13.1 Introduction

Walter is now eight years old. He has been visiting the office for over a year. He sits on the floor with his legs crossed as he feeds a treat to his canine co-therapist. “Here you go, girl,” he says as he flaps his hands in excitement.

It was not too long ago that Walter would just rock, shriek and simply ignore the warm hearted golden retriever as she approached. If she got too close, he would stiffen to demonstrate his displeasure. Walter has autism.

According to the Autism Society of America, autism is a “complex developmental disability that typically appears during the first three years of life and affects a person’s ability to communicate and interact with others.” Autism spectrum disorders (ASD) lie on a spectrum that ranges from mild to very severe. Asperger’s syndrome is a milder variant on the autism spectrum. There has been a dramatic increase in the identification of persons with ASD over the past few decades (Autism Society of America, 2006). For example, 40 years ago, it was estimated that one out of every 2,500 children born was diagnosed with autism. The latest figures reported estimate prevalence rates to be one in 150 children born (Centers for Disease Control and Prevention (CDC), 2007) with autism currently affecting between 1 and 1.5 million people in America (United States Census Bureau, 2000). The CDC (2009) acknowledges the recent data released by the Health Resources and Services Administration which places ASD prevalence rates at about one in 91 children ages 3 to 17, and is currently preparing an updated prevalence rate report. Additionally, autism is four times more likely to be diagnosed in boys than girls.

In general, persons with ASD are broadly recognized as having impairments in social functioning and communication, as well as displaying repetitive or stereotyped behaviors (American Psychiatric Association, 2000). ASD are extremely variable and can vary in degrees of impairment. Some persons classified with ASD have profound challenges and will remain non-verbal, while others will demonstrate traits of brilliance. For example, it has been long accepted that Einstein and Mozart would
probably have been diagnosed with either high functioning autism or Asperger’s syndrome. Science suggests that ASD are due to abnormalities in brain development and formation (Courchesne, 2004).

Some of the major symptoms of ASD are limited or perhaps abnormal speech, impairments in reciprocal social interactions, lack of eye contact, sensory oversensitivity, and repetitive behaviors. Often persons with ASD have a markedly constrained repertoire of activities, which can also be developmentally inappropriate. The key to understanding the disorder is recognizing the variability that may be observed. Impaired social functioning appears to be one of the most salient characteristics within the disorder. Symptoms may include weak or no eye contact, failure to develop peer relationships, and lack of social reciprocity. When interacting with someone with ASD, they are aware of another’s presence, but often will not acknowledge that person. Communication impairments within this population include slow or limited verbal language, mimicking language, echolalia, and delays in pragmatics. Many persons with ASD have the inability to initiate and sustain conversations. Finally, several persons who have disorders within the spectrum have repetitive and stereotyped behavior. These behaviors are most often recognized through repetitive motor movements, preoccupation with certain objects, and inflexible adherence to routines (APADSM-IV-TR, 2000).

The most functional variation of ASD is Asperger’s syndrome. Individuals with Asperger’s syndrome are verbal, but generally have difficulties with social pragmatics, social interaction skills, eye contact and reading non-verbal behavior and gestures. Many persons with Asperger’s syndrome also have a strong need for sameness and may have limited interests. On the other hand, there are large groups of persons with ASD who have also been diagnosed with mental retardation. These individuals usually do not develop verbal language, and have pervasive developmental delays that tremendously impact their functional self-help or social skills (Kutscher, 2006).

It is important to note that the Neurodevelopmental Disorders Work Group for the DSM-V is suggesting some possible changes for the new edition concerning ASD. There are currently three major suggestions. The first suggestion includes utilizing a single diagnosis for ASD, thus eliminating the separate categories of autism, Asperger’s syndrome, and PDD-NOS. A second recommendation is changing the current three-symptom domain to two: social communication deficits and fixated interests/repetitive behaviors. The third suggestion is to define ASD symptoms along a continuum that includes normal traits, subclinical symptoms, and three different severity levels for the disorder (Swedo, 2009). Although final decisions have not been made for the upcoming DSM-V, clinicians need to realize that ASD will undergo categorical changes, which will have an impact on how we define the disorder. Nevertheless, our general understanding of the symptoms will remain the same and should not change how we problem-solve the roles that animals have in these individuals’ lives.

At this time there is not a cure for those with ASD, but there is some evidence of certain therapies that have promise in helping to treat the disorder. The scientific community is in agreement that early intervention can help foster growth and development. Within this chapter, the authors will provide an argument for how animals may be incorporated with this population. Attention will be given to understanding why persons with ASD may or may not relate to animals. Suggestions
will also be given to help the reader to better understand the underlying processes that impact persons with ASD in their relations with various species of animals. Significant attention will also be given to the roles that service animals and therapeutic riding may have.

13.2 Animals and individuals with ASD

For some children or adults with ASD or other developmental disorders, either a service dog or other animal-assisted interventions (AAI), including therapeutic riding, can have great benefits. Nevertheless, the first author has discovered, through conversations with parents of children with ASD, that there are several variables that need to be considered. The use of animals as part of a therapy or activities program may be very beneficial for some with ASD, but may not be beneficial for others.

It is clear that there has been a recent interest in the roles that animals have in the lives of persons with ASD. Several trade books and scholarly articles have been written attempting to document the value of animals in the lives of a person with ASD. Martin and Farnum (2002) suggest that animals may be extremely valuable to the cognitive and social lives of children as a whole. Katcher and Wilkins (2000), in a previous edition of this Handbook, reports that children may, at times, use animals as initial transitional objects that may eventually lead to relationships with others. Since many persons with ASD struggle with sustaining and developing relationships, animals may act as an initial catalyst to support social interactions. This position has been often documented in the literature (Fine, 2006). It appears that animals may act as a social catalyst and seem to engage the person in becoming more comfortable within the therapeutic environment.

On the other hand, there have been a handful of studies in the last decade that have demonstrated that AAI could be useful in supporting persons with ASD with many of their developmental needs. Ming-Lee Yeh (2008) suggested several interesting outcomes from her three years of research on evaluating a canine animal-assisted therapy (AAT) treatment for children with ASD in Taiwan. The study followed 33 paired autistic children, whose ages averaged 5.89 years old. Children in the control group were observed in regular living activities, while those in experimental treatment were treated with AAT activities in semi-structured small groups (5–8 persons), lasting 40 minutes, twice a week. Her study followed the impact on the clients after the 8-week study was concluded. All canine animals in this research were trained and qualified therapeutic dogs. The Vineland Adaptive Behavior Scale (VABS, Chinese version) and individual treatment goal attainment scales (GAS) were used for evaluating the effectiveness of the AAT. Ming-Lee Yeh (2008) reported significant improvements for the children who received the AAT treatment on the social skills subscale and total score on the VABS. She also reported that after playing with dogs, children revealed significant improvements on GAS in various dimensions of communication and language as well as increasing their on-task behavior. She concluded by suggesting that her findings supported that AAT was helpful to the children in recognizing their environments as well as practicing higher level interpersonal skills.
Celani (2002) in another study found that children with ASD appeared to prefer drawings of animals to those pictures illustrating humans and interpersonal interactions. Additionally, Martin and Farnum (2002) noted several improvements in children with ASD when they interacted with therapy dogs. They observed improvements in their playful moods, and better attentiveness as a direct consequence of being around the dogs.

Several popular press books, such as a Rupert Isaacson’s (2009) *The Horse Boy* and Nuala Gardner’s (2008) *a friend like henry*, have chronicled the unique relationships that have been established with their children with ASD and various animals. Isaacson (2009) in his book *The Horse Boy* describes how his young son Rowan diagnosed with severe autism related to horses. *The Horse Boy* traces Rowan’s early difficulties with severe behavioral deficits and speech delays, and highlights the discovery of the innate value of horseback riding. On horseback, Isaacson reported that his son was calm, gave verbal directives to the horse and expressed joy. Both riding and interaction with horses on the ground was beneficial. On the other hand, Gardner (2008) recounts how the strong relationship between her son Dale and a golden retriever named Henry seemed to produce the strong breakthroughs needed in helping her son open up to the world around him. Both authors emphasize the strong bond that was established between their sons and the animals.

### 13.3 Why people with autism relate with animals

Grandin and Johnson (2005) hypothesize that one of the reasons why some children and adults with ASD relate really well to animals is due to sensory-based thinking. They suggest that animals do not think in words. Both their memories and their experiences are filled with detailed sensory information. A dog’s world is filled with pictures, little smells, sounds and physical sensations instead of words.

The first author often gets asked, “How do you know that animals think in pictures and other sensory information?” The things that animals become afraid of are one indication that they store memories as pictures or sounds. The first author met a horse that was terrified of black cowboy hats. White cowboy hats caused no reaction. The horse’s fear of black cowboy hats developed after a veterinary procedure where alcohol was thrown in his eyes. When this occurred, he was looking right at the person’s black cowboy hat. Animals often associate frightening or painful experiences with something that they were seeing or hearing the moment it occurred. Often, it is a large visual feature on a person, such as a beard or a lab coat. Specific sounds may also trigger a fear reaction. For example, one elephant was known to fear diesel powered engines, but gas powered engines caused no reaction. The distinctive sound of a diesel engine was associated with a frightening past experience. In non-verbal individuals with ASD, similar “fear memories” that are linked to sensory stimuli may occur. Scientific studies have also shown that animals store information as either pictures or sounds. Birds are able to remember where they stored food and migrating birds remember visual landmarks (Grandin and Johnson, 1995). Even ants remember visual images (Judd and Collett, 1998).
There is neurological evidence that language may cover up the sensory-based thinking which is present in all people. In some cases, frontal-temporal lobe dementia (a type of Alzheimer’s disease) destroys the frontal cortex and the language areas of the brain. In some patients, artistic and musical abilities will emerge in an individual who had no previous interest in art or music (Miller et al., 1998).

13.4 Sensory oversensitivity

One of the reasons why AAT is successful for some children and adults with ASD and not successful for others is due to sensory oversensitivity. A person with ASD may not be able to tolerate the smell of a dog. Another may have auditory oversensitivity and the sound of a dog barking may hurt his/her ears. When the first author was a child, the sound of a school bell felt like a dentist drill hitting a nerve. Even if the dog is trained not to bark, the individual may fear the dog will bark. Sensory oversensitivity is extremely variable. One may gag when s/he smells a dog and another may like the smell. A dog barking will not bother some and others will run screaming away from it. Persons with ASD who actively avoid dogs often do so because they have extreme sensitivity to either sound or smell.

For years, autobiographies by people with ASD have reported problems with hypersensitivity. Grandin (1995) in her book, Thinking in Pictures, quotes many of the early self reports. One person reported that rain sounded like gunfire. Researchers have now documented that problems with sensory oversensitivity are real (Crane et al., 2009; Davis et al., 2006; Gomes et al., 2008; Leekam et al., 2007; Wiggins et al., 2009). Both reports in the scientific literature and practical experience have shown that individuals with many other diagnoses such as ADHD, dyslexia, learning problems, and head injuries may also have problems with sensory oversensitivity (Ghanizadeh, 2009; Romanos et al., 2008; Shochat et al., 2009). Grandin (2008) reviewed additional research on sensory oversensitivity. Some children and adults with ASD cannot tolerate fluorescent lights. They can see the 50 or 60 cycle flicker. This makes them feel like they are in a disco with a strobe light. The small compact fluorescent light bulbs that screw into a lamp may also flicker and cause problems. One study showed that children with ASD had more repetitive behaviors in a room with fluorescent lights (Coleman et al., 1976). Some individuals on the spectrum have problems with fluorescent lights and others do not. If a person with ASD was introduced to a therapy dog in a room that caused sensory overload, s/he may not have a good reaction to the dog simply because of the room. To accurately judge how a person with ASD will react to a dog, the individual needs to be in a quiet place away from fluorescent lights or other sensory distractions.

13.5 Factors that worsen sensory problems

Sensory problems often get worse when an individual with ASD gets tired. A child who can tolerate a crowded supermarket in the morning when they are rested may not be able to tolerate it when they are tired. When the individual gets tired, they may feel
like they are inside the speaker at a rock concert. People with ASD call this sensory overload. When sensory overload occurs, the individual may start screaming or they may just shut down and not respond. No learning can occur when overload happens. To recover, the individual has to get away from the overstimulation and calm down in a quiet place. One of the difficulties when doing research on sensory oversensitivity is its variability. This is because one person with ASD may react badly to a stimulus when others do not.

13.6 People with autism and sensory-based thinking

Many people with ASD are sensory-based thinkers. Grandin (1995), in an earlier publication, revealed that she thinks in pictures. Words narrate the pictures that pop up into her imagination. She suggested that her mind works like the Google Internet search engine for Images. She explained that all her thoughts are in photo realistic pictures (Grandin, 1995). This really helped her in her work with animals. For example, she explains that in her early work with cattle, she got in the vaccinating chute to see what the animals were seeing. She did this to determine why they often balked and refused to move through the chute. She discovered that they were afraid of shadows, dangling chains, reflections, and other distractions (Grandin, 1980; Grandin and Johnson, 2005). When she first started doing this, many feedlot managers could not understand what she was looking for. It was difficult for them to understand because they thought in words, instead of detailed visual, auditory, tactile, and smell sensations. The first author believes that for herself, vision is her preferred sense. For different individuals with ASD, the other sensory systems may be used as they perceive the world. Tito Mukhopadhyay, in his book *How Can I Talk if my Lips Don’t Move?* and Donna Williams in her numerous books, describe how they are auditory thinkers. Hearing is their preferred sense because their visual system provided unreliable and distorted information. Williams (1996) described walking through a yellow kitchen that had fluorescent lights. She stated, “I saw shapes and colors as it whooshed by.”

Some non-verbal individuals are tactile and smell thinkers. The circuits in the brain that process sight and hearing may be providing them with distorted information. Several individuals have reported that their hearing would fade in and out (White and White, 1987). It may be like trying to use a mobile phone with a really weak signal that keeps “breaking up.” Professionals who work with individuals with ASD who are non-verbal have told the first author they believe that smell and touch may be the only senses that provide their clients with accurate and reliable information. Even though these people are not blind and are not deaf, their brain may process tactile sensations and smells more clearly than auditory or visual ones. The first author has observed that some non-verbal individuals may tap many objects and smell things. For example, she recently watched one non-verbal teenager tap everything around him. His motions were similar to a blind person who is really skilled with the white cane. He tapped and smelled objects in order to perceive them. This would explain why some non-verbal individuals, when they are first introduced to a therapy animal, may want to explore it through smell and touch. One individual with very severe
visual processing problems told the first author that he had to touch every part of a dog and its leash to fully determine what it was. He had to feel the entire leash and feel how it was attached to the dog to understand what the leash was for. He also had to touch the collar and unfasten it to determine that the leash and the collar were not a permanent part of the dog.

Prothmann et al. (2009) initiated a study to assess the preference for and the responsiveness to dogs by persons with ASD. The researchers concluded that animals, specifically dogs, might make their behavioral intentions more easily understandable to persons with ASD because they do not communicate both verbally and non-verbally. They inferred that one of the major deficits in persons with ASD is their inability to combine the coordinated and parallel understanding of verbally transmitted emotion-related information and non-verbally transmitted emotion-related information. In essence, a dog’s communication is not bundled with verbal and non-verbal intricacies. Dogs communicate non-verbally and portray their intentions with their body language. This is why it may be much easier for persons with ASD to understand them.


> Theory of mind is the ability to attribute [these] mental states to self and others in order to understand and predict behavior. It involves making the distinction between the real world and mental representations of the world. Individuals with autism spectrum disorder tend to be less proficient “mind readers” compared to people who are typical.

Deficits in acquisition of theory of mind may provide a plausible explanation for the major symptoms of ASD (Tager-Flusberg, 2010). People with ASD have great difficulty understanding the point of view or the thoughts and feelings of someone else. This may be a key element to why persons with ASD relate more comfortably with animals. The understanding of theory of mind and perceptual processing may be critical in understanding why animals may be easier for people with ASD to relate to (Papp, 2006).

The authors want to stress to professionals incorporating various AAI that they consider and remember sensory problems in the autism spectrum are very variable. One individual may prefer to experience the world through vision, another may prefer auditory and another may prefer touch or smell. Depending upon severity, either the visual system or the auditory system may be scrambling sensory input, making it important to try to accommodate the individual’s preferred way of perceiving the world.

### 13.7 Choosing animal-based interventions: suggestions for service animals and other forms of AAI

Multi-disciplinary professionals who are interested in applying AAI with persons with ASD need to integrate several of the key variables that have been discussed thus
far with this population. In review, these are the critical variables that need to be considered when developing a therapeutic regimen:

1. Children and adults with ASD relate really well to animals because they use sensory-based thinking.
2. Sensory oversensitivity may have a tremendous impact on the outcome. This process is extremely variable. Some individuals may not be able to tolerate smells or sudden sounds from an animal. Many others will have no sensory problems with animals and will be attracted to them.
3. Animals, specifically dogs, may communicate their behavioral intentions more easily to persons with ASD.
4. Individuals with ASD tend to be less proficient “mind readers” compared to non-ASD people. The understanding of theories of mind and perceptual processing may be critical in understanding why animals may be easier for people with ASD to relate to.

Utilizing the previous points, we will now return to the case study of Walter, who was initially introduced at the onset of this chapter. Walter’s level of impairment was moderate, and as was indicated earlier, he struggled greatly with his communication, on-task behavior, and behavior regulation. His vast therapeutic interventions, which incorporated AAI, also included behavior therapy, occupational therapy and speech and language interventions. Initially, the therapy animal was introduced to foster rapport and camaraderie. To assure that the most viable therapy animal was selected, attention was given to selecting a therapy dog that was extremely calm, was not intrusive, and followed directions explicitly. This was done to insure that there would be a higher probability that Walter would be more receptive to his new co-therapist.

Over the course of treatment, Walter seemed to become more at ease in the company of the dog. Initially, he was quite resistant to her proximity, but gradually became more relaxed. What is critical to realize is that the therapist used the therapy dog’s presence for a variety of purposes. For example, Walter was encouraged to play ball with the dog and to use some language when they were playing. He often would brush her and help prepare her water bowl and a small treat. Perhaps one of the activities that Walter seemed to enjoy working on the most was getting the dog to follow through a maze activity and to complete simple requests such as shaking hands, lying down and rolling over. In many ways, the dog’s role was to act as a catalyst for compliance in activities that perhaps were not as desirable to complete without the animal. Attention was given to the therapy dog’s appearance, making sure she was always well groomed and clean. The therapist made sure there were no noxious odors that would be aversive to him. Additionally, beyond grooming, Walter provided the lead on when he wanted to cuddle and hug the dog.

In an additional case, Fine and Eisen (2008) report the use of a young golden retriever and her interactions with a child with a dual diagnosis, which included an ASD diagnosis. The 12-year-old girl, who will be known as Sally, had numerous behavioral challenges and was often openly hostile and potentially physically aggressive. Over the course of her habilitation, effective therapies had been hard to find. However, it was noticed by her caregivers that Sally had a fondness for animals.

Her mom did not seem to understand the significance of her daughter’s developmental disability. The major obstacles that she experienced at home were Sally’s poor
communication skills, her insistence for sameness, and her reactive aggressive behaviors. Sally would often spit at any adult that came near her when she was angry. Her limited language made matters worse even though it was also apparent that she needed to express herself.

In Sally’s case, three well-trained therapy dogs were applied. Although she seemed intrigued when she was introduced to each (one at a time) she was very reluctant to touch or pet them. She would rock and curl up but when the dogs would leave, she would call for their presence. Eventually, the youngest of the three dogs was the animal that seemed to have the greatest breakthrough with her. With coaching, Sally became the dog’s trainer and this new sense of perceived competence seemed to be what she needed to interact and become gentler. Over the course of the next six months, Sally brushed the therapy dog, worked on taking walks and also writing letters and drawing pictures for her.

Her family and social work staff noted that the dog and her therapy visits were Sally’s favorite topic. Whenever she returned home, she seemed calmer and wanted to tell anyone who would listen about the “the girls” at Dr. Fine’s office. The staff used this new interest to defuse potential conflicts, reminding Sally that she was her dog’s role model.

Her lead residential therapist kept a log of the behavioral outcomes from the AAT she was receiving. The following is a brief citation from this digest (Fine and Eisen, 2008):

> Each visit her autonomic reaction has decreased – initially her hand was ice cold and pulse rapid through the walk until returning to the parking lot. Her eyes would dart around, glassy, and huge. She looked petrified. She had limited eye contact with both Dr. Fine and any of the dogs she walked. She looked hyper-vigilant and easily distracted by all the sights and sounds of the environment, looking past the dogs instead of at them. Now she is so much more relaxed with everything! There has been a steady increase in her language abilities. I have been impressed with her ability to identify some emotions and state them to us as she walks. No longer does she spit or lose attention immediately upon encountering new adults. Now she relates to adults much better. Sally seems to have more self-awareness. She seems more content when she leaves. She does not fall asleep after visits (i.e. they do not seem so emotionally exhausting anymore; they are more therapeutic).

> She seems to want to talk about the visits, Dr. Fine, and the dogs when she is at home. She doesn’t seem to want to disappoint the dogs. She recognizes all the dogs in pictures. Recently, I gave her a beanie toy dog that was a golden retriever, and she immediately called it PJ. We no longer have to take pictures during visits because she is more interested in what we are doing. She is excited and anticipates coming. She knows the route, and when I am not driving, she tells the other driver where to turn. She is making progress and that is all that counts.

On the other hand, AAI can also be applied with individuals who have a milder version of ASD. Perhaps the most beneficial aspect that has been witnessed has been how the animals have supported conversation around metaphors for some of life’s challenges that have been mutually experienced by both the animal and the client. Perhaps one of the greatest benefits has been how the animals have supported companionship and friendship in the lives of people who have felt very isolated and
lonely. In *Afternoons with Puppy*, Fine and Eisen (2008) discuss the cases of two teenagers who had Asperger’s syndrome and the roles that animals had in their lives. Both of these young men were so intrigued with the therapy animals that their families eventually got them their own trained pets. Although they continued to struggle with human friendships and personal interactions, the animals became a positive social outlet for both of them. In fact, with the support of the animals, one of the young men became involved with an animal social group. Although he was a bit awkward at the start, the animal acted as a social catalyst and got him to become more accepted in the group. Companionship and camaraderie may be a key ingredient to life satisfaction. In fact, it was Aristotle who once said, “What is a friend? A single soul dwelling in two bodies.”

Much has been written about the psychosocial benefits of pets for persons with various disabilities. A great deal of attention has been given in the past decade to the roles that service dogs may have in families of persons with ASD. The following section will briefly identify the benefits and what therapists should be aware of in recommending this alternative.

### 13.8 Service animals

According to Burrows et al. (2008b) the use of service dogs to support children with ASD is a relatively new application. They note the primary purpose of getting a service animal for a person with autism is safety. The animal’s presence is used to slow small children on command and to prevent the child from running into ongoing traffic or getting lost in a crowd (Burrows et al., 2008b). When the purpose of the service animal is to protect the child from danger, the dog and child are attached to each other through a belt and tether system. The belt on the child has a bungee tether attached to the dog’s harness. The parent or guardian, who actually is giving the commands to the dog, is the individual holding the leash (Burrows et al., 2008b). In essence, the belt and tether system serves to prevent the child from bolting or running in the other direction, and allows the parent time to react to the child. Reports also suggest improvements in overall motor functioning as well as learning to walk at a more controlled pace (as a consequence of being attached to the dog).

Perhaps one of the side benefits of having a service dog for a person with ASD is companionship; similar to the young boys that we previously discussed. Generally, it seems that the person with ASD who gets a service animal more for companionship is traditionally higher functioning and perhaps a bit older. It has been reported that the animals have been found to have a calming effect on the individual as well. In a study by McNulty (2009), she interviewed several families that had acquired a service animal for their child with ASD. All parents reported that the service dog had a significant impact on the lives of their children and their families. McNulty (2009) reported that all families recognized additional benefits of having a service dog beyond providing safety for their child. However, they all agreed that the animals had a tremendous impact on their child’s safety while walking in the community. The parents reported that the service dog made it possible for the family to partake in numerous outside activities that they previously were not eligible for because of the...
constant diligence required in supervising the ASD child. Families in the project reported that the service dog also acted as a social catalyst for conversations and interactions in the public. Parents also revealed that the service dog “provided the benefits of a companion animal both to the child with autism and his/her siblings by playing with the children in the family” (p. 46).

These are only a few of the benefits reported by families. Parents also reported that they found themselves getting out more and exercising as a consequence of having the dog. Interestingly, the service animal appeared to have an analgesic effect on the parents, helping reduce the stressors of having a child with ASD in their family. The service animal can provide emotional comfort and safety for the child, as well as serving as a transitional multi-sensory stimulus which can aid in the sensory and affective levels of the ASD children, as the authors elaborated on earlier.

Service animals have been found also to be beneficial to the child because of the dog’s close proximity working with the child for elongated periods of time. This opportunity allows the child to build a closer and stronger bond with the animal because of the time spent together. However, precautions need to be put into place that the animal does not become a victim of tantrum behavior and overwork. This will cause tremendous stress to the animal.

McNicholas and Collis (2006) point out that animals do not seem as selective to their human companions as long as they are kind. Additionally, one of the benefits of relationships with animals is the fact that there is no need for well-developed social and communication skills. The social skills necessary to sustain a friendship with a human counterpart are more demanding than with a companion animal. Thus an additional benefit could be derived from this association.

Parents report a further sense of relief with having the service animal in the home. They admit that the dog serves as an “extra set of eyes” to monitor the movements of the autistic child, even when not in their working vest (Burrows et al., 2008a). However, it is imperative for the welfare of the animals that down time is permitted and to allow the dog some time for play, rest and relaxation. One of the side effects of the bond is that it seems that the dogs traditionally relate more with the parents instead of with the child (Burrows et al., 2008a). These findings were concurred in the McNulty (2009) study. Attention needs to be given in future research to help support opportunities for the child with ASD to foster and enhance the bond with the service animal.

13.9 Suggestions to consider before obtaining a service dog

The authors suggest that prior to recommending to families the use of a service animal, several questions need to be addressed. Perhaps the first question to be considered is does the child like dogs. Some children with ASD relate really well with dogs while others do not. It is easier to see the benefits from a service animal if a child is more comfortable with animals. Nevertheless, the authors suggest that if the child has had no previous experience with dogs, that the family considers introducing them to a friendly Labrador retriever. When a child with ASD is first being introduced to a dog s/he will fall into one of three different categories.
1. Bonds with the dog—this child is attracted to the dog and interacts with it. The child will naturally bond with dog and the dog responds in a really positive way to the child. These are the children that have a real bond with animals and would be excellent candidates for a service dog.

2. Initially fearful then bonds—this child may initially be fearful to approach the dog because it is big and novel. New things are sometimes frightening to children with ASD. The dog may have to be introduced to the child several times before the child bonds with it. This child may also be a good candidate for a service dog.

3. Dog avoider—this child may actively avoid the dog or scream when s/he sees the dog. This child is likely to be a poor candidate for a service dog. This is usually due to sensory oversensitivity to the sound of barking or to the smell of the dog.

Large, calm dogs such as Labradors are often a better choice than small dogs because they are sturdy and the child is less likely to accidentally hurt them. Labradors have two basic personality types—a heavy set calm type which is less active, and the slender “field” lab, which is hyperactive. A hyperactive Labrador would probably be a poorer choice for a non-verbal child with severe ASD.

Selecting the appropriate service dog for the child with ASD is vital for success. Parents are encouraged to not rush into the process and to work with the trainers at a selected training site to ensure a successful match. For instance, a more active child might be paired with a stoic Labrador to counterbalance the child’s constant movement. On the other hand, a shy child might be paired with an outgoing golden retriever to encourage participation. The most common dogs used are Labrador retrievers and golden retrievers, although other breeds are used too, such as the standard poodle in cases where a child might be allergic to a dog with fur (Gross, 2006). Families must go to a reliable source so they can be assured of the health of the animal.

Gross (2006) provides a comprehensive description on the early training and selection of these service animals beginning with puppy rearing in the homes of volunteers. Once the dog is about 20 months of age, it returns to a formal program to undergo intensive public access training, as well as training specifically for working with persons with ASD (Gross, 2006). Before releasing the dog to a potential family, time is spent training the family with the dog. Attention is also given to help the parent consider the welfare of the animal, so its quality of life is ensured. Most of the settings provide opportunities for follow-up training at the family’s home to help assimilate the dog into its new environment.

There are some programs that allow the family to select their own puppy, and help the family raise and train the puppy to become a service animal. The benefit of this is that the puppy bonds with the family from the beginning. However, this is an arduous responsibility and it is not appropriate for all (Gross, 2006).

13.10 Benefits of horseback riding

Horses and horseback riding as they are used in the therapeutic setting are divided into three divisions: (1) sport/recreational, (2) medical (also known as hippotherapy), and (3) educational (Stoner, 2002). Hippotherapy is potentially even more beneficial for people with ASD because it specifically addresses the vestibular system
This stimulation can then lead to other benefits such as increased sensory integration. Therapeutic horseback riding is a broad definition, which can be used to describe all three divisions, and all three have overlapping qualities. However, the actual act of riding the horse may be just a part of the overall therapy in which the horse is used. Depending on the functional skills of the person with ASD, they may be encouraged to groom the horse, lead it to and from its stall, help in feeding or giving treats, and even saddle the horse before they ride. This additional contact with the horse aside from sitting astride it provides many of the same therapeutic benefits offered through interaction with more traditional therapy animals such as dogs.

Four or five parents have told the first author that their young autistic child said his/her first words when they were riding a horse. A study on the effects of riding on children with ASD, done by Bass et al. (2009), found additional benefits for the child while riding. These researchers found that riding improved social motivation and there was less inattention and distractibility. An additional study conducted by Mason (2004) found that a therapeutic riding program tailored towards children with ASD promoted improvements in muscle tone/strength/posture, musculo-skeletal flexibility, balance/coordination, language facilitation, self-esteem, and social skills. These improvements are largely associated with the actual riding of the horse. However, Mason (2004) points out that the interaction between horse, child, instructor, and other people present during the therapy session may impact the child’s pro-social behaviors because of the relationships developed in the therapy setting. In a study done by Foxall (2002), it was found that the presence of the horse during therapy positively impacted the ASD person’s communication skills.

There are several reasons why riding may be so therapeutic. The first is that riding is a fun activity and gets the child out doing an activity that involves interaction with both the horse and other people. Two other reasons why riding may be beneficial is that it requires the person with ASD to keep their balance, and it is rhythmic. Occupational therapists have known for years that activities that stimulate the vestibular system are often beneficial. Slow swinging on a swing stimulates the vestibular system and may help stimulate the production of speech sounds (Ray et al., 1988). Other studies have shown that swinging and other vestibular stimulations were beneficial too (Bhatara et al., 1981; Slavik et al., 1984). Sitting on an exercise ball or sitting on a T stool requires constant balancing. Horseback riding combines all of these aspects into one, while also allowing the individual to interact with the horse and the instructors. The horse’s gait has been discovered to simulate the pace at which a human walks, making the pelvic position and swaying experienced when riding a horse very similar to the sway one experiences when walking (Reide, 1988). Even though the horse has a smooth gait at the walk, the horse’s stride is so long that one must constantly work on balance and posture while astride the horse. The constant stimulus to the vestibular system while also responding to requests given by the instructor acts as a form of sensory integration similar to forms many occupational therapists employ, but it also incorporates the additional effect of AAT.

It is also important to note that occupational therapists have learned from experience that most interventions are largely effective if done for no longer than 20 minutes without a break. If the intervention is done for longer than 20 minutes, the
nervous system may habituate. This same principle may apply to riding. To make the therapy session most effective, the child could ride for 20 minutes and then do some other activity such as grooming the horse. After the grooming break, the child could get back on the horse for another 20-minute session of riding.

13.11 Animal welfare issues

As has been discussed in various chapters in the book and extensively in the Serpell et al. chapter later in this volume, the area of animal welfare must be assessed and addressed with this population. There needs to be a balance between the needs of the child and his/her family and the needs of the dog. As can be seen throughout this chapter, there may be specific welfare concerns that must be taken into consideration when dealing with individuals with ASD. Some individuals with ASD may have a special connection with animals while others do not. Some individuals may fail to relate with animals even though they have no sensory issues (such as smell or auditory oversensitivity) related to the animal. These individuals may be rough with animals and may treat the animal as if it were an inanimate object. This problem may be more likely to occur in children and adults with severe ASD. It is in these situations that the welfare of a therapy animal must be carefully monitored.

There are two basic ways that a service dog could be used with children and adults with autism: (1) protect the individual with autism from dangers such as traffic in the streets, and (2) as a companion for an individual with autism (Burrows et al., 2008b).

In the first scenario, where a dog is used to protect a child with ASD from danger, there is the greatest potential for welfare problems. In this situation, the child may be harnessed to the dog to prevent dangerous behavior such as running out into the streets. If the child gets into sensory overload and has a huge tantrum s/he may hit the dog. To insure that the dog is protected and does not become stressed, the dog needs time where it is unleashed from the child and allowed to play and interact with the parents and other family members.

In the second scenario, an individual with ASD gets a service dog as a companion and friend. This interaction can help open up social doors and social opportunities. Other people will be attracted to the dog, which may, in turn, encourage interaction with the person with ASD. The use of the dog in this role would be mostly with children and adults on the higher functioning end of the autism spectrum. If the individual with ASD really bonds with animals the dog should have excellent welfare.

Davis et al. (2006) point out that the workload of the service animal must be carefully monitored. Wojciechowska and Hewson (2005) provide a list of variables that need to be considered to ensure quality of life in dogs. This list includes opportunities for social interaction and minimal distress. The challenge for families and therapists employing service or therapy animals is to achieve the balance that is needed in the animal’s life. The dog needs respite so that s/he does not become really tired and stressed. Additionally, safeguards need to be built into ensure that the animal is safe, especially at times when a child is prone to behavioral meltdowns. The dog needs to be protected and be allowed to leave situations where there is perceived
stressors placed upon it. Burrows et al. (2008b) suggest several variables to consider ensuring protection of all parties. They stated that there is a need to identify potential stressors and the importance of allowing the dogs down time for rest and recreation. Families must be aware that the dog also must be given routine breaks to urinate and/or defecate. The dog is trained not to relieve itself while wearing the work vest. Thus, if attention is not given to this area, behavioral challenges could arise because the dog needs to relieve itself. They concluded in their paper that dogs used for this specialized service with this population might be more likely to have poorer welfare compared to other service animals. These issues need to be considered and instruction must be given to families so that these challenges are avoided.

Pavlides (2008) discusses the concerns about being aware of when a dog should eventually need to retire as a service animal. Fine (2008) has also discussed this position, and believes that a working plan needs to be formulated. Most service animals cannot work all of their lives, as arthritis or other health complications make it difficult for them to continue their work effectively. One must be able to recognize when the animal is struggling, and provisions must be made for the animal’s welfare after it has retired.

13.12 Horse welfare

During visits to many therapeutic riding stables, the authors have observed that in some stables, horse welfare may be at risk from either lameness or boredom from always doing the same thing. Also, riders with handicaps often have balance problems that may put added strain on the horses. Horses that do the same thing, such as walk in a circle in the same direction around a ring all day, are at risk for becoming bored. Much like smaller animals such as cats and dogs that are often used for AAT, horses need to have variation in their routine, and stimulation to avoid the development of problematic behaviors. It is often overlooked that horses need just as much enrichment and stimulation as other animals commonly used for therapy. Another important note is that horses need a lot of room, and are a lot of work to care for and provide for. Therapeutic horseback riding is a relatively new field, and so research is needed to determine the best ways to maintain good animal welfare at therapeutic riding centers. The first step is as simple as stable managers being observant and making sure that their horses do not become overworked or bored.

Just like when selecting any other therapeutic animal, therapeutic riding centers need to obtain horses with the right temperament. The authors would recommend getting horses that have a very calm, placid temperament. A therapeutic riding stable which has a lot of highly strung horses picked for their appeal to the managers and not the individuals with ASD will most likely result in the riders being bucked off or having other unpleasant encounters. The best horses for therapeutic riding are extremely calm and steady. When the professional rider rides the perfect therapy horse it may seem like a boring old plug. A therapy horse does not need to be able to win the Kentucky Derby; it just needs to be a reliable animal so that the best therapy can be provided. Just like any other animal, all horses are individuals, each with a unique personality. This, as much as correct care of the horse, must be taken into account when selecting a good therapy horse.
13.13 Conclusions

Throughout this chapter arguments have been made highlighting the roles that animals may have in the lives of persons with ASD. As the literature points out, it is clear that for some persons with ASD, animals can provide strong social supports both as companions and as service animals. Clinicians must appreciate that persons with ASD process information differently than others. These processing differences often have an impact on the way these individuals may relate to others, including animals. For those clinicians who serve a population of children and adults with ASD, they may consider learning more about resources in their community that could help provide opportunities for the families outside the therapeutic environment (e.g. equine therapy, service animals, etc.). They should also consider some of the guidelines for incorporating animals in their therapeutic regime as was discussed in this chapter and throughout this volume.

A challenge within the clinical community has always been to focus on the things people with ASD cannot do and the significant differences these individuals possess. Nevertheless, persons with ASD can lead and live fulfilling and productive lives. Mark Van Doren once stated that the art of teaching is the art of assisting discovery. The role of AAI may be to help in this discovery and to enable persons with ASD in leading more independent and fulfilling lives.

References


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