt people can be a threat (Overall, 2013; Becker *et al.*, 2018). It has been previously found that giving animals a 'voice' creates beneficial effects on their lives (Becker *et al.*, 2018). Cooperative care training has been scarcely studied with dogs; however, there are some studies with other species, for example zebras (*Equus quagga*) started spending more time with conspecifics (an indicator of improved welfare) after cooperative care training (Mackie, 2021).

Being able to read subtle signals is essential to effective interspecific communication. The ladder of communication (Fig. 1) shows the escalation of signals used by dogs (Shepherd, 2009), if the earlier steps are ignored the dog climbs the ladder to be noticed. Even though the ladder is straightforward and represents only few behavioural signs, it highlights the importance of reading and respecting subtle behavioural signals. It is also critical to notice that dogs have different responses to stressful situations, some of them might be aggressive, some passive, some try to escape and some will show strong displacement behaviours. There are also more physical signs of stress, for example urinating, salivating, panting and signs of autonomous arousal, for example motor behaviour, chewing and trembling. Physical conditions and pain can also trigger the same clinical signs so it is important to have a vet check whenever the dog seems stressed (Mills *et al.*, 2020). Apart from the dog's strategy in stressful situations, it is essential to provide them with predictability and control over the situation in order to avoid the 'learned helplessness' response (Maier and Seligman, 2016).

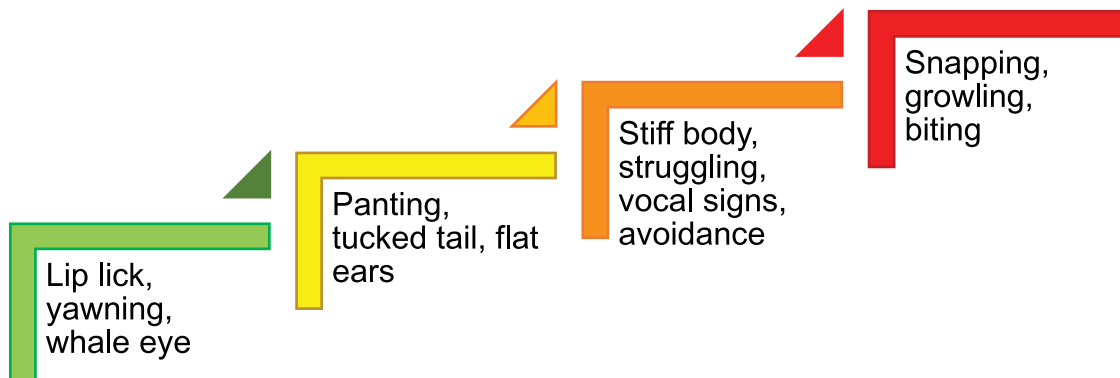


Fig. 1. Ladder of communication (adapted from Shepherd, 2009).

For this study, 18 dogs were recruited based on the responses their owners gave to an online survey, which allowed dogs to be allocated into one of two groups.

1. Group 1 – dogs that had previously been trained with an element of choice over interaction with nail clipping and were not restrained during the procedure.
2. Group 2 – dogs that had previously always been restrained during husbandry procedures and owners had not had any experience or knowledge of cooperative care.

Owners and dogs attended training halls on two occasions, the first one just to habituate the dog and the owner to the environment and the researcher and to make sure that the researcher did not affect dogs' behaviour. The second session included habituation time and after that, the owners were requested to clip their dogs' nails using their usual procedure. These sessions were recorded using two smartphones, one fixed and one held by the researcher (Huawei P30 Pro and iPhone 13 Pro) for the nail clipping.

Recordings were then watched back by the primary researcher and data was recorded onto an Excel spreadsheet before analysis in Minitab 19 with state and event behaviours recorded using an ethogram of stress signals (Table 1).

Table 1. Ethogram of common stress signals in dogs.

Crouching	Getting low or tucking tail and ears, reducing body size (Mariti <i>et al.</i> , 2017)
Biting	Touches a body part of a human with teeth (Döring <i>et al.</i> , 2014)
Snapping	Opens mouth, teeth clacking together trying to reach human (Döring <i>et al.</i> , 2014)
Struggling	Trying to move or escape when restrained (Döring <i>et al.</i> , 2014)
Avoidance	Avoiding touch or contact with human (Becker <i>et al.</i> , 2018)
Panting	Breathing heavily through mouth
Tucked tail	Tail firmly tucked under the belly (Becker <i>et al.</i> , 2018)
Stiff body	Stiff body, moving slowly or freezing (Becker <i>et al.</i> , 2018)
Lip lick	Licking lip with tongue, not when receiving or eating food (Firnkes <i>et al.</i> , 2017)
Whale Eye	Stiff face, white side of the eye is showing (Flint <i>et al.</i> , 2018)
Yawning	Opening mouth widely, eyes are usually closed (Mariti <i>et al.</i> , 2017)
Trembling	Body shivering (Mills <i>et al.</i> , 2020)
Shaking	Shaking the whole body as 'shaking it off' (Becker <i>et al.</i> , 2018)
Flat ears	Stiff forehead, one or both ears tucked back (Firnkes <i>et al.</i> , 2017)
Growling	Aggressive, low buzzing sound (Döring <i>et al.</i> , 2014)
Whining	High-pitched, distressed sound
Screaming	Loud distressed noise

Study Results

Study showed a significant difference in the amount of stress behaviours between Groups 1 and 2 (Fig. 2).

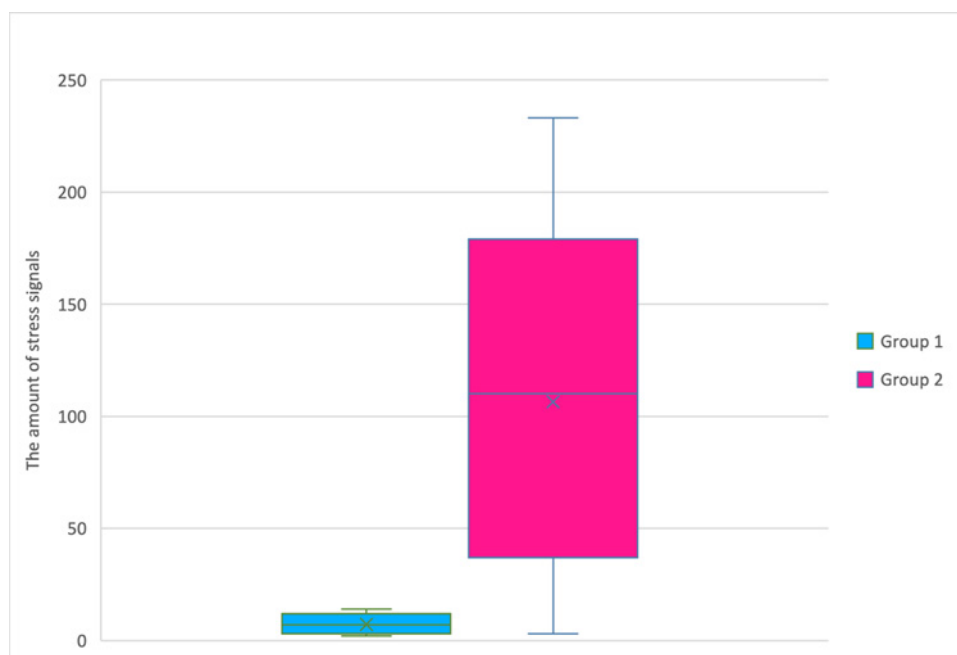


Fig. 2. The study showed a significant difference in the amount of stress behaviours between the two groups ($W = 52$, $p = 0.003$).



Some examples of the sessions recordings can be found [here](#).

Discussion Points

1. What are the most commonly observed stress signals in the videos? Consider what stress signals are being seen, are they escalating or decreasing.
2. What do you think the graphs show? Discuss the variation that can be seen on the graphs.

Discussion of Study Findings

The results of this study are in line with studies of choice and control in other species, for example Haywood *et al.*'s (2021), where the element of choice lowered stress levels and increased the animal's affiliative behaviour. This correlates with findings on the positive welfare effects of choice and control in other domestic animals (Mejdell *et al.*, 2016; Westlund, 2022). Although contrary to this, Reed *et al.* (2013) suggest that animals would habituate to restraint but were continuing to display severe signs of stress. Also Mariti and Bein (2015) did not find an increase in stress levels during professional grooming; however, they suggested that the context of being handled by a stranger itself was already stressful for the dogs. The results presented above suggest that restraint is stressful even though the owner is handling the dog.

In their welfare model, Mellor *et al.* (2020) state that animals should have the option to control and avoid uncomfortable situations, which will positively affect their welfare. This finding is crucial as the main difference between the groups was if there was restraint and an option to opt in or out or not. Restrained dogs were showing significantly more stress signals such as stiff body and struggling. In their updated five domains model, the most crucial aspect is that by creating an agency for the animal, their welfare is enhanced, which can also be seen in these results. Low-stress handling is necessary for creating positive expectations and associations with people (Becker *et al.*, 2018). Nail clipping and other routine husbandry procedures are not emergencies that need to be executed regardless of the dog's emotional response but are a part of everyday life and an integral part of owner–dog interactions. Beneficial relationships and affiliative interactions between the dog and the owner will most likely increase the well-being of both parties. Detrimental relationship and aversive history with humans are sometimes influential in the development of behavioural problems and especially aggressive behaviour so any unnecessary aversions should be avoided as behavioural problems are one of the leading causes of relinquishment of dogs (Powdrill-Wells *et al.*, 2021). Owning a dog has been suggested to have a beneficial effect on owners' health in many ways (Beetz *et al.*, 2012; Westgarth *et al.*, 2017; Powell *et al.*, 2019; Boere and Oliveira Silva, 2021) and in order to achieve those benefits, the relationship between the dog and the owner should be positive (Payne *et al.*, 2015). A healthy dog–owner relationship that is based on mutual trust and positive interactions will most likely have effects on the well-being of the individuals and in the national economy as a decrease in health care costs. It is crucial for the dog's health for the owner to be

able to take care of routine health care, and by incorporating the dog, it will become more comfortable for both parties. For example, if the nails get too long, it might result in orthopaedic health issues. In addition, dogs suffering from pain or other discomforts might behave aggressively (Mills *et al.*, 2020), and untreated pain is a huge welfare issue. Therefore, the owner needs to be able to perform primary health care on the dog to prevent these.

The research design had some limitations as the nail clipping procedure would have been more natural to complete at the dog's home. Due to the pandemic COVID-19, it was not recommended to visit people's homes, so the distances and safety precautions could be made at the training halls. The first session was to decrease the effect of a novel environment, and the feedback from the owners assured that their dogs acted as they would have been at home. The dogs were recorded with two cameras. Nevertheless, in some cases the dog's face was not visible for the whole time as they were flipping it from side to side or they rested their head in the owner's armpit. Overall, the study went according to the plans as the design was simple enough to execute in a short timeframe with the limited resources. The study raised much interest among Finnish dog owners, and the number of people ready to participate in the study was high.

Discussion Questions

1. How could you encourage owners to engage more with cooperative care? Could be an in-class discussion.

Courses of Action and Treatment

Have a go at considering the steps required in training for cooperative care for nail clipping; compare this to the example provided below and critique both.

Example of a training plan for starting cooperative care

Cooperative care is based on the animal's consent, and by training, we can teach the animal to communicate with us and have choice and control over the situation. Therefore, this training plan aims to counter condition and desensitize the dog to the procedure while having choice and control over the situation and to teach the dog to communicate clearly with us.

Start/stop buttons

Start and stop button behaviours (Bertilsson and Johnson-Vegh, 2019) are behaviours that the animal performs to communicate whether we can proceed or should have a break and lower the criteria. You can choose to start/stop behaviours or start to shape them from the animal's natural behaviour. Choose start/stop behaviours, and if they are new to the dog, train them first without handling.

Examples of start/stop button behaviours with dogs for nail clipping:

Start	Stop
Chin rest on target	Chin up
Lying on the side, cheek to the ground	Head up
Nose touch to nail clippers	Turning head away (or other stress signals)
Handing paw	Movement in paw
Duration on target	Moving away from the target

Another option is to shape the start button behaviour straight from the animal's behaviour in step 1 in the cooperative care counter conditioning and desensitizing plan.

Antecedent arrangements – ensure that a training place is where the dog is mainly relaxed. Provide some alternative tasks in the environment (e.g. snuffle mat, another target) and have good rewards within your reach.

Training

1. Introduction of the nail clippers (counter conditioning and desensitization (CC+DS))
 - Bring the nail clippers to the dog's sight and reward. This creates the baseline as we see how the dog reacts to nail clippers. Choose the criteria suitable for the individual and create an association towards the object. The dog should be comfortable in the same space with the nail clippers and willing to engage before continuing to the next step. If the dog shows any discomfort or stress signals or is backing away, this should be reinforced as well. We can build the stop button and teach the animal they have a choice. In this case, you can reward the alternative task to let the dog decompress.
2. Pairing the start button and the nail clippers (shaping, CC+DS, cooperative care)
 - Warm up with a few repetitions of the start button behaviour.
 - Start pairing the object with the start button behaviour. When the dog does the start behaviour, do handling at the criteria where the dog is comfortable. You can raise the criteria if the dog is relaxed and engaging.
 - Do maximum of five repetitions per criteria
 - If the dog in any situation does the stop button behaviour, stop the training and reinforce them out of the situation. Wait until the dog decides to come back and is ready for a new session, start again with lower criteria (Fig. 3).

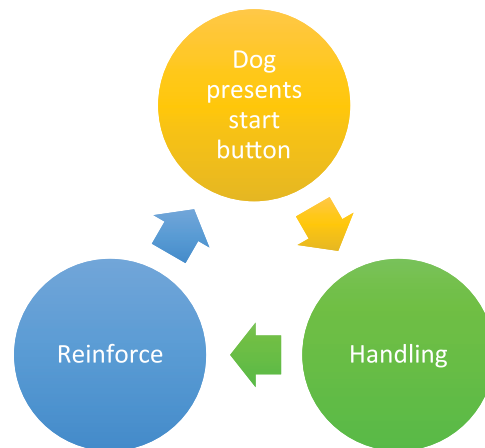


Fig. 3. Positive reinforcement loop for pairing up start buttons and nail clippers (or other husbandry procedures).

An example of the criterion plan of nail clipping

1. Nail clippers are present, for example on the floor
2. The paw is touched with the hands
 - 2.1. A touch from top to bottom (slide from the shoulder towards the paw)
 - 2.2. Light grip
 - 2.3. Longer hold
 - 2.4. Examining the toes
 - 2.5. Touch the nail
 - 2.6. Slight pressure on the nail
3. Nail clippers approach the dog
4. Nail clippers touch the dog, for example on the shoulder
5. Nail clippers touch the paw
6. Hold the paw, go through the criteria for holding the paw (2.) with nail clippers in other hand
7. Work with the nail clippers
 - 7.1. Touch the paw with clippers
 - 7.2. Touch the toes with clippers
 - 7.3. Put the clippers around the nail
 - 7.4. Slight pressure on the nail

8. Clip one nail
 - Always make sure that the dog is relaxed and not showing any signs of distress.
 - Remember to reinforce stop behaviour as this creates natural choice and control.
 - Keep the training sessions short and engaging.
 - Lower the criteria if the dog is hesitant or offers stop button behaviour.

Conclusions

Pre-emptive rather than reactive training for routine husbandry procedures could be used to improve dog and owner welfare. This study gave an insight into how the element of choice impacts the dog's stress levels. When the dog is trained with a choice and freedom to participate, the dog feels less stressed than when restrained and not having a choice. Therefore, the element of choice and minimizing restraint in routine health care should be promoted in the dog world more, and the owners should be educated on how to communicate effectively with their dogs and train them through positive reinforcement.

Conflict of Interest

The authors have no conflicts of interest to declare.

Further Reading

Eva Bertilsson, Emelie Johnson Vegh, Video on Demand by Karen Pryor Clicker Training.

EAZA Animal Welfare Webinar – Jim Mackie – Animal Training in Zoos – YouTube.

Canine ladder of communication – PDSA.

Meyers, H. (2020) How to trim your dog's nails safely. American Kennel Club. Available at: <https://www.akc.org/expert-advice/health/how-to-trim-dogs-nails-safely/>.

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