

DOGS, HORSES AND ASD: WHAT ARE ANIMAL-ASSISTED THERAPIES?

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Date Last Revised:

March 8, 2011

Date Published:

January 21, 2011

There are several roles an animal may play in the life of a person who is ill or living with a disability, from brightening their day to protecting them from harm. It has also often been suggested that a variety of animals, from horses to dogs to dolphins, can provide actual therapy for a person. For example, it has been claimed that they can soothe the emotionally distressed, relieve physical pain, reduce heart rate and blood pressure, help with development of motor skills and, in the case of people with ASD, reduce stereotyped behavior, lessen sensory sensitivity, and increase the desire and ability to connect socially with others.



What do we know about animals and the impact they can have on the life of a person with an autism spectrum disorder (ASD)? In this article we discuss current research on animal-assisted therapies, both generally and as these relate to ASD. We also take a look at research on the use of service dogs by families with a child on the autism spectrum.

ANIMAL-HUMAN INTERACTION: BEYOND ENRICHMENT

Romping with a puppy, riding a horse, or swimming with a dolphin undoubtedly have the potential to be enriching and memorable experiences for any person, including a person with a disability. However, there have long been claims that interacting with or caring for animals can be more than enriching, and can actually improve the physical or psychological condition of a person who is disabled or ill. In 1859, Florence Nightingale, the founder of modern nursing, wrote, “A small pet animal is often an excellent companion for the sick, for long chronic cases especially. A pet bird in a cage is sometimes the only pleasure of an invalid confined for years to the same room. If he can feed and clean the animal himself, he ought always to be encouraged to do so.” [1](#)

More than a century and a half later, researchers are investigating the possible benefits of animal-human interaction, including pet ownership, animal visitation programs, and actual animal-assisted therapy (AAT). There have been studies claiming animal-human encounters can lessen perception of physical pain, [2,3](#) and have a beneficial effect on physiological factors like blood pressure or heart rate, [4,5](#) psychological factors like anxiety or depression, [6,7](#) and social-psychological factors like loneliness. [8](#) In addition, research has suggested that animal-human interaction can decrease agitation and aggression, or increase social interaction and ability to manage daily living, in people with Alzheimer's disease, [9](#) dementia, [10](#) and schizophrenia. [11](#) Considering the broad range of suspected benefits, it is not surprising that there are animal visitation or therapy programs being used for everyone from children to senior citizens, and in a variety of settings, from nursing homes to hospitals to prisons. [2,12,13](#) As a result, animal-assisted therapy is emerging as a new field, [14](#) and one of interest to both medical and mental health professionals. [15,16](#) Those who practice it are beginning to carefully distinguish between animal-assisted *activities*, such as when a volunteer brings a dog to visit nursing home patients, and animal-assisted *therapy* which, they emphasize, involves a trained professional and a trained animal who are attempting to address specific problems for specific kinds of patients. [17,18](#)

ASD AND ANIMAL-ASSISTED THERAPY

Beyond all the other claims that have been made about animal-assisted interventions, there is one that is especially important to parents of children on the autism spectrum: the notion that animals can help people learn to bond or form social attachments. Indeed, one of the first attempts to use dogs therapeutically involved children with autism. Writes researcher Olga Solomon:

The recognition of animals' potential as communicative partners for children with autism was perhaps the foundation of the first use of dogs as therapeutic adjuncts over 50 years ago. The first argument that playful interaction with dogs can improve socio-communicative abilities of children with autism was made by Boris Levinson, a child psychiatrist at Yeshiva University Medical School, at a meeting of the American Psychological Association in 1961 In his book, Pet-Oriented Psychotherapy, Levinson argued for "Seeing Heart dogs" to help children with autism to achieve their "emotional-insightful health." [19](#)

Dr. Solomon, who conducted two in-depth case studies of children with ASD interacting with a therapy or service dog, was inspired to investigate the potential for using dogs to help children with ASD after the father of a little girl with autism begged her to sell him her dog. The dog had enticed the man's daughter to play spontaneously at the park, getting her to throw him a Frisbee, laughing and otherwise engaging at a level the father had rarely witnessed. The experience left Solomon thinking that perhaps "there is something about canine social behavior and characteristics that engages children with autism in a way that humans can't." She commented that dogs will not only initiate a bid for attention, but will insist on it. For example, they may bring a Frisbee to a child, then, if ignored, flip it over, bark, or otherwise demand a response. No verbal language or understanding of more complex human-to-human interaction is required. [19](#)

Other researchers have also wondered whether children with ASD make gains in a social-emotional sense as a result of interacting with dogs. In one early report on animal-assisted therapy with 12 autistic children, Laurel

Redefer and Joan Goodman noted a “highly significant increase in pro-social behavior with a parallel decrease in self-absorption with the introduction of a friendly dog. The children showed fewer autistic behaviors (e.g., hand-posturing, humming and clicking noises, spinning objects, repetitive jumping, roaming) and more socially appropriate ones (e.g., joining the therapist in simple games, initiating activities by giving the therapist balloons to blow up, balls to throw, reaching up for hugs, and frequently imitating the therapist's actions).”²⁰ Researchers at the College for Veterinary Medicine at Washington State University later compared the positive social behaviors of 10 children with ASD when in the presence of a therapist and a ball; a stuffed toy dog; and a real dog. They found that children with ASD “exhibited a more playful mood, were more focused, and were more aware of their social environments when in the presence of a therapy dog.” The children performed more hand-flapping when in the presence of the dog, but the researchers believed this was because they were excited. They laughed more and longer in the presence of the dog, as well.²¹

Therapeutic horseback riding, or equine therapy, with a focus on physical abilities like trunk/head control has long been used for individuals with disabilities such as cerebral palsy.²² The very limited research on equine therapy with children with ASD, however, has focused on social connection. For example, a study in Japan providing “psycho-educational horseback riding” to 4 children with pervasive developmental disorders claimed that the children showed improvement in imitation, emotional expression, and eye contact, among other things.²³ A U.S. study taking place at an equestrian training center, and involving 34 children with ASD, found that “autistic children exposed to therapeutic horseback riding exhibited greater sensory seeking, sensory sensitivity, social motivation, and less inattention, distractibility, and sedentary behaviors.”²⁴

CHALLENGES IN ANIMAL-ASSISTED THERAPY RESEARCH

The notion that bonding with an animal can improve physical, mental, and social difficulties is appealing, but evidence that specific interventions with specific animals accomplish specific goals with specific groups of patients is still quite sparse. Although many AAT studies or programs claim that they provide substantial benefits, a great deal of the research so far has been done on a small scale, across a wide array of varied settings, and with people with all kinds of conditions and needs.²⁵ This makes animal-assisted therapy seem too much of a cure-all, and lessens its legitimacy. Despite the belief in the therapy on the part of patients or practitioners, it has therefore been suggested that insurance companies are unlikely to pay for it until better science consistently shows precisely what type of AAT, done in what setting, and for how long, benefits which type of patient. Evidence is needed to support more widespread acceptance and use of both animal visitation programs and animal-assisted therapy.¹⁵

The programs that are most prone to criticism are those supported by very little research, but very big claims. Dolphin-assisted therapy, or DAT, is a good example of this. Writing for the *Washington Post*, Katherine Ellison comments:

*Do you or does your child suffer from cerebral palsy? Down syndrome? Autism? A knee injury? General ennui? If you do -- and you have a week or two and a few thousand dollars to spare -- a growing and controversial group of global entrepreneurs claims it can help you feel better by putting you in close contact with dolphins.*²⁶

A major critique of dolphin-assisted therapy research set forth some of the challenges of animal-assisted therapy research more generally. These included the influence of participants' expectations (as stoked by provider's advertising and claims), the fact that the experience with the dolphins may have been "nonspecific" (that is, a platypus or cat might have done just as well), and "novelty effects" (that is, a person may have been energized by a new experience, but the results would have been the same for any equally fun and new experience). ²⁷ Studies that are conducted by those who will provide and market the therapy, of course, suffer from inherent bias. It is often a problem that those most motivated to test a therapy, whatever it might be, are those who already believe in it, hope to prove it works, and then market it, train people to provide it, etc. Despite the potential pitfalls, the field of AAT is maturing, and it is likely more research into specific therapies for specific populations will be conducted in the future. Again, the notion that human-animal interaction leads to "bonding" or "attachment" ^{21,28}—something people with ASD often need help with—may make AAT especially attractive to families with a child on the autism spectrum. This notion may be especially relevant when the animal is not encountered briefly, as in a therapy visit, but is spending more time with the child, which brings us to the subject of service dogs.

SERVICE DOGS AND CHILDREN WITH ASD

Service animals can play a larger role in the life of a person with a disability than an animal met during a brief therapy session, providing every day assistance and support as guardians, guides, and helpers. Most people are familiar with seeing-eye dogs who grant increased freedom to the vision-impaired, but service dogs may perform many other functions, such as picking up and bringing objects to a person in a wheelchair, opening and closing doors, or assisting a person who has limited mobility with walking or bracing. ²⁹ These dogs are specially trained to meet the needs of a particular individual with his or her own set of challenges.

Service dogs assisting a person with ASD perform a remarkable number of important functions, as was shown by Canadian researchers studying the experience of 10 families with a child on the autism spectrum who received such a dog. The researchers observed the experiences of both families and dogs during the initial family-dog training period and at home visits. They also conducted in-depth interviews with most families. ³⁰ What special jobs did these service dogs perform? First of all, they often served as guardians, keeping a child safe and preventing wandering. Many children with ASD are prone to wander from safe spaces, whether this is from home or school, sometimes with tragic results. A great number of deaths and injuries have been reported, and parents whose children are prone to wander often become continually vigilant and exhausted. ³¹ The service dogs in the study were able to improve such situations. Attached to the affected child by a leash and belt system, but responding to commands from a parent or other adult handler, the dogs made sure their child could not leave a safe area. If the child tried, the dogs would use their weight to resist, giving caregivers a chance to intervene. Even when at home and not "in harness," the dogs provided a second set of eyes, relieving parents' need to be constantly aware of where their child was. In some cases, the dog actually slept with the child. Just as Temple Grandin, the famous animal specialist with autism, felt calmed by using her "squeeze machine" to exert deep pressure on her body, ³² having the heavy dog pressed next to them seemed to relax

and calm some of the children who went to sleep more easily than they ever had before. One parent taking part in the study said:

Definitely, the dog's there as the bed buddy, you know, and to alert us of issues through the night rather than us lie there with one eye open, both ears...and I can get a sounder sleep and that's helped out immeasurably. I remember the first time we brought the dog home, it was the first time in nine years our son slept through the night. ³⁰

Families gained considerable freedom because of this increased sense of safety. The dogs often distracted restless children so they were less volatile during car rides, and made sure the children didn't wander in public places, which made all kinds of trips and outings more doable for families. In addition, they played one very important if unanticipated function: they smoothed all kinds of social interactions. People who might have given critical looks or been uncomfortable with a child's behavior before were, in the presence of a service dog, more understanding. The dog's presence signaled that something was amiss with the child, and also "greased the wheels" of social give-and-take. People could approach and ask about the dog, learning about autism in the process. The dog became what one researcher has called "a conduit for social capital." ³³ They increased the likelihood of positive social interaction out in the world for the family of the child with ASD. In addition, the Canadian researchers noted that some of the children with ASD gained certain skills through their interaction with the dog, like learning to match their pace to the dog's (and the family's) while out walking, or how to throw a ball, or how to pet the dog with the correct amount of pressure. Parents reported "decreased anxiety, increased calmness, reduction in the number of meltdowns or tantrums, dissipated/defused anger, and more manageable bedtime routines." ³⁰ (Of course, better sleep and less stressed out parents, who can then manage children more consistently, may have been the reason for some of this – an important outcome whether it was directly or indirectly related to the presence of the dog.)

What about bonding? In a second study that focused on the wellbeing of the dogs, the same team of researchers found that often the dog's primary bond was with the parent who could better "read" and respond to the animal's needs. Within the first six months that the dogs were placed in these homes, only 4 of 10 children showed any interest in the dog, which certainly has implications for the emotional give-and-take between children with ASD and service animals. ³⁴ Of course, there were only 10 families involved in the study, and it is quite possible that more (or less) than 40% of children with ASD would bond with a service animal if many more were studied, across different settings, ASD diagnoses, and circumstances. For example, it has been noted that girls on the autism spectrum often have animals as their "special topic" and connect well with them. ³⁵ Would a child that is inherently interested in animals bond better with a service dog? (Think of Temple Grandin and her intense interest in animals, especially cows and horses.) ³² Are girls with ASD more likely to bond with animals than boys with ASD? Are there other traits that make a child more likely to do well with, or bond with, a service dog? These are questions we have yet to answer.

One factor that proved important to the success of a family with a service dog was that family's readiness to take on the work of having one. The Canadian team found many service dogs were working extremely hard and not always getting the attention or recreation they needed. When "in jacket," which they might be during

the entire school day, they were expected to follow commands, ignore distractions, and not urinate or defecate, among other things. The researchers observed that hours of hard work, aggression from some children, and lack of time for exercise or play had a negative impact on some of the dogs. Some also suffered from broken sleep. Whereas parents could now sleep through the night, the dogs often could not, having to get up and follow around a child who woke during the night and who might prod and poke when the dog was trying to nap during the day. If a dog's needs were not met, it could impact the dog's welfare and ability to do its job. For example, a dog that was hungry for attention might seek it from strangers in public when it was supposed to be focused on the needs and behavior of the child with ASD. ³⁴

In brief, parents thinking about getting a service dog should be aware that there is a trade-off. While they may gain relief from broken sleep, constant watchfulness, and the critical looks of strangers, they will have to provide for the physical and emotional needs of the dog: food, water, grooming, a predictable routine, a break from work, and plenty of exercise, attention, love, and play. If the child with ASD cannot provide enough of the affection these very social animals require, a parent or other family member must have the capacity to do so.

FUTURE RESEARCH

There is a great deal of research still needed to provide families guidance about the effectiveness of animal-assisted therapies. Studies which focus in on specific AATs directed at improving specific ASD-associated challenges will be most useful, as will studies that help demonstrate if children on the autism spectrum with certain characteristics are especially likely to benefit. If social aspects of ASD, from mere interest in social interaction to actual “bonding,” are a goal, it will be important to find a way to characterize and measure these concepts in concrete ways. The idea that the unconditional love and the simpler social give-and-take offered by dogs and other animals can coax children with ASD into social interaction, and then make them more likely to seek interaction with other people, is intuitive and attractive. Whether this is truly the case, and when, still needs to be put to the test. As Lori S. Palley, a veterinary researcher, put it:

The appeal of AAT in human medicine today may be generally characterized as a “push” by enthusiastic advocates rather than a “pull” by prescribing physicians. To fully integrate AAT into conventional medical practice as an accepted therapeutic modality, more convincing intervention studies are necessary to confirm its clinical merits, along with an understanding of the underlying mechanism of the human response to the company of friendly animals. ²⁵

RELATED ARTICLES

- [The Happy Hannah Dance](#) - a post about the bond between a dog and girl with ASD on the *Autism Speaks* blog by Teresa Foden.
- [IAN Research Report: Animal-Assisted Therapies](#) explores what families participating in IAN have shared about their experience with animal-assisted therapies.
- [A Uniform Framework for Evaluating Research Studies](#) will help you read and analyze research articles by providing you with a framework for evaluating them.

Additional Resources:

IAN provides these links as a service to the reader, but has no firsthand knowledge of the organizations listed and cannot vouch for them.

- [4 Paws for Ability](#) claims to be the largest autism service dog organization in the United States, and to have been the “first agency to begin placing skilled autism service dogs” with families.
- The Delta Society's online [National Service Animal Resource Center](#) provides info and resources for individuals with disabilities and families considering getting a service animal.
- [The Assistance Dog United Campaign](#) is an organization that provides financial help to individuals who need a service dog but have difficulty raising the money for one. It has a [list of member service providers](#)
- [Therapy Dogs International](#) is a volunteer organization that tests, evaluates, and registers therapy dogs and their handlers so they can visit nursing homes, hospitals, and other institutions.
- [The American Hippotherapy Association](#) promotes the use of horses as a treatment in physical, occupational, and speech-language therapy sessions.

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