

Research on dogs and children with autism

Below are summaries of different studies examining interactions between dogs and children with autism in different settings. Though these studies mostly report on assistance and certified therapy dogs, many of outcomes could potentially apply to pet dogs as well.

Impact on child behaviour, development and stress

- Marine Grandgeorge and colleagues (2012) looked at how the arrival of a new pet could trigger positive social behaviour in children with autism. Pets were not limited to dogs; other animals such as cats and hamsters were also included. They performed two separate analyses. Firstly, they compared 12 children who did not have a pet in the family before age 4 or 5 but got one after age 5 by to 12 who had never had a pet in the family. They also compared 8 children who had a pet in the family from birth with 8 who had never had a pet in the family. All of the participants were assessed in four main domains: reciprocal social interactions, verbal and nonverbal communication, and stereotyped behaviors and restricted interests. Parents also completed a questionnaire about the relationship between their child and the pet. Pet ownership was associated with improvements in two measures of social functioning: offering comfort to others and offering to share only for children who obtained the pet after 5yrs of age. No differences were found between children who had had a pet from birth or in the children who had never had a pet. Those children who also got their pet from the age of 5yrs interacted more with the pet, such as stroking, time spent with the pet, play, and care, were more frequently reported for those children who got their pet from the age of 5 yrs. It was suggested that the arrival of the pet may bring trigger prosocial behavioural changes, as pets have been reported to help neuro-typical children to develop prosocial behaviors through their interactions with pets.

[M. Grandgeorge, S. Tordjman, A. Lazartigues, E. Lemonnier, M. Deleau, M. Hausberger \(2012\) Does pet arrival trigger prosocial behaviors in individuals with autism? *PloS One*, 7 \(8\) e41739](#)

- A study conducted by Viau and colleagues (2010) reported assistance dogs may lower physical stress responses and improve behaviour in children with ASD. Physical stress responses were assessed via cortisol, the fight or flight hormone, in 42 children with ASD (34 with autism, 2 with Asperger syndrome, and 6 with PDDNOS) aged 3.6 to 14.8 yrs. Parents were also questioned about their child's behaviour before the dog was introduced to the family, while the dog was living with the family, and after the dog had been removed. Amounts of cortisol produced in the early morning were lower when the dogs were there, which might be as a result of a calming influence due to the presence of the dogs, or to improved sleep patterns. Parents also reported fewer behavioural problems, such as tantrums and tolerance to noises, after the introduction of the dogs.

R. Viau, G. Arsenault-Lapierre, S. Fecteau, N. Champagne, C. Walker, S. Lupien (2010) Effect of service dogs on salivary cortisol secretion in autistic children. *Psychoneuroendocrinology*, vol 35 (8), pp. 1187-1193.

- Burrows and colleagues (2008) interviewed 10 families with a child (aged 4.5 to 14 yrs) with ASD about the impact of the presence of assistance dogs on families. The benefits most frequently reported by the families included:
 - Improved safety and security of children at home and in public (e.g., preventing bolting or wandering from the bed at night)

- Further development of motor skills (e.g., helping children regulate their pace during walking, learning to pick up and throw balls for dog, opening food container and placing food bowl on floor)
- Reduced anxiety in children in the presence of the dog (e.g., fewer tantrums, increased calmness)
- Reduced parental stress
- Improved social interactions of children with other family members and the wider community

It was concluded that overall the dogs had a positive effect on increasing the quality of life of the children and the family as a whole.

K.E. Burrows, C.L. Adams, J. Spiers (2008) Sentinels of safety: Service dogs ensure safety and enhance freedom and well-being for families with autistic children. *Qualitative Health Research*, vol 18 (12), pp.1642-1649.

- Davis and colleagues (2004) looked at the costs and benefits reported by parents of children who were placed with an assistance dogs. Twenty-two families participated in total, and included a number of families with a child with ASD, though the exact number was not specified. Dogs placed with families included those that offered physical assistance and those intended primarily to provide social assistance, by addressing the cognitive, emotional and psychological needs of the child. For 88% of families, significant benefits were reported and were mostly social and cognitive. Parents of children with ASD reported that the dogs helped their children to learn about living beings, as well as feelings, and needs of others. Some parents found that the dogs provided security in routine, made daily tasks easier to cope with, and that the dogs provided a source of motivation to get children to venture into places outside the home. Other benefits parents reported included dogs providing social support by offering friendship and facilitating social interactions with other children and the wider public. However, the families also reported significant costs of having a dog, including behavioural, financial, and time issues, with 53% of families feeling these were burdensome. Family should take into account the potential burdens as well as the benefits prior to obtaining an assistance dog.

B.W.N. Davis, K. O'Brien, S. Patronek, G.M. MacCollin (2004) Assistance dog placement in the pediatric population: benefits, risks, and recommendations for future application. *Anthrozoös*, vol 17 (2), pp. 130-145.

- Colțea and Parlow examined attachment to and potential benefits of pet dogs for children with ASD and their parents in a small scale study. Twelve families each with a child with ASD (aged 4-12 yrs) participated. The measures they included were attachment to the dog by the child and parent, severity of the child's ASD symptoms, parental stress and life satisfaction. They reported that children with ASD can and do form attachments to their pet dogs, as 44% of the children in their study were strongly attached to their pet dogs. Those children who interacted more with their dogs had better language skills, and were more attached to their dogs. Child attachment to dogs was not related to social skill development. Attachment to pet dogs grew stronger as the children developed, and was greater in children over 10 yrs. Additionally, there seemed to be a parental influence on degree of child attachment to the dogs, as this positively correlated with parental attachment. Single parents had greater attachment to their dogs but displayed less life satisfaction. Parental stress related to children's ASD symptom severity and was not reduced by parental attachment to the dog.

C.G. Colțea & S. C. Parlow. The effects of companion dogs on families of children with autism spectrum disorders. Poster presentation for International Society for Anthrozoology, available at <http://www.scribd.com/doc/23166384/The-Effects-of-Companion-Dogs-on-Families-of-Children-with-Autism-Spectrum-Disorders>

Impact on dog welfare

- Factors influencing autism assistance dog performance and welfare were identified by Burrows and colleagues (2008). Eleven families were interviewed and 8 dogs were observed in different settings (including car journeys, shopping centres, on walks, and in the classroom). Factors they identified as potentially causing stress for dogs included insufficient time to rest after working, too few chances to urinate or defecate, wearing their working jacket for long periods of time, unintentional mistreatment by children with ASD, lack of a consistent daily routines, and not enough opportunities for recreational activity, such as play or walking. For those children who hit or thrashed out during meltdowns, the assistance dogs learned when to move in to distract the child and when to avoid physical outbursts that could result in being struck. Dogs also learned after 1 to 3 months how to distinguish prodding and exploration by the children's hands from physically harmful situations. When able to predict the child's behaviour, dogs were able to avoid mistreatment and did not display any aggression. For those dogs that slept with the child, when children did not remain in bed, the dogs were reported to be exhausted and performed poorly on the following day. Some dogs did not receive any affection from the child, especially during the first 3 months following placement. Parents put in considerable effort to encourage positive contact between the dog and child, employing techniques such as encouraging children to give dog treats, assisting in feeding the dog, helping the child to groom the dog, and playing games with the dog, which were helpful. Every dog bonded and interacted with the child they were placed within a different way based on the child's development and personality. Parents acknowledged that dogs need sufficient time to settle in the homes, and the first year of placement is not necessarily representative of future years of benefits the dog would provide. The authors highlighted the need for parents to recognise and respond to the dogs' physical, emotional, and social needs, as these have a critical impact on the behaviour, welfare, and ability to perform as autism service dogs.

K.E. Burrows, C.L. Adams, S.T. Millman (2008) Factors affecting behavior and welfare of service dogs for children with autism spectrum disorder. *Journal of Applied Animal Welfare Science*, vol 11(1), pp. 42-62.

- Bergstrom and colleagues (2010) looked at ways to prevent pet mistreatment by a 6 yr old boy with ASD. The child had been handling his pet dog inappropriately, leading to the animal's distress and nipping the child. An initial assessment suggested that the maltreatment of the dog was unintentionally encouraged by adult attention and the dog's reaction. Often when forcefully prodding the rear of the dog, the child would say "Go!". The dog's typical response was to yelp and run away, thereby reinforcing the child's behaviour as he achieved his goal of making the dog flee by his prodding. The parents generally responded with a verbal reprimand, such as "Don't do that, you'll hurt the dog!". These verbal reprimands may have contributed to the boy persisting as they gave him a source of attention, albeit negative. Two types of behavioural interventions were attempted. The first was *differential reinforcement of alternative behaviour* (DRA), which entailed and the boy being told before each behavioural therapy session, "When you touch the dog nicely on his head, you will get a jelly bean." The child received a jelly bean, vocal praise, and brief physical

play with the therapist each time he appropriately touched the dog. The therapist would not respond verbally to any inappropriate touching of the dog, but instead physically blocked the child. The second intervention was *differential reinforcement of other behaviour* (DRO). At the start of each DRO session, a timer was set and the boy was given the rule, "If you don't touch the dog's bottom, when the timer goes off, you will get (the boy's chosen reward) afterward." The boy would be given a reward of his choice at the end of a session only if he did not engage in inappropriate touching for the entire session. Appropriate touching of the dog was verbally praised, and any attempts at inappropriate touching resulted in the reprimand, "No touching. That means no (reward of choice). Let's try again." The session was ended and a new one began. The duration the boy was required to desist was gradually increased. The first technique, DRA, did not decrease the behaviour. In contrast, DRO gave immediate decreases in the inappropriate touching of the dog and the results suggest that such problems can be reversed by simple behavioural interventions.

R. Bergstrom, J. Tarbox, K. A. Gutshall (2010) Behavioral intervention for domestic pet mistreatment in a young child with autism. *Research in Autism Spectrum Disorders*, vol 5(1), pp. 218-221.

Assisted–animal therapy for children with ASD

- Recent research conducted in Portugal reports on a case study of a 12 year old boy with ASD with a history of language delays, poor social skills, aggressive behaviour, and anxiety. He took part in regular one-to-one structured activities with either just his therapist or with his therapist and a certified therapy dog. Sessions were video recorded to assess for differences in his behaviour with or without the dog being present. When the dog was present, the boy engaged in more positive behaviour (smiling, visual and positive physical contact) and less negative behaviour (physical and verbal aggression, grabbing, self-absorption). The results indicate the potential of dogs to prime children with ASD so that they may be better able to take part in therapeutic activities.

K. Silva, R. Correia, M. Lima, A. Magalhães, L. de Sousa (2011) Can dogs prime autistic children for therapy? Evidence from a single case study. *Journal of Alternative and Complementary Medicine*, vol 17 (7), pp. 655-659.

- Redefer and Goodman (1989) looked at whether the presence of dogs could be helpful during therapy sessions with children with ASD. Twelve children aged 5 to 10yrs participated in a series of therapy sessions. In the first 3 sessions, only the therapist was present. For the following 18 sessions, a therapy dog was present together with the therapist. These were followed by another 3 sessions with the therapist and no dog. Lastly, there was a final follow-up session without the dog 1 month after the therapy ended. Social withdrawal decreased significantly from the very first session the dog was introduced, while child-initiated interactions with the therapist increased compared to the previous sessions where only the therapist was present. The children showed fewer repetitive and negative behaviours (e.g., hand-posturing, humming and clicking noises, roaming) and more socially appropriate ones (e.g., joining the therapist in simple games and initiating these, requesting hugs, and imitating the therapist's actions) when the dog was present. The benefits were concluded not to be based on the presence of the dog alone, but rather the dog served as a conduit for interactions with the therapist. The therapist carefully coordinated interactions between the child and dog, and took an active teaching role in terms of how to communicate and play with the dog, as well as how to sustain activities and broaden

the children's range of responses. Benefits gained from the sessions with the dogs continued into the later sessions when the dog was removed, however there was some decline in social interaction at the 1 month follow-up. The researchers conclude that dogs can be an effective component in therapy for children showing social withdrawal.

A. Redefer, J. F. Goodman (1989) Pet facilitated therapy with autistic children. *Journal of Autism and Developmental Disorders*, vol 19 (3), pp. 461-467.

Social interactions with dogs and children with ASD

- A study by Prothmann and colleagues (2009) looked at interaction preferences amongst children with ASD. Their study included 14 children with ASD, aged 6 to 14yrs, who were given the choice of interacting with a person, a dog, or objects (e.g., toys). Interactions were available with three adults (one male, two female, between 30 and 50 years old) and three adult certified therapy dogs (a female crossbred; a male terrier; a female shepherd dog). Objects the child could interact with included stuffed dogs, matchbox cars, a rubber ball, Lego® figures, different coloured cups, blankets, ropes, paper scraps, yarn, noisy plastic bags, a miniature tea pot, and wooden toy vegetables. Children preferred the dogs, and interacted with dogs the most often and for the longest amount of time, followed by the person, and then the objects. All children spoke to and felt or patted the dogs, and many of them initiated playing, such as throwing a ball, giving or hiding dog treats in a game of search. Children were tested for their preferences on three occasions and preferences for the dogs remained consistent across time, so it seems unlikely preferences were due to the novelty of the dogs' presence. It is suggested that the children may have preferred the dogs as dogs may communicate their intentions on a level that people with ASD find easier to understand, as it is not complicated by verbal communication.

Prothmann, C. Ettrich, S. Prothmann (2009) Preference for, and responsiveness to, people, dogs and objects in children with autism. *Anthrozoös*, vol 22(2), pp. 161-171.