

Copyright
by
Kelsey Marie Robin
2017

The Report Committee for Kelsey Marie Robin
Certifies that this is the approved version of the following report:

Animal Assisted Interventions for People who Stutter: A Clinical Guide

APPROVED BY
SUPERVISING COMMITTEE:

Supervisor:

Courtney Byrd

Elizabeth Hampton

Animal Assisted Interventions for People who Stutter: A Clinical Guide

by

Kelsey Marie Robin, B.S.

Report

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

The University of Texas at Austin

May 2017

Dedication

This report is dedicated to all of the animals that have provided me with support throughout my life, especially my cat, Chewie, and dog, Colby, who helped me stay calm during the stress of graduate school.

Acknowledgements

Dr. Courtney Byrd, I cannot say thank you enough for your continued support and encouragement. I aspire to positively impact as many people as you have.

Elizabeth Hampton, thank you for serving on my committee and for the joy and inspiration you bring to those around you.

To my classmates I now call friends, I am forever grateful for your friendship. This experience would not be the same without all of you intelligent, funny, and strong women surrounding me.

To my partner Phoenix, thank you for helping make this whole experience fun and reminding me that I can achieve anything I put my mind to.

Abstract

Animal Assisted Interventions for People who Stutter: A Clinical Guide

Kelsey Marie Robin, M.A

The University of Texas at Austin, 2017

Supervisor: Courtney Byrd

The emerging field of animal assisted therapy has many potentially beneficial applications. The use of animal assisted therapy with persons who stutter has been discussed in several public forums but has not currently been investigated through empirical research. The following report will explore the history and analyze current research on animal assisted therapy. Recommendations for application of animal assisted therapy with persons who stutter and suggestions for further research will be discussed.

Table of Contents

Introduction	1
Background of Animals in Therapeutic Settings	3
Important Definitions	3
Discussion of Definitions	5
History of AAT	6
Evidence of the Benefits of AAT and HAI	8
Physiological Measures	8
Effects on heart rate and blood pressure	8
Effects on hormonal indicators of stress	9
Psychological/Behavioral Measures	10
Anxiety	11
Socialization	12
Summary and Discussion of Physiological and Psychological Effects	13
Stuttering and AAT	15
Different Populations of PWS and AAT Application	17
Adults Who Stutter	17
Developing a situational hierarchy	18
Voluntary stuttering	18
Children Who Stutter	19
Treatment Application	20
Pet Partners	20
Using an Animal in Therapy	22

Conclusion	25
References	26

Introduction

Stuttering is a disruption in the forward flow of speech that is arrhythmic, tense, and atypical in nature. These disruptions typically appear in the form of “blocks” of voicing or airflow, sound prolongations, or repetitions of syllable or sounds. Stuttering is prevalent in around 1% of the population and has affected approximately 5% of the population at some point in their lives (Guitar, 2006). While stuttering is not the result of trait anxiety or nervousness about specific situations (Craig, 1990), adults and adolescents who stutter can have negative attitudes about themselves and their communication competence (Blood, Blood, Tellis, & Gabel, 2001; Gildston, 1967). These negative attitudes are often the result of listener stereotypes about people who stutter (e.g., perceiving that a person is stuttering because they are always anxious, tense or insecure). These false stereotypes can result in negative attitudes and increased anxiety, which can become a major treatment goal, particularly for adolescents and adults who have stuttered for most of their life.

It is generally accepted that domesticated animals can be beneficial to humans. Dogs, in particular, have been domesticated for thousands of years to help humans with farming, herding, and guarding in addition to serving as a companion (Clutton-Brock, 2016). Recently, research has focused on the potential physiological and psychological benefits of animals, with findings indicating positive outcomes for individuals who spend more time with pets (Friedmann, Katcher, Lynch, & Thomas, 1980). Further research on the use of animals in the context of various types of therapies (e.g., psychological, speech and language, etc.) has demonstrated both reductions in the physical markers of anxiety

and increases in patient satisfaction when an animal was present (Barker & Dawson, 1998; Macauley, 2006; Shiloh, Sorek, & Terkel, 2003). These findings indicate that the use of an animal could be beneficial in reducing anxiety and increasing client satisfaction in the context of speech-language therapy for adolescents and adults who stutter.

This report will begin by defining important terminology, examining the history and imperative information of animal assisted therapy (AAT) and reviewing the literature specific to the physiological and psychological benefits of AAT and animal assisted interventions (AAI) as a whole. Following this review, potential applications of AAT with persons who stutter (PWS) will be discussed. Finally, examples of clinical application of AAT with PWS will be discussed.

Background of Animals in Therapeutic Settings

IMPORTANT DEFINITIONS

In order to further discuss the benefits and applications of therapy animals, certain terms must be provided and defined to better understand the area of AAI as a whole. The following definitions are provided by Pet Partners® (previously known as the Delta Society) and may be viewed in their entirety on the Pet Partners website (“Pet Partners,” 2016).

Animal-Assisted Intervention (AAI). Structured and goal oriented interventions that include animals to make therapeutic gains and improve health and wellness in health, human services, and educational settings. Animal-assisted therapy (AAT), animal-assisted activities (AAA), and animal-assisted education (AAE) are all included under the umbrella term AAI.

Animal-Assisted Therapy (AAT). Planned, structured, and goal oriented therapeutic intervention directed by health and human service providers. Many disciplines may utilize AAT. Potential professionals could include physicians, occupational therapists, physical therapists, certified therapeutic recreation specialists, nurses, social workers, speech therapists, or mental health professionals. Progress is monitored and measured.

Animal-Assisted Education (AAE). Planned, structured, goal oriented intervention led by special education or general education teachers. Activities focus on academic achievements, social skill, and cognitive functioning while measuring and documenting student progress.

Animal-Assisted Activities (AAA). Activities that provide opportunities for educational, motivational, and/or recreational gains in order to enhance quality of life. While these activities are less formal than AAT or AAE, they are still delivered by a trained professional or volunteer, in partnership with a qualified animal.

Therapy Animals. Pets that provide support and affection to people in various settings such as hospitals, schools, retirement home or therapists' offices. Therapy animals are particularly skilled at interacting with the public and typically enjoy interacting with humans. Along with their owner who is trained to handle them, they typically volunteer by visiting different facilities in the community. Therapy animals are not permitted special rights of access and may only enter places they are welcomed.

Assistance (service) Animals. Dogs, or, in some cases, miniature horses that are individually and specifically trained to perform tasks for people with disabilities. Examples include dogs trained to detect seizures for people who have epilepsy and guide dogs/horses for individuals who are blind or visually impaired. Assistance animals are not considered as pets but as working animals and are legally permitted anywhere their owner goes in accordance with the American's With Disabilities Act (ADA). These dogs should not be approached or petted when they are on duty to protect the safety of their owner.

Emotional Support (comfort) Animals. A pet who provides support to individuals with mental illness. A licensed mental health professional must prescribe an emotional support animal for an individual. The animal is not required to have any special training or abilities other than providing support to their owner. Emotional

support animals may accompany their owners on airplanes and live in locations covered by the Fair Housing Amendments Act (FHAA), regardless of pet policies. However, they are not granted the same rights as service animals and may only accompany their owners in public with permission from facility management. Dogs are the most commonly prescribed emotional support animal, but other species including felines and birds can serve as comfort animals.

DISCUSSION OF DEFINITIONS

Understanding the similarities and differences among the previously defined terms is important while reading this report. The focus of this report is the use of therapy animals (specifically dogs) in the context of AAT. Although therapy dogs are trained to meet specific requirements when interacting with humans, they are not trained to “work” in the way that a service animal has been trained. Therapy animals may also be approached petted (in fact, it is encouraged). In contrast, emotional support animals may not always be tolerant of being approached by strangers, and service animals must never be approached and petted while “working” because it can distract them from their job. Another key differentiation is between AAT and AAA. Although they are similar, it is important to note that AAT is goal orientated and relies on measurable outcomes to monitor progress.

HISTORY OF AAT

The practice of AAT was founded on the phenomenon of the human-animal bond (HAB), which does not have a universally agreed upon definition but is generally defined as the mutually beneficial, voluntary, and persistent relationship between a human and animal (Beck, 1999; Fine & Beck, 2015). The term “human-animal bond” was not officially used until March of 1979 in the Proceedings of the Meeting of the Group for the Study of Human–Companion Animal Bond in Dundee, Scotland, according to Fine (2014). However, research investigating the potential therapeutic applications of this human-animal interaction (HAI) relationship began significantly earlier.

The concept that animals can help us heal had been around for a long time, with the most noteworthy historical example of application of this concept coming from the York Retreat in England in the early 1790’s. This insane asylum utilized animals to calm patients and encourage more ethical treatment of patients at the hospital (Hooker, Freeman, & Stewart, 2002). Modern research proving animals’ abilities to provide benefits to humans did not emerge until the 1960s. It was not until 1961 when Dr. Boris Levinson presented his observations of patients bonding with animals and becoming more communicative in the context of psychological therapy that research proving the benefits of animal assisted therapy (AAT) began to emerge (Hooker et al., 2002). AAT, defined as “a goal-directed intervention in which an animal is incorporated as an integral part of the clinical health-care treatment process” (“American Humane Association,” n.d.) has been shown to provide physical and mental health benefits in a variety of settings. Initially, researchers were skeptical of any true physiological benefits of AAT until the early 1980’s when Friedmann et al. (1980) found that of 92 patients in a cardiac

care unit, those who owned a pet were statistically more likely to be alive after one year. This study opened up a floodgate of new medical research and discussion on the effects of animals on stress, socialization, cardiac health and more. Despite this propulsion forward, the field of AAT and AAI in general is still lacking substantial empirical evidence and funding to further investigate potential benefits and application of AAT (Serpell, 2010).

Evidence of the Benefits of AAT and HAI

Although there is rapidly increasing interest and discussion in the field on AAT and on the topic of HAI, and a respectable sized body of literature on the topic, research in this area still fails to follow any common guidelines or even belong in any specific area of study. Research findings on the topic of AAT can be found in journals of many different disciplines (e.g. zoology, medicine, psychology, etc.) and an evidence-based consensus on how to best implement AAT does not currently exist. Nevertheless, common findings do exist on the relationship between AAT, HAI, and positive physiological and psychological outcomes. The following section will focus on these similarities in the literature.

Physiological Measures

Following the breakthrough findings of Friedmann et al. (1980) indicating people with cardiac health issues who owned a pet may be more likely to live longer than non-pet owners, extensive research on the different physiological effects animals have on humans has been completed. The majority of this research investigates the physiological correlations of HAI as a whole and is not specifically focused on AAT.

Effects on heart rate and blood pressure

Many randomized-control studies have examined the effects of HAI on heart rate and blood pressure either during neutral or stressful task. For example, Vormbrock and Grossberg (1988) studied 60 undergraduate students who rated their attitudes towards dogs as either neutral or positive. They found that blood pressure was highest when talking to the experimenter and lowest when stroking a dog silently. Additionally, blood

pressure was lower while speaking to the dog than when speaking to the experimenter, indicating speaking to an unfamiliar animal results in less physiological excitation than speaking to an unfamiliar human.

In a study of older adults (ages ranging from 62-82) walking either with or without a dog present, Motooka, Kennedy, and Koike (2006) found that with an unfamiliar dog present, heart-rate variability increased compared to walking without a dog. Heart-rate variability is indicative of increased parasympathetic activity and improved cardiac health. This indicates that walking a dog may be more beneficial to cardiac health than just walking.

Nagengast, Baun, Megel, and Leibowitz (1997) used a within subject, time-series design to examine the effects of a companion animal on blood pressure and heart rate in children (ages ranging from 3-6 years old) during two separate physical examinations in a doctor's office. Statistically significant differences were found, with lower blood pressure and heart rate levels observed when a dog was present than when no animal was present.

These studies indicate that the presence of a dog during both neutral and stressful situations can result in lower blood pressure and either lowered or more variable heart rate. This effect is apparent in both males and females and across various age groups.

Effects on hormonal indicators of stress

Multiple studies examine the effect of HAI on cortisol (commonly referred to as the stress hormone), norepinephrine (functions as a hormone or neurotransmitter to

induce arousal), and epinephrine (also known as adrenaline, which plays a role in the “flight or fight” response) levels during neutral or stress inducing situations.

Cole, Gawlinski, Steers, and Kotlerman (2007) examined the effects of a 12-minute AAT session with a therapy dog and volunteer, a 12-minute session with the volunteer alone, and a control group on epinephrine and norepinephrine levels in 76 patients diagnosed with acute heart failure in a cardiac care unit. They found that the AAT group had significantly greater decreases in epinephrine and norepinephrine levels during and after the AAT session compared to both the volunteer only condition and the control condition.

A study comparing cortisol levels in pet owners when petting their own dog, petting an unfamiliar dog, and quietly reading found cortisol levels to be lower in both the unfamiliar and familiar dog conditions than in the quiet reading conditions. This indicates that AAT may be more beneficial in reducing stress hormones than other seemingly relaxing experiences (Odendaal, 2000).

Taken together, these findings suggest that AAT and HAI can be beneficial in reducing stress hormones and excitatory neurotransmitters. This evidence, showing positive physiological benefits of AAT, suggests that research utilizing behavioral measures and assessing psychological gains will likely also affirm the positive outcomes of AAT use.

Psychological/Behavioral Measures

Following Levinson’s presentation on the possible psychological benefits of AAT, researchers began to explore various positive outcomes that could result from the

use of a therapy animal during various types of treatment. The following studies rely on behavioral and self-reported measures to quantify the benefits of AAT.

Anxiety

Several studies have assessed the relationship between AAT and HAI on perceived levels of state anxiety, defined as “an unpleasant emotional arousal in face of threatening demands or dangers” (Lazarus, 1991). In their study on the use of a 12-minute AAT session with a therapy dog and volunteer, compared to a volunteer only and control group with patients in a cardiac care unit, Cole et al. (2007) found that the AAT group showed significantly lower levels of reported anxiety in the AAT condition than in the volunteer only or control condition.

Barker, Pandurangi, and Best (2003) examined levels of self-reported anxiety in psychiatric patients before receiving electroconvulsive therapy. The patients were divided into either a group that received 15-minutes of AAT with a therapy dog before treatment or a group that read a magazine for 15-minutes. The patients in the group that received AAT reported significantly lower levels of anxiety than the group reading a magazine

Lang, Jansen, Wertenauer, Gallinat, and Rapp (2010) found that in a group of acute schizophrenic patients, state anxiety was significantly lower during an interview in the presence of a friendly dog than without the dog present.

Overall, these findings indicate that the presence of a friendly animal can result in lower levels of state anxiety. These studies also indicate a trend in utilizing therapy animals during stressful circumstances to help reduce negative effects of the situation.

Socialization

Multiple studies examined how the presence of a dog (pets and trained therapy dogs) can play a role in increasing social interactions and pro-social behaviors in human. This relationship was studied in various populations including individuals with and without mental health impairments.

The behavior of 1800 pedestrians approaching a female either walking one of three “types” of dogs (a puppy Labrador retriever, an adult Labrador retriever, or an adult Rottweiler) or holding one of two “neutral stimuli” (teddy bear or potted plant) was analyzed. Overall, more social behaviors (smiling, eye contact, interaction) were observed when the female was walking a dog than when holding a neutral stimuli and the puppy and adult Labrador resulted in more verbal interaction and smiles than the Rottweiler (Wells, 2004).

In addition to serving as catalysts to social interactions for individuals in non-therapeutic settings, dogs have been shown to increase social behaviors and improve relationships between clients and therapists in multiple therapeutic settings. In a study of adolescents between the ages of 11 and 20 years old at an inpatient psychiatric treatment facility, Prothmann, Bienert, and Ettrich (2006) found that having a trained therapy dog present during weekly therapy sessions, increased pro-social behaviors in patients. These behaviors include alertness, attention, openness and desire for social interaction and were significantly higher in post-test measures compared to a control group who received the same treatment without the use of a therapy dog.

Wesley, Minatrea, and Watson (2009) found that patients seeking treatment for substance abuse rated the therapeutic alliance with their counselor higher after 26

sessions of group treatment utilizing a therapy dog component compared to the control group with no animal component. Findings on AAT and HAI indicate animals, the most popular being dogs, serve as an effective catalysis for increasing and improving social interactions and relationships.

SUMMARY AND DISCUSSION OF PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS

Overall, research on the physiological and psychological or behavioral effects of AAT and HAI points toward positive outcomes. Studies show decreases in stress hormones and neurotransmitters, decreased blood pressures, decreased or more variable heart rate, reduction in levels of state anxiety in stressful situations, and increases in social behaviors when people are in the presence of animals. As Nimer and Lundahl (2007) point out in their meta-analysis of AAT research, dogs are used more than any other type of animal. They suggest this may be due to researchers' observations that dogs have the most noticeable effect compared to other animals. An analysis by Beetz, Uvnäs-Moberg, Julius, and Kotrschal (2012) suggests that the many positive outcomes of AAT and HAI are all a result of activation of the human's oxytocin system in the presence of animals. However, they also note that other factors are likely involved and that in particular the social catalyst effects animals have may result more from "biophilia" defined as "the urge to affiliate with other forms of life" (Wilson, 1984).

Despite general findings on positive results of AAT, further research is needed to analyze best practices within AAT and more streamlined definitions throughout the literature. An area of AAT application that has been discussed more and more recently is in the field of speech-language pathology, specifically when used with PWS. The

following section explores possible application of AAT with PWS and makes suggestions for further research with this population.

Stuttering and AAT

Despite the large body of empirical, peer-reviewed evidence to support AAT in various therapeutic settings, no peer-reviewed, published evidence exists on the use of AAT with PWS. Although there is a lack of empirical evidence, multiple sources online suggest that AAT and the use of therapy dogs can be beneficial for PWS. Several online sources from the Stuttering Foundation indicate their support for the use of AAT with PWS. At the gala in May of 2016 Jane Fraser, the president of the Stuttering Foundation presented briefly on the benefits of AAT for PWS and the positive effects of HAI (The Stuttering Foundation, 2016). The Stuttering Foundation's winter 2016 newsletter features an article on Margaret Griffo a speech-language pathologist who works with fluency clients and her certified therapy dog Waverly. Margaret is quoted stating, "Waverly has become such an asset to me in my fluency work. When talking to Waverly, speakers of any age cannot fail," and "To Waverly, words are important but fluency isn't" (Wilson, 2016).

The Stuttering Foundation features an article on Dr. Alan Rabinowitz, a wildlife conservationist and author of the children's book *A Boy and a Jaguar*. Dr. Rabinowitz is a person who stutters and as a child had such severe blocks in speech production that he would spasm and twist his body while attempting to speak and would avoid speaking in front of people at all costs. During a workshop for the Stuttering Foundation, Dr. Rabinowitz said "Animals were the only things I could talk to as a child" and "Animals listened and let me pour my heart out. At some point in my youth I clearly remember realizing that animals were like me, even the most powerful ones I'd read about or seen

on television - they had no voice, they were often misunderstood, and they wanted nothing more than to live their life as best they could apart from the world of people" ("Alan Rabinowitz," n.d.). Finally, an online search of "Animal Assisted Therapy and Stuttering" results in several blog posts and online articles of speech-language pathologists' personal accounts of using a pet or trained therapy dog with PWS and their own anecdotal evidence of positive results.

Though further empirical evidence is needed to confirm the positive benefits of using AAT with PWS, anecdotal findings along with current experiential research on suggest that AAT can be a beneficial addition to fluency therapy. Therapy dogs can function as a non-judgmental listener and have been shown to help decrease state anxiety, increase social behaviors, and decrease physiological indicators of stress (Barker et al., 2003; Beetz et al., 2012; Cole et al., 2007; Lang et al., 2010; Nimer & Lundahl, 2007; Prothmann et al., 2006; Shiloh et al., 2003; Wesley et al., 2009). While PWS do not stutter due to trait anxiety (Craig, 1990), they may experience state anxiety during stressful situations, resulting in more disfluent moments (A Craig, Hancock, Tran, & Craig, 2003) The following section will explore which groups of PWS may benefit the most from AAT, with a focus primarily on adults and older adolescents.

Different Populations of PWS and AAT Application

Evidence for the use of therapy dogs suggests that if a person has either positive or neutral feelings about dogs, AAT can be effective for all ages and genders and should therefore be beneficial for all ages and genders of PWS. However, due to the experiential evidence suggesting that AAT can reduce physiological markers of stress and reported state anxiety, AAT may be most beneficial for adults who stutter that have higher levels of reported anxiety during speaking situations that they personally find stressful (e.g. talking on the phone, giving presentation, etc.). Additionally, there is very limited discussion on the use of AAT with adults who stutter and this topic merits further discussion and exploration considering the proposed positive outcomes. The following sections will explore potential applications of AAT with adults who stutter followed by a brief discussion of AAT application with children who stutter.

ADULTS WHO STUTTER

As previously stated, AAT may be most applicable to fluency therapy for adults who stutter due to their higher levels of situational anxiety. Sheehan (1953) proposed the approach-avoidance theory stating that stuttering results from a conflict between the desire to speak (approach) and the fear of speaking because a stutter may occur (avoidance). Although this theory's suggestion that stuttering is caused by fear is not supported by data, the approach-avoidance conflict can be applied to learned behaviors of adults who stutter. Just as any person may develop a learned fear of certain situations (e.g. avoiding eating a food you like because you almost choked on it once), PWS can develop fears of speaking in certain situation. For people who avoid speaking due to fear

and anxiety related to their stuttering, having a therapy dog present may be more helpful than a speech-language pathologist (SLP) alone. Additionally, from the beginning of treatment, having a therapy dog in the room could reduce any stress or anxiety the client feels about working with a new, unfamiliar clinician. The following will discuss several situations in which AAT may be applied for adults who stutter. Further specific guidelines for use of therapy dogs with adults who stutter, including use of a situational hierarchy and voluntary stuttering will be discussed more in the “Treatment Application” sections of this report.

Developing a situational hierarchy

During stuttering therapy for individuals with state anxiety and fears of speaking, it is important to develop a situational hierarchy. Together, along with the SLP, the client should rank speaking situations from most stressful/anxiety inducing to least stressful/relaxed. After completing this hierarchy, the client will need to practice “approaching” the situations they find most stressful. Initially, practicing speaking in these stressful situations will be difficult for most clients.

Voluntary stuttering

Voluntary stuttering or pseudostuttering is a therapy technique in which a client is encouraged to purposefully produce disfluencies either similar to their own or effortless repetitions (Guitar, 2006). This technique has been utilized to help reduce anxiety, fear and negative attitudes in PWS. Voluntary stuttering can and should be used in various settings and is perceived by clients as being more beneficial in reducing feelings of anxiety when utilized outside of the clinical environment (Byrd, Gkalisiou, Donaher, &

Stergiou, 2016). Byrd et al. (2016) also found that in a survey of PWS who were instructed to use voluntary stuttering, many respondents initially thought this technique would be too difficult emotionally, or were skeptical and resistant to using this technique. However, after attempting voluntary stuttering once, nearly half of the respondents reported increased comfort and were more convinced about the usefulness of the technique.

CHILDREN WHO STUTTER

Both experimental and anecdotal evidence for the use of AAT, suggest it would be effective when used with children who stutter. Dogs can serve both as stress reducers and as non-judgmental listeners, and may encourage progress towards treatment outcomes in children. Bassette and Taber-Doughty (2013) found that dog reading visitation programs in which children read to dogs during school, increased on-task behaviors both during the reading and following the reading. These findings could be applied to speech-language therapy for children who stutter to potentially increase focus during treatment sessions by having children speak to a therapy dog. Generally, findings suggest that AAT can be beneficially applied with children who stutter but specific suggestions will not be discussed in the present paper as the present paper focuses on use with adults.

Treatment Application

The following section will describe specific guidelines for becoming a certified therapy dog handler through *Pet Partners* and outline specific treatment implementations that can be used with adults who stutter and a therapy dog.

PET PARTNERS

Pet Partners® is one of several organizations that certifies therapy animals nationwide. Their certification program will be used as an example of the requirements to train and handle and a therapy animal. Other major certifying groups exist (e.g., *Therapy Dogs International*®) and follow similar certification requirements. Pet Partners® is used as an example here because of their focus on various types of animals in the case that a person cannot utilize the use of a dog as a therapy companion (e.g. having allergies, fear of dogs, etc.).

Pet Partners Program Requirements:

The following information was taken directly from the Pet Partners® website and can be viewed in its entirety at petpartners.org (“Pet Partners,” 2016).

Therapy animals

- 1) Must be at least 1 year of age and have lived in the owner’s home for at least 6 months (1 year for birds).
- 2) Currently vaccinated for rabies (rabbits, rats, guinea pigs and birds exempt).
- 3) Demonstrate good basic obedience skills, such as walking on a loose leash, and responding reliably to common commands such as “sit,” “down,” “stay,” “come” and “leave it”

- 4) Have no history of aggression towards people or animals including dogs trained to protect aggressively or encourage to bite even as a component of a sport.
- 5) Welcoming of interactions with strangers, not just tolerant.

Handlers

- 1) Able to read their animal's body language and understand when the animal is stressed, over stimulated, or fatigued.
- 2) Able to cue or redirect their animal without raising their voice, offering food or rewards, or jerking on the leash forcefully.
- 3) Make conversation with people while still attending to the animal.
- 4) Guide interaction with the animal and people in a professional and polite manner.
- 5) Always advocate for the safety and well-being of their animal.

Steps to Certification:

After determining if you and your animal meet the program requirement there are several steps to become a certified Pet Partners team. Following certification, you and your pet will have liability insurance through Pet Partners and access to continuing education courses.

- 1) Create an online account (<https://petpartners.org/volunteer/login/>).
- 2) Take the Pet Partners handler course. This course is available in online and in person formats depending on availability in your area.
- 3) Animal health screening form signed by a veterinarian.
- 4) Team evaluation with your animal.

USING AN ANIMAL IN THERAPY

If you are planning to serve as both the clinician and animal handler, the previous steps must be completed before implementing AAT in a therapy session with a PWS. However, you may choose to employ an already certified animal-handler volunteer team to assist in your AAT session. Before proceeding with this route, privacy rights must be discussed with the client and handler and proper forms should be signed to ensure privacy for the client. To find a qualified handler and animal willing to volunteer their time helping in therapy for a PWS, visit the “Submit a volunteer opportunity” section of the Pet Partners’ website (<https://petpartners.org/learn/pet-partners-at-your-facility/add-a-volunteer-opportunity/>). You will be able to list specifics about your needs (e.g. dog) and let potential volunteers know what you will be doing (e.g. individual speech therapy session with an adult who stutters).

It is important to consider specific skills and knowledge needed when using a therapy animal in a clinical setting. A clinician must be knowledgeable of how to use an animal with the specific population of humans they are working with and have the skills to handle the animal (or instruct the animal’s handler) while simultaneously treating and caring for the client (Stewart, 2014).

Use of therapy dogs with voluntary stuttering

Situational hierarchy and AAT. When establishing a situational hierarchy it is important for the PWS to feel relaxed and comfortable sharing about stressful situations. It is recommended that the client meet the clinician and therapy dog once to establish rapport before discussing their situational hierarchy. Once rapport has been established

between the whole team (client, clinician, dog, and potentially dog partner), the clinician should facilitate a discussion about high and low stress speaking situations with the client. The dog will be present during this discussion and available to the client to pet or talk directly to depending on personal preference. Different clients will likely have different preferences on the amount of interaction they have with the dog. There should be no required amount of interaction as the dogs' presence is intended to help reduce stress and anxiety and establish a relationship between the client and animal for the voluntary stuttering portion of treatment.

Voluntary stuttering and AAT. The use of a therapy dog during the initial use and subsequent uses of voluntary stuttering is likely to reduce feelings of stress and anxiety that may occur while using this technique. A therapy dog may be particularly useful during a client's initial use of voluntary stuttering. Because many PWS report skepticism and feelings of anxiety before using this technique (Byrd et al., 2016), a therapy dog may reduce their feelings of fear and allow them to be more open to using voluntary stuttering. Together with voluntary stuttering, AAT could be extremely useful in reducing feeling of anxiety in stressful speaking situations.

It is recommended that initially the client use voluntary stuttering across their situational hierarchy with the therapy dog present during each situation they find stressful or anxiety inducing. They should begin with lower stress situation and work towards using voluntary stuttering in situations they find most difficult with the dog present. Once the client has successfully used voluntary stuttering in multiple situations with the dog available, they should attempt the technique independently without the dog. For

situations the client finds the most stressful, several attempts to use voluntary stuttering with the dog present may be warranted. However, it is important to work towards independent use without the animal. The dog is intended to help facilitate the initial use of voluntary stuttering and reduce stress and anxiety in those situations. It is not intended become a permanent emotional support animal for the client. The use of the therapy dog should be faded at a rate the client is comfortable with and a plan to fade the dog should be discussed prior to beginning this treatment technique.

Conclusion

Animal assisted therapy is a relatively new field in terms of the established evidence base. Nevertheless, available and emerging research shows that positive gains can be made through AAT application in various therapeutic settings. Current evidence suggests that AAT can reduce stress and anxiety and increase socialization in populations of various ages and with diverse diagnoses.

Multiple speech-language pathologists have talked about the use of AAT with PWS informally online and at public events. While substantial anecdotal evidence exists for the use of AAT with PWS, no empirical evidence is currently published. There are many potential benefits that may be found with the use of AAT with PWS and experiential evidence is needed to verify this claim. Future research should investigate the use of AAT with adults who stutter who report high levels of stress and anxiety during multiple speaking situations. Both self-reported and physiological markers of stress should be evaluated to understand what benefits AAT provides for this population.

References

- Alan Rabinowitz. (n.d.). Retrieved from <http://www.stutteringhelp.org/famous-people/alan-rabinowitz>
- American Humane Association. (n.d.). Retrieved from <http://www.americanhumane.org/>
- Barker, S.B & Dawson, K. S. (1998). The Effects of Animal-Assisted Therapy on Anxiety Ratings of Hospitalized Psychiatric Patients. *Psychiatric Services*, 49(6), 797-802. <http://doi.org/10.1176/ps.49.6.797>
- Barker, S. B., Pandurangi, A. K., & Best, A. M. (2003). Effects of animal-assisted therapy on patients' anxiety, fear, and depression before ECT. *The Journal of ECT*, 19(1), 38-44. <http://doi.org/10.1097/00124509-200303000-00008>
- Bassette, L. A., & Taber-Doughty, T. (2013). The Effects of a Dog Reading Visitation Program on Academic Engagement Behavior in Three Elementary Students with Emotional and Behavioral Disabilities: A Single Case Design. *Child and Youth Care Forum*, 42(3), 239-256. <http://doi.org/10.1007/s10566-013-9197-y>
- Beck, a. M. (1999). Companion Animals and Their Companions: Sharing a Strategy for Survival. *Bulletin of Science, Technology & Society*, 19(4), 281-285. <http://doi.org/10.1177/027046769901900404>
- Beetz, A., Uvnäs-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human-animal interactions: The possible role of oxytocin. *Frontiers in Psychology*, 3(JUL), 1-15. <http://doi.org/10.3389/fpsyg.2012.00234>
- Blood, G. W., Blood, I. M., Tellis, G., & Gabel, R. (2001). Communication apprehension

and self-perceived communication competence in adolescents who stutter. *Journal of Fluency Disorders*, 26(3), 161–178. [http://doi.org/10.1016/S0094-730X\(01\)00097-3](http://doi.org/10.1016/S0094-730X(01)00097-3)

Byrd, C. T., Gkalisiou, Z., Donaher, J., & Stergiou, E. (2016). The Client's Perspective on Voluntary Stuttering. *American Journal of Speech-Language Pathology*, 25, 290–305. <http://doi.org/10.1044/2016>

Clutton-Brock, J. (2016). Origins of the dog: archaeological evidence. In J. Serpell (Ed.), *The Domestic Dog: Its Evolution, Behavior and Interactions with People* (2nd ed., pp. 7–20). Cambridge; New York City: Cambridge University Press.

Cole, K., Gawlinski, A., Steers, N., & Kotlerman, J. (2007). Animal-assisted therapy in patients hospitalized with heart failure. *American Journal of Critical Care*, 16(6), 575–585.

Craig, A. (1990). An Investigation Into the Relationship Between. *Journal of Speech and Hearing Disorders*, 55, 290–294.

Craig, A., Hancock, K., Tran, Y., & Craig, M. (2003). Anxiety levels in people who stutter: a randomized population study. *Journal of Speech, Language, and Hearing Research : JSLHR*, 46(5), 1197–1206. [http://doi.org/10.1044/1092-4388\(2003/093\)](http://doi.org/10.1044/1092-4388(2003/093))

Fine, A. H. (2014). *Our faithful companions: Exploring the essence of our kinship with animal*. Alpine, CO: Alpine Publications.

Fine, A. H., & Beck, A. M. (2015). *Understanding Our Kinship with Animals. Handbook on Animal-Assisted Therapy* (Fourth Edi, Vol. 1987). Elsevier Inc. <http://doi.org/10.1016/B978-0-12-801292-5.00001-8>

- Friedmann, E., Katcher, A. H., Lynch, J. J., & Thomas, S. A. (1980). Animal companions and one-year survival of patients after discharge from a coronary care unit. *Public Health Reports*, 95(4), 307–312. <http://doi.org/10.2307/4596316>
- Gildston, P. (1967). Stutterers ' Self-Acceptance and Perceived Parental Acceptance 1. *Journal of Abnormal Psychology*, 72(1), 59–64. <http://doi.org/10.1037/h0024229>
- Guitar, B. (2006). *Stuttering: an integrated approach to its nature and treatment* (Third). Baltimore: Lippincott Williams & Wilkins.
- Hooker, S. D., Freeman, L. H., & Stewart, P. (2002). Pet therapy research: a historical review. *Holistic Nursing Practice*, 17(1), 17–23. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12465214>
- Lang, U. E., Jansen, J. B., Wertenauer, F., Gallinat, J., & Rapp, M. A. (2010). Reduced anxiety during dog assisted interviews in acute schizophrenic patients. *European Journal of Integrative Medicine*, 2(3), 123–127. <http://doi.org/10.1016/j.eujim.2010.07.002>
- Lazarus, R. (1991). *Emotion and adaptation*. Oxford University Press on Demand.
- Macauley, B. L. (2006). Animal-assisted therapy for persons with aphasia: A pilot study. *Journal of Rehabilitation Research and Development*, 43(3), 357–366. <http://doi.org/10.1682/JRRD.2005.01.0027>
- Masahiko Motooka, Nell L Kennedy, Hiroto Koike, T. Y. (2006). Effect of dog-walking on autonomic nervous activity in senior citizens | Medical Journal of Australia. *MJA*, 184(2), 60–62. Retrieved from <https://www.mja.com.au/journal/2006/184/2/effect-dog-walking-autonomic-nervous-activity-senior-citizens>

- Nagengast, S. L., Baun, M. M., Megel, M., & Leibowitz, M. (1997). The Effects of the Presence of a Companion Animal on Physiological Arousal and Behavioral Distress in Children During a Physical Examination. *Journal of Pediatric Nursing*, 12(6), 323–330.
- Nimer, J., & Lundahl, B. (2007). Animal-Assisted Therapy : A Meta-Analysis. *Anthrozoos*, 20(September), 225–238.
- Odendaal, J. S. J. (2000). Animal-assisted therapy - Magic or medicine? *Journal of Psychosomatic Research*, 49(4), 275–280. [http://doi.org/10.1016/S0022-3999\(00\)00183-5](http://doi.org/10.1016/S0022-3999(00)00183-5)
- Pet Partners. (2016). Retrieved from https://petpartners.org/learn/terminology/?gclid=CjwKEAiAlNbEBRCv9uy4j4SWrgwSJAB5MqJFy4fDpLfpBcEiqnGTDqupdlSGGEooLmz2AtpiOur7nBoCf-3w_wcB
- Prothmann, A., Bienert, M., & Ettrich, C. (2006). Dogs in psychotherapy: effects on state of mind. *Anthrozoos*, 19 (September), 265–277.
- Serpell, J. A. (2010). *Animal-Assisted Interventions in Historical Perspective. Handbook on Animal-Assisted Therapy* (Fourth Edi). Elsevier Inc. <http://doi.org/10.1016/B978-0-12-381453-1.10002-9>
- Sheehan, J. (1953). Theory and Treatment of Stuttering as an Approach-Avoidance Conflict. *The Journal of Psychology*, 36, 27–49.
- Shiloh, S., Sorek, G., & Terkel, J. (2003). Reduction of State-Anxiety By Petting Animals in a Controlled Laboratory Experiment. *Anxiety, Stress & Coping*, 16(4), 387–395. <http://doi.org/10.1080/1061580031000091582>

- Stewart, L. A. (2014). *Animal-Assisted Interventions Competencies Based on the findings of a Qualitative Investigation of the Knowledge , Skills , and Attitudes Required of Competent Animal-Assisted Therapy*. Georgia State University.
- The Stuttering Fondation. (2016). The Human-Animal Connection Works for Stuttering. Retrieved from <http://www.stutteringhelp.org/content/human-animal-connection-works-stuttering-0>
- Vormbrock, J. K., & Grossberg, J. M. (1988). Cardiovascular effects of human-pet dog interactions. *Journal of Behavioral Medicine*, 11(5), 509–517.
<http://doi.org/10.1007/BF00844843>
- Wells, D. L. (2004). By Domestic Dogs. *Anthrozoös*, 17(4), 340–352.
- Wesley, M. C., Minatrea, N. B., & Watson, J. C. (2009). Animal-assisted therapy in the treatment of substance dependence. *Anthrozoös*, 22(2), 137–148.
<http://doi.org/http://dx.doi.org/10.2752/175303709X434167>
- Wilson, E. (1984). *Biophilia*. Harvard University Press.
- Wilson, G. (2016). Animal-Assisted Thearpy Dogs and Stuttering. Retrieved from <http://www.stutteringhelp.org/content/wonders-waverly>