

# Promoting the Welfare of Kenneled Dogs: Space Allocations and Exercise

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## Introduction

While it is critically important to meet dogs' basic needs for food, water, shelter, and appropriate healthcare in any environment, dogs maintained long-term in kennels require substantially more than a balanced diet and a clean environment. Good animal welfare extends beyond basic biological functioning; we must assess the dogs' environments comprehensively. Evaluating and protecting the welfare of kenneled dogs depends on our understanding of all their physical and behavioral needs. Ensuring that dogs' behavioral and psychological welfare needs are met is essential to providing an environment where dogs can thrive. Consequently, we must consider many different aspects of dogs' environments both inside and outside of kennels.

## Space and Exercise

Research to establish optimal or dog-preferred kennel size is in its infancy. The U.S. Department of Agriculture and Animal Welfare Act's size requirements for kenneled dogs are based upon the estimated dynamic space a dog needs to "comfortably sit, stand, and lie in a normal manner and to turn about freely" (AWA, 1985). While this takes a common-sense approach to estimating kennel size requirements, few studies have been able to clearly quantify the optimal kennel size for dogs.

Current USDA floor area ( $\text{ft}^2$ ) recommendations (AWA, 1985; NRC, 2010) for singly housed dogs are:

- Dog weight < 33 lbs: 8.0  $\text{ft}^2$
- Dog weight 33–66 lbs: 12.0  $\text{ft}^2$
- Dog weight > 66 lbs: 24.0  $\text{ft}^2$

Space requirements for dogs have also been outlined based on the length of the dog. For example, the USDA APHIS Animal Welfare regulation (1998



amendment) pertaining to space requirements for primary enclosures for dogs states:

"(i) Each dog housed in a primary enclosure (including weaned puppies) must be provided a minimum amount of floor space, calculated as follows: Find the mathematical square of the sum of the length of the dog in inches (measured from the tip of its nose to the base of its tail) plus 6 inches; then divide the product by 144. The calculation is:  $(\text{length of dog in inches} + 6) \times (\text{length of dog in inches} + 6)$  = required floor space in square inches. Required floor space in inches/144 = required floor space in square feet. (ii) Each bitch with nursing puppies must be provided with an additional amount of floor space, based on her breed and behavioral characteristics, and in accordance with generally accepted husbandry practices as determined by the attending veterinarian."

While these space allowances may be reasonable, there is insufficient scientific basis to support them. Very few research studies have examined what types of space dogs prefer and how space needs may change as a function of the age, breed, size, gender, or physical status of the dog, or as a function of the type of accommodations and resources provided (Coppinger and Zuccotti, 1999).

Therefore, further evaluation is necessary to address the spatial needs of kenneled dogs. Conflicting results have



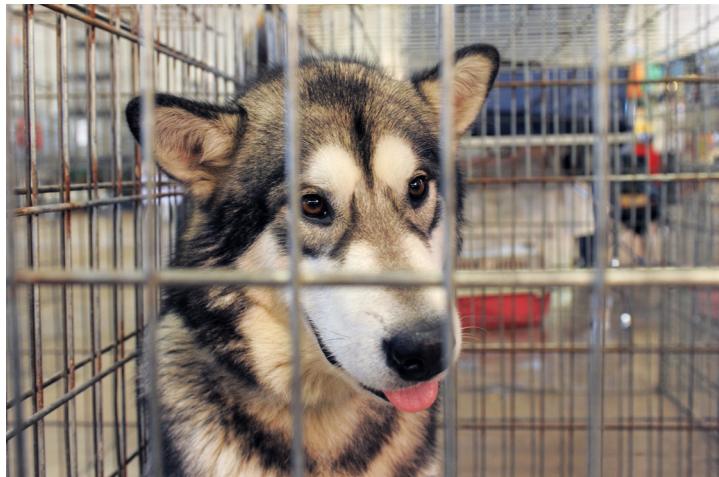
been reported in existing studies. Some studies report that dogs are relatively inactive inside kennels (Hubrecht et al., 1992; Bebak and Beck, 1993) suggesting that dogs do not need to be housed in large kennels. However, other studies have shown that when dogs are provided with more kennel space, they are more active (e.g., a dog housed in a 10.8 ft<sup>2</sup> kennel traveled 500 m/day compared to 4,000 m/day for a dog housed in a 75.3 ft<sup>2</sup> kennel during the same 12-hour period), even though they spend the same time per day engaged in activity (Hughes et al., 1989).

Further, dogs housed as a pair in a 193.8 ft<sup>2</sup> enclosure were 1.34 times more likely to be active than a single dog housed in a 96.9 ft<sup>2</sup> kennel (Normando et al., 2014). This suggests that kennel size can indeed influence the behavior of kenneled dogs, not simply because greater space allocation affords more activity, but also because it increases the potential for dogs to display a greater diversity of natural behaviors. However, the conflicting findings on space allocations and their effects on kenneled dogs complicate the challenge of determining an ideal kennel size.

In addition, studies aimed at optimizing kennel size have not approached the question systematically. The amount of space allotted to dogs varies in the experimental treatments in different studies. Differences also exist in how activity is defined. In some instances, stereotypic behaviors such as pacing and circling are included, while in others such behaviors are excluded from the analysis. Studies that analyze how different kennel sizes and types impact the dog's entire behavioral repertoire and use of space are needed.

Several studies have begun to address how dogs choose to use the space provided. Consequently, it has been established that dogs prefer to eliminate away from the areas where they eat, drink, and sleep (Wagner et al., 2014), and that dogs perform fewer stereotypic behaviors

when in social groups compared to when they are alone (Mertens and Unshelm, 1996). In addition, the presence of environmental enrichment (e.g., toys) can facilitate the performance of a wider variety of natural behaviors when dogs are held in larger enclosures (Schipper et al., 2008; Normando et al., 2014).



However, addressing kennel size alone is not enough to optimize dog welfare. Although appropriate space allotments for primary housing areas within the kennel are paramount to good animal care, the amount and quality of time the dog spends outside of the kennel is also important. Dogs should be given access to exercises spaces

that are large enough to allow them to extend to full stride while running and playing, as these behaviors facilitate positive emotional as well as physical states in dogs. In addition to the amount of space provided, the number and sizes of dogs within the space may affect how dogs use the space within the kennel and outdoor environments.

Just as having a gym membership does not ensure good muscle tone and fitness, providing space for exercise does not guarantee that dogs are exercising. Therefore, it is important that caretakers monitor dogs and, when necessary, facilitate their exercise.

### Conclusion

Proper care for kenneled dogs goes beyond a clean environment and sufficient food and water. Dogs also require sufficient space and exercise geared to promote their mental and physical health. Further studies are needed to examine the basis for current space requirements and the extent to which these meet the welfare requirements of dogs housed singly and in groups. In addition, researchers need to examine the ability of dogs to exercise in their primary enclosures and in dedicated exercise spaces as a function of their allocated space.

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