



2009

A Reference Tool for Occupational Therapists to Utilize when Planning Occupation-Based Interventions Using Animal-Assisted Therapy

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A REFERENCE TOOL FOR OCCUPATIONAL THERAPISTS TO UTILIZE WHEN
PLANNING OCCUPATION-BASED INTERVENTIONS USING ANIMAL-ASSISTED
THERAPY

by

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A Scholarly Project

Submitted to the Occupational Therapy Department

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

Master's of Occupational Therapy

Grand Forks, North Dakota
May 16, 2009



This Scholarly Project Paper, submitted by Jennifer L. Hamre and Kathryn E. Nagorka in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

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5/4/2009

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Title A reference tool for occupational therapists to utilize when planning occupation-based interventions using animal-assisted therapy.

Department Occupational Therapy

Degree Master's of Occupational Therapy

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ABSTRACT

The purpose of this scholarly project was to develop a reference tool for occupational therapists to implement an animal-assisted therapy (AAT) program utilizing small animals in preparatory, purposeful, and occupation-based interventions. A thorough literature review was completed using PubMed, CINAHL, EBSCO, and OT Search to gain a comprehensive understanding of the current uses for small animals in a variety of settings. Cumulative resources included books, journal articles, editorials, magazines, and electronic organizational resources. Upon completion of a review of literature, we determined animals may be a beneficial modality and serve as an alternative mode of treatment to utilize with other occupational therapy approaches. Animals have a positive effect on individuals in therapy, specifically influencing a person's physiological, psychological, cognitive, social, and sensory responses. There is limited research on AAT and use of animals in occupational therapy treatment; however a number of the resources supported the use of animals in healthcare settings through animal visitation programs. A reference tool was created to provide background information and guidelines for implementing an AAT program and intervention recommendations appropriate for use in a variety of occupational therapy settings.

The development of this tool was grounded by the Adult Learning Theory to address learner needs and specific intervention recommendations were created

using the Model of Human Occupation as a theoretical guide. This reference tool provides occupational therapists with a basic foundation of knowledge regarding the guidelines for implementing an AAT program, as well as intervention plans and techniques that can be applied to a variety of clients. AAT provides an alternative approach to maximize clients' occupational therapy experience and independence.

CHAPTER I

INTRODUCTION

Tommy, a 12 year-old boy, was riding his bicycle after school when he was hit by a motor vehicle. Tommy sustained a traumatic brain injury from this event resulting in prolonged hospitalization. He experienced significant difficulty with dressing and grooming due to the loss of function in his right arm. Tommy was unmotivated to participate in therapy, especially relating to self-care tasks. The rehabilitation team and Tommy's parents struggled to find a way to help him perform these tasks. The occupational therapist tried making interventions meaningful and motivating for Tommy by using toys and games to increase the function in his right arm; although he was interested in these products initially, he only sustained attention to the tasks for short periods of time and then became disengaged.

The rehabilitation department had recently implemented an animal-assisted therapy program that was still in its early stages. A golden retriever named Beau was available to the rehabilitation team for therapeutic purposes three days a week. The occupational therapist questioned if Tommy would be interested in activities with a real dog rather than toys and consulted with Tommy's parents. His parents shared that they had a family dog and that Tommy enjoyed playing fetch with their dog. He was also responsible for many of the chores involved with owning a dog.

The occupational therapist brought Beau to meet Tommy for the first time, and his eyes lit up. For the next several weeks, Beau was the highlight of Tommy's days in the hospital. Tommy looked forward to the days that Beau was included in his sessions. Tommy was more motivated in these therapy sessions and he was able to sustain attention to tasks including the dog for longer periods of time.

The occupational therapist utilized Beau as a therapeutic tool in which Tommy could use his weak arm to pet, brush, play fetch, or give treats. The occupational therapist used a variety of adaptive brushes with special handles and grips that allowed Tommy to groom and brush Beau even with his weak grasp. As Tommy began demonstrating improvements in his right arm, the occupational therapist added wrist weights to increase his strength. Beau was also positioned so Tommy could increase range of motion on his right side. Within weeks Tommy regained the strength, endurance, and range of motion to complete dressing tasks without assistance. Beau motivated Tommy to achieve his treatment goals as difficult daily activities became more worthwhile.

In this scenario, a golden retriever was able to motivate a child to perform a variety of tasks. Imagine the possibilities of animal-assisted therapy (AAT) with other populations and settings, addressing factors ranging from behavioral, cognitive, psychosocial, and physiological.

Animal-assisted therapy (AAT) can serve as a unique treatment modality in a variety of occupational therapy settings. The focus of AAT is integrating goal-directed, animal-based activities in treatment of persons with physical or psychological dysfunction (Delta Society, 2008). Occupational therapists focus on

using a client-centered approach that incorporates meaningful and purposeful activities into treatment. AAT could serve as a meaningful treatment option to a multitude of populations including a variety of ages and diagnoses who have an interest in animals.

The current problem with using AAT as a treatment modality is that limited resources are available regarding the use of animals in occupational therapy. The majority of the literature available addresses animal visitation programs in long-term care facilities and psychiatric centers, with minimal resources available supporting the use of AAT as a method for occupation-based treatment. Aside from providing psychological and emotional support, small-animals can be used for occupation-based interventions that address one's physical conditions related to range of motion, strength and endurance, balance, and sensory deficits (McConnell, 2002; Velde, Cipriani, & Fisher, 2005).

The purpose of this scholarly project was to develop a reference tool for occupational therapists to provide information on implementing an animal-assisted therapy (AAT) program and utilizing small animals in preparatory, purposeful, and occupation-based interventions. The reference tool provides occupational therapists with a basic foundation of knowledge regarding the guidelines for implementing an AAT program, as well as intervention techniques that can be applied to a variety of clients. The interventions have been analyzed and separated into seven main components in which the clients can benefit from AAT: physical, psychological, physiological, sensory, social, behavioral, and cognition. An array of animals have

been incorporated into the intervention ideas to accommodate for the clients' interests and comfort levels.

Application of this reference tool and an AAT program may be influenced by many factors. A client needs to demonstrate an interest in animals for this treatment modality to be effective and meaningful. If a client has an allergy to animals or a fear of animals, AAT can not be used, which would hinder the application of this scholarly project. Although AAT may not be applicable to all clients, it can provide significant meaning and motivation in therapy sessions for those clients in which it is appropriate. Another factor that may influence the application of this scholarly project is the approval of the health care facility for implementing an AAT program. Since there are no standard regulations at this time for using animals in health care settings, many of the policies vary by facility. Not all healthcare facilities may grant approval for the use of animals with clientele.

The current research has been thoroughly reviewed, and two theories were selected in the guidance of this scholarly project. The adult learning theory guides the overall development of the reference tool, utilizing the Model of Human Occupation to assist with the analysis of intervention activities. The Occupational Therapy Practice Framework (2008) was also utilized in the organization and development of the reference tool.

The following chapters include information regarding the literature review, methodology, product, and an overall summary of this scholarly project. An extensive literature review was conducted and can be located in Chapter II. The literature review provides a more thorough explanation of the current research and

evidence available. The methodology is outlined including the process used while developing this scholarly project, including the reference tool, and can be found in Chapter III. Chapter IV includes a comprehensive overview of the reference tool. The components of the reference tool have been deconstructed to provide an explanation in greater detail. Chapter V contains an overall review of this scholarly project.

CHAPTER II

REVIEW OF LITERATURE

Small animals can serve as a unique treatment modality in a variety of occupational therapy settings. The use of animals as a treatment technique ranges from companion animals to provide psychological and emotional support to assistance animals that provide direct functional support to therapy animals that aid with the rehabilitation in occupational therapy (Macauley, 2006). The focus of animal-assisted therapy (AAT) is integrating goal-directed animal-based activities into treatment of persons with physical or psychological dysfunction (Delta Society, 2008). In AAT, the occupational therapist guides the treatment. Animal-assisted activities (AAA) incorporate visitation of animals without structured activities. Treatment goals are not planned for each session, but rather the aim is at client enjoyment (Delta Society, 2008). The focus of this scholarly project was the development of occupation-based, purposeful, and preparatory interventions using AAT rather than AAA.

The Representative Assembly (2004) of the American Occupational Therapy Association defined occupational therapy as:

The practice of occupational therapy means the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of

participation in roles and situations in home, school, workplace, community, and other settings. Occupational therapy services are provided for the purpose of promoting health and wellness and to those who have or are at risk for developing an illness, injury, disease, disorder, condition, impairment, disability, activity limitation, or participation restriction. Occupational therapy addresses the physical, cognitive, psychosocial, sensory, and other aspects of performance in a variety of contexts to support engagement in everyday life activities that affect health, well-being, and quality of life (Representative Assembly, 2004, ¶ 1.)

Occupational therapists focus on using a client-centered approach that incorporates meaningful and purposeful activities in treatment. AAT could serve as an appropriate treatment option to a wide-variety of people of multiple ages and diagnoses who have an interest in animals. AAT can address a number of personal factors that affect participation in occupations including: values, beliefs, spirituality, body functions, and body structures. These are known as *client factors* (American Occupational Therapy Association, 2008). AAT can also assist with motivation as well as comforting patients during treatment.

The American Occupational Therapy Association (2008) published the Occupational Therapy Practice Framework (OTPF), a document that delineates the

domain and process of occupational therapy. Goals of AAT are congruent with the OTPF as AAT provides opportunities to address areas of occupation, performance skills, performance patterns, context, activity demands, and client factors. An *area of occupation* is an activity that a person engages in throughout their day. The OTPF is comprised of eight categories that describe these areas of occupation including: activities of daily living (ADLs), instrumental activities of daily living (IADLs), rest and sleep, education, work, play, leisure, and social participation. To engage in these occupations, it is important to have the appropriate performance skills and client factors. *Performance skills* are demonstrated skills that a person utilizes when engaging in occupation, while *client factors* are the subjective characteristics and objective abilities involved in occupational performance (2008). Roles, habits, routines, and rituals are patterns of behaviors referred to as *performance patterns* (2008). Each of these patterns, skills, and occupations are influenced by a context which are multiple forms of interrelated environmental conditions that are separated into six categories: physical, personal, cultural, temporal, virtual, and social (2008). All of these components meet the demands that a particular occupation or activity requires, allowing for a person to successfully engage in the task (2008).

Occupational therapists facilitate remediation of function for those who have limitations related to any of the described occupations, performance skills and patterns, or client factors to promote participation in occupations. Occupational therapists are equipped with knowledge and skills for activity analysis and can potentially grade a number of AAT activities to create the “just right challenge”

while incorporating goal-directed activities. Activity analysis can be defined as the process of identifying the demands of task, the therapeutic potential, and the array of skills and abilities required during performance (Crepeau, Cohn, & Boyt Schell, 2003). Once these areas have been established, a therapist can determine techniques and adaptations to grade the activity to challenge the client's skills and abilities. Concepts of activity analysis directly relate to the components included in the OTPF (American Occupational Therapy Association, 2008).

The inclusion of an animal in therapy sessions can aid in establishing rapport as it can act as a channel of communication between therapist and client (Nathans-Barel, Feldman, Berger, Modai, & Silver, 2005). AAT can facilitate learning, provide reassurance, improve self-esteem, and increase feelings of independence and safety (Rosenkoetter, 1991).

History of Animal-Assisted Therapy

Hooker, Freeman, and Stewart (2002) and Lutwack-Bloom, Wijewickrama, and Smith (2005) reported that pets used in therapy practice had provided noticeable benefits throughout history. Tuke (1964) identified the first unofficial documented use of animals in health care settings occurred with mental health patients in England in 1792 by the York Retreat. This was the Quaker's attempt to improve treatment of persons in the insane asylum with use of small animals such as rabbits and birds (as cited in Hooker et al., 2002). In 1987, authors of a publication by National Institute of Health (NIH) reported it was not until 1919 that animals were introduced in health care settings in the United States when Franklin

K. Lane endorsed the use of dogs at St. Elizabeth's Hospital in Washington D.C. for psychiatric patients. They also identified a program initiated by the U.S. military using farm animals at Pawling Army Air Force Convalescent Hospital in 1942 to create a diversion for veterans recovering post-war (as cited in Lutwack-Bloom et al., 2005).

A New York children's home, Green Chimneys, was opened in 1948 and it has been reported the use of animals benefited the children in a behavior modification program (Golin & Walsh, 1994). The facility has continued to use animals and continues to do so presently (Lutwack-Bloom et al., 2005). Hooker et al. identified Dr. Boris Levinson as the first person to clinically document and advocate for the use of animals in therapy treatment. Levinson believed the animals were useful in establishing rapport and a meaningful relationship between client and therapist. These authors also noted that Dr. Levinson's documented work was then used by Sam and Elizabeth Corson, two psychiatrists, in a hospital-based setting for the first time in the 1970's. The Corsons also incorporated the first collection of quantitative data for pilot studies demonstrating the benefits of animal-assisted therapy. They later went on to develop a program and perform research in the nursing home using animals to improve patients' physical, psychological, and social status. The researchers identified this point as when research began to expand and the interest in using animals in multiple different settings boomed (Hooker et al., 2002).

In 1977, a group of medical practitioners in both animal and human health settings developed the Delta Foundation to focus on expanding research related to the benefits of AAT (Delta Society, 2008). In 1981, the Delta Foundation changed

their name to the Delta Society, symbolizing a change in the focus of the group. The Delta Society expanded their focus beyond research to practical clinical and community use of animals in therapy, training, and advocating for services. This group has since developed multiple programs, two of which are known nation-wide for the advocacy of service dogs in public places (National Service Dog Center®) and standardized training for the animals and handlers providing AAA and AAT (Pet Partners®)(Delta Society, 2008).

Benefits of Animal Inclusion

A growing body of research literature portrays the effects animals have on an individual's physiological, psychological, behavioral, social, cognitive, and sensory functions. Animals were used as a complimentary treatment modality to accompany other treatment interventions in therapy sessions. Although many of the studies reviewed relate to principles of AAA, many of the finding also support the use of animals in an AAT program.

Physiological Benefits

A number of researchers have identified the potential physiological benefits of animals which have included decreased blood pressure (Katcher as cited by Fick, 1993; Odendall, 2000), physiological stress (Allen, Blascovich, Tomaka, & Kelsey, 1991; Allen, Shykoff, & Izzo, 2001), improved heart rate variability(HRV) levels (Friedmann, Thomas, Stein, & Kleiger, 2003), cardiopulmonary pressures, and neurohormone levels (Cole, Gawlinski, Steers, & Kotlerman, 2007).

Katcher performed a study (as cited in Fick, 1993) and found people had lower blood pressure levels when communicating with a dog than when communicating with another human. Odendaal determined physiological effects can be observed in as little as five minutes of positive animal interaction, as blood pressure was noted to decrease after this point. The results from these studies (Fick, 1993; Odendaal, 2000) indicated clients may have increased comfort when incorporating an animal into occupational therapy treatment sessions. Furthermore, neurochemical levels can affect one's emotions and physiological changes in these levels were found to influence mood and feelings of well-being during animal interaction (Odendaal, 2000).

Allen et al. (2001) found pet ownership can decrease one's reactions to physiological stress, in relation to a person's high stress employment position. Allen et al. (1991) reported a person experiencing a stressful task had lower physiological reactivity with the presence of a dog than a person experiencing the same stressful task without the companionship of a dog. The presence of the dog buffered the acute stress that was often associated with the tasks being studied (Allen et al., 1991).

Multiple researchers have investigated the effects animals may have on heart and respiratory functions. Friedmann and Thomas (1995) found pet ownership was a predictor of survival one year after a myocardial infarction, independent of physiological severity and social support. The results indicated owning a pet as an adjunct to other support networks decreases mortality rates and risk for cardiovascular disease (Friedmann & Thomas, 1995). Friedmann et al. (2003) found owning a pet may contribute to cardiac autonomic modulation, indicated specifically

by pet owners having increased heart rate variability (HRV), which signified a decreased risk of mortality. The short- and intermediate- term HRV indexes had higher averages with patients who owned pets. These researchers also found dog owners displayed increased HRV indexes over an extended period of time (Friedmann et al., 2003). Cole et al. (2007) examined the effects animals had on patients with congestive heart failure. Results indicated patients who experienced AAA had significantly lower systolic pulmonary artery pressure and pulmonary capillary wedge pressure levels. Diastolic PAP, right atrial pressure, and hormone levels also decreased with use of animals. Winkle and Good (2008) discovered subjects respiratory function and oral-motor-skills were improved during the task of learning bird calls.

Wu, Niedra, Pendergast, and McCrindle (2002) assessed the effects of a visitation program, Pets at Work (PAWS), on pediatric cardiology inpatients. These researchers found participation in AAA with dogs influenced respiratory rates and heart rates resulting in a stimulating or relaxing effect. The relaxing effect was a more common theme, especially once rapport was built between the child and the dog, demonstrating animals' potential for reducing stress. However, benefits of the implementation of a dog in therapy also demonstrated results of increased excitability of a drowsy child. The physical contact between human and animal also resulted in positive emotions and lightened spirits (Wu et al., 2002).

Psychological Benefits

In addition to having an effect on physiological components, research results have indicated animals can impact multiple psychological, emotional, and behavioral states. Banks and Banks (2002) found evidence that animals were beneficial in reducing loneliness in residents of a long-term care facility for those who participated in AAA. Banks, Willoughby, and Banks (2008) compared the effects of a living dog and a robotic dog on loneliness and found that loneliness decreased in both experimental groups. Results indicated robotics may be a useful alternative for AAA/AAT in facilities in which live animals are not permitted (Banks et al., 2008). Kawamura, Niiyama, and Niiyama (2007) conducted a study to evaluate the effects of AAA on institutionalized elderly participating in a dog visitation program which demonstrated continuous improvements in patients' emotional function and well-being over a 12 month period. It was noted that experiences with animals led to feelings of comfort, helping significantly with the management of behavioral problems (Kawamura et al., 2007).

Results from a study by Allen, Kellegrew, and Jaffe (2000) regarding pet ownership by people with HIV or AIDS, demonstrated that owning a pet can serve as a meaningful occupation in which individuals could maintain feelings of self-worth and efficacy. Pets were found to act as both an emotional support and diversions, serving as a coping mechanism to combat feelings of hopelessness, curtail seclusive behaviors, and minimize the negative perception associated with illness (Allen et al., 2000). Bizub, Joy, and Davidson (2003) found animals improved participants' self-confidence and quality of life through the unique interactions between humans and

animals. Results of a study by Edwards and Beck (2002) also discovered results supporting animals' affects on behavior and quality of life. In this study, the presence of a fish tank improved nutritional intake and decreased the need for supplements and medications for residents on a dementia unit. The results from Edwards and Beck's study highlight the potential for AAT's capacity to reduce healthcare costs.

Martin and Farnum (2002) performed a study on the use of a therapeutic dog with children diagnosed with pervasive developmental disorders (PDD). The researchers observed an increase in hand-flapping behavior, which is typically believed to be a negative stereotypical symptom during treatment. However, they suggested this influx in behavior was associated with the children's excitement about having an animal present. These children were observed laughing more frequently in the presence of a live dog, suggesting an improved mood and increase in energy. Martin and Farnum asserted the presence of a dog in therapy sessions may have a positive effect on children's behaviors.

While animals have been documented to have an effect on the emotional state and self-perception of a person, the following studies have also demonstrated an improvement in activities of daily living in patient's with mental illness (Berget, Ekeberg, & Braastad, 2008; Berget, Skarsaune, Ekeberg, & Braastad, 2007; Nathans-Barel, Feldman, Berger, Modai, & Silver, 2005; Zoltán, Kis, Rózsa,& Rózsa, 2004). Nathans-Barel et al. conducted a study to assess the effects of AAT on patients diagnosed with schizophrenia in combination with the presence of anhedonia. Results indicated during the use of animals in treatment sessions, the participants

showed improved hygiene and completion of self-care tasks in preparation for meetings when the dog would be present (Nathans-Barel et al., 2005).

In a similar study, Zoltán et al. (2004) evaluated the effects of AAT on institutionalized patients with schizophrenia, specifically relating to activities of daily living and instrumental activities of daily living skills. Opportunities were developed using the animals to obtain an outcome which could be adapted toward living skills among the participants. Grooming and feeding the dog encouraged the participants to learn the responsibility of caring for another living thing. Results from this study indicated improved performance in physical activities involving the animals, and as the complexity increased, so did the attention and persistence among the participants. Each of the living skills assessed were found to improve with the use of AAT, specifically relating to domestic activities, health, and social skills. A significant finding from this study was that the improvements lasted beyond the AAT sessions, and residents demonstrated the ability to apply what they had learned to everyday life (Zoltán et al., 2004).

Berget et al. (2008) indicated the use of farm animals during psychiatric treatment sessions benefited the clients through improving independent application of coping strategies to manage day-to-day stressors. Berget et al. (2007) completed a comparable study which indicated working with farm animals can decrease anxiety and increase self-esteem in addition to the previous findings. The interaction with the animals also increased work ethic in patients with mental illness when engaging in functional occupation-based tasks on the farm. These

clients performed typical stockman work involving direct contact with a variety of farm animals, graded to their needs and abilities (Berget et al., 2007).

Cognitive Benefits

AAT can provide opportunities to address cognitive goals such as planning, organizing, and initiating tasks through guided activities. Winkle and Goode (2008) suggested implementing activities that involve animals in a natural setting, such as utilizing wildlife reserves, parks, and other resources, and encouraging participation from clients in the planning process. Zoltán et al. (2004) and Nathans-Barel et al. (2005) have explored the use of animals to promote learning of living skills, specifically feeding, grooming, self care, health and nutrition, and physical activity.

Kawamura et al. (2007) examined the effects of animals on institutionalized elderly residents during a one- year period found that cognitive functions increased after six months of AAA. Banks and Banks (2002) studied the effects of AAA on loneliness in long-term care facilities discovered an unanticipated result regarding the frequency of spontaneous recall of past events from their life when interacting with an animal. The Delta Society (as cited in Miller et al, 2003) has indicated AAA and AAT have been documented to improve attention, memory functions, and an improved comprehension of concepts. Berget et al. (2008) referenced the impact AAT had on the clients working with farm animals, finding that participants had increased drive to engage in work and a noticeable increase in attention to detail.

Recently, AAT programs have been implemented in the school setting to promote learning and literacy skills. A program called Reading Education Assistance

Dogs (R.E.A.D.) was developed in Salt Lake City in 1999 for these purposes (Intermountain Therapy Animals, n.d.). Jalongo (2005) identified the benefits that R.E.A.D. participants have reported about what therapy dogs have to offer in the school setting, specifically a trained, calm dog can provide comfort, encouragement, and support as children read out loud to the dog. It is believed that the dog provides a source of reinforcement, as well as a nonjudgmental attitude toward children with learning and reading disabilities. The anticipation of a dog can also serve as a motivating factor for children to attend reading sessions (Jalongo, 2005). Bueche's (2003) research in this area indicated that all of the participating students gained at least two grade levels after participating in the R.E.A.D. program for 13 months.

Social Benefits

Berget et al. (2008) found participation in AAT to not only be beneficial tool to address cognitive components, but also reported therapists' perceptions of animals that provide physical contact could be incorporated in training of interpersonal social skills. Zoltán et al. (2004) identified the benefits of AAT with social skills in institutionalized patients with schizophrenia. At the beginning of these AAT sessions, the animals approached the patients for affection, which encouraged and enhance patients' interaction. Patients could share their feelings and perceptions with the staff, which also encouraged increased socialization (Zoltán et al., 2004)

Fick (1993) found within a group setting, a dog can act as a means for discussion and interaction among group members, thus positively influencing social

interaction goals. This researcher indicated the presence of animals in therapy allowed for an increased level of comfort amongst group members, noting a significant difference in verbal interaction between group members when a dog was present versus the absence of an animal in therapy sessions (Fick, 1993). Banks and Banks (2002) noted residents participating in AAA would often spontaneously visit with the animal, thus resulting in reduced loneliness among residents in long-term care facilities. Banks et al. (2008) found evidence that residents in a long-term care facility formed significant levels of attachment with both the robotic dog and the living dog.

Odendaal (2000) emphasized human's natural need for attention and described the "intraspecies social system" (p. 276) as being open beyond human to human connections, and specifically addressed the human-animal bond that can develop with companion animals.

McNicholas and Collis (2000) and Camp (2001) found when a person with a physical disability is in the presence of a pet, such as a service dog, there were decreased stigma and an increased likelihood for social interaction opportunities (Camp, 2001; McNicholas & Collis, 2000). In the study by Camp, participants reported persons in public tended to avoid eye contact, lacked acknowledgement, or avoided their path all together when the participants were without the accompaniment of a service dog. These participants later reported significant improvements with social acceptance and inclusion, as well as increased greetings, eye contact, and nonverbal expression (Camp, 2001).

McNicholas and Collis compared two studies which produced strong evidence that dogs may act as a vehicle for increasing social interactions. In the first study, the researchers found when individuals were accompanied with a dog in public, more social interactions would occur, especially with strangers (2000). The second study compared, weighed the effects of the person's appearance on the frequency of social interactions. Although the individuals experienced more interactions when they were neatly dressed as opposed to sloppily dressed, the greatest effect was noted when compared with not being accompanied by the dog (McNicholas & Collis, 2000).

Barak, Savorai, Mavashev, and Beni (2001) implemented a controlled study utilizing AAT with elderly schizophrenia patients. These researchers reported AAT can affect social behavior in a group of two or more individuals. They also defined the roles animals could provide including: social catalyst, companion, and an alternative source for close personal relationships. The residents walked the animal outside the hospital grounds which created opportunities for social interaction with unfamiliar persons passing by. Barak et al. found the group participating in these sessions benefitted from the treatment as indicated by an improvement in social functioning after 12 months in comparison to the control group whom received standard occupational therapy (Barak et al., 2001).

Winkle and Goode (2008) identified the use of AAT through community-based interventions such as community outings and fieldtrips. Community-based AAT can address social factors and interpersonal skills by developing opportunities for clients to interact with community members, animals, and other group

attendees. Clients can practice appropriate social behaviors such as introductions, sharing space and equipment, learning respectful behaviors, and verbal modulation (Winkle & Goode, 2008).

There have been many researchers who have performed studies incorporating the use of animals in therapy sessions with children diagnosed with autism and other PDD (Martin & Farnum, 2002; Redefer & Goodman, 1989; Sams, Fortney, & Willenbring, 2006). These diagnoses are characterized, in part, by limitations in social functioning including verbal and nonverbal communication is affected (National Institute of Neurological Disorders and Stroke, 2008) Sams et al. (2006) found children significantly increased engagement in communication and social interaction when the occupational therapy sessions incorporated AAT. The frequency in which they used language was significantly greater with the presence of an animal. Sams et al. also discovered that the animals allowed the children to learn to interpret and respond to nonverbal cues, as well as serve as a catalyst to assist in recognizing these social cues in human beings.

AAT was found to improve positive social functions in children diagnosed with autism, while decreasing the stereotypical behaviors often seen as a symptom in these types of developmental disorders (Redefer & Goodman, 1989). Martin and Farnum (2002) conducted a similar study regarding the use of AAT with PDD and found the children demonstrated improved social interaction with the dog and engaged more frequently in conversation with the therapist regarding the presence of the dog. This signified the ability of animals in therapy to serve as a means for goal-directed social interaction. In this study, results indicated improved attention

towards the task during treatment sessions, as the researchers observed the participants had increased eye gaze focused on the dog. The children were also less likely to ignore questions from the therapist by discussing unrelated topics

Sensory Processing Benefits

Children with autism and other developmental disorders have been known to benefit from sensory integration (SI) therapy. SI improves one's ability to attend and respond properly to stimuli, while also developing organized behavior patterns. Sams et al. (2006) performed a study integrating the use of llamas and other animals into therapy sessions with children diagnosed with autism. A portion of the therapy included sensory treatment, including: brushing, feeding, petting, and carding wool into straight fibers. In this study, both the children and the animals responded positively to each other. Occupational therapists were able to develop creative interventions because of this positive relationship.

At this time, there is limited research on the benefits of incorporating an animal into SI therapy with different populations and settings. Winkle (2008) described using animals as an adjunct modality in educating adolescents in a correctional facility on recognizing their own sensory preferences and nervous system responses through training a service animal. Winkle and Goode (2008) reported utilizing AAT in a variety of environmental settings can provide opportunities for sensory stimulation. Sensory components such as proprioceptive and vestibular input can be addressed through community outings.

Controversy of Animal-Assisted Therapy

Despite the documented benefits of AAT, there is controversy regarding the utilization of animals in healthcare settings. Jorgenson (1997) suggested the use of AAT in healthcare and school settings is surrounded by skepticism of medical professionals. Medical professionals question whether the use of animals truly has a therapeutic effect on clients as many view this modality as a form of placebo. AAT is not fully accepted, possibly because of the lack of theoretical basis supported by quantitative data (Odendaal, 2000). Another concern is the potential for injury secondary to animal/human interactions, thus causing a potential safety hazard (Chretien & Garagusi, 1990). Some healthcare facilities and units may have regulatory policies that do not allow animals due to safety and sanitation reasons. Proper screening and sanitary measures must be utilized to prevent the transmission of disease between animal and human (Jalongo, Astorino, & Bomboy, 2004; Winkle, Van Dame, & Levenson, 2008).

Haubenhofer and Kirchengast (2006) evaluated the cortisol levels of canines participating in AAA and AAT to determine if the canines experienced additional stress during sessions. Results supported that AAT led to physiological arousal in the participating dogs. The effectiveness of the therapy with the dog may be affected by the time of day and the duration of the session which could be a potential limitation. This is relevant to the scholarly project because it identifies the importance of the therapy dog's physiologic arousal and well-being during therapeutic activities and sessions. It is important for occupational therapists using AAT to attend to not only the patient, but also the animal being used by

conscientiously observing for signs of stress. The OT may need to adapt the environment and activity demands for the needs of the animal.

Evidence has also been found that the use of AAT in certain scenarios may be contraindicated. One study determined the affect of animals on patients' retention of information received during discharge education sessions. The results indicated therapy dogs may serve as more of a distraction and, therefore, a hindrance during discharge teaching (Miller et al., 2003). Furthermore, animals may not be an appropriate modality for certain individuals. The presence of an animal may elicit a fear response and human/animal interaction may not be acceptable in some cultures (Jalongo, Astorino, & Bomboy, 2004).

Limitations

There is currently limited research on AAT which uses animals as a therapeutic modality in goal-direct therapy. The majority of the AAT literature available addressed long-term care facilities and psychiatric centers that had implemented AAT programs (Banks & Banks, 2002; Barak et al., 2008; Berget, Ekeberg, Braastad, 2008; Edwards & Beck, 2002; Kawamura, Niiyama, & Niiyama, 2007; Lutwack-Bloom, Wijewickrama, & Smith, 2005, Nathans-Barel et al., 2005; Velde, Cipriani, & Fisher, 2005; Zoltá et al., 2008). Although the research reviewed identified benefits of the use of animals in a variety of settings, the sources rarely identified the use of animals in goal-directed therapeutic interventions. Minimal sources of the literature reviewed related to principles of AAT according to the Delta Society's definitions (Sams, Fortney, & Willenbring, 2006; Zoltán et al., 2008;

Redefer & Goodman, 1989; Berget, Ekeberg, & Braastad, 2008). The AAA research supports that even the presence of an animal can have a positive influence on clients' physical, emotional, and psychosocial well-being (Allen et al., 1991; Allen, Kellegrew, & Jaffe, 2000; Allen, Shykoff, & Izzo, 2001; Banks & Banks, 2002; Banks, Willoughby, & Banks, 2008; Cole et al., 2007; Fick, 1993; Friedman et al., 2003; Kawamura, Niiyama, & Niiyama, 2007; Odendall, 2000; Wu et al., 2002). Utilizing animals as a modality in goal-directed therapy (AAT) will provide more treatment options for a variety of clients.

A variety of disciplines such as nursing, speech therapists, psychologists, and public health professionals have been documented to utilize animals for different purposes with clients. This identified the importance for occupational therapists to utilize their unique skills and determine ways to incorporate animals into innovative client-centered interventions that differ from other professions. While clients may benefit from the implementation of animals in their treatment, there are limited resources available for occupational therapists on using small animals for occupational therapy.

The resources currently available regarding use of AAT as a method for occupation-based treatment utilized the animal in grooming, feeding, and walking tasks. Aside from providing psychological and emotional support, small-animals can be used for occupation-based interventions that address one's physical conditions related to range of motion, strength and endurance, balance, and sensory deficits (McConnell, 2002; Velde, Cipriani, & Fisher, 2005). Animals incorporated in occupational therapy sessions may assist the client in achieving goals related to

occupational functioning while addressing the *whole* person, including physiological, cognitive, emotional, and psychosocial components.

Purpose

Principles and concepts of AAT are not currently included in occupational therapy professional program curriculum. This identified the need for a reference tool that occupational therapists can utilize when implementing AAT in the clinical setting (Winkle, Van Dame, & Levenson, 2008). The purpose of this scholarly project was provide adequate information for an occupational therapists to implement an AAT program and utilize small animals in preparatory, purposeful, and occupation-based interventions. The product is a reference tool which occupational therapists can utilize when planning and implementing treatment interventions using AAT for a variety of patients. The reference tool will include activities that can be used as preparatory, purposeful, or occupation-based interventions with small animals that will address a wide-spectrum of deficits across all age groups.

Theoretical Framework

Two theories were used in the development of this product, the adult learning theory and the Model of Human Occupation (MOHO). The adult learning theory was used to guide the development of the reference tool for occupational therapists. The adult learning theory is based on the idea that learning is a flexible progression and that adults are self-directed, take control over learning, and have

the motivation to learn topics. Information is only retained if it is considered relevant and applicable in daily life (Lieb, 1991).

Lieb asserted adults will draw from their own personal experiences and connect those events with new information to determine relevancy and practicality for professional development. Adults are typically goal-focused and learn information best if it is presented with objectives to be achieved. Structured feedback can reinforce learning behaviors and allow adults to assess their skills and understanding of the new information (Lieb, 1991). With this reference tool of interventions, occupational therapists can use client's response to treatment as feedback and a means for evaluating the information. An occupational therapists will also be able to transfer his or her learning to clients by applying the information from this reference tool to teach the client the rationale of AAT and the potential skills addressed in these interventions.

Lieb described six sources of motivation for adult learning: social relationships, external expectations, social welfare, personal advancement, escape/stimulation, and cognitive interest. Social relationships can be a source of motivation by promoting networking opportunities, while others may be motivated by external expectations such as a manager encouraging employees to attend additional learning opportunities. Motivation can be achieved through social welfare opportunities such as providing services to community members as a way to reach out to others. Gaining skills to increase competency and facilitate career advancement may also be a motive for learning. Finally, learning can allow for

exploration in new areas which can be exciting and satisfying while fulfilling personal interests and goals (Lieb, 1991).

Our AAT reference tool has been designed to facilitate occupational therapists' learning and targets adults who are goal-oriented, self-directed, and have the interest and motivation to incorporate animals as a new modality in their daily treatment sessions. Learning needs to be applied to daily activities that are valued (North Central Regional Educational Laboratory, n.d.). The information in this scholarly project is applicable to multiple settings with interventions that can be used in day-to-day treatment sessions. The reference tool can be used to guide to provide structure and concrete examples to encourage direct application of animals in therapeutic treatment sessions. The reference tool provides basic information from which the therapists can build from with personal experiences, knowledge, and abilities.

MOHO was used as a secondary model guiding the development of the interventions included in the reference tool because it is directed towards clients participating in animal-assisted therapy. Kielhofner (2004) reported MOHO consisted of four interrelated components that affect humans' occupational performance: *volition, habituation, performance capacity, and environment*. The volitional subsystem addresses the humans' motivation towards occupations and is influenced by individual values, interests, and perceived abilities (Kielhofner, 2004). The interventions in the reference tool are aimed at clients with an interest in animals and would, thus, make the therapy session meaningful and motivating.

The habituation subsystem defines a persons' ability to organize their skills and abilities into patterns and routines for participation in occupation (Kielhofner, 2004). The reference tool provides interventions that can correlate with an individual's routines and roles such as taking care of pets. This caretaker role would serve as a client-centered occupation-based intervention while addressing physiological, psychological, cognitive, social, or sensory-related client factors. The animal can be used as a model for ideal self-care completion and appearance as is discussed in a study by Barak, Savorai, Mavashev, and Beni (2001). These researchers found that AAT enhanced hygiene and personal self-care through practicing self-care tasks with the pet. These tasks became habitual and were then carried over successfully by the clients resulting in improved ADL performance (Barak et al., 2001).

The performance capacity subsystem incorporates an individual's subjective experience as well as the objective physical and mental skills and abilities needed to develop and fulfill a person's habits and roles (Kielhofner, 2004). The interventions in this reference tool include preparatory, purposeful, and occupation-based tasks that work to improve the underlying skills required for occupational performance.

Kielhofner perceived the social and physical environment to have an affect on a person's occupational performance according to the MOHO theory. AAT allows for improved comfort level amongst clients in group settings as encourages interpersonal interaction (Fick, 1993). As previously mentioned, AAT can reduce behavioral problems among institutionalized elderly persons according to Kawamura, Niiyama, and Niiyama (2007). This indicates the potential for an

improved social environment. The use of an animal in treatment sessions can counteract the typical “institutional” feeling of a hospital setting, increasing the perceived comfort of their physical environment (Wu, Niedra, Pendergast, & McCrindle, 2002).

Evidence-based research has supported the application of MOHO in a variety of contexts, which specifically correlates with the variety of interventions in this reference tool. These interventions can be implemented in a variety of occupational therapy settings ranging from community-based programs to correctional facilities to hospitals and residential facilities. This reference tool provides AAT interventions for use in multiple settings to assist with producing an optimal therapy environment. The interventions will also be designed to meet the needs of clients from all ages, who value animals and would find animal-assisted therapy beneficial and motivating.

CHAPTER III

METHODOLOGY

Animal-assisted therapy (AAT) first became of interest after working with AAT in occupational therapy sessions on a level II fieldwork. Next, the authors determined a need for a reference tool to guide the use of animals in interventions as this is not included in most occupational therapy curriculums. Client-centered practice is emphasized in the curriculum; however, many of the interventions selected in clinical practice do not reflect this. Animals can be used in interventions to provide more meaning to clients rather than other clinical interventions which are frequently used due to lack of occupation-based resources. In many facilities, there is limited time and resources to execute interventions that are truly meaningful and a client may, therefore, lack motivation to participate. With AAT, a variety of interventions can be created with minimal resources.

A reference tool was created to provide background information and guidelines for implementing an AAT program and intervention recommendations that can be used in a variety of occupational therapy settings. An extensive literature review was completed using PubMed, CINAHL, EBSCO, and OT Search to gain a comprehensive understanding of the current uses for small animals in a variety of settings. Resources included books, journal articles, editorials, magazines, and organizations' websites.

Upon completion of the literature review, it was determined that animals may be a beneficial modality and serve as an alternative mode of treatment to utilize with other occupational therapy approaches. Animals may have a positive effect on individuals in therapy, specifically influencing a person's physiological, psychological, cognitive, social, and sensory responses. The use of animals in therapy can increase occupation-based or purposeful intervention techniques. AAT provides an alternative approach to maximize clients' occupational therapy experience and can be applied to all ages, genders, and diagnoses.

This reference tool provides occupational therapists with a basic foundation of knowledge regarding the guidelines for implementing an AAT program, as well as intervention techniques that can be applied to a variety of clients. The reference tool includes interventions which have been divided into pertinent treatment areas. These areas may include physical, physiological, psychological, behavioral, cognitive, social, and sensory components related to the activity. Activity analysis was used as the main method for developing the interventions in the reference tool. Each activity was assessed to determine its therapeutic potential and the benefits that these activities can provide clients during therapy. According to Crepeau, Cohn, & Boyt Schell (2003), a therapist can utilize activity analysis to determine the demands that the activity has on the client, the client's skills and abilities, and how the task can be graded to meet the client's needs.

The interventions included in this reference tool have been developed to address many client factors. We have emphasized sensory components in a multitude of interventions. There are limited interventions that target sensory

processing that are client-centered, especially for the adult population. Many facilities resort to clients searching for objects in containers of rice, beans, or cotton balls, for example, which may not be the most meaningful. Clients may be more motivated to participate in AAT interventions which can address sensory processing through tactile or proprioceptive stimuli.

Interventions in this reference tool incorporate many types of animals to increase the versatility of AAT. Activities can differ regarding the animals being used and the goals of the therapeutic intervention. Clients may have a history with a particular animal that can influence their response to AAT, which could inhibit or facilitate meaningful interactions. It is essential that clients feel safe and comfortable with the animal chosen for the intervention, which will relate to client-centered care. Facilities may have policies in place that restrict the use of certain species, which an occupational therapist must be aware of prior to implementing an AAT program.

The development of this tool was grounded by the adult learning theory and specific intervention recommendations were created using the Model of Human Occupation. The reference tool has been designed to be user-friendly to encourage self-directed learning and AAT interventions will be guided by a self-motivated therapist. With this reference tool of interventions, occupational therapists can use client's response to treatment as feedback and a means for evaluating the information. Occupational therapists will also be able to transfer their learning to clients by applying the information from this reference tool to teach the client the rationale of AAT and the potential skills addressed in these interventions. Our AAT

reference tool has been designed to facilitate occupational therapists' learning and targets adults who are goal-oriented, self-directed, and have the interest and motivation to incorporate animals as a new modality in their daily treatment sessions.

The MOHO model addresses volition, habituation, performance capacity, and the environment. The interventions in this reference tool allow for the client to develop personal causation regarding their perceptions on performance and abilities. The interventions in the reference tool are aimed at clients with an interest in animals and would, thus, make the therapy session meaningful and motivating. Many of the AAT interventions can be used to create habits, roles, and routines. The reference tool provides interventions that can correlate with an individual's routines and roles such as taking care of pets. This caretaker role would serve as a client-centered occupation-based intervention while addressing physiological, psychological, cognitive, social, or sensory-related client factors. Through activity analysis, it was determined that each intervention can target various factors related to client performance capacity.

To develop this reference tool, Microsoft Word 2007 was utilized in designing the graphics and narrative components. Family and friends of the authors are pictured in photographs to demonstrate the performance components of AAT. To demonstrate the versatility of AAT, quality photographs were taken in a variety of locations and depict a four year-old female, twenty-four year-old male, twenty-five year-old female, fifty-two year-old male, or an eighty-seven year-old female participating in an AAT activity. Each photograph displays how AAT can address

underlying components and function. All of these individuals signed an informed consent stating their acceptance to being photographed for participation in this scholarly project. A blank copy of the informed consent is included in Appendix A.

Through this comprehensive process, the AAT reference tool was designed to meet the needs of occupational therapists interested in AAT across a variety of settings. Contact information is included in the reference tool, which will be made available upon request. The following chapter will provide greater details on the reference tool that has been developed.

CHAPTER IV

PRODUCT

A reference tool was developed to assist occupational therapists with the implementation of an animal-assisted therapy (AAT) program. The reference tool, in its entirety, is located in the appendices. The reference tool demonstrates how small animals can serve as a unique treatment modality in a variety of occupational therapy settings and includes intervention ideas and recommendations. It provides preliminary instructions and guidelines to be considered when implementing an AAT program.

Occupational therapists focus on using a client-centered approach that incorporates meaningful and purposeful activities in treatment. AAT could serve as an appropriate treatment option to a wide-variety of people of multiple ages and diagnoses who have an interest in animals. The occupational therapist (OT) integrates goal-directed animal-based activities with individuals who have physical or psychological dysfunction (Delta Society, 2008). Each activity can target and address a wide variety of personal factors and components of the individual.

The purpose of this reference tool was created to guide occupational therapists interested in implementing an AAT program by utilizing small animals in preparatory, purposeful, and occupational-based interventions. The reference tool was organized in a user-friendly fashion. The first section includes basic guidelines

to be considered when implementing an AAT program, as well as sanitation concerns and techniques. The next section incorporated components of the Occupational Therapy Practice Framework to analyze AAT activities and relate them to the domain and process of occupational therapy.

The remainder of the reference tool is consistently color-coded so the reader can easily identify which components are being targeted during the suggested intervention activity. The first graph identifies the basic factors being addressed related to physical, physiological, psychological, behavioral, cognitive, social, and sensory components. For the remainder of the reference tool physical components are identified in light green, physiological in yellow, psychological in pink, behavioral in lavender, cognitive in orange, social in dark green, and sensory in blue. All AAT interventions are identified in purple, including steps of an activity or supplies needed.

Pictures are included to demonstrate use of AAT for the majority of interventions included, as well as indicate the skills and abilities targeted with each activity. For example, the mechanical skills, muscles, and range of motion involved with throwing a ball and how these change when throwing a Frisbee. The individuals pictured in the reference tool are relatives of the authors. Each participant has signed an informed consent form for including these pictures in the reference tool. A blank informed consent form can be located in Appendix A.

The reference tool, in its entirety, is located in the Appendix B. Individuals who are interested in a copy of the reference tool may contact the authors using the

contact information included in the reference tool (p.72). The following chapter provides a general summary of this scholarly project.

CHAPTER V

SUMMARY

Animal-assisted therapy (AAT) is a beneficial treatment modality for individuals who share an interest in animals, providing these clients with greater meaning when engaging in occupation-based therapeutic activities. Interaction with animals in a therapeutic setting can have a multitude of effects on a client including: physical, cognitive, psychosocial, physiological, sensory, social, and behavioral. The advantage of utilizing animals is the ability to engage in one activity and still be able to target many of these areas for goal-directed treatment.

This scholarly project was designed for the purpose of providing occupational therapists with a reference tool to utilize in order to implement animal-assisted therapy (AAT) in treatment sessions. AAT is not included in occupational therapy programs' curriculums to our knowledge, thus many therapist have little experience with this area. The reference tool was developed to increase awareness of AAT and highlight the vast opportunities that exist to utilize animals in occupational therapy treatment.

The reference tool provides an overview of how AAT can directly relate to occupational therapy treatment, guidelines to implementing an AAT program in an occupational therapy setting, and individual intervention ideas with the associated

benefits for each. The interventions included in the reference tool have been deconstructed using activity analysis to indicate the magnitude of factors that can be addressed with AAT. AAT can influence physical, physiological, psychological, behavioral, cognitive, social, and sensory components while an individual engages in a client-centered intervention. AAT can be incorporated with all ages, genders, and diagnoses. Occupational therapists can further grade these interventions to meet the client's individual needs, as this is a skill obtained through education and refined by clinical and professional experiences.

The included interventions have been organized to address clients' motivation, skills and abilities, patterns and routines, performance, environment, and objective and subjective experiences. Elements of AAT relate to terminology and concepts included in the Occupational Therapy Practice Framework (2008) indicating its ability to be used as an adjunct in occupational therapy interventions. AAT interventions can target performance skills and client factors through preparatory, purposeful, and occupation-based activities relating to activities of daily living (ADLs), instrumental activities of daily living (IADLs), and developing healthy habits, roles, and routines.

AAT may also be used with a wide spectrum of diagnoses, both physical and psychologically related, and can be used with clients of all ages. AAT would be most commonly used with clients who have an interest in animals, providing additional meaning to the treatment session. This would allow for increased client-centeredness in occupational therapy sessions with the potential for greater treatment gains.

When incorporating animals into treatment sessions in healthcare settings, there is always the concern about transmitting disease or illness between the human and the animal. This is a potential roadblock to implementing an AAT program in some healthcare facilities, particularly in acute care settings in which clients are less medically stable. To combat some of these concerns, the product contains guidelines for appropriately implementing the program, ensuring regular veterinarian checks are completed with the animal, and that proper sanitary guidelines are utilized with the client. The guidelines instruct the client and therapist to engage in proper hand washing techniques both before and after the session, and the environment should be sanitized before and after the session as well. This would decrease the likelihood of either the animal or human contracting any illness or disease from one another.

The authors plan to measure the usefulness of this scholarly project by utilizing this reference tool in future facilities of employment. The reference tool will also be made available through informal sharing with colleagues and will be made available upon request to occupational therapists in any healthcare setting. The author's contact information is included in the reference tool (p.72), located in Appendix B. The authors may also present this scholarly project at a state OT meeting such as the North Dakota Occupational Therapy Association or Minnesota Occupational Therapy Association. There is also a potential for submitting this project for publishing in order to make the product available for a greater amount of therapists. At last, the authors would be willing to provide in-services regarding the use of AAT in occupational therapy settings. In the future, this scholarly project

would benefit from further research concerning the effects of AAT in occupational therapy settings and with a variety of clients. This research would grant further support for implementing AAT programs in health care settings and the benefits of utilizing animals in goal-directed therapy.

AAT is a beneficial treatment modality for individuals who share an interest in animals, providing these clients with greater meaning when engaging in occupation-based therapeutic activities. The reference tool developed with this scholarly project creates opportunities to utilize animals in occupational therapy with a wide-variety of populations and diagnoses. It may also lead to research regarding the benefits that this modality can have with the clients. Our hope is to see AAT utilized in more healthcare facilities to benefit the clients served, and that this reference tool provides the necessary information for therapists to make this possible.

APPENDICES

Appendix A
Informed Consent Form



University of North Dakota
Department of Occupational Therapy
Permission for Photographing

In partial fulfillment of the requirements for the degree of Master's of Occupational Therapy, we will be completing a scholarly project on animal-assisted therapy (AAT). We will highlight how it can be integrated into occupational therapy treatment sessions by developing a reference tool for occupational therapists to utilize when implementing an AAT program. To more fully demonstrate the effects of AAT and the recommended interventions, we will be including photographs of individuals engaging in AAT activities. These photographs may be included in presentations, handouts, and related educational materials. Furthermore, the reference tool may be made available to occupational therapists in the future.

- I agree to have my photograph taken for the above identified purposes of the occupational therapy students' learning and scholarly project assignment. I understand that the photographs will be included in educational materials related to the purposes of the scholarly project.

Participant's Printed Name

Date

Participant's Signature

Date

Student's Signature

Date

Student's Signature

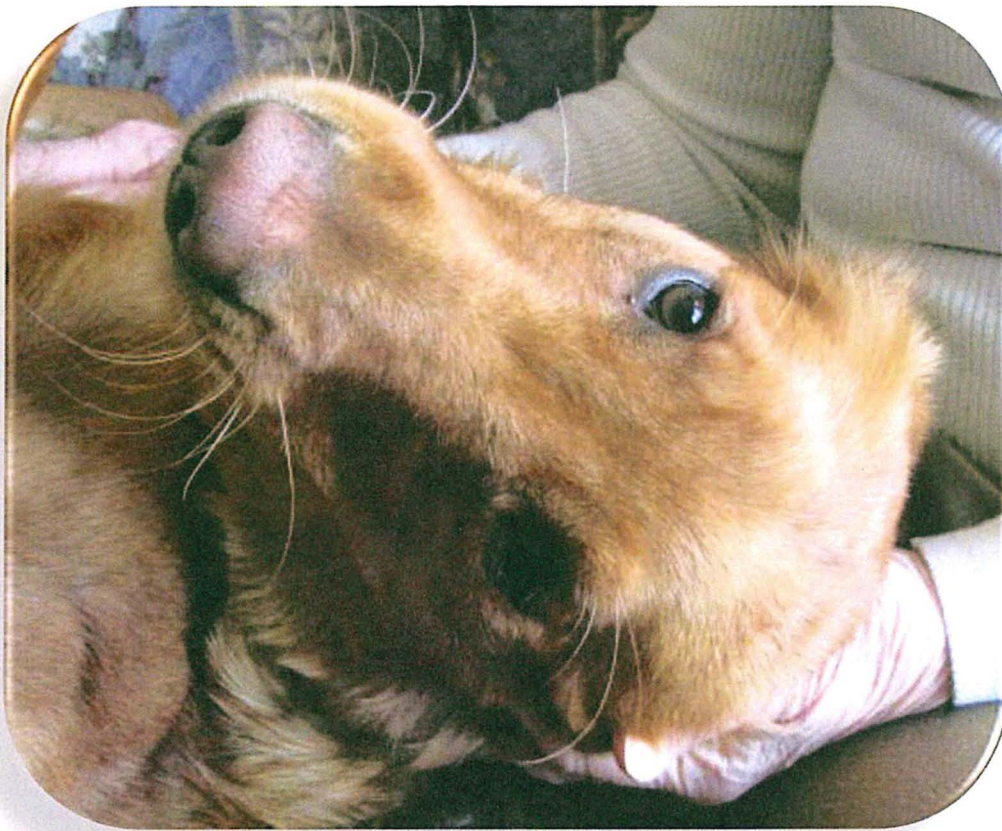
Date

Appendix B

Planning Occupation-based Interventions Using Animal-Assisted Therapy: A Reference Tool for Occupational Therapists

Planning Occupation-Based Interventions Using Animal-Assisted Therapy

A Reference Tool for Occupational Therapists



Developed by: Jennifer L. Hamre, MOTS, Kathryn E. Nagorka, MOTS,
& Anne M. Haskins, PhD, OTR/L



Foreword

Animal-assisted therapy (AAT) first became of interest after working with AAT in occupational therapy sessions on a level II fieldwork. From there, the authors determined a need for a reference tool to guide the use of animals in interventions as this is not included in most occupational therapy curriculums. Client-centered practice is emphasized in the curriculum; however, many of the interventions selected in clinical practice do not reflect this. Animals can be used in interventions to provide more meaning to clients rather than other clinical interventions which are frequently used due to lack of occupation-based resources. In many facilities, there is limited time and resources to execute interventions that are truly meaningful and a client may, therefore, lack motivation to participate. With AAT, a variety of interventions can be created with minimal resources.

Upon completion of the literature review, it was determined that animals may be a beneficial modality and serve as an alternative mode of treatment to utilize with other occupational therapy approaches. Animals may have a positive effect on individuals in therapy, specifically influencing a person's physiological, psychological, cognitive, social, and sensory responses. The use of animals in therapy can increase occupation-based or purposeful intervention techniques. AAT provides an alternative approach to maximize clients' occupational therapy experience and can be applied to all ages, genders, and diagnoses.

This reference tool provides occupational therapists with a basic foundation of knowledge regarding the guidelines for implementing an AAT program, as well as intervention techniques that can be applied to a variety of clients. The reference tool includes interventions which have been divided into pertinent treatment areas. These areas may include physical, physiological, psychological, behavioral, cognitive, social, and sensory components related to the activity. Activity analysis was used as the main method for developing the interventions in the reference tool. Each activity was assessed to determine its therapeutic potential and the benefits that these activities can provide clients during therapy. According to Crepeau, Cohn, & Boyt Schell (2003), a therapist can utilize activity analysis to determine the demands that the activity has on the client, the client's skills and abilities, and how the task can be graded to meet the client's needs.

The interventions included in this reference tool have been developed to address many client factors. We have emphasized sensory components in a multitude of interventions. There are limited interventions that target sensory processing that are client-centered, especially for the adult population. Many facilities resort to clients searching for objects in containers of rice, beans, or cotton balls, for example, which may not be the most meaningful. Clients may be more motivated to participate in AAT interventions which can address sensory processing through tactile or proprioceptive stimuli.

Interventions in this reference tool incorporate many types of animals to increase the versatility of AAT. Activities can differ regarding the animals being used and the goals of the therapeutic intervention. Clients may have a history with a particular animal that can influence their response to AAT, which could inhibit or facilitate meaningful interactions. It is essential that clients feel safe and comfortable with the animal chosen for the intervention, which will relate to client-centered care. Facilities may have policies in place that restrict the use of certain species, which an occupational therapist must be aware of prior to implementing an AAT program.

Family and friends of the authors were photographed to demonstrate the performance components of AAT. To emphasize the versatility of AAT, photographs were taken of a four year-old female, a twenty-four year-old male, a twenty-five year-old female, a fifty-two year old male, and an eighty-seven year-old female. These individuals signed an informed consent stating their acceptance to being photographed for participation in this scholarly project. For convenience, photographs were taken in a variety of locations to assist with producing quality photographs to demonstrate AAT interventions and the underlying components being addressed.



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Guiding Theories

Two theories were utilized in the development of this scholarly project and reference tool. The adult learning theory was used as a guiding theory for developing the overall animal-assisted therapy (AAT) reference tool to be employed by occupational therapists in a wide variety of setting, treating clients of all ages and a variety of diagnoses. The Model of Human Occupation guided the development of the intervention ideas that are located in this reference tool for the use with occupational therapy clients.

Adult Learning Theory

The adult learning theory is based on the idea that learning is a flexible progression and that adults are self-directed, take control over learning, and have the motivation to learn topics¹. Information is only retained if it is considered relevant and applicable in daily life¹.

According to Lieb¹, the adult learning theory indicates that adults will draw from their own personal experiences and connect those events with new information to determine relevancy and practicality for professional development. Adults are typically goal-focused and learn information best if it is presented with objectives to be achieved. Structured feedback can reinforce learning behaviors and allow adults to assess their skills and understanding of the new information¹. This reference tool can allow occupational therapists to observe a client's response to treatment as feedback and a means for evaluating the information. Occupational therapists will also be able to transfer their learning to clients by applying the information from this reference tool to teach the client the rationale of AAT and the potential skills addressed in these interventions.

Lieb¹ described six sources of motivation for adult learning:

- Social relationships
- External expectations
- Social welfare
- Personal advancement
- Escape/stimulation
- Cognitive interest

Social relationships can be a source of motivation by promoting networking opportunities, while others may be motivated by external expectations such as a manager encouraging employees to attend additional learning opportunities. Motivation can be achieved through social welfare opportunities such as providing services to community members as a way to reach out to others. Gaining skills to increase competency and facilitate career advancement may also be a motive for learning. Finally, learning can allow for exploration in new areas which can be exciting and satisfying while fulfilling personal interests and goals¹.

This reference tool has been designed to facilitate occupational therapists' learning and targets adults who are goal-oriented, self-directed, and have the interest and motivation to incorporate animals as a new modality in their daily treatment sessions. Learning needs to be applied to daily activities that are valued². The information in this reference tool is applicable to multiple settings with interventions that can be used in day-to-day treatment sessions. The reference tool can be used to guide to provide structure and concrete examples to encourage direct application of animals in therapeutic treatment

sessions. It also provides basic information from which the therapists can build from with personal experiences, knowledge, and abilities.

Model of Human Occupation

The Model of Human Occupation (MOHO) was a guiding force in the development of the interventions included in the reference tool. The interventions in the reference tool were directed towards client participation in animal-assisted therapy (AAT). Kielhofner³ reports MOHO consists of four interrelated components that affect humans' occupational performance: *volition, habituation, performance capacity, and environment*. The volitional subsystem addresses the humans' motivation towards occupations and is influenced by individual values, interests, and perceived abilities³. The interventions in the reference tool were aimed at clients with an interest in animals and would, thus, make the therapy session meaningful and motivating.

The habituation subsystem defines a persons' ability to organize their skills and abilities into patterns and routines for participation in occupation³. This reference tool provides interventions that can correlate with an individual's routines and roles such as taking care of pets. This caretaker role would serve as a client-centered, occupation-based intervention while addressing physiological, psychological, cognitive, social, or sensory-related client factors. Furthermore, results from a study by Barak, Savorai, Mavashev, and Beni (2001) indicated an animal may ignite motivation to improve personal appearance by serving as a model for self-care task completion⁴. These tasks could then become habitual and transfer to daily performance successfully by the clients resulting in improved ADL completion⁴.

The performance capacity subsystem incorporates an individual's subjective experience as well as the objective physical and mental skills and abilities needed to develop and fulfill a person's habits and roles³. Interventions in this reference tool include preparatory, purposeful, and occupation-based tasks that can be utilized to improve the underlying skills required for occupational performance.

Kielhofner³ perceives the social and physical environment to have an effect on a person's occupational performance according to the MOHO theory. Fick (1993) found AAT to improve comfort level amongst clients in group settings which encouraged interpersonal interaction⁵. Kawamura, Niiyama, and Niiyama (2007) reported that AAT can reduce behavioral problems among institutionalized elderly persons⁶. This indicates the potential for an improved social environment. The use of an animal in treatment sessions could counteract the typical "institutional" feeling of a hospital setting, increasing the perceived comfort of client's physical environment⁷.

Evidence-based research has supported the application of MOHO in a variety of contexts, which specifically correlates with the variety of interventions in this reference tool. These interventions can be implemented in a variety of occupational therapy settings ranging from community-based programs to correctional facilities to hospitals and residential facilities. The AAT interventions included in this reference tool can be applied in multiple settings to assist with producing an optimal therapeutic environment. These interventions have been designed to meet the needs of clients from all ages, who value animals and would find animal-assisted therapy beneficial and motivating.

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Introduction to AAT

BACKGROUND INFORMATION

What is Animal-Assisted Therapy?

- The focus of animal-assisted therapy (AAT) is integrating goal-directed animal-based activities into treatment of persons with physical or psychological dysfunction (Delta Society, 2008).
- In AAT, the occupational therapist guides treatment interventions using animals as a modality for clients of all ages, genders, and diagnoses.
- Animals are used in meaningful interventions that address client goals.

Key Findings

- Individuals had lower blood pressure levels when communicating with a dog than with a human (Fick, 1993).
- Pet ownership was a predictor of survival one year after a myocardial infarction (Friedmann & Thomas, 1995)
- Allen et al. (1991) reported a person experiencing a stressful task had lower physiological reactivity with the presence of a dog.
- Patients demonstrated continuous improvements in emotional function and well-being, decreased behavioral problems and increased feelings of comfort in presence of an animal (Kawamura, Niiyama, & Niiyama 2007.)
- Pets served as a coping mechanism to combat feelings of hopelessness, seclusive behaviors, and the negative perception associated with illness (Allen et al., 2000).
- Animals improved one's self-confidence and quality of life (Bizub, Joy, & Davidson, 2003).
- Animals were found to serve as a model for self care tasks, as individuals demonstrated improved hygiene (Nathans-Barel et al., 2005).
- Individuals had improved attention, persistence, and physical performance in activities of daily living, health, and social skills. (Zoltán et al., 2004).
- AAT promoted improved attention, memory functions, spontaneous recall of events, and comprehension of concepts (Banks & Banks, 2002).
- A dog acted as a means for discussion and interaction among group members, which positively influenced social interaction (Fick, 1993).
- Children with autism or pervasive developmental disorder demonstrated increased communication skills and social interactions with the presence of an animal (Sams et al., 2006).

BACKGROUND INFORMATION

What is the Delta Society?

- A group developed for individuals who are interested in "improving human health through services and therapy animals" (Delta Society, 2008).
- Goals of the organization include increasing awareness of the healing effect of animals, educating health professionals, connecting individuals with disabilities with service animals, and impacting human's lives through animal interactions (Delta Society, 2008).

Delta Society's Mission Statement

- "Delta Society is dedicated to improving human health through therapy and service animals. We work to increase awareness of the positive effects of animals, reduce the barriers that prevent the involvement of animals in everyday life and expand the therapeutic and service role of animals in health, service and education" (Delta Society, 2008).

History

- In 1977, a group of medical practitioners in both animal and human health settings developed the Delta Foundation to focus on expanding research related to the benefits of AAT (Delta Society, 2008).
- In 1981, the Delta Foundation changed their name to the Delta Society, symbolizing a change in the focus of the group. The Delta Society expanded their focus beyond research to practical clinical and community use of animals in therapy, training, and advocating for services.
- This group has since developed multiple programs, two of which are known nation-wide for the advocacy of service dogs in public places (National Service Dog Center®) and standardized training for the animals and handlers providing AAA and AAT (Pet Partners®)(Delta Society, 2008).

Pet Partners ® Program

- National network and registry that links individuals and their pets with visitation and volunteer opportunities in their own communities in hospitals, long-term care facilities, rehabs, schools, and other community centers.
- Involves an initial screening, followed by standard training for human and animal volunteers prior to participating in animal-assisted activities and animal-assisted therapy (Delta Society, 2008).

The above information was retrieved by navigating through tabs on the Delta Society's website www.deltasociety.org

Becoming Involved in the Pet Partners® Program

Prerequisites

- Research and gather information on city and state laws, safety precautions and infection control, animal handling techniques, and standards of practice when using animals in therapy.
- Gain support from facility's administration and determine if policies and procedures need to be developed, collaborate to establish protocols prior to integrating animals into health care settings

Animal Eligibility Requirements

- The Delta Society (2008) identifies the following domesticated animals as being eligible for registry: dogs, cats, guinea pigs, rabbits, domesticated rats, horses, goats, llamas, donkeys, potbellied pigs, miniature pigs, cockatoos, African gray parrots, and chickens.
- Birds must have lived with owner for at least 12 months.
- "Pocket Pets" such as guinea pigs, rabbits, and rats can be 6 months of age
- All other animals must have lived with owner for 6 months and be at least one year of age
- Animals not eligible include: exotic animals such as snakes, ferrets, or lizards because of differing state laws and safety issues regarding disease transmission.

Human Eligibility

- Must be 16 years or older
- Individual may or may not own the animal on his or her team.
 - An individual can register as a "volunteer only" and assist with a Pet Partner® team.
 - A family or friend's animal can be used if the owner has signed consent.

Information retrieved from <http://www.deltasociety.org/Page.aspx?pid=262>



Becoming Involved in the Pet Partners® Program

Step One: How to Become a Registered Pet Partner® Team

- Complete training course to learn handling skills and safety information
- An individual can attend a 12-hour workshop with hands on experience that is led by an instructor, or the individual can complete the course at home by independent-study
- Topics will include information regarding human-animal compatibility, preparation techniques, maintaining the animal's health, safety policies and procedures, potential clients and diagnoses, facility policies, and HIPAA regulations

Step Two: Animal Completes Health Screening by Veterinarian

- Animal must be free of parasites, disease, infections, and illness
- General physical exam
- Up-to-date rabies vaccination
- Other immunizations and diagnostic testing may be determined by veterinarian's discretion

Step Three: Pet Partner® Team Evaluation

- Performed by Delta-licensed team evaluator in two-part test
- Part One: Determines the handler's skills and abilities to manage and control the animal's behaviors
- Part Two: Identifies which settings would be most appropriate fit for the team to visit

Step Four: Submit Completed Registration Packet

- Included all seven completed forms, team photo, a copy of the team evaluation form, updated diagnostic test results and immunization records, and registration fee.

The information was retrieved from the Delta Society's website www.deltasociety.org/Page.aspx?pid=261



CONNECTING OCCUPATIONAL THERAPY WITH AAT

Occupational Therapy's Role

- Occupational therapists focus on using a client-centered approach that incorporates meaningful and purposeful activities in treatment.
- AAT could serve as an appropriate treatment modality to utilize with a wide-variety of people of multiple ages and diagnoses who have an interest in animals.
- Occupational therapists are educated in activity analysis and developing interventions that can be graded to ensure clients' successes.

Introduction to Reference Tool

- Principles and concepts of AAT are not currently included in occupational therapy professional program curriculum. This identified the need for a reference tool that occupational therapists can utilize when implementing AAT in the clinical setting (Winkle, Van Dame, & Levenson, 2008).
- The purpose of this scholarly project is to provide adequate information for occupational therapists to implement an AAT program and utilize small animals in preparatory, purposeful, and occupation-based interventions.
- Occupational therapists can utilize this tool when planning and implementing treatment interventions using AAT for a variety of patients. The reference tool includes a variety of activities incorporating small animals into client-centered interventions that will address a wide-spectrum of deficits across all age groups.





Reference Tool Information

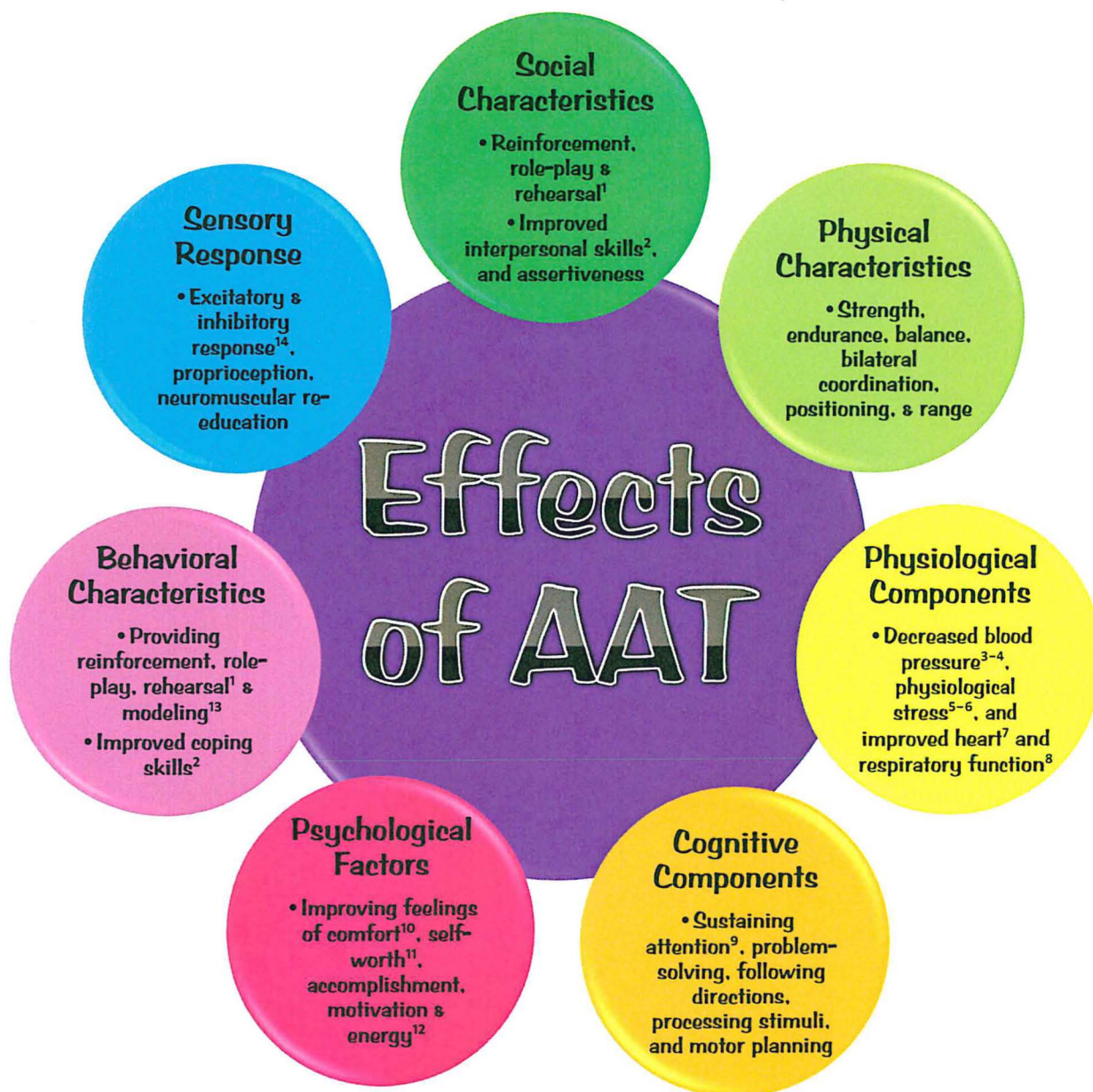
Activities & Interventions

- Grooming Activities
- Caregiving Activities
- Exercise Activities
- Community Outings
- Volunteer Opportunities

Reference Tool Layout

- Interventions have been organized by utilizing terms from the Occupational Therapy Practice Framework (2008) to be user-friendly among occupational therapists.
- The key below displays the colors used to separate activity components and remain consistent throughout the reference tool.





References included on following page



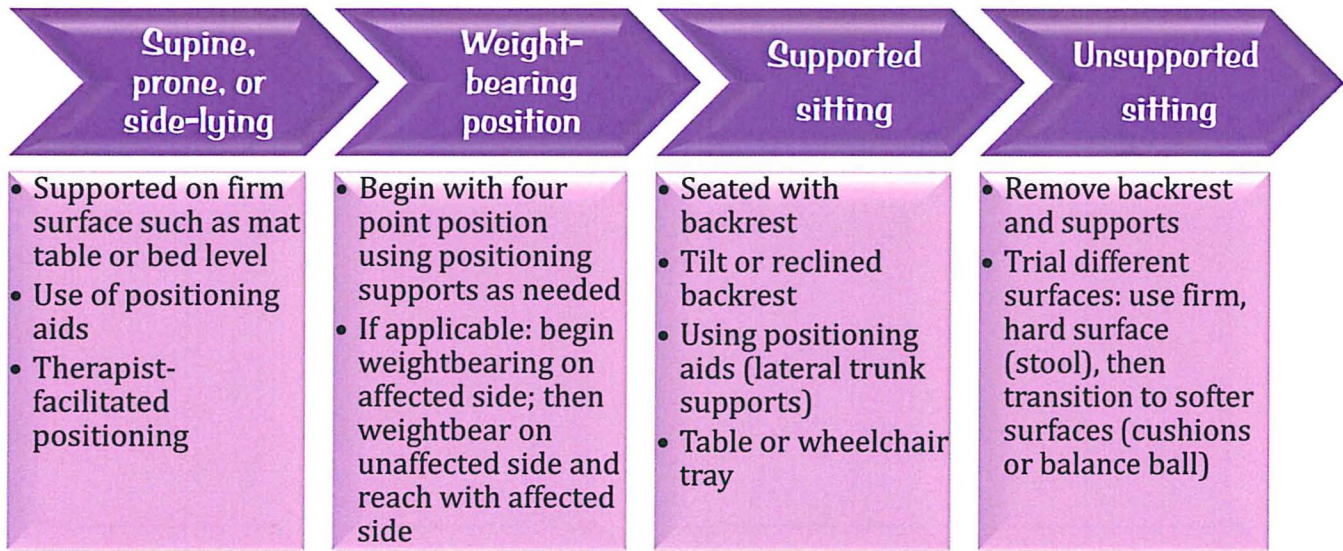
References for "Effects of AAT" Graph

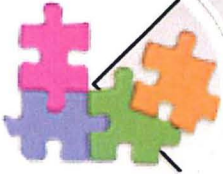
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Grading Activities Continuum

Occupational therapists are educated in activity analysis and skilled in grading tasks to meet the needs of the clients served. This diagram can be used as a reference for grading activities to create the “just right challenge.” Many of the interventions included in this reference tool can be altered according to this grading continuum.





Connecting the Occupational Therapy Practice Framework to AAT

American Journal of Occupational Therapy Association. (2008). Occupational therapy practice framework: Domain and process (2nd ed.). *American Journal of Occupational Therapy*, 62, 625-683.

AREAS OF OCCUPATION

Activities of Daily Living (ADLs)

- Bathing/Showering: obtaining appropriate supplies to bathe animal on regular basis, and positioning the animal during washing, rinsing, and drying
- Bowel and bladder management: training an animal & developing a routine. May include removing animals' droppings and cleaning pen or cage.
- Feeding: providing access to food and clean water, pouring food and water into appropriate dishes, giving the animal treats for good behavior

Instrumental Activities of Daily Living (IADLs)

- Care of pets: completing the responsibilities involved with caring for a pet such as providing food and water, exercise, shelter, and affection, and scheduling necessary appointments (veterinarian or grooming, etc).
- Community mobility: accessing walkways, public parks, trails, and various terrains with an animal
- Financial management: managing animal expenses through budgeting
- Shopping: preparing lists of necessary supplies, determining payment options, and completing money transactions appropriately

Leisure

- Exploration: identifying if one is motivated by or has an interest in animals, identifying skills to train or command an animal, opportunities to engage in activities with animals, and resources to pursue the leisure activity.
- Participation: participating in an organized activity with an animal

Social Participation

- Community: engaging in activities with an animal in the community may increase opportunities for social interactions
- Family/Friend: an animal may be considered a member of the family or the social support system

CLIENT FACTORS

Values, Beliefs, and Spirituality

- Principles and standards of humane treatment to animals or following rules of public locations regarding animals
- Beliefs/spirituality: some individuals may believe in reincarnation

Body Functions

- **Mental functions:**
 - Attending to animal's needs and demands
 - Using memory skills during day to day interactions with an animal
 - Perception: discriminating different sensations related to the animal- paws, tail, ears, nose, tongue; spatial awareness of self, animal, and objects; visual information processing skills; emotional and behavioral regulation
 - Arousal: increased stimulation and energy
 - Orientation: recognizing a familiar animal
 - Energy and drive: motivation related to animal
- **Sensory functions:**
 - Visual information processing skills: acuity, pursuits, saccades, and field to locate animal or placement of tools and supplies
 - Hearing: detecting animal sounds and surroundings
 - Vestibular functions: maintaining balance through weight shifts and righting reactions during activities with animals
 - Smell: detecting scents associated with animals
 - Proprioception: awareness of self and animal's positioning during activities
 - Pressure: adjusting amount of force applied during activities with animals
- **Neuromusculoskeletal and movement-related functions:**
 - Joint mobility and stability: range of motion and posture during activities with animals
 - Muscle power, tone, and endurance: strength to complete activity demands, application of neuromuscular re-education techniques to initiate an excitatory or inhibitory response, and stamina to complete the activity
 - Coordination: activities with animals can provide opportunities for bilateral integration, crossing midline, increasing motor control & refining oculomotor skills
 - Gait: walking an animal can reintegrate gait patterns, and target lower extremity and trunk muscles to increase strength and endurance
- **Cardiovascular and respiratory function**
 - Increased heart rate and rate of respiration during activity; adopting a healthy lifestyle with an animal may decrease blood pressure
 - Increasing physical endurance through active engagement in routine activities with animals
- **Voice and speech functions**
 - Creating sounds or phrases to serve as commands; calling an animal by name

ACTIVITY DEMANDS

Objects and Their Properties

- Tools and materials used during a specific activity such as leashes, brushes, toothbrush, toys, or building supplies
- Textures, shapes, and sizes of toys such as a tennis ball, golf ball, rope, or squeaky toy

Space Demands

- Environmental requirements relating to size, surface, lighting, such as a large open space for throwing a ball or a firm surface for added stability

Social Demands

- Rules relating to humane treatment of animals
- Social expectations or regulations related to animal's behavior or acceptance in public places

Sequence and Timing

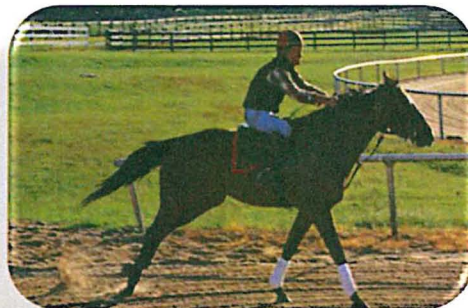
- Completing the appropriate steps of an activity such as preparing a bathtub, positioning animal, soaping, rinsing, and drying
- Allowing sufficient time to complete activity

Required Actions and Performance Skills

- Selecting appropriate supplies and tools
- Coordination of muscles, gripping and releasing toys and objects such as throwing a ball and
- Adjusting tone of voice when praising or commanding the animal
- Adjusting pressure and force applied to objects and animal

Required Body Functions and Structures

- Mobility of joints and range of motion or limbs to complete activities such as brushing fur
- Compensatory strategies or adaptive devices can assist an individual in completing some tasks such as built up handle, larger ball, or universal cuff



PERFORMANCE SKILLS

Motor and Praxis Skills

- Interacting with the animal through movements such as bending to pet the animal, reaching for a toy, coordinating movements to throw a ball, maintaining balance while riding an animal or walking an animal on a leash

Sensory-Perceptual Skills

- Identifying sensations through sensory processing and interpreting stimuli such as locating the clasp of a harness
- Positioning self, object, and animal

Emotional Regulation Skills

- Identifying, managing, expressing and responding to feelings related to an animal such as controlling anger when an animal misbehaves or does not follow a command

Cognitive Skills

- Planning activities; sequencing steps and organizing supplies; selecting appropriate tools and objects to complete an activity; problem-solving different techniques when working with an animal

Communication and Social Skills

- Interacting with an animal through gestures or sounds or acting socially appropriate with others
- Taking turns with team members; expressing feelings within a group; commanding an animal or giving praise



PERFORMANCE PATTERNS

Habits

- Automatic behaviors such as feeding or walking the animal at a particular time each day
- Spontaneously greeting the animal upon approach
- Immediately praising an animal for good behavior or listening to a command
- Tossing a ball underhanded or overhanded

Routines

- Activities completed with an animal on a regular basis such as following a schedule for brushing, feeding, providing clean water, or bathing
- Following a schedule for potty-training an animal or attending obedience classes
- Going to the riding range, equestrian center, arena, or ranch every Friday
- Taking a dog to a park each morning

Roles

- Behaviors associated with being responsible for an animal such as a pet owner, caretaker, or groomer



CONTEXTS & ENVIRONMENTS

- Each of the below contextual components should be taken into account when planning AAT interventions to meet the clients individual needs and ensure client-centered treatment

Cultural

- The presence of an animal may elicit a fear response and human/animal interaction may not be acceptable in some cultures
- Some cultures value animals for symbolic reasons

Personal

- 68 year-old individual with a golden retriever
- Volunteer at the Humane Society

Temporal

- An individual who has owned pets for the past 40 years

Virtual

- Sending pictures of an animal to friends & family members through email or text messaging, or creating a photo album of AAT experiences and interactions

Physical

- Environments in which an individual accesses with an animal, such as a house or park
- Sensory qualities of the animal and these environments

Social

- The relationship one has with an animal
- Role expectations of being a pet owner





Guidelines for Using AAT in Healthcare Settings

Hygiene

- Proper handwashing techniques should be utilized before and after interaction with animal (See specific instructions for hand washing on page 21)
- Alcohol-based hand sanitizer should be available for use during treatment sessions as needed

Health Screening for Animals

- All animals should obtain the rabies vaccination
- Health evaluation should be completed by a licensed veterinarian at least one time per year and the records should be readily available at the health care facility
- Animal should be on a flea, tick, or parasite program to prevent illness of animal and client
- Animals should not participate in treatment with clients on CONTACT PRECAUTIONS due to the potential of transferring the bacteria between client and animal, and also from the animal to additional clients
 - Special testing conducted by the veterinarian should be completed if an animal does come in contact with a client on contact precautions
- Animals should not consume raw or raw-dehydrated foods including treats or chews to prevent the spread of bacteria and salmonellae

Animal Training

- It should be required that the animals go through a specialized training program for therapy animals to ensure proper temperament and obedience around the clients
 - The Delta Society offers the Pet Partners® Program, which allows for licensed trainers to assist in the training process of many different kinds of animals
- Animals should be well socialized with people before beginning the AAT program



This information retrieved from Lefebvre, S., Golab, G., Christensen, E., Castrodale, L., Aureden, K., Bialachowski, A. et al. (2008). Guidelines for animal-assisted interventions in health care facilities. *American Journal of Infection Control*, 36 (2), 78-85.

Participation Waiver

- A waiver should be signed providing consent to participate in AAT
 - A signed waiver indicates that there are no known animal allergies or fear of interaction with animals
 - If clients have specific animal allergies or feel uncomfortable around a certain type or size of animal, this should be noted on the waiver when signed
- If the client has LATEX allergies then it should be noted on the waiver, as some of the animal toys and equipment are made of latex material and would need to be avoided

Sanitary Measures

- Animals should be bathed and groomed frequently to prevent the spread of disease (zoonoses)
- Treatment area should be cleaned and sanitized before and after AAT session for safety of the client and animal
- Due to sanitary measures in a health care facility, the animals should NOT enter the following areas:
 - Food Preparation
 - Medication Preparation
 - Operating Rooms
 - Neonatal Nurseries
 - Dialysis
 - Burn Units

This information retrieved from Lefebvre, S., Golab, G., Christensen, E., Castrodale, L., Aureden, K., Bialachowski, A., et al. (2008). Guidelines for animal-assisted interventions in health care facilities. *American Journal of Infection Control*, 36 (2), 78-85.



Animal-Assisted Therapy Waiver

I agree to participate in occupational therapy activities using animals to assist with improving my skills and abilities. I understand that it is my responsibility to inform the therapist of any known animal allergies or any animals that I would not be comfortable having in my therapy sessions. I also understand that it is my responsibility to inform the therapist of any latex allergies or other sensitivities to materials that could be used during animal-assisted therapy sessions.

I have had animals as pets in my home previously or currently have a pet.

List types of animals you have had experience with in the past:

List types of animals that you would not feel comfortable having in your therapy sessions:

I have allergies to animals.

Please list all animal allergies:

I have an allergy to latex material.

I have additional allergies that should be noted prior to participating in animal assisted therapy:

Client's Name (Please Print)

Client's Signature


Date



Hand Washing Instructions



Hands should be washed using soap and warm, running water.



Hands should be rubbed vigorously during washing for at least 20 seconds with special attention paid to the backs of the hands, wrists, between the fingers and under the fingernails.



Hands should be rinsed well while leaving the water running.



With the water running, hands should be dried with a single-use towel.



Turn off the water using a paper towel, covering washed hands to prevent re-contamination.

These instructions were retrieved from the Center for Disease Control website:
http://www.cdc.gov/nceh/vsp/cruiselines/handwashing_guidelines.htm

Grooming Activities in AAT

Washing or Bathing Animal

Brushing Animal's Fur or Hair

Dressing an Animal

Brushing an Animal's Teeth

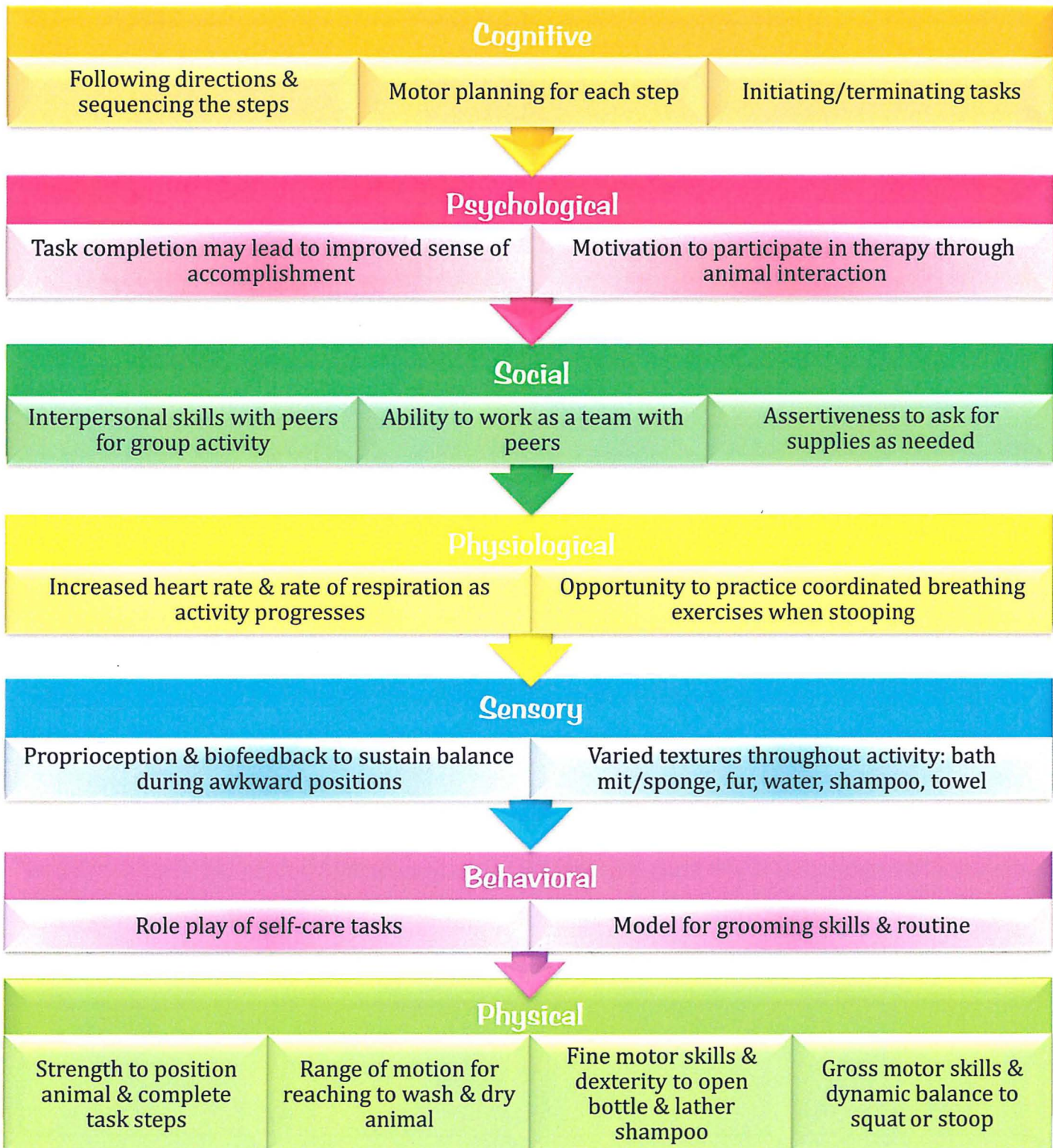
Filing Animal's Nails

Collars and Bandanas





Bathing an Animal





Step One:
Position animal in wash tub, add water, & wet fur



Step Two:
Apply shampoo & lather into entire body



Step Three:
Rinse well with clean water



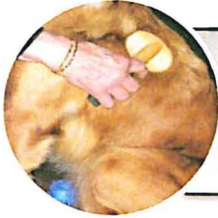
Step Four:
Towel dry & allow animal to shake



Step Five:
Rub towel across entire body to dry



★ **TIP: Winkle, Van Dame, & Levenson (2008) suggest using a potbellied pig, which can weigh over 200 lbs. and provide "a lot of tactile opportunities with bathing and towel drying."**
Winkle, M., Van Dame, V., & Levenson, J. (December 15, 2008). Using exotic animals in therapy. *OT Practice*, 27-29.



Brushing Animal Fur

Physical

- Range of motion (degrees will depend on proximity of the animal & the height of mat table which can be adjusted to increase or decrease shoulder range of motion)
- Upper extremity flexion/extension, supination/pronation, & shoulder horizontal abduction/adduction
- Grasp or compensatory techniques used to hold brush
- Strength & endurance to pull brush through fur for period of time
- Dynamic balance

Physiological

- Increased heart rate & rate of respiration pending activity's duration

Sensory

- Incorporate different responses through different textured & sized brushes
- Sensory qualities of animal: soft fur around ears & face, and coarse fur on animal's back
- Visual information processing skills to monitor progress
- Proprioception & awareness of body's positioning & animal's positioning
- Monitor applied pressure & force

Cognitive

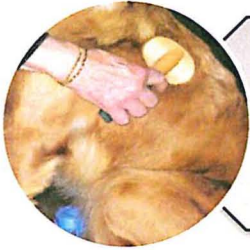
- Demonstrating divided attention
- Motor-planning of coordinated movements
- Formulating cause-and-effect concepts (cued by fur in brush)

Behavioral

- Animal may serve as a model for completion of self-care tasks & reinforce the development of personal habits & routines
- Reinforces self-care skills

Psychological

- Touch & acceptance of animal may increase feelings of comfort
- May orient client to "here and now" and encourages reality-based thought processes



Brushing





Types of Brushes



Wire & plastic bristles can trigger different sensory responses



Rubber material may be easier to grip & manipulate



Handles can be built up to compensate for poor grasp



Rubber scrub brush has unique sensory qualities & larger surface to grip



Large tooth comb may be easier to pull through hair



This glove can be secured with velcro



Collars & Bandanas

Physical

- Core strength to sustain dynamic balance
- Range of motion to reach around animal's neck
- Prehensile skills to grasp & manipulate objects to buckle or clasp collars & tie or velcro bandanas
- Upper extremity endurance & coordination

Sensory

- Reintegrating sensory responses through touch, vision, & sound
- Proprioception & body's awareness
- Awareness of pressure & applied force, & the ability to adjust
- Sensory qualities: fabric, materials, textures, buckles/clasps, bells, & fur

Cognitive

- Sustaining attention for duration of task
- Motor-planning & coordinating actions to complete task
- Problem-solving through steps & techniques
- Practicing color recognition & steps to buckle or clasp collar
- Promotes learning of skills involved with dressing

Social

- Learning to express affection & praise the animal
- Responding to people's comments regarding animals appearance (such as colorful bandanas)

Behavioral

- Rehearsal and practice of clasping, buckling, or tying techniques can prepare client for dressing tasks such as buckling belt or tying shoes

Psychological

- Improving fine motor skills & coordination can result in positive feelings of success & accomplishment
- Positive feelings associated with animal's dependence & caring for others
- Animal's acceptance can provide comfort



Dressing an Animal

Physical

- Fine motor coordination & dexterity for snaps, buttons, velcro, clasps, & zippers
- Gross motor skills & range of motion for applying the article of clothing on the animal
- Pinch patterns & strength for manipulating clasps, zippers, buttons, & snaps
- Grasp patterns & grip strength for applying clothing to animal

Cognitive

- Sequencing steps to completing task
- Problem-solving & orientation to apply clothing appropriately
- Right & left discrimination
- Following directions
- Sustaining attention throughout the task
- Motor planning
- Learning & identifying properties of clothing

Social

- Providing commands to the animal
- Preparing the animal for a social event in which they would attend as a pair

Psychological

- Sense of accomplishment following application of the clothing
- Improved motivation to practice dressing tasks/skills

Behavioral

- Reinforces skills needed to dress self by allowing individual to rehearse on animal
- Allows client to practice techniques & skills

Sensory

- Textures of the velcro, zippers, clasps, material, animals fur
- Proprioception



Dressing an Animal



Step One:
Become oriented to clothing; identify where the top, bottom, front, & leg holes are located



Step Two:
Manipulate & position clothing on animal appropriately



Step Three:
Fasten clothing with snaps, Velcro, buttons, or zipper



TIP: Many types of animals can be used for this activity such as dogs, cats, rabbits, and potbellied pigs. Each can elicit different sensory responses and physical demands.

Winkle, M., Van Dame, V., & Levenson, J. (December 15, 2008). Using exotic animals in therapy. *OT Practice*, 27-29.



Brushing an Animal's Teeth



Sensory

- Touching various textures & temperatures:
 - animal's whiskers, nose, teeth & tongue;
 - toothbrush, water, & toothpaste
- Proprioception of body's position to sustain dynamic balance & adjust amount of force applied to objects

Physical

- Strengthening & muscle conditioning through fine motor coordination, manipulation of objects, muscle control
- Eye-hand coordination
- Executing righting reactions to sustain posture & balance

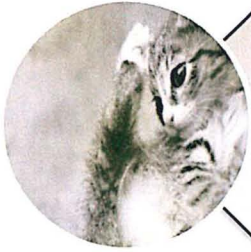
Behavioral

- Animal serves as a model during ADL activity & may motivate the individual to complete self-care tasks
- Responding to emotions during task
- Rewarding animal for good behaviors, such as providing praise & treats upon completion

Cognitive

- Sustaining attention to animal
- Following directions & sequencing steps to carry out task
- Initiating task steps
- Problem-solving & determining different execution techniques





Filing an Animal's Nails

Sensory

- Sensory integration addressed through qualities of the nail file or emery board, the animal's paw, nails, & fur
- Biofeedback & proprioception, and awareness of one's body & the animal's position
- Vibration from back & forth fine motor movements
- Activity can be used for desensitization & neural reintegration
- Visual processing to determine task progression

Physical

- Grasp to secure the file & animal's paw
- Dexterity & fine motor skills
- Execution of isolated muscle movements
- Bilateral coordination, strength, gross & fine motor control, & range of motion to support the animal's paw with one hand & arm, while manipulating the file with the other hand
- Visual information processing skills to track & determine progress

Cognitive

- Sustaining attention to animal & task
- Motor planning
- Understanding cause-and-effect of actions to complete grooming task.
- Sequencing steps such as securing animal's paw, manipulating file, & determining when to progress to next nail.

Behavioral

- An individual may exhibit avoidant behavior due to sensory qualities of activity. Participation in activity promotes behavioral & emotional regulation through sensory integration.
- Reinforces self-care skills & appropriate behaviors through rehearsing techniques on the animal
- Promotes the development of a routine for grooming self & animal



Caregiving Activities in AAT

Feeding & Providing Clean Water

Petting an Animal & Providing Affection

Creating a Home or Habitat

Developing Routines

Scheduling Appointments



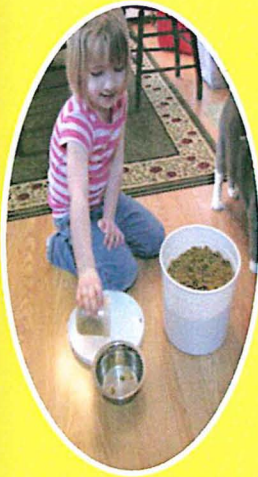


Feeding & Providing Water



Physical

- Strength & dynamic balance to lift & carry dog food bag or container
- Stoop or squat to retrieve dishes
- Range of motion to lift & pour
- Grasp to hold items
- Bilateral coordination & muscle control while pouring



Physiological

- Increased heart rate, blood flow, & rate of respiration
- Allows individual to practice coordinated breathing during activities such as transporting, bending, and pouring



Behavioral

- Developing a routine to feed an animal may reinforce one's own behaviors during meal preparation & planning
- Rewarding animal for good behaviors, such as providing praise & treats



Sensory

- Sensory qualities of food & treats include textures, smells, & weight
- Feeding an animal by hand allows individual to feel whiskers, mouth, & tongue



Cognitive

- Measuring food appropriately
- Following a feeding schedule
- Determining when to reward animal with treats



TIP: Food can be purchased in a variety of sized bags (up to 40 lbs), which can be adjusted and graded to challenge a client's physical skills and physiological functioning.



Petting an Animal

Physical

- Gross & fine motor skills to rub or scratch
- Upper extremity ROM to reach entire animal's body
- Dynamic balance

Sensory

- Reintegrating sensory responses through touch
- Proprioception, biofeedback, & coordination
- Sensory qualities of fur, skin, ears, & whiskers

Psychological

- Comfort provided through physical touch of the animal
- Self-esteem may improve due to the animal's acceptance of the client

Social

- Can be a catalyst for interpersonal interaction & communication
- Role-play conversations with the animal as a form of comfort

Behavioral

- Increase feelings of comfort and lead to an overall relaxed state
- An animal accepts affection which may serve as a reinforcement for developing appropriate interpersonal skills

Cognitive

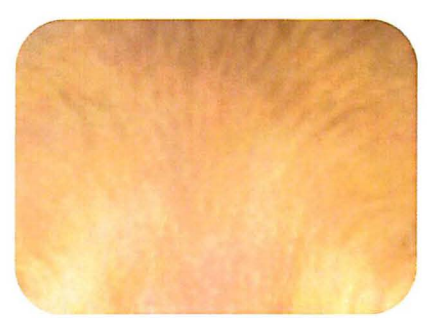
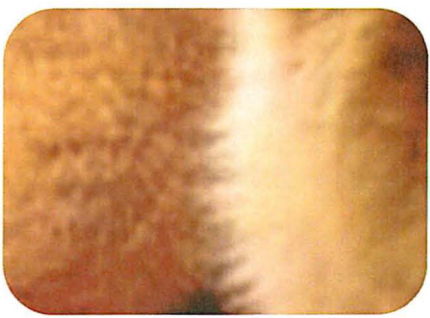
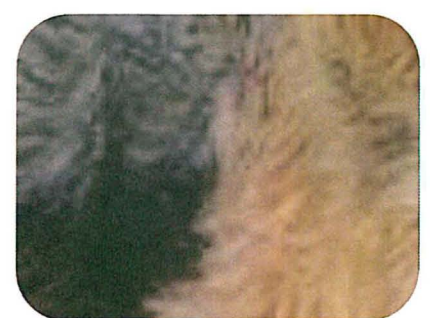
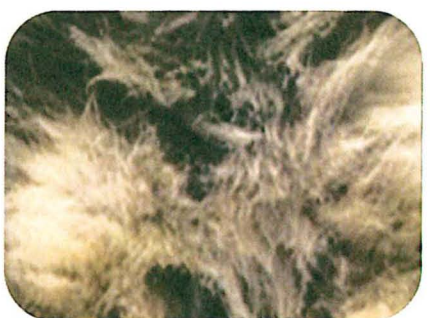
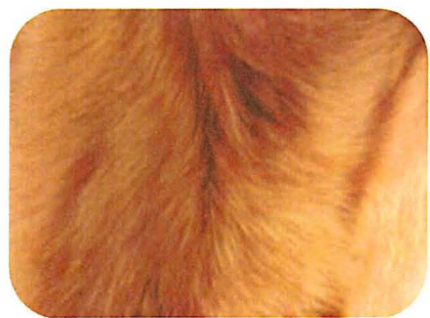
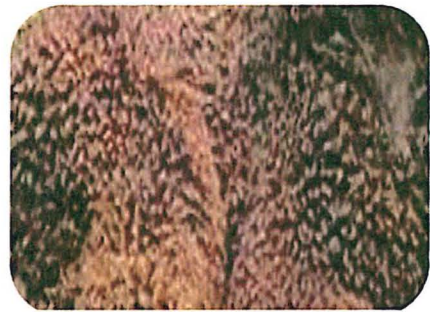
- Motor planning to pet the animal
- Ability to process the sensory input





Hair & Fur Textures

This page was developed to demonstrate the variety of textures specifically relating to an animal's hair and fur. A client may prefer one type over another due to the individual's sensory preferences.





Building An Animal House

Physical

- Community mobility such as travelling to store
- Grasp or compensatory techniques used to hold tools
- Strength & endurance to carry objects
- Range of motion & gross/fine motor control to place supplies, & operate tools
- Dynamic balance
- May need the ability to stoop or squat for extended periods of time

Physiological

- Increased heart rate & rate of respiration

Sensory

- Visual information processing skills, especially when using power tools
- Proprioception & awareness of body's positioning for safety when operating power tools & hammer
- Determining appropriate pressure & force

Cognitive

- Selecting & purchasing appropriate supplies and tools
- Focused attention to activity & surroundings
- Safety awareness with power tools
- Sequencing through steps or directions for set up
- Motor-planning & coordinated movements
- Problem-solving if errors are made

Social

- Seeking assistance & communicating with sales associate & team members

Behavioral

- Behavioral & emotional regulation to self-monitor frustrations
- Progressing through steps of task may serve as reinforcement to complete activity

Psychological

- Accomplishment of task & providing shelter for an animal improves feelings of self-worth



Instructions for Building an Animal's House

Step 1

- Develop the design plan including dimensions for lumber cuts & a list of supplies needed
- Delineate tasks & develop a budget
- Determine available stores, routes, & method of travel

Step 2

- Obtain supplies from local lumber & supply store
- Contact employee to assist with selecting supplies
- If one does not have access to a skill saw, check to see if the store can pre-cut the lumber

Step 3

- For bird house: create frame with pine board & secure with wood glue & clamps
- For dog house: develop the frame by building a base with support beams and then attach plywood for flooring & walls.
 - One may insulate walls with foam for additional protection
 - Brace corners with plywood inserts, secure with wood glue & screws

Step 4

- Frame & secure the roof, & apply plywood.
 - For additional protection, add shingles
- Decorate with paint or carpet



TIP: Sizes may vary depending upon the animal. Fewer supplies will be needed to construct a birdhouse as opposed to a dog house.



Instructions for Building an Animal's House

Bird House

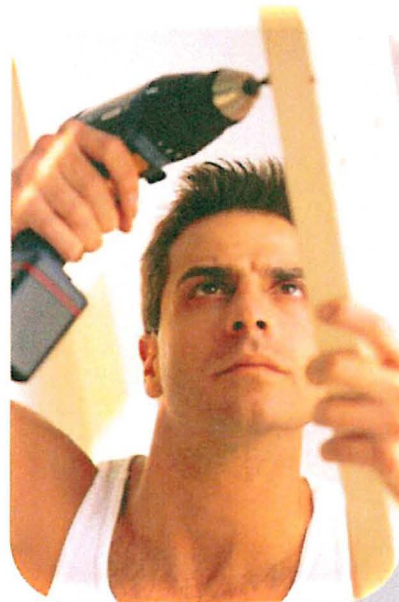
Supply Recommendations & Options

- ½" x 8" pine board
- Tape measure
- Drill & screws, or hammer & nails
- Wood glue & clamps
- Saw
- Safety glasses, ear plugs, & gloves
- Sandpaper
- Paint & paint brushes
- Shingles
- Varnish or lacquer
- Rags
- Newspaper

Dog House

Supply Recommendations & Options

- Lumber such as 2" x 4" support beams & plywood (dimensions depend upon size of dog)
- Tape measure
- Drill & screws or hammer & nails
- Wood glue & clamps
- Saw
- Safety glasses, ear plugs, & gloves
- Sandpaper
- Foam insulation
- Paint & paint brushes
- Shingles
- Remnant carpet or house siding





Building & Maintaining an Aquarium

Cognitive

Planning skills to build the aquarium

Following written or verbal directions & sequencing steps

Problem-solving & decision making

Psychological

Sense of accomplishment & improved self-esteem through successful completion

Motivation to participate in occupation-based task

Social

Interpersonal skills with peers for group activity

Working with peers for planning, building, & maintaining the aquarium

Assertiveness to ask for supplies as needed

Sensory

Varied textures throughout activity

- Rocks, plants, water, cleaning tools, accessories, & fish food

Behavioral

Transferring of skills to develop healthy routines including self-care tasks

Rehearsal & modeling of the caretaker role

Physical

Gross & fine motor coordination

Range of motion for reaching into aquarium

Fine motor skills & dexterity for handling tools/ supplies

Bilateral coordination for assembling



Instructions for Building an Aquarium

Step 1

- Design plan & make a list of materials needed depending on aquarium being made.
- Examples: Tank (sizes vary), air pump, filter, lighting source, stones/rocks, plants, decorations, accessories, cleaning equipment, water conditioner, food, & fish

Step 2

- Purchase materials from pet store or aquarium specialty store

Step 3

- Assemble the aquarium equipment and materials in DRY aquarium

Step 4

- Add water to the aquarium & position plants/accessories
- Treat water with a conditioner & allow water to settle at room temperature

Step 5

- Allow the *unopened* bag with the fish to float in the aquarium for 20-40 minutes or until the temperature of the aquarium & the temperature of the water in the bag are similar

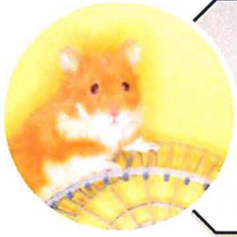
Step 6

- Release fish into the tank
- Monitor the fish over the next 24 hours to ensure proper adjustment to their new home

Step 7

- Feed the fish one time per day as instructed on fish food container
- Clean the aquarium every other week to maintain a healthy environment for the fish





Building & Caring for a Rodent's Habitat

Cognitive

- Planning trip to store
- Map reading, path-finding, interpreting symbols (street signs), & following directions
- Selecting appropriate supplies
- Money-management & budgeting
- Planning, sequencing, & executing steps of construction

Psychological

- May interest individuals & serve as motivation to participate
- Completing task may increase feelings of accomplishment
- Feelings of self-worth may improve through animal dependency & accepting the role of a caretaker
- Overall, may increase energy & drive during active engagement

Physical

- Strength & endurance for community mobility to obtain supplies
- Grasp & release
- Fine motor skills & dexterity to manage money & small objects
- Bilateral coordination to assemble hamster's tunnels
- Gross motor skills for pouring bedding into cage
- Bending, reaching, & range of motion for placing objects into cage
- Holding or petting the rodent

Social

- Seeking out assistance
- Locating & asking store employees for recommendations & assistance with supplies
- Communicating with team members
- Asking for tools & supplies

Behavioral

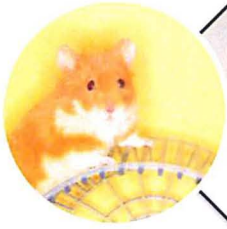
- Development of habits & routines for caring for an animal
- Accepting responsibility as a caretaker for an animal may transfer skills to complete self-care & home-management tasks

Sensory

- Textures
 - Fur or skin of rodent
 - Dust bath or cleansing wipes
 - Bedding Textures
 - Corn cob, cotton, grass, pine, recycled paper, & wood fibers
- Food & treats
- Temperatures
 - Cold water
 - Heat lamp
- Smells
 - Scented bedding
 - Animal scents

★ **TIP: Winkle, Van Dame, & Levenson (2008) suggest building mazes and obstacle courses, hiding treats, and creating toys and games "to keep the rodents intellectually stimulated." This would also draw from the client's cognitive skills and creativity.**

Winkle, M., Van Dame, V., & Levenson, J. (December 15, 2008). Using exotic animals in therapy. *OT Practice*, 27-29.



Instructions for Building a Rodent Habitat

Step 1

- Develop the building plan including a list of supplies needed & develop a budget
- Delineate tasks amongst group members, if applicable
- Determine available stores & routes

Step 2

- Obtain supplies from local store
- Contact employee to assist with selecting supplies

Step 3

- Construction:
 - Assemble cage & accessories, arrange bedding & accessories
 - Fill food & water containers

Step 4

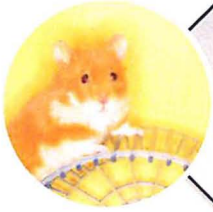
- Place rodent in new habitat
- Observe animal's response and review process with therapist

Step 5

- Develop daily caretaking routine including: food & water, cleaning cage, changing bedding, & grooming schedules

Supply Recommendations

- Large plastic bin, container, or cage
- Bedding
- Plastic tubing, housing, or metal wheel
- Water bottle
- Feeder container
- Dust bath or cleansing wipes
- Food & treats
- Rodent: mice, hamster, gerbil, rabbit

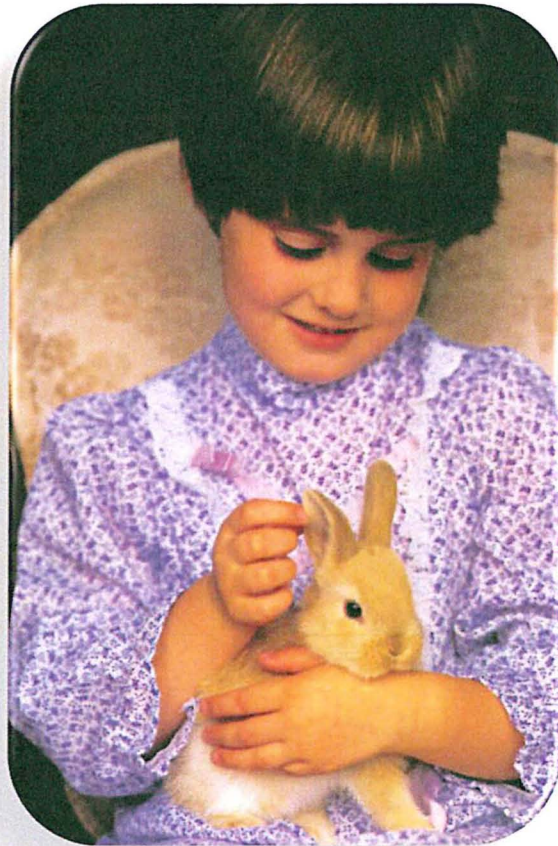


Rodents as Pets

Commonly sold at pet stores

- Rabbit*
- Gerbils*
- Rats*
- Hamsters
- Mice
- Chinchillas

•* symbolizes rodents eligible for Delta Society registry



Exercise Activities in AAT

Playing Fetch

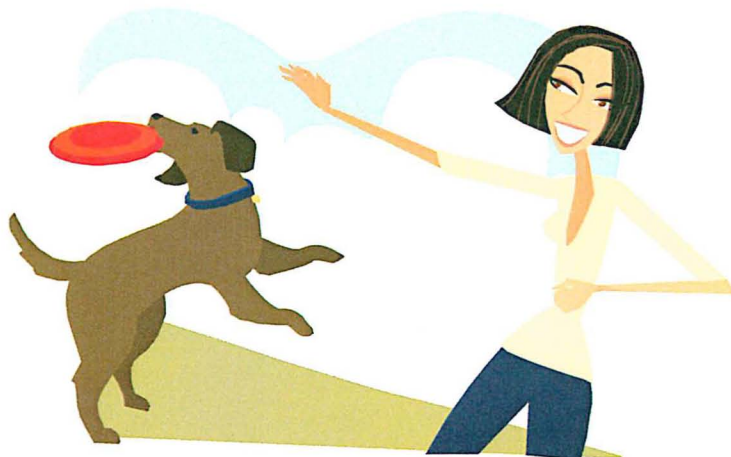
Playing Tug-of-War

Walking or Running with an Animal

Throwing a Ball

Throwing a Frisbee

Agility Course





Playing Fetch

Physical

- *Upper extremity strength to throw ball,
- *Gross motor coordination to throw in the appropriate direction
- *Range of motion to throw the ball overhanded or underhanded
- *Weightshifting & righting reactions when changing positions & throwing ball to maintain balance
- *Bending knees to pick ball up
- *Grasp & release

Cognitive

- *Sustaining divided attention to self, animal, & surroundings.
- *Motor-planning for appropriate technique
- *Awareness of surroundings to ensure safety for self & animal
- *Understanding cause and effect

Sensory

- *Different characteristics of the toy can be adjusted to increase the sensory experience:
 - Texture
 - Color
 - Weight
 - Sound
- *Proprioception to recognize position in space during dynamic movements of bending & throwing
- *Processing using auditory & visual sensory systems

Physiological

- *Increased heart rate & rate of respiration during aerobic activity
- *Allows individual to focus on coordinated breathing techniques during movements of activity

Social

- *Using commands to get the dog to fetch, retrieve, & drop the ball
- *Taking turns with group members
- *Communicating informally with peers or therapist during activity

Psychological

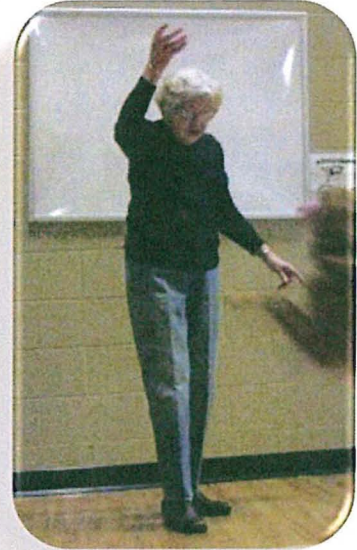
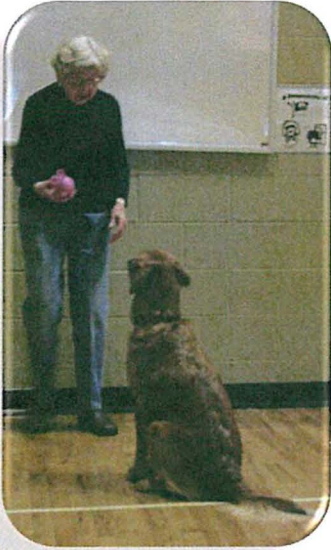
- *Provides motivation for engaging in therapeutic activity
- *Can improve emotions through play with dog
- *May increase overall energy & mood



TIP: Use different weighted balls, throwing techniques, and supports to grade the activity.



Playing Fetch



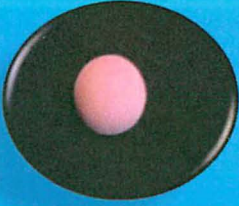
TIP: This activity can be done indoors on a firm surface or outdoors on unlevel surfaces to challenge one's proprioceptive and vestibular responses.





Sensory Qualities of Balls

This page was designed to highlight the variety of sensory properties in balls which can be used in AAT interventions addressing a multitude of sensory impairments. To avoid allergic reactions, please note the material used to fabricate the toys as some may contain latex.



Bouncy ball

- Small, golf-ball sized ideal for child to grip
- Smooth & hard rubber surface
- Does not squish or squeak



Squeaky ball #1

- Tennis-ball sized
- Smooth bumps covering vinyl surface
- Soft & easily squeezable
- Makes high-pitched sounds when squeezed



Squeaky ball #2

- Tennis-ball sized
- Rough ridges of bumpy texture covering *latex* surface
- Soft & easily squeezable
- Makes high-pitched sounds



Squeaky ball #3

- Tennis-ball sized
- Spike-like, knobby texture covering surface
- Harder vinyl material requires more strength to squeeze
- Also makes high-pitched sounds when squeezed



Tennis ball

- Fuzzy hair-like texture
- Ability to bounce
- Floats in water



Hol-EE Roller™

- Comes in a variety of sizes
- Net-like design allows for many places to grip
- Soft, squishy rubber material
- Durable & long-lasting



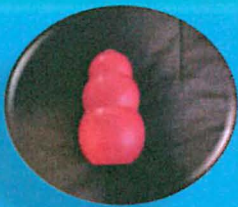
Sensory Qualities of Toys

This page was designed to highlight the variety of sensory properties in dog toys, which can be used in AAT interventions to address a multitude of sensory impairments. To avoid allergic reactions, please note the material used to fabricate the toys as some may contain latex.



Bad Cuz™

- Comes in a variety of sizes
- Made from heavy-duty rubber
- Smooth surface
- Makes high-pitched sound when squeezed



Kong™

- Comes in a variety of sizes
- Made from heavy-duty rubber
- Smooth surfaces
- Designed to bounce in unanticipated patterns when thrown



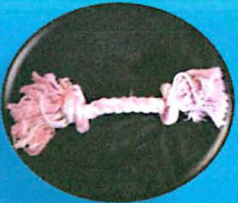
Bone

- Hard plastic ends with softer rubber shaft
- Rough ridges of bumpy texture covering surface
- Chew toy to strengthen & clean teeth



Stuffed Animal

- Comes in a variety of sizes
- Soft materials such as fleece or fur-like textures
- Some may make sounds when squeezed



Tug Rope

- Comes in a variety of sizes & styles
- Made from soft, braided & knotted rope materials
- Can strengthen & clean dog's teeth
- Used in tug-of-war or fetch



Fleece Tug Rope

- Made of soft, stretchy fleece material
- Loop allows place to grasp during tug-of-war
- Can strengthen & clean dog's teeth



Throwing a Frisbee

Physical

- Pinching, grasping, & releasing the frisbee
- Active range of motion: wrist flexion/extension, supination/pronation, elbow flexion/extension, shoulder horizontal abduction/adduction, abduction/adduction, flexion/extension
- Dynamic balance & righting reactions
- Weight shifting to adjust to changes in center of gravity
- Oculomotor movements to track frisbee & moving dog

Physiological

- Increased heart rate & rate of respiration
- Increased bloodflow leading to increased body temperature
- May decrease symptoms of physiological stress

Sensory

- Perception & processing stimuli
- Visual information processing skills such as visual pursuits & spatial awareness
- Proprioception & biofeedback to respond appropriately to changes in movement
- Coordinating excitatory & inhibitory muscular response

Behavioral

- Immediate reinforcement provided from retrieving animal
- Opportunities to reward animal for good behaviors
- Development of movement patterns
- Encourages healthy ways to release energy

Social

- Calling the dog by name & giving commands
- Taking turns throwing the frisbee with others

Psychological

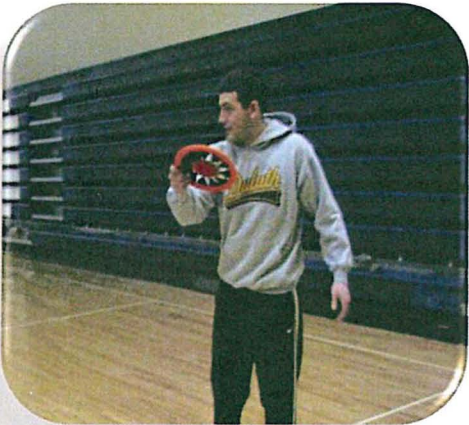
- Increased energy & motivation to participate in activities & exercise
- Provides opportunity to explore coping techniques such as exercise & nature

Cognitive

- Reaching divided attention to self, animal, & activity demands
- Motor-planning & sequencing muscle movements
- Problem-solving throwing techniques



Throwing A Frisbee



TIP: Frisbees come in a variety of styles ranging from the traditional plastic to modern rubber or nylon & spandex. The Frisbee pictured requires higher levels of grasp because the nylon rolls. Assess the client's ability to grasp prior to this activity.



Tug-of-War

Cognitive

- Motor planning & responding to animal's actions
- Reaction time

Physical

- Strength & endurance to maintain a steady pull on one end of the tug rope
- Grasp & release for holding onto the tug rope
- Upper extremity range of motion for engaging in tugging
- Bending & reaching while engaging in activity
- Dynamic balance

Behavioral

- Self-regulation of behaviors & emotions during task

Psychological

- May interest individuals & serve as motivation to participate
- Overall, may increase energy & drive during active engagement

Sensory

- Textures of tug rope or toy used during activity
- Different terrains
- Proprioception & awareness of dog's position
- Adjusting amount of force or pressure applied

Social

- Serves as a catalyst for discussion with therapist
- Improves therapist rapport with client



TIP: With hemiplegia, also instruct client to clasp the flaccid upper extremity. Neuromuscular re-education techniques can be implemented with this activity as well. Reference the Grading Activities Continuum (p. 9) to determine ways to further grade this activity. This can be done seated or standing, and on firm, soft, or unlevel surfaces.



Tug-of-War





Walking a Dog

Physical

- Strength & endurance for mobility to reach a specific distance
- Dynamic balance for gait
- Grasp to hold leash

Psychological

- Motivation to take the dog on a walk & participate in therapy session
- Alerting & energizing to interact with the dog
- Feelings of accomplishment through caring for the dog

Social

- Allows for interaction between therapist & client while being comforted by the presence of an animal
- Dog can serve as conversation starter or catalyst between therapist/client or with peers

Physiological

- Aerobic activity
- Increased heart rate, rate of respiration
- Improved metabolism if routine is developed

Sensory

- Proprioception & awareness of self & animal
- Visual processing such as scanning environment

Behavioral

- Model for healthy routine of exercise
- May serve as motivator for exercise regiment

Cognitive

- Safety awareness, interpreting symbols, & path finding around specified area
- Motor planning
- Problem-solving & decision-making



TIP: An individual is not required to “walk” necessarily, as this activity could be an opportunity for an individual to practice wheelchair mobility as well.



Jogging or Running With a Dog

Physical

- Strength, endurance, & coordinated muscle movements
- Intact righting reactions to sustain dynamic balance during a fast paced activity
- Grasp for holding leash
- Adequate lung capacity

Physiological

- Aerobic activity
- Increased heart rate, & rate of respiration
- Improved metabolism if routine is developed
- Decreased physiological stress

Psychological

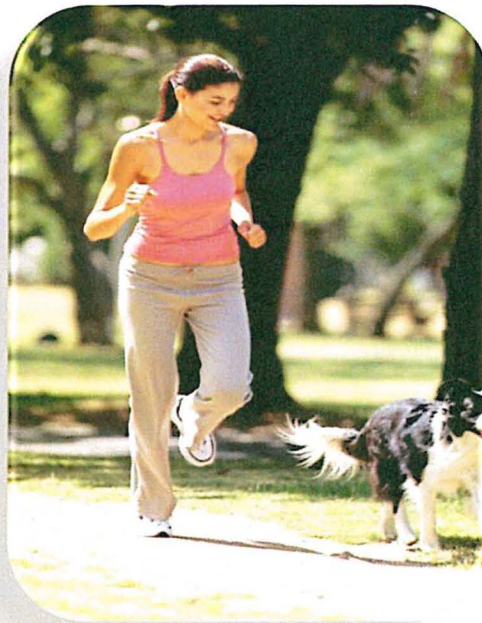
- Dog may serve as motivation to go further, or run faster
- Increased energy & feelings of accomplishment related to distance ran

Sensory

- Proprioception
- Awareness of body's position regarding surroundings
- Visual processing such as scanning the environment quickly

Cognitive

- Safety awareness
- Ability to problem-solve & respond quickly
- Motor planning
- Maneuvering around obstacles





Agility Course

Physiological

- Aerobic activity increases heart rate & respiration
- Improved metabolism over time
- Decreased physiological stress

Physical

- Gait balance & pace
- Strength & endurance for leading the dog
- Can utilize course equipment to practice walking on unstable surfaces, stairs, & prone/supine to standing transition.

Sensory

- Varied terrain surfaces
- Agility course equipment is made of many different materials & textures offering an multi-sensory experience

Psychological

- Sense of achievement & self-worth through successfully leading the dog & participating in the course with the dog
- Self-esteem may improve due to the animal's willingness to obey the client's commands and follow their lead

Social

- Can improve interpersonal interaction & communication amongst peers if working as a team to lead the dog or set-up the course
- Opportunity to provide the dog with commands when appropriate to guide the dog through the course

Behavioral

- Self-regulation of behavior & emotional responses regarding the process of leading the dog through the agility course

Cognitive

- Sequencing of course activities
- Path finding
- Following directions & sequencing steps to lead the dog through the course in the appropriate order & direction



TIPS FOR THIS ACTIVITY: This activity can also be used to practice wheelchair mobility. A group of clients could participate by developing a course, drawing a map, or competing in a relay race.

Community Outings in AAT

Going to the Zoo or Park

Carnival or Petting Zoo

Hiking or Walking Trails

Riding a Pony

Feeding Animals





Community Outings

Physical

- Endurance to walk or propel wheelchair
- Strength in lower extremities if walking, upper extremities if using a wheelchair
- Grasp to hold onto animal's leash
- Dynamic balance & righting reactions
- May need upper extremity, fine motor, or dexterity depending on location of outing

Physiological

- Aerobic activity
- Increased heart rate,
- Lung capacity & rate of respiration
- Increased metabolism

Psychological

- Motivation to participate actively by planning & going on an outing with the animal
- Alerting & energizing to interact with the animal in community setting
- Self-pride through obtaining needed materials and tools in the community to care for animals

Social

- Allows for interaction between therapist & as client may be comforted by the animal
- Dog acts as a conversation starter or catalyst for interaction between therapist/ client or with peers

Behavioral

- Model for caring for others through getting necessary supplies in the community

Cognitive

- Planning the trip
- Following schedule
- Reading maps
- Following directions
- Safety awareness, understanding symbols, & path finding around the community
- Motor planning
- Identifying animals' characteristics

Sensory

- Proprioception
- Awareness of body's position for safety while walking
- Visual processing such as scanning environment
- Biofeedback & righting reactions regarding terrain & maintaining balance



Community Outings

Places to go:

- State Park
- Hiking on a Trail
- City Zoo
- City Park
- Petting Zoo
- Carnival
- Circus
- Pet Store
- Humane Society
- Animal Shelter





Riding a Pony

Cognitive

- Planning trip to carnival or petting zoo including developing a timeline & budget
- Map reading, path-finding, interpreting symbols & street signs, & following directions
- Safety awareness
- Following directions & sequencing steps to mount pony

Physical

- Strength & endurance for community mobility
- Gross motor skills to bend & pull self to mount horse
- Grasp & release, fine motor skills, & dexterity to manage money, helmet straps, & reins of pony
- Dynamic balance to sustain posture while pony is moving

Behavioral

- Challenging self to face fears
- Exploring new activities & hobbies
- May be used as a reward for good behavior

Psychological

- May interest individuals and serve as motivation to participate
- Addressing fears may increase feelings of accomplishment
- May increase energy & drive during active engagement

Social

- Seeking out assistance & reassurance
- Communicating with team members
- Talking to the animal

Sensory

- Textures
 - Mane & coat of pony
 - Saddle, reins, ropes
 - Hay, grass, & treats
- Temperatures
 - Cold water
 - Heat from the sunlight & animal
- Smells
 - Animals, hay, outdoors

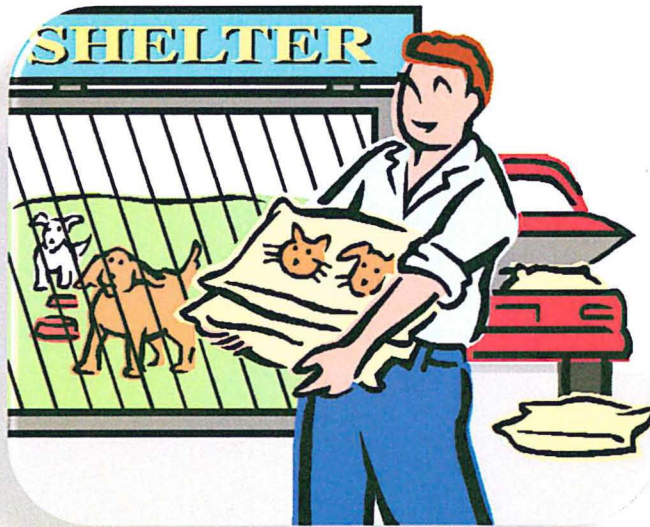


Volunteer Opportunities

Humane Society or
Animal Shelter

Feeding Birds at Local
Park

Training an Animal for
Animal-Assisted
Activities





Volunteering at an Animal Shelter

Physical

- *Strength for lifting or moving heavy objects such as bags of food
- * Balance & coordination to clean out animal's cages
- * Endurance for bathing or grooming animals if necessary
- *Grasping objects

Cognitive

- *Sustaining divided attention to self, animal, & surroundings.
- *Awareness of surroundings & situations to ensure safety for self & animal
- *Operating a till
- *Following schedule to complete necessary tasks
- *Time-management to arrive at shelter at designated time

Sensory

- *Different textures of animal's fur, food, and treats
- *Sensory qualities of tools & supplies for grooming activities
- *Smells of animal food, wastes, medications, and bathing supplies
- *Processing situations using auditory, visual, & tactile sensory systems

Behavioral

- *Self-regulation & monitoring emotions
- *Developing routine
- *Motivation to help animals in need

Social

- *Communicating & working with other volunteers
- *Answering questions appropriately from individual's interested in adopting an animal
- *Using commands with animals

Psychological

- *Increased feelings of self-esteem related to community involvement
- *Feelings of satisfaction with contribution of time or donations
- *May increase overall energy & mood



TIP: This can be utilized as an intervention targeting leisure or volunteer exploration. If interest develops, active participation may transpire.



Feeding Birds

Physical

Fine motor control, grasp, & dexterity to open bird feeder's lid & pour seed into funnel

Gross motor strength to lift, carry, & pour bags of bird seed

Dynamic balance when changing positions & mobility over outdoor terrain

Reaching, stooping, squatting

Physiological

May involve carrying heavy bags of bird seed

Increased respiration & heart rate when carrying large objects or walking longer distance

Watching birds may have a relaxing effect & decrease physiological stress

Cognitive

Measuring appropriate amount to fill bird feeder

Following directions, sequencing steps, & motor planning

Identifying bird calls

Behavioral

As bird feed is eaten, the individual may be motivated to continue activity

Development of leisure activity, hobby, or pastime

Psychological

Increases feelings of empowerment through animals dependence & feelings of worthwhile contributions

Sensory

Sensory qualities of bird seed such as varying sizes, shapes, colors, & sounds

Sensory qualities of the outdoors or bird cage: lighting, tree branches, leaves, or grass

Listening for specific bird calls & other nature sounds



TIP: Bird seed is packaged in a variety of sized bags. A bag can be strategically selected to challenge a patient's physical skills, and placing the feeders at different heights can also be used to grade the activity. The variety of seed can provide unique sensory and tactile experiences.



Training for AAA

Animal-assisted activities (AAA) incorporate visitation of animals without structured activities. Treatment goals are not planned for each session, but rather the aim is at client enjoyment (Delta Society, 2008). A client who has participated in AAT may become interested in AAA opportunities upon discharge.

Physical

- Strength & endurance to train animal
- Community mobility

Sensory

- Being aware of self, animal, & environment

Cognitive

- Higher-level executive functioning
- Initiative to locate & enroll in appropriate obedience training program & receive necessary certifications & vaccinations
- Anticipating potential hazards
- Ability to respond to animal's reactions during AAV sessions

Social

- Developing relations with facilities
- Visiting with clients during AAV
- Commanding the animal

Behavioral

- Developing specific routine
- Being consistent when training an animal

Psychological

- Feelings of community involvement & contribution through time





Sample Case Study

Tommy, a 12 year-old boy, was riding his bicycle after school when he was hit by a motor vehicle. Tommy sustained a traumatic brain injury from this event resulting in prolonged hospitalization. He experienced significant difficulty with dressing and grooming due to the loss of function in his right arm/hand. Tommy was unmotivated to participate in therapy, especially relating to self-care tasks. The rehabilitation team and Tommy's parents struggled to find a way to help Tommy perform these tasks. The occupational therapist (OT) tried making interventions meaningful and motivating for Tommy by using toys and games to increase function in his right arm; although, he was interested in these products initially, he only sustained attention to the task for short periods of time and then became disengaged.

The rehabilitation department had recently implemented an animal-assisted therapy program that was still in its early stages. A golden retriever named Beau was available to the rehabilitation team for therapeutic purposes three days a week. The OT questioned if Tommy would be interested in activities with a real dog rather than toys and consulted with Tommy's parents. His parents shared that they had a family dog and that Tommy enjoyed playing fetch with their dog. He was responsible for many of the chores involved with owning a dog.

The OT brought Beau to meet Tommy for the first time, and his eyes lit up. For the next several weeks, Beau was the highlight of Tommy's days in the hospital. Tommy looked forward to the days that Beau was included in his sessions. Tommy was more motivated in these therapy sessions and he was able to sustain attention to tasks including the dog for longer periods of time.

Case Study Sample Goals

The goals will remain the same for the clients being treated by occupational therapists; however the method of selecting interventions and incorporating animals will vary by the goals that are addressed. Listed are three sample goals for Tommy:

1. Client will complete UE and LE dressing with min assist and use of adaptive equipment PRN by 05/01/09.
2. Client will brush his teeth independently standing at sink for 5 minutes by 05/01/09.
3. Client will shower with min assist and use of adaptive equipment PRN by 05/01/09.

Possible AAT Interventions

This is a list of potential interventions that could be completed utilizing an animal to assist the client in meeting his goals. This list is not exhaustive and focuses solely on the client's upper extremity physical limitations. The listed interventions have benefits far beyond what is mentioned below. These specifically apply to the case written above.

1. The client can *brush the dogs teeth* in order to practice the grasp pattern, strength, and movements needed to brush his own teeth. This task can allow the client to practice opening the toothpaste and putting it on the tooth brush as well.
2. The client can practice *dressing* the dog, allowing him to utilize the fine motor skills and dexterity needed for Velcro, buttons, snaps, or zippers. These skills can then carry over to his own dressing skills.
3. The client can *bathe* the dog in order to practice the range of motion and endurance necessary to complete this task including drying the dog at the end of the bath. The client can also practice the finger dexterity, fine motor coordination, and grip strength needed to open/close shampoo bottles.
4. The client can engage with an animal through *petting* him or her, thus allowing the client to work on active range of motion.
5. The client can *brush* the dog utilized in the rehabilitation unit in order to work on grasp patterns, grip strength, and range of motion. A wide variety of brushes are available in order to meet the client's needs.
6. The client can play *fetch* with the dog in order to improve grasp pattern, grip strength, strength, endurance, and active range of motion through use of varied objects of different shapes, sizes, and weight.
7. The client can provide the dog with *treats* for improvement with dexterity and grip strength (opening box or bag of treats) and fine motor coordination to give the treat to the dog.
8. The client can practice *placing a collar* and leash on the dog to utilize different grip patterns and improve grip strength.
9. The client can *feed* or *provide water* to the dog in order to improve upper extremity strength, range of motion, and grip strength to pour the food or water, and then carry the bowl to a specific location, lowering it to the floor. This task may also include opening a bag or bottle for the food/water.
10. The client may play *tug-of-war* with the dog in order to improve his overall upper extremity strength, endurance, grasp pattern, grip strength, reaching, and range of motion.

Many of the tasks listed above practice the performance skills needed to perform the occupational tasks that the client is looking to achieve: dressing, brushing teeth, and showering. While some seem more directly applicable, others allow the client to engage in the necessary performance skills while finding the task meaningful and motivating through the use of an animal.



Tips for Therapist

The following list provides basic considerations and tips for occupational therapists to reference. Although this is not exhaustive, it is meant to ensure the safety of the clients and animals during AAT interventions.

- **Make sure a waiver is signed prior to utilizing animals**
- **Have the client (or caregiver) identify which types of animals the client is comfortable with, and which animals should not be used**
- **Discuss rules/appropriate behavior with client prior to introducing and using animals**
- **Follow sanitary guidelines and procedures to ensure a clean environment**
- **Wash hands before and after animal interactions or have hand sanitizer available during treatment sessions**
- **Watch for animal behaviors and signs of distress (increased panting, growling or hissing, pacing, tucking of tail, a cat's downturned ears or highly active tail)**
- **Watch for client behaviors that may signal fear, discomfort, distress, or an allergic reaction**
- **Have procedures in place to diffuse a situation when an animal or client becomes distressed or over-stimulated**
- **Have additional interventions in mind if AAT becomes inappropriate with a client**
- **Limit AAT sessions to appropriate length of time (regarding animal's tolerance or client's energy level)**
- **Provide both the client and the animal with adequate breaks (water/bathroom) during the activities**
- **Provide positive reinforcement to animal and client for appropriate behavior**



Conclusion

Animal-assisted therapy (AAT) is a beneficial treatment modality for individuals who share an interest in animals, providing these clients with greater meaning when engaging in occupation-based therapeutic activities. The included interventions have been organized to address clients' motivation, skills and abilities, patterns and routines, performance, environment, and objective and subjective experiences. Elements of AAT relate to terminology and concepts included in the Occupational Therapy Practice Framework (2008). AAT interventions can target performance skills and client factors through preparatory, purposeful, and occupation-based activities relating to activities of daily living (ADLs), instrumental activities of daily living (IADLs), and developing healthy habits, roles, and routines.

The interventions included in this reference tool have been deconstructed using activity analysis to indicate the magnitude of factors that can be addressed with AAT. AAT can influence physical, physiological, psychological, behavioral, cognitive, social, and sensory components while an individual engages in a client-centered intervention. AAT can be incorporated with all ages, genders, and diagnoses.

This reference tool was developed to increase awareness of AAT and highlight the vast opportunities that exist to utilize animals in occupational therapy treatment. This reference tool may encourage practicing therapists to conduct research studies regarding the effects that this modality can have on clients and their treatment. The authors hope that this reference tool has generated interest in AAT and provided therapists with information relating to the development of an AAT program in a variety of settings. Our hope is to see AAT utilized in more healthcare facilities, and that this reference tool provides the necessary information for therapists to make this possible.

For inquiries on how to obtain this product or questions regarding this scholarly project information, please contact the authors at the following email addresses.

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