

Kenneled Dog Welfare: Challenges of Field Assessment

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Introduction

In recent years there has been a shift toward creating animal welfare assessments that can accurately measure the well-being of animals on-site, in areas outside of the laboratory environment. Several such assessments have been created for livestock animals (e.g. Welfare Quality®), but it has become increasingly important to develop similar tools for use with companion animals. For instance, dogs are maintained not only in laboratories but also in environments such as shelters, boarding and breeding kennels. To maintain and improve dog welfare, it is important for caretakers and external evaluators (e.g., kennel inspectors or auditors) to be able to properly evaluate dogs in all of these environments. To accomplish this, holistic assessments of dog welfare that are appropriate for use in field settings are needed.

Can the assessment reasonably be done in the field?

While several aspects of kenneled dog welfare have been studied (Hurt, 2016; Taylor and Mills, 2007), some metrics of dog welfare are not practical for field use. Developing a science-based, field-ready canine welfare assessment tool that is reliable and valid (Dalla Costa et al., 2014; Knierim and Winckler, 2009; Taylor and Mills, 2006) therefore presents several challenges, many of which are similar to those encountered for other species. Some constraints include the time or equipment needed for field assessment, invasiveness of the measurement to the animal, and the financial resources available to conduct assessments. For example, field assessments must be able to be performed within a reasonable time frame and should be minimally disruptive to caretakers and animals. If not timed and conducted carefully, assessments that interfere with meal schedules, exercise or social interactions may impact some of the metrics of interest. A sound assessment must maximize efficiency without sacrificing the tool's effectiveness.



Limitations in the types of equipment that can be utilized practically in the field are also important to consider. In many laboratory studies, dog behaviors are video-recorded over extended periods of time (e.g. Beerda et al., 1999; Hepper and Wells, 2000) for subsequent review. During field assessments, however, this may be impractical for several reasons. For instance, in shelters or breeding kennels, challenges may include limited time and ability to video-record, dusty or damp locations that preclude recording, limited visibility, and/or access to outlets for electricity. To be useful, video recordings must be coded and analyzed, which requires time and skilled personnel who are not always available in the field.

In addition, some metrics of dog welfare that may be utilized in research settings cannot be reasonably, or sometimes ethically, collected in settings such as animal shelters or boarding kennels. For example, cortisol levels that could be obtained via repeated blood, saliva, urinary or fecal sampling in a laboratory environment as indicators of stress, or assessments requiring anesthesia, such as dental probing during periodontal exams, are often impractical outside of research or clinical settings. The



costs of collecting such samples may also be prohibitive (Rousing et al., 2000). Metrics that cannot be taken in the field have little value as part of an on-site assessment tool, even if they are otherwise reliable indicators of animal welfare.

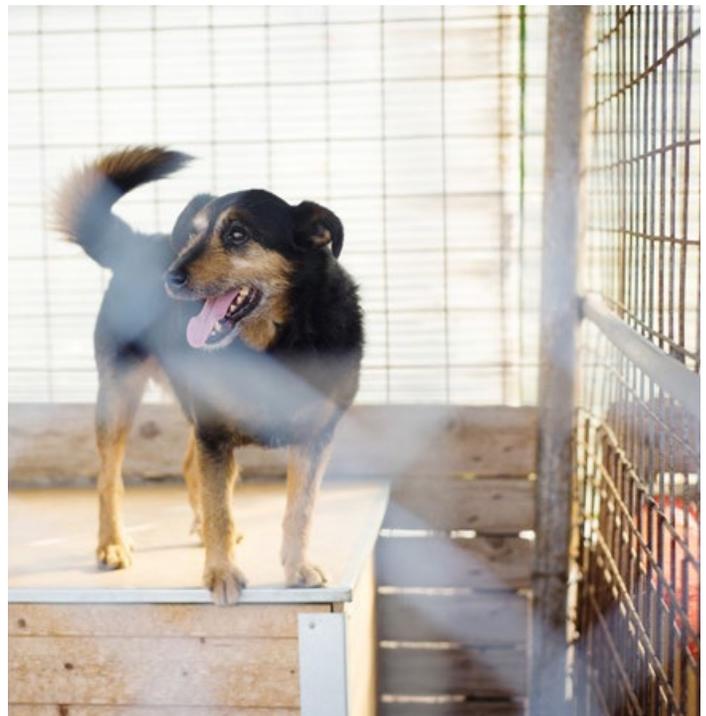
Does the tool yield consistent results?

When developing an animal welfare assessment tool the instrument must be able to yield consistent results when used by different assessors, an element called inter-rater reliability (Knierim and Winckler, 2009; Taylor and Mills, 2006). Several factors may influence inter-rater reliability. For example, the past experience of the assessor will impact the amount of training required to master the skills necessary for accurate tool use. Because a welfare assessment tool suitable for kennels would likely be used by auditors, caretakers, kennel owners and others with diverse backgrounds and expertise, the most effective tool would be one requiring relatively little training that is useful to people with varying levels of experience.

An additional factor that can influence reliability is the consistency of the assessment procedures used. For example, dogs may react differently to an approaching human, depending on whether the person is familiar or not, whether the evaluation is done in a familiar or unfamiliar environment, or whether their primary caretaker is present during the evaluation (Colon et al., 2016; Jordan et al., 2016; Kerepesi et al., 2014; Pullen et al., 2012). It is also important to note that dogs' behavioral responses may differ as a function of how they are approached (head-on, approached from the side, standing, leaning over or kneeling). Therefore, evaluation procedures must be clear and consistently followed.

Does the tool measure what it is meant to measure?

A valid welfare assessment tool accurately reflects what it is intended to measure and may consist of a combination of animal, resource or management-based metrics. It is important to consider the capabilities of each of these types of metrics so that they are used appropriately. Animal-based metrics assess dog welfare through physical or behavioral measurements. Resource or management-based metrics assess provisions to the animals or husbandry procedures (Whay et al., 2003), and can help to identify risks to welfare (Rousing et al., 2000). Since welfare exists on a continuum for each individual dog, ranging from good to poor, it is important to use a combination of metrics to best gauge an animal's welfare status in the moment—and any potential risks as well. For example, Barnard et al. (2016) found that dogs housed in small cages with sharp edges and inadequate bedding were more likely to have skin issues than dogs provided



different environmental conditions. Skin condition in this instance is an animal-based metric indicating that an aspect of physical welfare may be compromised. Observation of inadequate bedding provides a resource-based metric that could be helpful in determining the adequacy of the environment and its role in supporting or compromising welfare.

Behavior is a valuable animal-based metric. However, many welfare assessment tools do not include or only minimally include behavior due to concerns that it is subjective in nature and can vary as a function of both the observer and how an animal reacts in specific situations. For example, play behavior is a good indicator of positive well-being (Boissy et al., 2007; Vinke et al., 2005), but if it is not seen during an inspection, it does not necessarily indicate that welfare is poor, especially if the inspection coincided with a time during which the dog was feeding, resting or engaging in another behavior with which play is incompatible. Similarly, stereotypic behaviors in kennelled dogs, such as pacing, circling or wall-bouncing, are thought to reflect poor states of being, or, at best, attempts to cope with the dog's environment. However, failure to observe stereotypies is not in itself evidence of positive well-being. Despite these issues, behavior can be an excellent proxy metric of the mental health and well-being of dogs, and therefore is important to incorporate into a comprehensive welfare assessment tool. The key is to carefully consider which behaviors are meaningful both in the context of the assessment and in the dog's normal behavioral repertoire, readily observable, able to be validated against other metrics, and tested for inter-rater reliability in the field (Colon et al., 2016).

Conclusion

It is increasingly important to measure the welfare of kenneled dogs and to ensure that the assessments are feasible, reliable and valid. Meeting all of these goals can be challenging. An assessment that encompasses all of these factors can be useful in various facilities, such as shelters, research, boarding, or breeding kennels. Field-ready assessment tools can allow caretakers to regularly perform their own assessments, identify practices that are detrimental to dog welfare, and promote approaches or interventions that improve dog welfare. These interventions in turn may help to support the human-animal bond by increasing the number of physically, behaviorally and mentally healthy dogs that enter homes.

References

- Barnard, S., Pederera, C., Candeloro, L., Ferri, N., Velarde, A., & Dalla Villa, P. (2016). Development of a new welfare assessment protocol for practical application in long-term dog shelters. *Veterinary Records*, 178, doi: 10.1136/vr.103336
- Beerda, B., Schilder, M.B.H., Van Hooff, J.A.R.A.M., De Vries, H.W., & Mol, J.A. (1999). Chronic Stress in Dogs Subjected to Social and Spatial Restriction. I. Behavioral Responses. *Physiology & Behavior*, 66, 2, 233-242.
- Boissy, A., Manteuffel, G., Jensen, M.B., Moe, R.O., Spruijt, B., Keeling, L.J., Winckler, C., Forkman, B., Dimitrov, I., Langbein, J., Bakken, M., Veissier, I., & Aubert, A. (2007). Assessment of positive emotions in animals to improve their welfare. *Physiology & Behavior*, 92, 375-397.
- Colon, M.H., Bauer, A., Croney, C. (2016). Do you see what I see? Inter-rater reliability of a canine welfare assessment tool in shelter dogs. Poster presented at the 2016 Summer Research Opportunities Program session, West Lafayette, IN.
- Dalla Costa, E., Murray, L., Dai, F., Canali, E., & Minero M. (2014). Equine on-farm welfare assessment: a review of animal-based indicators. *Animal Welfare*, 23, 323-341. doi: 10.7120/09627286.23.3.323
- Hepper, P.G., & Wells, D.L., (2000). The influence of environmental change on the behavior of sheltered dogs. *Applied Animal Behaviour Science*, 68; 151-162.
- Hurt, M.J. (2016). Evaluating the Physical Welfare of Dogs in Commercial Breeding Facilities in the United States (unpublished master's thesis). Purdue University, West Lafayette, IN.
- Jordan, M.E., Bauer, A., & Croney, C. (2016). Do you see what I see? Inter-rater reliability of a canine welfare assessment used in dog breeding kennels. Poster presented at the 2016 Summer Research Opportunities Program at Purdue University, West Lafayette, IN.
- Kerepesi, A., Dóka, A., & Miklósi, Á. (2014). Dogs and their human companions: The effect of familiarity on dog-human interactions. *Behavioural Processes*, doi.org/10.1016/j.beproc.2014.02.005
- Knierim, U., & Winckler, C. (2009). On-farm welfare assessment in cattle: validity, reliability and feasibility issues and future perspectives with special regard to the Welfare Quality® approach. *Animal Welfare*, 18, 451-458.
- Pullen, A.J., Merrill, R.J.N., & Bradshaw, J.W.S. (2012). The effect of familiarity on behaviour of kennel housed dogs during interactions with humans. *Applied Animal Behaviour Science*, 137, 66-73. doi: 10.1016/j.applanim.2011.12.009
- Rousing, T., Bonde, M., & Sørensen, T. (2000). Proceedings from EAAP 2000: *Improving health and welfare in animal production*. The Hague, The Netherlands: Wageningen Pers.
- Taylor, K.D., & Mills, D.S. (2006). The development and assessment of temperament tests for adult companion dogs. *Journal of Veterinary Behavior*, 1, 94-108. doi:10.1016/j.jveb.2006.09.002
- Taylor, K.D., & Mills, D.S. (2007). The effect of the kennel environment on canine welfare: a critical review of experimental studies. *Animal Welfare*, 16, 435-447.
- Vinke, C.M., van Leeuwen, J., & Spruijt, B.M. (2005). Juvenile farmed mink (*Mustela vison*) with additional access to swimming water play more frequently than animals housed with a cylinder and platform, but without swimming water. *Animal Welfare*, 14, 53-60.
- Whay, H.R., Main, D.C.J., Green, L.E., & Webster, A.J.F. (2003). Assessment of the welfare of dairy cattle using animal-based measurements: direct observations and investigation of farm records. *Veterinary Record*, 153, 197-202. http://dx.doi.org/10.1136/vr.153.7.197