ASSESSING IN-KENNEL INTERACTIONS IN RELATION TO SOCIABILITY IN SHELTER DOGS

Lauren Thielke

About Me
- B.S. Zoology, University of Wisconsin-Madison
- M.S. Animal Science, Oregon State University
- Current Ph.D. student in Animal Science, Oregon State University
- Research Interests: Attachment behavior, shelter dog behavior and welfare, canine separation anxiety

Outline
- Canine Sociability Background
- Oxytocin Background
- Methods
- Results
- Conclusions
- Future Directions
- Findings from a study on attachment behavior and oxytocin with pet dogs
What is Sociability?

- An individual’s interest & attitude toward a conspecific (member of the same species) or to people (Svartberg, 2007)
- Degree of friendliness or amicability in a dog’s personality (Kaminski & Marshall-Pescini, 2014)

Why might we be interested in studying canine sociability?

- As a behavioral trait
- For standardized behavior tests
- As a predictor of success in homes
- Does higher sociability = higher adoption success/shorter length of stay?
- Can short in-kennel interactions boost sociability in shelter dogs?

Objective

- Determine whether different in-kennel interactions or oxytocin administration affect sociability in shelter dogs
**Oxytocin (OT)**

- Hormone
- Involved in formation and maintenance of social bonds
- Promotes affiliative behavior
- Synthesized by the hypothalamus

**OT and Human-Dog Attachments**

- When dogs gaze at owners, urinary OT concentrations increase in both dogs and owners (Nagasawa et al., 2015; Nagasawa et al., 2009)
- Higher OT levels in dogs and owners were correlated with more positive relationships based on questionnaires (Handlin et al., 2012)

**OT Administration in Dogs**

- Intranasally administered OT increases affiliative behaviors towards familiar humans and familiar conspecifics (Romero et al., 2014)
- OT increased duration of gazing at owner for female dogs but not males (Nagasawa et al., 2015)
- This increased urinary OT concentrations in owners of female dogs
Subjects

- 30 adoptable dogs from Willamette Humane Society and Heartland Humane Society
- No pregnant or nursing females
- Pseudorandomly assigned to 1 of 3 in-kennel conditions
- Groups balanced according to age

In-kennel conditions

- Social play and social interaction: an unfamiliar person provided vocal praise, petting, and social play
- Oxytocin (OT), a naturally occurring hormone involved in social bond formation and maintenance in both dogs and humans, was administered nasally.
- Control: an unfamiliar person stood in the dog's kennel without providing any interaction

Sociability Test

- Took place 45 min. after in-kennel condition (to allow for OT to take effect)
- Testing room: adoption room at each shelter
- Setup:
  - Unfamiliar person sat in chair
  - Semicircle 2 m in radius taped on floor around chair
  - 2 phases, each 2 minutes long
Sociability Test

- Inattentive phase: Unfamiliar person could pet the dog twice without talking, making eye contact, or restraining the dog by the collar.
- Attentive phase: Unfamiliar person could freely interact with the dog while remaining seated.

Behavioral Coding

- Duration of time inside circle
- Duration of time in contact with the person

Interpreting the data: Box and Whisker Plots

[Box plot image]
Results: Inattentive Phase

Results: Attentive phase
Results: Attentive phase

Conclusions
- No measurable impacts on sociability were found

Future Directions
- Varying length of time in-kennel interactions occur
- Comparing different kinds of interactions
  - Vocal praise
  - Play
  - Petting
  - Training
- Measures of welfare
- Pre- and post-adoption
Attachment

- "A reciprocal relationship between the primary attachment figure and the individual" (Parthasarathy & Crowell-Davis, 2006)
- Individuals have an innate predisposition to form attachments with others
  - Increases security by decreasing risk of harm (predation, anxiety)

Strange Situation Test (SST)

- With mothers, infants and an unfamiliar person (Ainsworth & Bell, 1975)
  - Involved a series of reunion and separation episodes involving a parent and a stranger
  - Attachment styles classified as:
    - Secure
    - Insecure-Avoidant
    - Insecure-Ambivalent
  - Has also been conducted with dogs

Study design

- 40 pet dogs
- Two testing sessions per dog
  - Spaced at least 5 days apart
- Dogs were randomly assigned to either receive OT first (n=20) or saline (n=20) first
- Experimenter, owners and video coders were blind to treatment
- Attachment test
Phases of Attachment Test

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 (Baseline)</td>
<td>Owners were instructed to sit in chair in testing room and pet the dog twice each time it entered the circle.</td>
</tr>
<tr>
<td>Phase 2 (Alone)</td>
<td>Owner and experimenter exited the room and the dog was left alone.</td>
</tr>
<tr>
<td>Phase 3 (Return)</td>
<td>Owner and experimenter quietly re-entered the room without greeting the dog. Owners were instructed to sit in chair in testing room and pet the dog twice each time it entered the circle. (Identical to baseline.)</td>
</tr>
</tbody>
</table>

Objective and Hypothesis

- Objective: To determine effects of OT on dog attachment behavior
- Hypotheses:
  1. If OT increases feelings of security in attachment relationships, dogs that receive OT will display fewer stress-related behaviors when left alone than dogs receiving saline
  2. If OT increases affiliative behavior in dogs, time spent in contact with, and in proximity to, their owners will increase when dogs receive OT vs. saline.

Results: Baseline

- Dogs that received saline spent more time inside the circle compared to dogs that received OT, \( p = 0.04091 \)
- No other significant differences found in any phases of attachment test
Conclusions

• Overall, OT appears to have limited effects on attachment behavior and sociability
• In baseline, dogs spent less time seeking proximity when OT was administered
• Effect appears to be driven by males
• Other studies have found relatively small effect sizes in many cases
• OT’s effectiveness in applied settings may be limited
• Stress during administration may have affected behavior

Future Directions

• Compare results to dogs with separation anxiety
• Explore alternatives to administering exogenous OT
• When owners gaze at and pet their dogs, dogs’ OT levels increase
• Less stressful approach may be useful for fearful/anxious populations

Acknowledgements

• Dr. Monique Udell
• Willamette Humane Society & Heartland Humane Society
• The Human-Animal Interaction Lab
• Oregon State University’s Department of Animal & Rangeland Sciences
Questions?

References


References


