

Comparison of Tethering and Group-Pen Housing for Sled Dogs (Siberian Huskies)

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Figure 1. Sled dogs in northern Canada.

Introduction

This study investigated differences in behaviour between sled dogs based on housing methods (tethering and un-tethering) and exercise (exercise/no exercise).

Research on tethering other domestic species found behavioural indicators of stress, such as increased repetitive locomotory behaviour in sheep (Wemelsfelder & Farish, 2004), excessive vocalisations in cattle (Watts & Stookey, 2000) and stereotypic pacing in pigs (Schouten, et al. 1991). The only study which had previously investigated sled dog behaviour (Yeon et al. 2001), found an increase of repetitive behaviours when sled dogs, that had traditionally been tethered were released from tethers and housed in small, single pens. In this case, the small size of the pens and single-dog housing could have been responsible for the increase in repetitive behaviours, findings which are supported by other studies (Clark, et al. 1997; Hübrecht, et al. 2002). In contrast the current experiment used group housing in large pens as the alternative housing condition to tethering.

Sled dogs are highly motivated by social facilitation (Coppinger & Coppinger, 2001), behaviour which is expressed while running with others in a dog team. The current research hypothesised that the prevention of this highly motivated behaviour would impact significantly on behaviour. Therefore "extended periods without exercise" was included as a variable for analysis, as sled dogs are often not exercised (group running) for anywhere between 4 and 6 months during the summer.



Figure 2. The Tethered Conditions

In conditions A, B and C dogs were secured by means of a 2.3 metre chain-tether attached to each individual dog's leather collar. Dogs were tethered in front of their individual dog-houses. The surface area was dirt. Each dog had freedom of movement within the radius of the tether, as well as on top of and inside their doghouse. The tethers permitted some physical contact with neighbouring dogs, but this was inconsistent.



Figure 3. The un-tethered condition

In the un-tethered condition (D) dogs were moved to group pens measuring 16m² and un-tethered. This occurred one week prior to filming to allow the dogs to habituate to the new condition. Each pen was fenced with 3 metre high chain-linked fencing. The pens contained two open wooden structures with raised floors, which housed drinking and food bowls. The size of these structures varied, from 1.2m x 1m to 3m x 1.5m. Each group pen bordered another by chain-link fencing, allowing visual and olfactory access to two other pens.

Method

Participants

The participants were nine dogs (3=male; 6=female) selected at random from a population of 300 purebred Siberian husky dogs at a commercial sled dog establishment. All dogs were born at the kennel and raised there from birth. All have been tethered continually from 4 months of age. The participants ranged in age from 3 to 7 years old, with a mean age of 4.5 years ($SD = 1.75$).

Design

A repeated measures design was used in which all dogs participated in all conditions. The participants ($n = 9$) were exposed to four different housing conditions and filmed to record behaviours for analysis. The conditions consisted of six-months with no-exercise/tethered (Condition A), exercise (daily running)/tethered (Condition B), four weeks no-exercise/tethered (Condition C) and no exercise/un-tethered (Condition D) (Table 1).

Procedure

After the installation of each camera, participants were filmed remotely (observer not present) in each of the four conditions for a period of 13.5 hours over three days (4.5 hours per day). Of this, 1.5 hours of filming occurred each morning, from 8:30am to 10:00am, and 3 hours each afternoon, from 2pm to 5pm prior to the evening feed. There was no interaction between the participants and the observer during, prior to, or after filming. Weather conditions were noted, as were uncontrolled variables as they occurred.

Table 1
Description of Independent Variables (Conditions)

CONDITION	Mean Temp	Tethered/un-tethered	Housing	Exercise
A	8°C	Tethered.	Individual	No exercise for 6 months
B	4°C	Tethered	Individual	Dogs received daily exercise of a minimum of one-hour on dog sleds, except during the filming period
C	11°C	Tethered	Individual	No exercise for 4 weeks
D	24°C	Un-tethered	Group pens of 25 metres sq.	No exercise for 3 months.

Conclusion

Long-term tethering of sled dogs produced evidence of significantly higher levels of alert and repetitive behaviours such as fast pacing, and significantly fewer social behaviours than the un-tethered housing condition. Placing participants in un-tethered (group housing) significantly reduced rebound and repetitive behaviours. The variable of exercise also affected behaviour. Tethering without exercise (Conditions A and C) produced significantly more vigilance and agonistic behaviour than either tethering with exercise or group housing without exercise. It is likely that social facilitation through sled running exercise produced a calming effect, which enabled the dogs to sleep more in Condition B (Clarke, et al., 1997). The effect of exercise (Condition B) was found overall to produce more a significant difference, especially in the amount of time spent sleeping in Condition B, as was expected. By contrast, when exercise was not provided (Conditions A, C and D), the dogs remained alert.

Levels of aggression were highest in the tethered non-exercise conditions A and C and did not occur in any significant level in conditions B or D. By contrast the most aggression occurred in the condition with the least stimulating condition C, when there were fewer caregivers in the kennel and no exercise provided. When stimuli were presented, such as a caregiver walking through the grounds, dogs would react with a frustrated response which was re-directed onto neighbouring dogs. If the tethers allowed physical contact, aggression took the form of nipping neighbouring dogs' noses and tails. Although actual physical contact rarely occurred, there was evidence that these aggressive responses were not inhibited and that injury would have occurred more frequently had the tethers allowed more contact.

The lack of activity in the non-exercise conditions was expected to increase the number of self-directed behaviours recorded. This did not occur. Less than 1% of behaviours were self-directed, and this took the form of grooming. The most grooming took place in the exercise condition B. This is self explanatory: the dogs had been running previous to filming on a number of snow, ice and road surfaces and were therefore motivated to groom and clean their paws. These behaviours were of short-duration (less than 3 minutes per instance) and were not correlated with any individual dog or sex of dog.

In conclusion, long-term tethering without exercise produces abnormal activity patterns and levels of behaviours in sled dogs, which may be indicative of compromised welfare. Further research on sled dog welfare using biobehavioural indicators of welfare and motivation testing in a controlled experimental setting should be undertaken. Such research might provide evidence that the initial investment in building group housing pen facilities would be offset by the physical and psychological benefits associated with good welfare.

Results

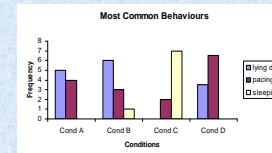


Figure 4. Most Common Behaviours

- Sleeping was the most frequent behaviour in Condition C
- Little evidence of sleeping in the three remaining conditions.
- Lying down awake is the second most frequent behaviour in the tethered conditions (A,B,C).
- Pacing is the most frequent behaviour in the un-tethered condition (D).

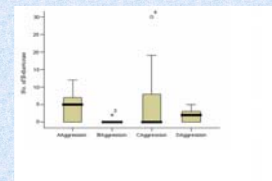


Figure 5. Aggression

- Significant levels of aggression seen in non-exercise conditions A and C ($p < .05$).
- No aggression occurred in condition B (dogs were exercised daily).

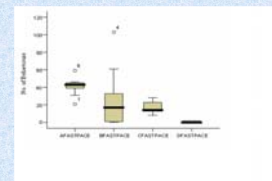


Figure 6. Fast Pacing

- A significant difference ($p < 0.05$) was revealed in the level of fast-pacing activity (running in a fast-pace two beat gait and jumping on and off boxes), in the un-tethered condition, virtually no fast pacing occurs.

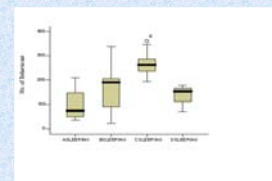


Figure 7. Sleeping

- Significant difference between conditions ($p < 0.1$).
- The dogs remained vigilant in the non-exercise conditions.
- The variable of un-tethering did not have a significant effect on sleeping levels.

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