For Pet’s Sake: Being the animal advocate in animal-assisted interventions

Zenithson Ng, DVM
The Healing Power of Dogs

Canines bring comfort to Newtown survivors and others in crisis.

Therapy dogs help the sick

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Pet therapy dogs bring normalcy and comfort to an otherwise sterile environment. CBS News correspondent Debbye Turner Bell reports on this new field of study and how it changed the life of a young girl with a rare neurological disease.

Therapy dogs help calm people under stress

Patricia Montemurro

A growing number of prisons and juvenile detention facilities are using dogs to help ease the stress of prisoners and juvenile court offenders. The dogs are trained to provide comfort and companionship.

Therapy dogs change lives

10/09/2009

Everyone thinks their dog is special. But Joseph Landsman has a purebred Alaskan Malamute named Renegade who is truly a life-changer.

Service and therapy dogs save lives and hearts

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But what about the animal?
Benefits for animals

- **Homes, veterinary care and preventive health**  
  (Shore, 2005; Delta Society, 2002)

- **Shelter animals and human interaction**
  - Reduced cortisol levels  
    (Coppola, 2006; Hennessy, 1997; Hubrecht, 2003; Bergamasco, 2010)
  - Positive effects on social behavior and temperament  
    (Bergamasco, 2010; Horvath, 2008)

- **Increased** B-endorphin, oxytocin, prolactin, dopamine; Decreased blood pressure  
  (Odendaal, 2003)
Special consideration for therapy animals

- “No other canine-related event, no sport nor competition requires a dog to enter the intimate zones of unfamiliar humans and remain there for several minutes of petting and hugging”  
  (Butler, 2004)
- Immoral, exploitative  
  (Zamir, 2006)
- Little self-control over their social lives  
  (Fejsakova 2009)
- Fatigue and “Burn-out” syndrome  
  (Heim, 2000; Iannuzi, 1991)
- Acquisition of infectious disease  
  (Lefebvre 2009)
Animal perspective of AAI

- Infectious disease
- Mental/behavioral health
- Animal health and welfare recommendations
<table>
<thead>
<tr>
<th>Micro-organism</th>
<th>Source of sample</th>
<th>Number positive</th>
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<tbody>
<tr>
<td>Ancylostoma caninum</td>
<td>Faecal flotation</td>
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<tr>
<td>Campylobacter spp.</td>
<td>Polymerase chain reaction on faeces</td>
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<td>Clostridium difficile</td>
<td>Faecal culture</td>
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<tr>
<td>Cryptosporidium spp.</td>
<td>Copro-antigen test</td>
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<tr>
<td>Extended-spectrum cephalosporinase E. coli</td>
<td>Faecal culture</td>
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<tr>
<td>Extended-spectrum beta-lactamase E. coli</td>
<td>Faecal culture</td>
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<tr>
<td>Giardia duodenalis</td>
<td>Copro-antigen test</td>
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<td>Group A streptococci</td>
<td>Pharyngeal swab culture</td>
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<td>Malassezia pachydermatis</td>
<td>Aural swab culture</td>
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<td>Methicillin-resistant Staphylococcus aureus</td>
<td>Culture of faeces, nasal swab</td>
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<td>Microsporum canis</td>
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<td>Salmonella spp.</td>
<td>Faecal culture</td>
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<td>Toxocara canis</td>
<td>Faecal flotation</td>
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<td>Trichophyton mentagrophytes</td>
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<tr>
<td>Vancomycin-resistant enterococci</td>
<td>Faecal culture</td>
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</tbody>
</table>

E. coli, Escherichia coli.
MRSA

- Asymptomatic colonization with MRSA has been reported in 3–11% of patients on hospital admission and up to 15% of healthy health-care workers (Shopsin 2000)
- MRSA found in 1 dog (Enoch 2005)
- Animals in long term care may acquire MRSA (Coughlan 2010)
Prevalence of MRSA and *C. difficile* in 194 dogs

Risk Factors?
Screening?

- Routine screening for specific, potentially zoonotic microorganisms, including group A streptococci, Clostridium difficile, vancomycin-resistant enterococci, and MRSA, is not recommended (Lefebvre 2008)
Guidelines

(lanuzzi, 1991)
How do we measure animal welfare?

- Cortisol
- Behavior
Therapy dog studies

Cortisol

- Levels were significantly higher on days of therapy compared to control days (Haubenhofer & Kirchengast, 2006)
- Significant elevation of cortisol between start of and one hour after a therapy session (King et al., 2011)

Behavior

- Absence of observed stress behavior in dogs during AAA/AAT (Ferrara, Natoli, & Fantini, 2004)
- Increase in frequency of behavioral signs of stress after a 2 hour therapy session (King, et al., 2011)
Research Objectives

• To measure salivary cortisol and behavior in registered AAA dogs as a function of time in 3 separate settings: the home, neutral, and a 60 minute animal-assisted activity session.
• To investigate if there a relationship exists between cortisol and stress associated behavior
Design

- Evaluated in three settings
- Randomized order
- At least one day between settings
- Completed within two weeks

**Home**
- Most frequently inhabited room of dog’s house

**AAA**
- College dormitory “study break”
- 40 college students
- 8 dogs

**Neutral**
- Room in vet school away from clinic
- No direct stranger interaction
- 2 dogs
Saliva collection & analysis

Cortisol ELISA (Salimetrics, Inc., State College, PA)
Results

- 15 dogs
- 8 male neutered; 7 female spayed
- Median weight: 17.3 kg (Range 6.8-44.5 kg)
- Mean age: 4.6 years (Range 2-10 yrs)
- Mean therapy certification: 2.6 years (Range 1-8 yrs)
- No adverse events
Salivary cortisol
Salivary cortisol mean

Salivary Cortisol (µg/dL) vs Time (min)

- **Home**
- **Neutral**
- **AAA**

Values with different letters (a, b) indicate significant differences.
Salivary cortisol

- No difference in cortisol in AAA compared to home setting
- Cortisol levels were higher in neutral setting
  - Unpredictable environment
  - Located in the veterinary school
- No effect of time on change in salivary cortisol
- Cortisol levels were higher (0.28 ug/dL) than what has been previously reported in other studies (0.15 to 0.2 ug/dL)
  - Laboratory/assay variation
  - Cortisol levels may be higher in AAA dogs
Behavior

- More standing/ambulating in AAA setting than home
  - Likely due to stimulation
- No effect of location on traditional stress-associated behaviors (lip licking, yawning, paw lifting, body shaking) because it is not stress inducing
- No effect of time on change in behavior
- High variability in the way individual dogs exhibit stress behavior
Neutral Time 90
Percentage Sitting vs Salivary Cortisol

AAA Time 30
Percentage Sitting vs Salivary Cortisol

AAA Time 30
Percentage Standing vs Salivary Cortisol
Neutral Time 60
Percentage Mouth neutral vs Salivary Cortisol

p=0.0019

Neutral Time 60
Percentage panting vs Salivary cortisol

p=0.0284
Cortisol and Behavior

• Only at these time points in different settings:
  • Positive correlation between sitting and salivary cortisol; negative correlation between standing and salivary cortisol
    • Dogs commanded to sit during sessions
  • Negative correlation between panting and salivary cortisol
    • Tensing and “freezing”
• No other correlations between cortisol and behavior
  • These settings were not stress-inducing
Conclusions

• AAA dogs can work in this setting for up to 1 hour without significant physiologic or behavioral stress

• Cortisol level highest in neutral setting
  • Novel environments may be physiologically stress-inducing

• Cortisol levels were higher than previously published results
  • These levels were not detrimental to health and well-being
Future research

- Utilize the AAA room as the neutral setting
- Compare with non-trained, inexperienced dogs
- Utilize other physiologic parameters influenced by stress (heart rate variability, blood pressure, salivary IgA, neutrophil:lymphocyte ratios)
- Test effects of
  - Type of AAA
  - Frequency/duration
  - Intervals of rest
  - Handler
Current Recommendations

• Education (handler is key)

• IACUC (Palley 2010)

Current animal health recommendations

- Health evaluation by vet once per year
- Rabies vaccination
- Preventive medicine based on veterinarian’s recommendation/geographic area
- No raw food diets
- Routine screening for zoonoses not recommended
Current handler recommendations

Animal Health
• Common zoonoses
• Infection control practices
• Inspection for ectoparasites

Behavior
• Reading body language to identify signs of
  • Physical discomfort
  • Stress
  • Fear
  • Aggression
• How to manage changes in behavior
AAI recommendations

**Health**

- Prevent animal from engaging in activity from onset to 1 week beyond resolution of ailments
- Avoid animal contact with human face, saliva, feces, urine, vomit, blood, wounds, etc.
- Rigorous hand-washing for all patients, visitors and health care workers before and after each animal contact
- Discourage paw shaking, licking, taking treats, getting on beds

**Behavior**

- Restrict sessions to maximum of 1 hour to reduce risk of adverse events associated with animal fatigue
- Provide a safe place to rest in working environment
Thank you

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Questions?