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POTENTIAL IMPACTS OF ART THERAPY TECHNIQUES TO IMPROVE SPEECH  
PRODUCTION IN INDIVIDUALS WITH DYSARTHRIA

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## ABSTRACT

Dysarthria is a type of motor speech disorder resulting from neurological damage. People with dysarthria often experience negative emotions and limited communicative participation. Current treatment techniques for dysarthria often solely focus on addressing speech-motor control challenges. However, people with dysarthria identify issues with this approach including speech therapy not addressing the entire range of communication issues and activities being not engaging which limits its adherence in daily lives. This paper offers art therapy techniques as an alternative to create engaging speech activities, treat whole communication challenges, and help manage negative emotions for individuals with dysarthria to improve speech production. The integration of art therapy techniques may better support speech-language pathologists to create and enforce treatment plans that focus on bettering the client's mental, physical, and emotional state and follow the International Classification of Functioning. This paper will examine the potential impacts of art therapy techniques to improve speech production in individuals with dysarthria.

## TABLE OF CONTENTS

LIST OF TABLES .....	iv
ACKNOWLEDGEMENTS .....	v
Chapter 1 Characteristics of Dysarthria and Current Treatments.....	1
Types of Dysarthria.....	2
Current Models of Treatment of Dysarthria.....	5
Limitations of Current Dysarthria Treatments .....	6
Chapter 2 Art Therapy as a Potential Tool in Dysarthria Treatment.....	9
Theoretical Reasoning.....	14
Chapter 3 Link to Speech and Communication Outcomes.....	17
Modifications .....	21
Chapter 4 Conclusion .....	23
Future Discussions .....	24
BIBLIOGRAPHY.....	26

**LIST OF TABLES**

Table 1. Types of Dysarthria .....3

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## Chapter 1

### Characteristics of Dysarthria and Current Treatments

Dysarthria is a term used to describe a collection of neurogenic speech disorders that are characterized by "abnormalities in the strength, speed, range, steadiness, tone, or accuracy of movements required for breathing, phonatory, resonatory, articulatory, or prosodic aspects of speech production" (Duffy, 2020, p. 3). It is common in the presence of a neurological disease (Walshe & Miller, 2011) and various neurological conditions result in dysarthria, such as cerebral palsy, amyotrophic lateral sclerosis (ALS), multiple sclerosis (MS), Huntington's disease, and Parkinson's disease (American Speech-Language-Hearing Association, n.d.-a). As of 2020, dysarthria is the most frequently diagnosed acquired primary communication disorder and accounts for 53% of all reported acquired neurogenic communication disorders in healthcare settings (Finch et al., 2020). Dysarthria symptoms and signs encompass perceptual speech qualities as well as physical indications that vary depending on the type and severity of dysarthria.

Overall, dysarthria has a significant impact on the individual and their families since social interactions and personal expression are closely linked to communication (Enderby, 2013). In a study done by Dickenson et al. (2008), over half of 24 participants with dysarthria expressed negative self-identity changes due to their speech disorder. Because of their restricted communication skills, such individuals are at risk of social isolation. In children, a lack of effective communication due to dysarthria may give rise to frustration, emotional and behavioral challenges, and impede access to learning and appropriate socialization. In summary, reduced

communication abilities attributed to dysarthria can have severe repercussions. These include changes in sense of self, relationships, emotional and social disturbances, and feelings of stigma or perceived stigma. If these symptoms are not treated, they are likely to have a significant negative impact on the individual's "long-term health and social wellbeing" (Enderby, 2013, p. 3). This paper will explore the importance of techniques in which speech-language pathologists can work collaboratively with other professionals, specifically art therapists, to help treat social and emotional disruption along with speech in people with dysarthria.

### **Types of Dysarthria**

There are seven main types of dysarthria; ataxic, flaccid, spastic, hyperkinetic, hypokinetic, unilateral upper motor neuron, and mixed. Table 1 offers a brief review of each type, their neurological origin, and some of their behavioral characteristics. Ataxic dysarthria is primarily due to cerebellar dysfunction. Common speech characteristics include a lack of coordination in the jaw, face, and tongue. Perceptual characteristics most commonly arise in "slurred" speech that is difficult to understand, slow speaking rate, breathy or hoarse voice, loudness, hypernasality, and unusual intonation patterns. The severity of dysarthria mainly impacts the intelligibility of people with dysarthria. Flaccid dysarthria is associated with the impairment of lower motor neurons. Insufficient lip seal, irregularity of lips and tongue at rest, poor alternating movements of tongue, and decreased phonation time are common characteristics (Enderby, 2013). Spastic dysarthria corresponds with damaged upper motor neurons linked to the motor areas of the cerebral cortex. It is distinguished by hypernasality, poor control over speech volume, reduced elevation of the palate, slow speech rate, and poor intonation (Enderby, 2013).

Hyperkinetic and hypokinetic dysarthria are related to an issue of the extrapyramidal system. Hyperkinetic describes a range of characteristics attributed to involuntary movements that disrupt the rhythm and timing of motor activities that often appear as facial tics, voice tremors, and inconsistent articulation (Banter Speech & Language, 2022). Hypokinetic dysarthria is frequently associated with Parkinson's disease. Limited facial expression is often described along with difficulty in initiating speech and limited range of movements (Enderby, 2013). Voice is reported as soft with mono-pitch (Banter Speech & Language, 2022). The sixth type is referred to as mixed dysarthria and is linked to many areas of injury, resulting in speech characteristics that are shared by at least two groups (Enderby, 2013). Unilateral upper motor neuron dysarthria is caused by damage to upper motor neurons that supply spinal and cranial nerves involved in speech and is characterized by strained voice quality, reduced loudness, and slow rate of speech (Banter Speech & Language, 2022) which is similar to spastic dysarthria.

**Table 1. Types of Dysarthria**

<b>Type</b>	<b>Cause</b>	<b>Common voice/speech symptoms</b>
Ataxic	Cerebellar dysfunction	Lack of coordination in jaw/face/tongue, unusual intonation patterns, slurred speech
Flaccid	Lower motor neuron impairment	Insufficient lip seal, irregularity of lips and tongue



		at rest, decreased phonation time
Spastic	Upper motor neuron damage	Hypernasality, slow rate, poor intonation, poor speech volume control, reduced palate elevation
Hyperkinetic	Damage to basal ganglia	Tics of face and tremors, voice tremor, intermittent hypernasality, inconsistent articulation
Hypokinetic	Damage to basal ganglia	Limited facial expressions, soft/mono-pitch voice, monoloudness, difficulty initiating speech
Mixed	Two or more dysarthrias (e.g. flaccid-spastic or ataxic-spastic)	Mix of symptoms from different types
Unilateral Upper Motor Neuron	Damage to upper motor neurons that supply spinal and cranial nerves involved in speech	Strained voice quality, reduced loudness, slow rate

The current model for identifying dysarthria centers on a perceptual categorization method (American Speech-Language Hearing Association, n.d.-a). This method is mostly based on the auditory perceptual qualities of speech, which indicate the underlying pathology. The perceptual features are utilized to characterize dysarthria and, when combined with pathophysiological data, can aid in identifying an underlying neurologic disorder (American Speech-Language Hearing Association, n.d.-a).

### **Current Models of Treatment of Dysarthria**

According to current American Speech-Language and Hearing Association or ASHA standards, dysarthria treatment is personalized to assist an individual in achieving the highest level of independent function for involvement in everyday living. Treatment for dysarthria focuses on improving communication efficiency, effectiveness, and naturalness and enabling "functional communication between the speaker and their listeners" (American Speech-Language Hearing Association, n.d.-a, p. 1). There are two main intervention strategies utilized in current practice: restorative and compensatory. Restorative intervention focuses on improving speech intelligibility, prosody, naturalness, and efficiency through targeting the function of the speech production subsystems. The central focus here is on maximizing intelligibility in spoken speech. In contrast, compensatory intervention sets out to increase a person's engagement in activities by improving functional communication (American Speech-Language-Hearing Association, n.d.-a). Functional communication refers to a person's ability to give or receive a message in the context of their everyday life successfully and independently, regardless of mode. Examples of compensatory intervention in speech communication include controlling environment for more

successful communication such as having a conversation in a quiet place, facing the communication partner, and using keywords to inform the communication partner of context to reduce communication breakdowns. This is consistent with ASHA's requirement that professionals must plan and conduct therapy in a way that follows the International Classification of Functioning (ICF). The ICF is a definition of health and health-related issues for children and adults created and published by the World Health Organization in 2001. The World Health Organization defines "health" as a person's whole physical, mental, and social functioning, rather than the absence of sickness. Using the ICF framework, goal setting should consider how a health condition affects an individual's daily activities and participation. SLPs rely on this approach to establish goals and organize treatment (American Speech-Language-Hearing Association, n.d.-a). Because dysarthria can lead to increased social isolation from communication breakdowns from decreased speech intelligibility and fatigue, this framework is all the more necessary. The state of the evidence on the effectiveness of current interventions will be reviewed later in the paper.

### **Limitations of Current Dysarthria Treatments**

Despite current treatment strategies, speech therapy for individuals with dysarthria has some limitations. The first limitation comes from how individuals feel about their treatment, goals, and its efficacy. Although recognizing how individuals feel about any therapy is an important aspect of patient-centered care, there is little research on patient perceptions on dysarthria treatment. Yorkston et al. (2017) interviewed patients with dysarthria secondary to Parkinson's Disease (PD) - a progressive neurological disorder that affects movement- before

treatment and 6 months later to better understand their perspectives. Through patients' feedback, three main areas of improvement for treatment were identified.

The first area was how treatment did not address some patients' concerns about communication. One patient in the study described this: "There's more to me than my voice" (Yorkston et al., 2017, p. 5). Participants noted that, while the speech exercises were useful as a tool for improving their speech, they were insufficient to address the whole range of communication issues they were facing. One of the most significant shortcomings in therapy was the lack of attention given to the impact of changes in communication other than speech intelligibility (cognition, communication partner education, etc.). They also voiced a desire for additional tools, essentially more techniques to manage speech. This theme is consistent with arguments made by Brady et al. (2011), who discussed that there should be evaluation of the quantity and character of unobtrusive, internalized cognitive processes that people with dysarthria engage in to enhance their communicative efficacy (Brady et al., 2011). In this fashion, traditional methods that solely address the speech impairment in dysarthria are less effective because of the neuromuscular issues along with the psychosocial repercussions, which include low self-esteem and social isolation (Wilk et al., 2010).

The second concern the patients voiced was that therapy programs/activities were not enjoyable. The majority of participants disliked multiple aspects of the program, most notably the speech exercise routine, which they found not interesting. However, a patient noted that "the part I liked best is the conversation part . . . that's actually using speech and being heard in a meaningful sense" (Yorkston et al., 2017, p. 4). As with Brady et al. (2011), authors wrote that programs, materials, and targets that are "challenging, functionally relevant, and patient-focused"

are more likely to be viewed as meaningful and useful by the patient, and hence more likely to ensure adherence to recommended rehabilitation plans (Brady et al., 2011, p. 16).

The final section highlighted how patients found it difficult to retain progress once therapy ended. There were numerous reasons for stopping practice, notably feeling self-conscious, being overwhelmed, and questioning the efficacy of the routines (Yorkston et al., 2017). These negative feelings could be attributed to the feedback given in the above paragraphs. Their identified desires prior to receiving treatment were to improve speech in any form, develop strategies to cope with the ongoing issues, and become more confident living with their dysarthria. The patients' objective of focusing on communication is mismatched with the treatment's goals focusing primarily on improving speech intelligibility. This inconsistency between patient and SLP could impact the patient's motivation to continue therapy. The authors point to the importance of reinforcement of various tools.

Aside from patient perceptions about treatment for individuals with dysarthria, there is also discussion of its efficacy. A recent systematic review concluded that there is insufficient evidence to guide the treatment of patients with non-progressive dysarthria (Finch et al., 2020). The study sought to comprehensively examine the current level of evidence in the treatment of non-progressive dysarthria. The screening procedure yielded 21 papers in all. They found that most popular method for monitoring treatment effects was in the form of speech intelligibility, either via a formal assessment like the Assessment of Intelligibility in Dysarthric Speech (ASSIDS or AIDS) or listener judgments at the sentence or word level. Even though intervention had a statistically significant immediate effect at an impairment level, the authors noted that there was inadequate evidence to evaluate if treatment was any better than general support or no intervention (Finch et al., 2020). Outcome measures often focused on an impairment level of

functioning as opposed to activity or involvement levels. The authors indicated that activity and participation level outcome measures should be included with impairment-based measures to guarantee that the impacts of treatments across all ICF domains are properly treated and recorded (Finch et al., 2020). This serves as a reminder that intervention's goal is not only to improve speech quality. Speaking must be considered in the larger social context of communication.

Due to the limitations of current dysarthria treatment, art therapy techniques are offered to better align speech treatment with the ICF model and patient objectives. Art therapy techniques could provide supplemental means to offering engaging speech activities, treating overall communication difficulties, and helping individuals with dysarthria manage negative emotions to improve speech production. Working with art therapists' techniques may help SLPs create and implement treatment plans that focus on improving the individual's mental, physical, and emotional health while adhering to the ICF. This paper will investigate the potential benefits of art therapy techniques for improving speech production in people with dysarthria.

## **Chapter 2**

### **Art Therapy as a Potential Tool in Dysarthria Treatment**

According to the American Art Therapy Association, art therapy is defined as a collective mental health and human services profession that enhances the lives of “individuals, families, and communities through active artmaking, creative process, applied psychological theory, and human experience within a psychotherapeutic relationship” (American Art Therapy Association, 2022, p. 1). The American Art Therapy Association (AATA) is clear about the often “inaccurate” use of the term art therapy and the precautions professionals should take when

learning to integrate art therapy techniques into their profession. With this in mind, the AATA advocates outreach to individuals and/or businesses who may be identified as incorrectly classifying activities (such as trainings provided by non-art therapists) or products (i.e. adult coloring books) as "art therapy" (American Art Therapy Association, 2022). To ensure that SLPs are utilizing art therapy techniques and products correctly, training must come from a registered art therapist. This could come in the form of a training program or from working across or alongside an art therapist.

Art therapy is used to strengthen cognitive and sensory-motor processes, build emotional resilience, stimulate insight, enhance social skills, minimize and resolve disputes and distress, and advance societal and ecological transformation. Through integrative means, it engages the mind, body, and spirit in ways that verbal speech alone does not. Kinesthetic, sensory, perceptual, and symbolic opportunities offer alternate ways of receptive and expressive communication that can work around limits in speech or language (American Art Therapy Association, 2022). Art therapy is becoming increasingly prevalent in therapeutic settings because it offers a "recovery-oriented, person-centered approach" that includes spiritual, emotional, social, and clinical demands (Shukla et al., 2022, para 1). This approach fits into ICF goals of ensuring treatment is individualized to the client's needs and daily life activities. The use of the arts in healing does not conflict with the medical perspective by including emotional, somatic, creative, and spiritual components into learning. Rather, it supplements the biomedical viewpoint by emphasizing not only illness and symptoms, but "the holistic nature of the person" (Stuckey & Nobel, 2010). For the purpose of this paper, the most pertinent studied benefits of art therapy include mental health, self-esteem, psychosocial distress, and communication outlets.

In terms of mental health, art therapy is most typically utilized to treat mental illnesses and can help reduce symptoms associated with psychosocially disruptive behaviors. A 2010 review of research on art therapy for individuals with mental illness illustrated it as a possible low-risk and high-benefit method to reduce symptoms and increase functioning (Stuckey & Nobel, 2010). This paper examined how artistic expression as a healing process has been employed within both clinical and informal settings to encourage mental well-being and recovery (Stuckey & Nobel, 2010). Seven visual art therapy studies ranging from 2003-2007 were summarized in the systematic review. The study population were people with a chronic illness or trauma, most commonly a cancer diagnosis, along with a mental disorder. At times, depleted mental health such as in the forms of anxiety and depression can emerge with a diagnosis of a condition such as dysarthria (Shukla et al., 2022). Variabilities measured included well-being, depression, stress, anxiety, and psychological variables. A summary of each study's findings includes reductions in stress/negative emotions/depression trends/fatigue, improvements in self-identity/social networks/focus on positive life experiences (Stuckey & Nobel, 2010). In one example of a randomized control trial by Ciasca et al. (2018), patients used available techniques including drawing, painting, clay modeling, weaving, and collage making to connect with feelings and cope with challenges. The randomized, single-blind experiment discovered that implementing art therapy for people with stabilized and medicinally treated major depressive disorder reduced depression and anxiety symptoms (Shukla et al., 2022).

Art therapy can also be utilized to treat psychosocial distress. Psychosocial distress is described as the negative feelings or psychological symptoms that an individual experiences, which lowers their quality of life. In a 2023 systematic review, healthcare professionals' psychosocial distress and burnout were addressed through art therapy-based interventions



(Tjasink et al., 2023). The systematic review evaluated 1,580 participants across 27 studies. Any visual art medium (such as collage, painting, drawing, and clay modeling) employed therapeutically by a qualified professional was considered for inclusion. Across the studies, qualitative data illustrated effects were most beneficial across three categories, stress relief, facilitation of expression and/or processing of emotion, and increased connection with colleagues. During art therapy, some persons explored their interpretations of the past, present, and future, incorporating and giving a purpose to their life experiences (Stuckey & Nobel, 2010). Participants expressed an appreciation for sharing in the art therapy's safe environment (Tjasink et al., 2023).

Art has also been argued to improve self-esteem through offering people skills that can be learned and mastered. Art fosters creativity and an understanding of task preparation and execution (Shukla et al., 2022). Through this, it promotes a sense of independence and the satisfaction of using creative ability and mental capability to create results that one values and wants to share with others (Shukla et al., 2022). Many people with dysarthria have a coinciding neurological condition and are progressively losing skills. Art therapy could provide an outlet to work through negative emotions and gain new skills. To foster self-esteem, individuals first need a safe and comfortable environment to express themselves and share personal information. Standard therapy can also seem uncomfortable to people who have difficulty expressing themselves through words (Dow, 2008). Art therapy allows the attention of the therapeutic environment to be on the art rather than on the client. Therefore, the artwork serves as a vessel for emotions that are too difficult or uncomfortable to communicate verbally. This allows a person to separate themselves from their surroundings and share more with others than otherwise without it (Dow, 2008). Heenan (2006) investigated the impact of art therapy on self-esteem.

Prior to the study, twenty participants aged 18-55 reported low self-esteem and difficulty communicating effectively. An art teacher led art therapy sessions, focusing on the therapeutic value of the process rather than the aesthetics of the artwork. Heenan used discussion groups and interviews to identify themes from participants. The study found that participants had increased "self-esteem, confidence, and empowerment" at the end of the 10-week session through thematic analysis of transcribed interviews (Dow, 2008, p. 22). The participants stated that creating art provided them with a method for expressing themselves without using words and allowed them to share their emotions with the rest of the group members. Participants also reported feeling less stressed and anxious when working on their artwork. As described, feeling competent is strongly linked to one's self-esteem and art therapy can provide meaningful skills to master (Dow, 2008). Art therapy can help individuals express themselves with confidence, enhance their mental well-being, and strengthen their interpersonal relationships (Shukla et al., 2022).

Art therapy has also already been utilized for different diagnoses in speech therapy (Ostroski et al., 2011), although as noted earlier and considered further in the Discussion, SLPs will need to work collaboratively with certified art therapists in order to maintain their scope of practice. For example, a case study was conducted to investigate the effects of the therapeutic process and the creation of art with a patient with Frontotemporal dementia. This was accomplished through art therapy techniques (painting, music, dancing) used in speech therapy sessions appropriate to the "verbal and nonverbal expressions and a greater understanding of the patient's inner world" (Ostroski et al., p. 1). The findings measured by a theoretical and methodological perspective demonstrated that speech with art therapy may strengthen comprehension and expression for patients with dementia caused by a fronto-temporal injury. Improvements were also seen in physical mobility and balance, perception of the body, muscle

relaxation in oropharyngeal mobility, and enhanced communication between the clinician and client (Ostroski et al., 2011). The improvements made in muscle relaxation and oropharyngeal ability may have implications that may be transferred to individuals with dysarthria in speech therapy. Autism diagnoses are also being explored to being treated with art therapy.

### **Theoretical Reasoning**

The theoretical reasoning as to why art therapy techniques could be beneficial in dysarthria treatment is cognitive top-down processing. Cognitive processing refers to how our brain receives, processes, and responds to information from our surroundings. There are two primary types of cognitive processing: top-down and bottom-up. Bottom-up processing is the brain's means of evaluating "raw sensory data," beginning with the most basic or lowest level of sensory input. It is a data-driven process in which perception starts with the stimuli (Maddox, 2023, p. 1). Current speech therapy for patients with dysarthria focuses on a "bottom-up" approach (Wilk et al., 2010). Activity examples include guidance in moving the lips and tongue more, talking louder, or improving breath support (American Speech-Language-Hearing Association, n.d.). Art therapy demonstrates the "top-down" approach to therapy for individuals with brain damage, supporting and enhancing typical neurorehabilitation methods (Wilk et al., 2010).

Top-down processing differs from bottom-up processing in that it begins with a bigger concept or idea rather than sensory information. It is driven by cognitive processes such as memory and expectation, and it frequently entails interpreting information using prior knowledge and assumptions (Maddox, 2023). In therapy, the starting point is at a higher-level function the

patient can do as opposed to directly trying to manage the speech production. The top-down technique demonstrated by art therapy involves providing a strong stimulus to speak, as well as a route to circumvent the “block” and generate positive-feedback loops, which improves the performance of the speech mechanism. Through this approach, the musculoskeletal system is indirectly stimulated via higher cognitive capabilities. So, even when language functions are not the focus of therapeutic intervention, art therapy could help individuals with dysarthria speak more clearly (Wilk et al., 2010).

With art therapy, the implication is that its top-down processing component has the potential to improve speech performance and intelligibility along with providing compensatory strategies to tackle broader communication goals. Art therapy techniques can also possibly be utilized to increase motivation in individuals, as meaningful activities are given as communication practice and emotion management. Borrie et al. (2022) illustrates the importance of the relationship between communicative participation and intelligibility in the context of dysarthria. With 32 participants, they evaluated the causal association in the World Health Organization's ICF, Disability, and Health (IGF) framework, connecting acoustics, intelligibility, and communicative participation in dysarthria. Through mediation analysis, they observed a "strong relationship between articulatory precision and intelligibility and a moderate relationship between intelligibility and communicative participation" (Borrie et al., 2022, p. 1). The data suggested a strong link between articulatory precision and communicative participation, which was mostly mediated by intelligibility. The statistical validation of their causal instantiation of the ICF model with articulatory acoustics contributes significantly toward the formation of a complete causal framework to comprehend and eventually address restricted communicative engagement in dysarthria (Borrie et al., 2022). Relating back to the ICF model, art therapy could

align more than current dysarthria therapy techniques and strengthen the link between communicative participation and intelligibility.

## Chapter 3

### Link to Speech and Communication Outcomes

Dysarthria can have a substantial psychological and social impact on the individual themselves, as well as his or her family and caregivers (Walshe & Miller, 2011). Acquired dysarthria can have a significant impact on the lives of speakers. Walshe and Miller's qualitative study interviewed eleven people who have had dysarthria for at least 6 months and living at home to examine the speaker's experience of living with acquired dysarthria. Data was recorded via the thematic framework. The findings indicate that living with dysarthria is highly individual. However, there were several points of view that were shared among speakers. Six significant themes resulted from the interviews: "dysarthria as only part of the picture," "communication has changed," "people treat me differently," "dysarthria resulting in negative emotions," "barriers to communication," and "life is different now." All participants emphasized the need to consider dysarthria in context and the impact of co-existing physical handicaps (Walshe & Miller, 2011).

Principally, the speaker's perspective on the disorder's psychological consequence is critical for overall assessment and care. Furthermore, intelligibility reduction has been found to be "strongly correlated" with the psychosocial impact of dysarthria via the (DIP) Dysarthria Impact Profile (Atkinson-Clement et al., 2019). Hence, the level of intelligibility impairment was closely comparable to the DIP score. Art therapy could address the psychosocial impact related to intelligibility. As described in previous sections, art therapy is used to treat mental wellbeing, including stress and depression symptoms with a chronic condition. From Atkinson-Clement et al. (2019), treating the psychological impacts of dysarthria could inadvertently improve speech

intelligibility. Through art therapy techniques, speech therapy could address intelligibility as well as patient's requests for addressing "dysarthria as only part of the picture."

Art therapy has also been found to evoke positive psychosocial effects in its participants with dysarthria. In Wilk et al. (2010), researchers used art therapy in conjunction with speech therapy with children with cerebral palsy and intermediate or higher-level dysarthria. The goal of the introduction of art therapy was to elicit the necessary mental state in the patient, which was characterized by openness, a sense of play, and a desire for self-expression (Wilk et al., 2010). This assumed that any advances in art therapy would be applicable outside of the therapy setting. To give the children functional practice with speaking, spectators were brought in to comment on and engage with the art pieces. After art creations were made, the public was invited in a supportive and positive atmosphere to listen to the children describe their art. The task of explaining how and why the piece was developed appeared to assist them in breaking down the barrier between visible impairment and a sense of personal accomplishment. The art therapy and the finished pieces provided a therapeutic opportunity to express themselves without the focus on disability. As opposed to only engaging with the speech therapist or other peers in the group, the children were able to communicate and express themselves without feeling self-conscious, as is the case with "conscious participation" in speech therapy (Wilk et al., 2010). To guarantee that the impacts of interventions across all ICF domains may be effectively captured, "activity and participation level outcome measures" should be included alongside impairment-based measures" (Finch et al., 2020, p. 10).

Art therapy offers a means for emotional expression and positive criticism and engagement. Its implications are demonstrably psychotherapeutic, which benefits not only psychological stress but also physical tension (Wilk et al., 2010). This physical tension in the

speech mechanism, body, and mind comes in the form of anxiety. Anxiety can impair both the cognitive and physical aspects of speaking. When a person becomes anxious, the muscles of the jaw or face tighten, which may affect speech. An increase in muscular tension may make it more challenging for the tongue and mouth to form words in a clear, succinct manner because the pharynx and oral cavity must move in specific motions for sounds to resonate correctly (Wilk et al., 2010). Mudrenko and Kolenko (2021) conducted a study to investigate the levels of depression and anxiety in individuals with various types of dysarthria and without severe movement disorders who experienced cerebrovascular injuries. Using the Hospital Anxiety and Depression Scale (HADS), they reported that in 42 participants, 45% had symptoms of depression and 52% had symptoms of anxiety. The authors concluded that using current approaches to determine the degree of depression and anxiety in individuals with speech disorders should become a standard component of the diagnostic process (Mudrenko & Kolenko, 2021). This relates back to patient concerns of not addressing the whole picture of communication challenges. Art therapy techniques can treat psychological concerns related to dysarthria.

Art therapy also has implications for exercising and stimulating fine motor and perceptual skills, as movement issues/disorders are often found in individuals with dysarthria. An exploratory trial with Parkinson's patients that included 16 sessions of clay-based art therapy found significant improvements in hand dexterity (Bae & Kim, 2018). Wilk et al. (2010) reported that the gains in speech motor abilities were accompanied by enhancements in the fine motor and perceptual skills essential for engaged production.

Lastly, art therapy techniques can act as a visual aid either to augment or an alternative to verbal speech for a person with dysarthria. Augmentative and Alternative Communication or



AAC involves devices, methods, and communication technologies for those who cannot solely rely on spoken speech or sign language (American Speech-Language-Hearing Association, n.d.-b). AAC is prevalent in speech therapy for people who have dysarthria. Because of unreliability in their speech, individuals often need multiple modes of communication. For example, drawing is a form of low-tech AAC. Especially for children, it is crucial that they have an understandable mode of communication as early as possible. While this process of expression and comprehension in communication partners is mostly seamless in typical developing children, a child with dysarthria can experience a lot of communication breakdowns. This can lead to a lack of motivation and anxiety around speaking. An example given in the original 2010 study by Wilk et al. describes a child who is unable to pronounce the word "apple" draws an apple and gains a reward from the environment: "comprehension, acceptance, and approval" for creating an identifiable, and communicable rendition of an apple (Wilk, 2010, p. 7).

Art therapy as a form of AAC can also be utilized in medical settings, for individuals with dysarthria to explain themselves. An undergraduate thesis published in 2021 sought to document clients with communication disorders, their parents, and their healthcare providers' opinions on using art therapy in the pediatric hospital setting. One professional said that "some participants felt art could function literally as communication, while others had more broad views" (Adams, 2021, p. 33). One client illustrated that they "think that's why it could be so powerful with people with communication issues because it gives you the opportunity to say something, to say it in a nonverbal way that feels less threatening and more... comfortable and safe often" (Adams, 2021, pp. 33-34). Art therapy as a form of AAC has the potential to be a well-liked option for users, loved ones, and healthcare professionals.

## **Modifications**

As dysarthria typically coincides with a neurological disorder that affects both fine and gross motor skills, there are art products made to adapt for users with motor impairments. The following section offers some tools and alternatives to ensure art therapy is accessible to individuals with dysarthria. One example is the Functionalhand - a multipurpose cuff that assists persons who have difficulties gripping and holding objects, notably writing utensils, paint brushes, scissors, and a variety of other arts and crafts supplies (Disability Horizons, 2021). Another example is the Peta Easi-Grip table-top push-down scissors. These are a substitute for traditional scissors for those who have a variety of medical and mobility issues, including poor fine motor skills. When cutting, the big T-shaped handle provides a level surface to place the palm, fingers, or fist and gently push down (Disability Horizons, 2021).

There are art options without the need for additional tools as well. Free-form molding materials, such as clay, are frequently utilized in crafts for people with motor difficulties. Clay and molding art can help those of all abilities develop their creativity while additionally enabling those with fine motor issues to create without the need for small art equipment that demands a "more precise grip" (CoachArt, 2023, p. 1). Clay is a popular art medium due to its accessibility and versatility and is a very flexible substance for patients to work with. Clay is a neutral material, and the hands move and perceive its textures and attributes through tactile manipulation. The clay art creation process involves interaction between the patient, the materials, and the surroundings. Kinesthetic experiences of physical actions and motions in clay release energy, whereas sensory experiences focus on both outward and inside sensations. Molding clay can be a powerful way to help people express their feelings through tactile

involvement at a somatic level, as well as to facilitate verbal communication and cathartic release and reveal unconscious materials and symbols that cannot be expressed through words (Bae & Kim, 2018). Play-doh could be a more accessible alternative for speech therapy, especially with younger clients. These modifications are offered as potential options to make art therapy accessible to all individuals with dysarthria. However, training on usage in treatment must come from a certified art therapist.

## **Chapter 4**

### **Conclusion**

A future question to address is how to utilize art therapy techniques in speech therapy for clients with dysarthria. SLPs commonly work in environments where collaboration with other professionals is expected. However, like other healthcare professionals, SLPs must work with clients within their scope of practice. How is a clinician then able to integrate and use art therapy techniques within speech therapy? A solution to avoid inaccurate uses of art therapy techniques is interprofessional practice (IPP). IPP is an intentional method that entails collaborating with peers from other disciplines. This framework enables professionals to "learn about, from, and with colleagues from different specialties" (American Speech-Language-Hearing Association, n.d.-c, p. 1). One of the model's primary competences is understanding one's own function and the roles of other professionals in assessing and addressing patients' needs. According to the findings of ASHA's 2019 Interprofessional Practice Survey, SLPs believe that insufficient time and heavy workloads are hurdles to the mainstream implementation of IPP. However, functioning independently leads to gaps in patient care, such as diagnostic errors, redundancy in cross-disciplinary services, and improper billing (American Speech-Language-Hearing Association, n.d.-c). In summary, professionals through IPP share viewpoints to create goals and priorities, collaborate for evaluations and intervention, and reduce service fragmentation. Hence, the IPP method could act as the framework of practice between art therapists and speech-language pathologists.

Another collaborative approach to speech therapy is transdisciplinary practice. This blends professional boundaries where some responsibilities are shared across disciplines and collaboration in intervention is more frequent and consistent. An example of how transdisciplinary practice could foster professionals' specialty knowledge integration is given. The art therapist will prepare the materials in advance, guide a participant through an open-ended or directed art activity, and allow time for wrap-up or reflection. The therapist serves as a third hand, supporting the talents and objectives of people with communication needs (ACM SIGCHI, 2018). Therapists discussed how focusing entirely on verbal communication may often create a barrier, and how employing art materials may present another channel to engage in. As some means of modifying the dynamics of collaborative design sessions, they can practice observing rather than directing and working alongside participants rather than monitoring them (ACM SIGCHI, 2018). Through this method, SLPs can learn and utilize art therapy techniques along with regular speech therapy in patients with dysarthria.

### **Future Discussions**

There is still much research needed to determine the effectiveness of art therapy techniques on speech production in individuals with dysarthria. To begin, the implication of using top-down cognitive processing in therapy as opposed to bottom-up cognitive processing is still a rather new concept in speech. Further research on its efficacy regarding reasoning for using art therapy to better speech intelligibility is needed. Research is also necessary to observe if SLPs are trained with art therapists using the IPP or transdisciplinary practice model, will it create the desired outcomes in professional collaboration. Lastly, further research is

recommended to investigate if art therapy techniques improve speech production and if individuals with dysarthria like art activities involved in speech therapy. Client satisfaction and achievement related to ICF should be recorded to identify if all communication needs are being met.

## BIBLIOGRAPHY

- ACM SIGCHI. (2018, May 15). *Making as expression: Informing design with people with complex communication needs through art . . .* [Video]. YouTube.  
<https://www.youtube.com/watch?v=Ux40wQScwB4>
- Adams, Elizabeth. *Communicating hope and dreams, wishes and fears: Medical art therapy and communication disorders in the pediatric hospital setting*. 2021. Ohio University, Undergraduate thesis. *OhioLINK Electronic Theses and Dissertations Center*,  
[http://rave.ohiolink.edu/etdc/view?acc\\_num=ouhonors1618918702473323p](http://rave.ohiolink.edu/etdc/view?acc_num=ouhonors1618918702473323p)American Art Therapy Association. (2022). *About art therapy*. <https://arttherapy.org/about-art-therapy/>
- American Speech-Language-Hearing Association. (n.d.-a). *Dysarthria in adults*. American Speech-Language-Hearing Association. <https://www.asha.org/practice-portal/clinical-topics/dysarthria-in-adults/>
- American Speech-Language-Hearing Association. (n.d.-b). International Classification of Functioning, Disability, and Health (ICF). <https://www.asha.org/slp/icf/>
- American Speech-Language-Hearing Association. (n.d.-c). *What is Interprofessional Practice? Retrieved from ASHA Practice Portal*. <https://www.asha.org/practice/ipe-ipp/what-is-ipp/#:~:text=Audiologists%20and%20SLPs%20regularly%20collaborate,with%20colleagues%20from%20different%20specialties>
- Atkinson-Clement, C., Letanneux, A., Baille, G., Cuartero, M. C., Véron-Delor, L., Robieux, C., Berthelot, M., Robert, D., Azulay, J. P., Defebvre, L., Ferreira, J., Eusebio, A., Moreau, C., & Pinto, S. (2019). Psychosocial impact of dysarthria: The patient-reported outcome as part of the

clinical management. *Neuro-degenerative Diseases*, 19(1), 12–21.

<https://doi.org/10.1159/000499627>

Bae, Y., & Kim, D. (2018). The applied effectiveness of clay art therapy for patients with Parkinson's Disease. *Journal of Evidence-Based Integrative Medicine*, 23, 2515690X1876594.

<https://doi.org/10.1177/2515690x18765943>

Banter Speech & Language. (2022, April 18). *Dysarthria | Banter Speech & language*. Banter Speech & Language | Sydney speech pathologists helping child and adult clients, and other speech pathologists. <https://www.banterspeech.com.au/dysarthria/>

Brady, M. C., Clark, A. M., Dickson, S., Paton, G., & Barbour, R. S. (2011). Dysarthria following stroke - the patient's perspective on management and rehabilitation. *Clinical Rehabilitation*, 25(10), 935-52. doi:<https://doi.org/10.1177/0269215511405079>

Borrie, S. A., Wynn, C. J., Berisha, V., & Barrett, T. S. (2022). From Speech Acoustics to Communicative Participation in Dysarthria: Toward a Causal framework. *Journal of Speech Language and Hearing Research*, 65(2), 405–418. [https://doi.org/10.1044/2021\\_jslhr-21-00306](https://doi.org/10.1044/2021_jslhr-21-00306)

CoachArt. (2023, April 28). *10 easy crafts for kids with motor disabilities*. CoachArt.

<https://coachart.org/inspire/10-easy-crafts-for-kids-with-motor-disabilities/>

Disability Horizons. (2021, December 8). *8 accessible arts & crafts products: Disabled artists*.

<https://disabilityhorizons.com/2021/12/8-accessible-products-to-help-you-enjoy-arts-and-crafts-if-you-have-a-disability/>

Dow, G. (2008). *Increasing self-esteem through art therapy*.

<https://spectrum.library.concordia.ca/975936/1/MR45292.pdf>



- Enderby, P. (2013). Disorders of communication. In *Handbook of Clinical Neurology* (pp. 273–281).  
<https://doi.org/10.1016/b978-0-444-52901-5.00022-8>
- Finch, E., Rumbach, A. F., & Park, S. (2020). *Speech pathology management of non-progressive dysarthria: A systematic review of the literature*. Disability and rehabilitation.  
<https://pubmed.ncbi.nlm.nih.gov/30286661/>
- Maddox, E. (2023, July 10). *What's the difference between top-down and bottom-up processing – key distinctions*. Mental Health Center. <https://www.mentalhealthcenter.org/difference-between-top-down-and-bottom-up-processing/>
- Mudrenko, I., & Kolenko, O. I. (2021). Anxiety-depressive disorders in patients with dysarthria against the background of organic brain damage. *European Psychiatry*, 64(S1), S690–S691.  
<https://doi.org/10.1192/j.eurpsy.2021.1829>
- Ostroski, R., Da Silva Bruscatto, A. M., Moro, A., & Tommasi, S. (2011). P4-161: The interdisciplinary speech therapy and art therapy and enhancing quality of life: A case study. *Alzheimer's & Dementia*, 7(4S\_Part\_22). <https://doi.org/10.1016/j.jalz.2011.05.2183>
- Shukla, A., Choudhari, S. G., Gaidhane, A., & Zahiruddin, Q. S. (2022). Role of art therapy in the promotion of mental health: A critical review. *Cureus*. <https://doi.org/10.7759/cureus.28026>
- Stuckey, H. L., & Nobel, J. (2010). The connection Between art, healing, and public health: A review of current literature. *American Journal of Public Health*, 100(2), 254–263.  
<https://doi.org/10.2105/ajph.2008.156497>
- Tjasink, M., Keiller, E., Stephens, M., Carr, C. E., & Priebe, S. (2023). Art therapy-based interventions to address burnout and psychosocial distress in healthcare workers-a systematic review. *BMC health services research*, 23(1), 1059. <https://doi.org/10.1186/s12913-023-09958-8>

- Walshe, M., & Miller, N. (2011). Living with acquired dysarthria: The speaker's perspective. *Disability and Rehabilitation*, 33(3), 195–203. <https://doi.org/10.3109/09638288.2010.511685>
- Wilk, M., Pachalska, M., Lipowska, M., Herman-Sucharska, I., Makarowski, R., Mirski, A., & Jastrzebowska, G. (2010). Speech intelligibility in cerebral palsy children attending an art therapy program. *Medical science monitor: international medical journal of experimental and clinical research*, 16(5), CR222–CR231.
- Yorkston, K. M., Baylor, C., & Britton, D. (2017). Incorporating the principles of self-management into treatment of dysarthria associated with parkinson's disease. *Seminars in Speech and Language*, 38(03), 210–219. <https://doi.org/10.1055/s-0037-1602840>