Background

- Observational study of 29 handlers and 617 dogs across 4 animal shelters (Haynes, Coleman & Hemsworth 2012)

- Time in shelter
  - Data suggest that dogs become less fearful of humans over time in the shelter.
  - However, no evidence that the behaviour of the handler changes according to the time the dog is in the shelter.

- Dog fear behaviours
  - Data suggest that handlers spend more time in the pen with dogs that display more fear behaviours including more initial avoidance.
  - However, there was no correlation between handler positive behaviour and these behavioural indicators of fear of humans.

Who affects whom?

- Aim:
  - To determine the effects of handler contact time (5 or 30 s) and nature of the contact (positive or negative) on the behavioural and physiological responses of shelter dogs

Materials & methods

- US County shelter

- 64 dogs handled by the experimenter (SH) only during their first 4 days in the shelter

- Each dog allocated to one of 5 treatments on Day ‘0’:
  1. No human contact
  2. 5 s neutral contact
  3. 5 s positive contact
  4. 30 s neutral contact
  5. 30 s positive contact

- Experimenter cleaned each pen once daily (Days 1 – 4) in a standard manner, imposed the treatments and left the pen: 0900 – 1200 h

- Experimenter approached the pen and delivered food into the externally accessible bowl in a standard manner

- Dog behaviours recorded within 5 s of food delivery:
  - Fearful behaviours: crouch, head oriented away, tail low or tucked, tail still
  - Other behaviours: sniff or jump up at pen door, feed
  - Location in pen – front or back half of pen
Materials & methods
Observations on dog’s behaviour to familiar human
- Day 4 in the shelter: 0830 – 0900 h
- Experimenter approached the pen and crouched in a standard manner
- Dog behaviours recorded:
  - Time spent within 1 m of human
  - Latency to approach within 1 m of human
  - Latency to interact with human (sniff, lick, paw, jump up)
  - Interactions with human - sniff, lick, paw, jump up
  - Fearful behaviours - crouch, head oriented away, tail low or tucked, tail still

Materials & methods
Physiological response to familiar human
- Day 4 in the shelter 5 min after commencement of the human approach test
- Cotton swab placed in the dog’s mouth for 3 min
- Swab placed in storage tube, frozen and subsequently analysed for salivary cortisol

Results
Treatment effects on dog behaviour at feeding

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment (Human Contact)</th>
<th>F value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>0.55*</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
<td>5 s Neut</td>
<td>0.37</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 s Pos</td>
<td>0.59*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 s Neut</td>
<td>0.58*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 s Pos</td>
<td>0.32*</td>
<td></td>
</tr>
</tbody>
</table>

Means in same row with different superscripts differ significantly (P < 0.05)

Results
Treatment effects on dog behaviour to a familiar human

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment (Human Contact)</th>
<th>F value</th>
<th>P value</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>None</td>
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<td>0.32*</td>
<td></td>
</tr>
</tbody>
</table>

Means in same row with different superscripts differ significantly (P < 0.05)

Results
Partial correlations (controlling for time in shelter) between dog fear and approach behaviours during familiar human test.

Variable set

<table>
<thead>
<tr>
<th>Variable</th>
<th>Behavioural response to familiar human at 0 m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Latency to interact with human</td>
</tr>
<tr>
<td>Fear behaviours (1 m)</td>
<td>0.52*** (47)</td>
</tr>
<tr>
<td>Fear behaviours (0 m)</td>
<td>0.59*** (47)</td>
</tr>
</tbody>
</table>

* significant correlations at P < 0.05; ** P < 0.01; *** P < 0.001
**Results**

**Treatment effects on salivary cortisol concentration in response to familiar human**

<table>
<thead>
<tr>
<th>Variable (ug/dL)</th>
<th>Treatment (Human Contact)</th>
<th>F value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cortisol</td>
<td>None</td>
<td>0.31</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>5 s Neut</td>
<td>0.34</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>30 s Neut</td>
<td>0.23</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>30 s Pos</td>
<td>0.35</td>
<td>0.14</td>
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</tbody>
</table>

F(4,49) = 1.61, P = 0.188

**Results**

- Dogs that received 30 s additional positive contact displayed significantly fewer fear behaviours in response to a familiar human when compared with dogs that received no, 5 s neutral, 5 s positive or 30 s neutral contact.

- Fear behaviours significantly correlated with other behaviours such as latency to approach and time spent within 1 m of human as well as total interactions with human.

- No significant treatment effect on salivary cortisol concentration.

- Data suggests that the nature of the human contact, in particular, during routine cleaning may reduce subsequent dog fear behaviours.

**In summary**

- Based on dog behaviour at feeding and in response to a familiar human, both duration and particularly nature of the human contact during routine cleaning may reduce fearful behaviours in shelter dogs.

- The provision of brief positive human contact during routine cleaning may assist adaptation.

- Implications for shelter dog behaviour and welfare:
  - Behavioural testing
  - Re-homing
  - Ease of handling

**Acknowledgements**

- Animal Welfare Science Centre

- Australian Animal Welfare Strategy

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**Results**

**Day effects on dog behaviour at feeding**

<table>
<thead>
<tr>
<th>Variable (behaviours)</th>
<th>Day</th>
<th>F value</th>
<th>P value</th>
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<tbody>
<tr>
<td>Dog fear</td>
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<td>0.001</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.98*</td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>0.73*</td>
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</tr>
<tr>
<td></td>
<td>4</td>
<td>0.84*</td>
<td></td>
</tr>
</tbody>
</table>

*F(3,3) = 17.27, P < 0.001*

Means in same row with different superscripts differ significantly (abP < 0.001).