# Animal Assisted Therapy in Communication Sciences and Disorders: The State of the Evidence

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- [Amy] And at this time it is a pleasure to introduce Dr. Sharon Antonucci, who's presenting Animal Assisted Therapy in Communication Sciences and Disorders, The State of the Evidence. Dr. Antonucci is a clinical researcher who has been working with those with aphasia and their families since 2001. She directs research and assessment and treatment of lexical retrieval impairment in aphasia, outcome measures for group aphasia treatment and animal-assisted treatment for people with aphasia. And you can read more about her on our website. So welcome Sharon, thank you so much for joining us today.

- [Sharon] Hi, thank you so much for having me and thank you to all of the participants for joining us today and for your interest in animal-assisted therapy, which is a true love of mine. And these are my disclosures. And our learning outcomes for today. As a result of the course, participants will be able to define animal-assisted therapy. Describe existing evidence regarding the impact of animals on speech, language, and cognitive treatment outcomes and identify gaps in the existing animal-assisted treatment evidence base. So the first thing that I wanted to do was just review some terms that are related but definitely distinct. And as you are working your way through the evidence base, particularly as a clinician, it will be important for you to have an understanding of what specific animal-assisted program was used for, or with the individuals you're reading about.

And so the first term that we'll talk about is animal-assisted activities. In animal-assisted activities, an animal and handler team provides enrichment. And so that can be really any number of things. The animal and handler teams are available to a variety of people for relatively spontaneous interaction. And so in this case, oftentimes there is no particular plan for the animal-assisted activity. The animal and handler will go into the environment, see who's interested in having an activity or engaging with the animal. It might be in the context of an individual session. It might be

in the context of a group session. Oftentimes the animal handler will not know who's going to be participating in the activities ahead of time. So there certainly are not any particular goals that are being addressed in the context of animal-assisted activities. And there's no real substantial documentation happening about the content of the activities. And so just some examples of what this might look like. Oftentimes animal handler teams will do visits in nursing homes or hospitals, and they'll plan for a group activity where everyone meets together and has an opportunity to visit with the animal, see what the animal can do, maybe pet the animal, help groom the animal. And sometimes it will be more of a room to room.

So the animal and his or her handler will stop into each room and see if the person in the room is interested in a visit. Many of us may be familiar with the library visits that animal-assisted activities, animal handler teams participate in, where children can take turns reading to the animal, for example. We're starting to see more and more visits to college campuses to help with stress relief for exams. Things like that. This is extremely different from animal-assisted therapy, which is clinician-provided service within that clinician's scope of practice. Client progress, in this case of course, towards individual clinical goals, is documented. Session plans, session timing is dictated by clinical practice.

And so really what this is is therapy, whether it is speech language therapy, occupational therapy, physical therapy, et cetera. It is a therapy session, just like any other, that includes the participation of an animal handler team. And that animal handler team may be separate individuals, a volunteer who has gotten certified with an animal-assisted therapy animal to join your session or the clinical session. It might be co-treating with another clinician who is also an animal handler. So, for example, in my facility we have a facility animal who is the animal of the recreation therapist and so she will do a lot of co-treating with speech pathologists, physical therapists, et cetera, to incorporate animal-assisted therapy. And then of course there is the option for the

clinician, him or herself, to be the handler of, that participates in that animal handler team. And so really, I think maybe one useful way to think about it is that animal-assisted therapy is a treatment method similar to any other technique. And the animals are present as, in some cases, communication partners, in some cases as communication facilitators. Certainly, obviously, live animals are not manipulables, they're not materials. They're partners in the therapy. And so animal-assisted therapy, by its very nature of being a treatment session, is not anything that we might use to describe animal-assisted activities.

So it's not a meet and greet. It's not a visit. It's not unstructured playtime with the animal. And of course it's not the animal as the clinician. The animal is our partner. We are the clinicians. It's also important to keep in mind that it's not therapy for the animal. To become an animal-assisted therapy animal, the animal has to demonstrate a number of skills and aptitudes and one of the most important things is that the animal needs to demonstrate an active interest in being around people. So animals that are shy or nervous, et cetera, are not gonna be good candidates for animal-assisted therapy. Animal-assisted therapy also is not support from a service animal. And this is also, I think, a critically important distinction. Sometimes service animals are involved in animal-assisted therapy sessions, but they're not serving as the therapy animal.

They have a very specific and explicit different function. And so a service animal, actually what a service animal is here in the States is defined by the federal government in the Americans With Disabilities Act. And a service animal is an animal that is trained to perform specific tasks for a specific individual with a documented disability. And so where a therapy dog or cat or any kind of animal is not necessarily trained to perform particular functional tasks and can work with a variety of individuals in the context of a clinician's treatment schedule, a service animal is an animal that is devoted to working with one individual with a documented disability. And I use that term work literally. Service animals are considered working animals, not pets. That

doesn't mean that they shouldn't be cared for and loved by their person like any other pet, but they are considered working animals. And that's often why you'll see people requesting that strangers don't approach a service animal while the animal is on the job, so that the animal isn't distracted from the job that it needs to be doing for its person. Service animals are the only kind of animals that are protected by law, relative to public access. So a service animal, for example, can be brought into a restaurant that wouldn't otherwise allow animals. An animal-assisted therapy animal does not have that protection or that right. Another difference is that per the ADA, dogs are the only animals, for the most part, that can be certified as service animals. Whereas animal-assisted activities, or animal-assisted therapy animals, can be a wider range of animals. Interestingly, there are separate provisions to certify miniature horses as therapy, excuse me, as service animals.

But by and large, a service animal will be a dog. So this is just a kind of a summary slide that I put together, looking at differences between animal-assisted activities, animal-assisted therapy and a service animal. So, in all cases, a trained and certified handler is required. Whether that person is a licensed clinician or the individual who is working with the service animal, will differ. In all cases, the animal should go through, and in many cases must go through, a certification and assessment process. As I mentioned, a variety of animals are candidates for animal-assisted activities and animal-assisted therapy. Less so for service animals. We are an animal-assisted therapy, targeting individualized goals. Providing detailed documentation of lesson plans and goal progress, et cetera. Whereas that's not required for animal-assisted activities. And then the only type of animal that has federally protected access rights are service animals. So just kind of a preview of the evidence that we'll be reviewing today. We're going to review some of the evidence on physical health effects, excuse me, both related to the human and the nonhuman animals. We'll look at some of the evidence related to the therapeutic effects that have been reported for individuals who participate in animal-assisted therapy. And in the cases where some

communication-specific effects were reported, we'll look at a summary or some examples of those. So I wanted to start actually with the animal-assisted treatment evidence related to general health and wellbeing for the nonhuman animal. And of course we can't do a talk about animal-assisted therapy without actually looking at some photos of animals. So I thought I would share photos of our animals. And so that's Maggie, the brown and white girl. The boy next to the truck is Colty. And the boy in the sweater is Hulk. And not only for our enjoyment, but also just to make the point that, to me at least, and I think to most, certainly many practitioners of animal-assisted therapy, the wellbeing of the animal who is involved is just as important as the wellbeing of the patient or the student. And so I wanted to spend a few minutes looking at some questions related to that.

Okay. So there's a quote that I think is, was important enough to render completely in this slide. And it had to do with an ethics article that explored what they called use versus exploitation in animal-assisted therapy. And the statement was to know for certain that X is not exploiting Y, merely, quote unquote, using Y. X must repeatedly make choices that substantively further Y's welfare, even when in conflict with X's own prudential motives. And this is something that we will come back to in much greater detail in next week's presentation. But I did think that it was important to bring up in the context of this presentation as well.

And one of the overarching questions that goes into thinking about whether an animal is appropriate to be certified in animal-assisted activities or therapy, is does the animal also benefit from the relationship? And I think that, and it's also been discussed in the literature, that there are differences in kind of level of appropriateness of the use of animals with more documentable and documented preferences and behaviors that we can observe, related to the animal's interest in being with us in the context of the activity. And that tends to be different for domesticated animals like dogs and cats, and to a certain extent horses, versus some of the literature involving, for example, the

participation of captive dolphins, monkeys, birds, et cetera. And so in terms of the trends in the literature that have looked at what the effect of participation in animal-assisted activities and therapy is on the animal participant, not surprisingly most of the work has been done with dogs, and this is something that we'll come up against over and over. There's a lot of variability in the literature relative to whether the animal was participating in an animal-assisted activity versus animal-assisted therapy. People have looked at physiological measures of the animal's kind of comfort and stress level. So looking at salivary cortisol levels to get a sense of the animal's stress level before and after the session.

Also looking at things like heart and respiratory rate, blood pressure, body temperature, et cetera. And then also there has been investigation of kind of the behavioral measures of relative comfort or relative agitation in the animal. Is the animal doing a lot of panting, even though it's not hot out? Is the animal doing a lot of walking around and kind of trying to move away from the humans in the session? And then, excuse me, also, some of the studies have looked at the effect of relative familiarity. So how familiar the animal was with the setting. Had they been there before? The level of comfort and familiarity they had with the handler, with the other participants in the sessions.

And then also duration and frequency. So how long were the sessions? Was the animal being given breaks from participation? How many times a week was the animal expected to participate in the sessions? All of these things had and can have an effect on the level of stress, the level of kind of tiredness, et cetera, of the animal. People have also looked at whether a live animal is really integral to animal-assisted therapy. So there, for example, been studies looking at the participation of a real animal versus the presence and interaction with a stuffed animal. A real versus robotic animal. And then also kind of in the virtual realm. Virtual nonhuman animal versus virtual human versus nothing. And it really seems as though the requirement, for lack of a better

word, or the benefit that is, that can be attributed to having the live animal present, is really dependent on the goals and the outcomes of the therapy or of the session. So, for example, whether one of the goals of the session is to facilitate a change in physiological response, for example a change in movement versus also social or communication goals that speech language pathologists might be interested in. Not to say that they're not interested in the others. And these remain open questions. This is a relatively small component of the AAT literature and I think that people are still, this is an ongoing topic for investigation, particularly for populations of patients where it's of interest to have the benefit, or some of the benefits of, a quote unquote, animal presence, in cases where it might not be appropriate to have the animal, a live animal present.

So now we'll turn our attention to the evidence related to humans and that the human participants involved in animal-assisted therapy sessions. And typically we're talking about the client wellbeing in general health, as opposed to the clinician or handler. So there's a fair bit of evidence across a range of evidence bases that there are physiological benefits to being in the presence of an animal, petting an animal for example, that include cardiovascular benefits, reductions in blood pressure, reductions in heart rate.

Certainly beneficial for our participants with cardiovascular disease, for example. And so we also see a mitigation of environmental stress responses, which are known to promote physical healing. There's also some evidence of neurochemical benefits. We see there's a number of papers that have shown an increase in participants in oxytocin, which is a neurochemical associated with feelings of bonding and social affiliation. Cortisol levels seem to be reduced again, so a mediation of stress response. And there's even some neuroimaging evidence that there's an increase in oxygenated blood flow, for example in the prefrontal cortex of people with clinical depression, in the presence of an animal and in the context of animal-assisted activities or therapy. And

then for a number of the studies that have not looked at physiological measures, but rather behavioral measures, most of those have focused on the psychosocial and affective benefits and effects of the animal interaction. And people have reported a reduction in apathy. Increased interest, for example, or motivation to participate in the treatment session. Reduced social anxiety. An increase in overall positive mood. And another quote that I thought was really critical and important enough to include as a direct quote, was there seems to be a fair bit of evidence that the presence of the animal can promote the preconditions for learning. So make people more ready to learn because anxiety is reduced. Motivation is increased. Self-consciousness is reduced, et cetera. Attention to the particular task at hand is increased. And so in a lot of the AAT literature, the animal's presence is really to serve as a social facilitator. There are, again, a number of open questions related to the specificity and the persistence of the effects.

And we'll be talking about this in a moment. The animal-assisted treatment evidence base definitely needs some work. And there has not been adequate control to determine whether any of the benefits that are being seen are associated with the animal, or are they associated with other factors that aren't specific to the animal. There has not been a lot of evidence related to whether the beneficial effects are relatively time-limited. There hasn't been too much study of followup. And also whether they are duration-dependent. So dependent on the length of the interaction, the number of sessions, et cetera. And so before we start looking at some more specifics related to the evidence base, I did just want to kind of point out some of the kind of generally agreed on limitations, just so that as again, you're working through the evidence for yourselves, you can kind of have these things in the backs of your mind. So small sample sizes. This is concern of much of the evidence that we, as speech pathologists, interact with. But sample sizes have been quite small. Typically we're looking at case studies or case series, as opposed to a large group. There's often a lack of blinding, meaning certainly the participants know whether they're participating

in animal-assisted therapy or not, as do the clinicians, as do the researchers. Oftentimes the person who's delivering the treatment or the activity is the same as the person who's doing the outcome assessment. A lack of consistent randomization of participants. Inadequacy, or complete lack of control groups or comparison groups. Selection bias. I think this is going to be inherent in any study of animal-assisted activity. There are only going to be a certain number of people who are interested in participating in animal-assisted therapy. And so there's, to a certain extent, a self-selection bias. And that can often lead to poor generalizability. There tend to be minimal reporting of reliability and validity tools, of the tools that are used to measure the outcomes.

Oftentimes attrition rates are under reported. Minimal reporting of treatment procedures. This is the one that struck me the most as I, many years ago, started delving into this literature. In a lot of cases there's very minimal specification of what the treatment activities and procedures were. And even more limited information about what the animal was doing in the context of the treatment. And then again, a lack of control for different confounds. Novelty effect, for example. So, in other words, does the affect of the animal kind of wear off over time as the person becomes more used to the animal being there?

Is there a placebo effect? And so I think a lot of these limitations are limitations that we, as speech language pathologists, and the evidence base in general, to which we have access, are probably reasonably familiar small sample sizes. Certainly for, as I mentioned. The one that I think is the most kind of impactful, relative to clinical practice and having a good sense of how to translate the evidence base into clinical practice, is the kind of, excuse me, the minimal reporting of the treatment procedures. That can make it very difficult to, for someone who's new to animal-assisted therapy, to really have a sense of how to incorporate it into treatment. But that is not to say that it is not worth doing and worth taking the time to do. It's just something to be aware of as you

delve into the literature, if it's a new literature to you. And so most of the research that would likely be most relevant to speech language pathologists has been done across kind of four main populations of individuals with communication disorders. And those are Alzheimer's disease, autism spectrum disorder, acquired brain injury and traumatic brain injury, where acquired brain injury is defined as typically they're groups that are mixed, people who've sustained traumatic brain injury and people who've had cerebrovascular accidents or strokes. And then people with a primary diagnosis of aphasia. Again, typically as the result of stroke. That's not to say that there isn't good literature relative to the benefits and the effects of animal-assisted therapy in medical care, or fine and gross motor skill.

But we are not going to be focusing on those today. And just to point out, this is definitely a non-exhaustive review. In the references handout I've given a number of references and resources, but again that's, it's certainly not an exhaustive list. And I just wanted to point out that one thing that is somewhat common across the different populations of patients and studies of animal-assisted treatment are the use of observational coding systems. So there's evidence of similar systems having been developed to study the effects of AAT with persons with dementia, with autism, and with acquired brain injury, that allow you to code for presence or absence of different kinds of verbal and nonverbal communication, physical movement, documentable observable behaviors associated with emotional state and behavioral information as well.

So we're gonna just start with some information about animal-assisted therapy and people with autism. Probably one of the earliest accounts of modern animal-assisted therapy came from Boris Levinson. He's kind of considered the father of modern animal-assisted therapy. He was a psychologist who was working with children who were considered, quote unquote, uncommunicative, in his home. And he one day left a client alone in the room with his dog Jingles, a client who had not been communicating

at all. And when he came back into the room the client was talking to Jingles and this really struck him and he actually made, one of his kind of missions in his career, became continuing to document and provide evidence for the utility of what he called pet therapy. In terms of trends in the literature, most, again, of the literature uses kind of the phrase in the presence of a therapy dog. And that's about the limit of what we get in terms of information about the actual therapy. But people have documented increases in social interaction, increases in verbal communication, both to and about the dog. Again, it's mostly dogs who are the animal in the research. Including increases also not only in verbal, but also nonverbal communication. Increase in number of times the person is smiling.

Amount of joint attention episodes. One report did increase, one study did report an increase in stereotyped behavior. And so this is important, we do have to look not only for potential positive or beneficial effects, but also potential less appropriate effects. And this is another theme that we'll touch on again and again. As with all populations, the details of the treatment procedures tend to be fairly underspecified. So it's difficult to know what exactly was done during the sessions. Another thing to keep in mind, and this also goes back to the use of those observational coding systems. Different studies will use different definitions of what constitutes, quote unquote, social interaction or verbal communication, et cetera. So it's also just important to keep that in mind as well.

Additional information. One study that I thought was quite interesting because they actually did do a good job of operationalizing or defining their outcome measures and their targeted behaviors, was a 2014 study that looked at the use of combined animal-assisted therapy and the social story method with individuals with autism. And I thought it was interesting and relatively novel to actually include an animal into a method, into another method that already had an evidence base. Moving on to people with dementia. Again, like much of the literature, inconsistent use of animal-assisted

activities versus animal-assisted therapy in the reported literature. But again, in terms of trends, we see reports of increases in both communication and what you might think of as coping behaviors. So reductions in behaviors associated with agitation. Positive changes in mood and social communication behaviors. Again, in the presence of the dog. And again, most of the literature has incorporated a dog into the sessions. Less kind of well-established is any potential effect on kind of standardized assessment of cognitive function or depression. Typically the assessment of cognitive function will be the mini-mental, which is really more of a screening tool than a full assessment. Something that's used reasonably frequently to assess depression is the geriatric depression scale.

And again, findings have been very inconsistent across the different reports relative to any benefits in cognitive function or alleviation of depression that might be present. There was another study that was done with people with dementia, people specifically with cognitive impairment who are living in an assisted living facility, where they compared activities with a dog handler team with reminiscence activities. And again, they were describing the procedures as activities as opposed to treatment. And they did see some positive outcomes, reduction in depression associated with animal-assisted activity and only animal-assisted activity.

A reduction in apathy in animal-assisted activity with an increase in apathy in the reminiscence activities. There was some evidence of an increase in ability to perform activities of daily living, those ADLs, in the animal-assisted activities group. Some benefits with respect to physical activity and agitation behaviors. And then in neither context was there any change in the medications that were needed for the individuals. Then we have people with acquired brain injury. Again, this is kind of a subset of studies where people who've sustained strokes are combined with people who've sustained traumatic brain injuries. And there've been a series of studies that have looked at these individuals and where behaviors have been documented relative to,

again, one of those observational coding systems that was developed. Typically, in this series of studies of animal-assisted therapy, it was animal-assisted therapy as opposed to activities, and AAT was compared to what they called conventional therapy. Our neurorehab. Most of the outcome measures were related to social competence and engagement. So again, less of a focus on cognitive or linguistic outcomes. And kind of a summary of the findings was that during animal-assisted therapy, relative to neurorehab without the animal, there were increases in positive behaviors and vocalizations. Decrease in kind of neutral behaviors. And no change in negative behaviors or vocalizations associated with emotions. But increases were seen in verbal and nonverbal communication and in treatment motivation and satisfaction, as determined by both clinician report and self report from the participants. If we move into the literature specific to people with traumatic brain injury, most of that literature has been done with people on active duty and also veterans, and have primarily looked at the animals and how they're able to provide anxiety and stress relief, both physiological and psychological, either in the context of the combat zone and also in the context of return to home.

Most of the studies involved service animals. So animals that, again, were trained to do particular jobs for a particular individual. And the animal was, once the animal and the individual were trained, lived with the person. There's been much less done with kind of therapy dogs than there has been with service animals in this population. And most of it has been done in the context of occupational therapy as opposed to speech language therapy. And again, sometimes there is actually use of, or incorporation of the service animal into therapeutic activities, as opposed to the separate use of an animal handler team that is certified in animal-assisted activities. And again, there is in the literature, there's more evidence of psychological and psychosocial benefits. There's some anecdotal evidence related to cognitive linguistic skills, but not really too much literature-based evidence. And then finally there have been a few reports of animal-assisted therapy being incorporated into treatment for people with stroke

aphasia. The first one was Adams who worked with one participant who was status post two CVAs plus dementia, with a diagnosis of nonfluent aphasia, plus apraxia, plus cognitive decline. With a primary treatment goal of correct word initiation. And it was reported that there were two dogs present during the treatment sessions. Limited information as to what the dogs were doing, but some description of the tasks that were employed for word initiation, which included use of WH questions about the dogs and a picture identification activity that incorporated pictures of dogs and daily life related to being with dogs.

And then also the use of carrier phrase activities used to interact with the dogs to give them commands or cues. And there was reported an increase in correct WH question responses and picture identification and an increase in the proportion of verbal relative to nonverbal social behaviors, which may be related to the fact that there was an increase in social opportunities to be able to communicate with the animal, as well as the humans in the room. There were no changes reported on the Boston Diagnostic Aphasia Examination.

So the kind of standardized aphasia battery. Next we have Macauley in 2006, who was looking at whether speech language, animal-assisted therapy is even effective for people with aphasia. Comparing it to, quote unquote, traditional therapy. And then also looking at self report of the participants with aphasia, relative to differences in their motivation and attitude. In this case we had three individuals who were status post left CVA, cerebrovascular accident, all of whom had chronic nonfluent aphasia and all of whom this was therapy. So there were specific linguistic goals. The treatment comparisons were traditional therapy, which was confrontation naming, with animal-assisted treatment. So confrontation naming plus carrier phrase practice, with cuing to and communication with a Pet Partners-certified dog. So a certified animal-assisted activities and therapy dog. So, again, no change in the standardized aphasia battery, in the Western Aphasia Battery, but participants did meet their specific

language goals in both treatments, and patient responses relative to client satisfaction indicated that the patients believed that they achieved greater progress during AAT and reported greater motivation to attend treatment when the dog would be present. And then there were anecdotal findings of reduced effortfulness of language output when communication was directed to the dog, versus when it was directed to the clinician. And there was also a trend toward an increase in spontaneous communication, again directed to the dog. And then lastly is LaFrance from 2007, this was a case study with a gentleman status post CVA with chronic nonfluent aphasia and poor auditory comprehension. This is an example where there's very minimal evidence of, or report of what actually happened during the therapy, because all of the data that were collected actually were collected after the animal-assisted therapy session had ended, during an accompanied walk back to the ward that the person was in. And so they observed overt social, verbal and nonverbal behaviors of the participant in several contexts during this walk back from the therapy.

So they compared a walk without the dog animal handler team to a walk with just the handler, to a walk with both the dog and the handler. And the results indicated that in the presence of the dog handler team, relative to the other conditions, there was an increase in overt communicative behaviors, an increase in positive mood or what was termed cheerfulness, and also an increase in the number of opportunities. So, for example, and any of us who have a dog probably have experienced this. During walks back with the team, where the animal was included, not only did the person have the opportunity to communicate with both the dog and the handler, but also people, other people who were passing by in the hallway would stop and want to talk to and about the animal. And so an increase in opportunities to practice communication and to have positive communication experiences relative to walking back just with humans. So I think kind of the trends that we're seeing in this literature is that in the context of animal-assisted therapy, people with aphasia improve their performance relative to targeted behaviors. Linguistic or non-linguistic. There has been no report of change

and performance on standardized aphasia batteries. And as in most of the literature, the treatment procedures really are under specified, making it difficult to replicate the findings. And so I think in summary, there's a fair bit of evidence kind of generally about animal-assisted therapy and cognitive linguistic neurorehab, with less attention to cognitive linguistic outcomes relative to motivation, positive mood and satisfaction with treatment. Much more, again, related to psychosocial and affective increases in the context of AAT, speech language pathology services, reductions in apathy, social anxiety and positive mood, all of which can lead to an increase in willingness to communicate and practice communication attempts and targets. And so, excuse me. And so the animal really can act as a social facilitator, as we saw in the last study, in the LaFrance study.

Animal definitely, in many cases, acts as a primary communication partner, which is great. And then also as a motivator to participate in treatment activities and to participate in communication opportunities. Just a word about evidence-based practice and ASHA. There are really very limited ASHA resources at this point or ASHA kind of reviewed information. As of when these slides were made at the end of September of this year, there were no practice policy statements forthcoming from ASHA about animal-assisted therapy. And there are no, at this time, animal-assisted treatment-specific evidence maps.

But hopefully over time that will start to change. And then the final thing that I wanted to demonstrate was, or to give some resources of places that you can go to find the literature, and literature that's publicly available for clinicians who no longer, for example, have access to, to university libraries subscriptions. And then I also have included some useful keywords to include in your evidence searches. Some of the more commonly used terms for describing and coding animal-assisted therapy reports. So I thought I would just briefly show you three public websites, Pub Med, the NIH Reporter, and then clinicaltrials.gov. So if we could actually go to a screen share, I can

just briefly show you those websites. So here we're looking at Pub Med and any piece of work, any study that has been funded by the federal government, including the National Institutes of Health, has to be made publicly available. It was paid for with tax dollars so it has to be made available to the taxpayers. So you can go to Pub Med and, for example, put in an animal-assisted therapy keyword search. And you will get all of the studies that include that keyword either in their title or their keywords, et cetera. And you can sort by year, of course. You can sort by only those where the full text is freely available. So this can be a great resource for finding articles that describe the evidence for animal-assisted therapy.

And many of you may already be aware of Pub Med. What might be less familiar is the NIH Reporter and using the NIH Reporter which is again, a free public-facing website that you can use to find any NIH-funded grants that have either been funded in the past, or that are currently funded. And you can search by principal investigator. So if you're interested in funding of a particular researcher who you know is doing animal-assisted therapy, you can just put in a text search, again for keywords, and you will get all of the grants that have been funded that target animal-assisted therapy. I do recommend that you be careful to make sure that you're using animal-assisted or animal-facilitated in your text searches, or you will come up also with grants that have been funded that are doing testing on animals. And then if you're specifically interested in clinical trials, you can also do the same kind of searches at clinicaltrials.gov. So any clinical trial that is going on needs to be, again, reported, and you can search for what is happening in the clinical trial, what stage the clinical trial is at, et cetera. So hopefully those are useful. There's my girl again. Those are going to be useful resources for everyone. And then that's really it. I'm definitely happy to take any questions that anyone has. I think there might be a couple.

- [Amy] Let's go ahead and take the questions. Let's see, Lisa Maria is asking, does the literature talk about whether outcomes were better when AAT was introduced closer to

injury? So, for example, AAT introduced one week after a TBI or stroke in inpatient setting, versus one month later in outpatient setting.

- [Sharon] That's an outstanding question, thank you for asking. The vast majority of the literature is, if we're talking about neurorehab, is in chronic individuals. There's much less evidence with respect to acute care or peri-acute care. And I am not aware of any study where they've compared the timing of the introduction of the AAT, chronic versus acute. But that's actually a really great idea and hopefully some of you will also be able to start contributing to the animal-assisted therapy literature.

- [Amy] Okay, great, thank you for that clarification. Let's see, Rachel is asking, what are the steps you take to begin the journey to use a dog for animal-assisted therapy? And I have a feeling this is what is going to be covered next week.

- [Sharon] Yes. So please do stay tuned. Next week we'll be talking all about that process. But just briefly, you need to consider whether the animal that you're thinking about is appropriate for animal-assisted therapy. Whether they would actively enjoy and engage and benefit from animal-assisted therapy. And then going through, I strongly recommend going through the process of getting certified as an animal handler team. There are a number of outfits, for lack of a better word, and programs that you can go through to do that. And it involves some training and some assessment of you and your animal. And then just making sure with your facility that animal-assisted therapy is something that they are willing to allow. If you're not working, for example in private practice out of your home. But much, much more on that next week.

- [Amy] Great, thank you. And then do you plan on touching on hippotherapy at all next week?

- [Sharon] I will be talking a bit about hippotherapy, especially in the context of the certification process. So yes, thank you. But again, most of the literature and most of the practice is with smaller animals. But yes, a little bit on hippotherapy. Thanks for bringing that up.

- [Amy] All right, thank you. And then one last question. Does the literature identify any outcomes related to dementia and the GDS level of the patient?

- [Sharon] Again, the reporting tends to be somewhat minimal, especially in the context of any group reports. So in terms of kind of how, where the person is in their progress of decline. Certainly to be appropriate and safe to participate in animal-assisted therapy, the individual does need to be not having active, violent, aggressive outbursts, for example. And needs to be oriented enough to be safe in the context of animal-assisted therapy.

- [Amy] Great, thank you for that. And we will go ahead and wrap it up there for today. If you are unable to join us next Tuesday, I believe it will be at 3:00 P.M. Eastern. If you're unable to join us live next Tuesday, please know that the recorded course will be available either one to two days typically after. So you will be able to take the recorded course with no problems. So thank you so much Sharon for joining us today and sharing your expertise, it's very interesting. I'm hoping that by doing these types of webinars that it gets it out there and, like you said, that ASHA starts to not only recognize, but provide some more guidance for us and we really appreciate you sharing your knowledge with us today.

- [Sharon] Absolutely, it was my pleasure. Thank you for having me.

- [Amy] All right. So let's go ahead and feel free to log off at this time. We certainly appreciate everybody joining us today and look forward to seeing you again soon. Take care everyone.