Physical and Occupational Therapy: Tools to Change Lives

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I. Introduction

Board games, coloring, and obstacle courses, oh my! For some, they are mindless pastime activities. For others they have life changing tendencies.

Autism spectrum disorder, also known as ASD, is a neurological developmental disorder. ASD is typically diagnosed within the first two years of life and affects how children interact with one another and behave (Willis 82). As of March 2022, the prevalence of ASD in the United States is 1in 44. (“Data & Statistics on Autism Spectrum Disorder”). With the help of many forms of therapy offered to children with ASD within and without school, these children have the ability to practice and improve their interactions with others as well as a multitude of

other skills. Two forms of therapy that are typical for children with ASD to attend are physical therapy and occupational therapy. Physical therapy is the treatment of disease or injury with the use of exercise, whereas occupational therapy consists of performing activities required for daily life ("Oxford Languages and Google - English"). In physical therapy, gross motor skills, or the skills using major muscle groups in the body, are focused on and improved. The main focus of occupational therapy is improving fine motor skills, or skills using small muscles in the body (Shea). Physical and occupational therapy are two of the many effective forms of therapy children with ASD undergo daily.

Because of the many forms of therapy children with ASD must attend, they have the tendency to become overwhelmed and lose focus causing them to passively attend therapy rather than actively progress from therapy. To curb these tendencies, occupational and physical therapists can work together to better understand the patient, provide smooth transitions from one form of therapy to another, and facilitate groupwork among patients to maximize the benefits of each therapy session. Participating in interdisciplinary practice within physical and occupational therapy for children with ASD, and by doing groupwork within each form of therapy will maximize the benefits of each session and increase social interactions of children and their families.

It is crucial to understand the effectiveness of physical therapy and occupational therapy, the differences and benefits of both forms of therapy, and how they can work together for children with ASD. Coordinating the care of physical and occupational therapy and including groupwork will increase the value of life for children with ASD and their families. Groupwork within physical and occupational therapy is the combination of patients' programs, which will allow children to practice social skills while attending physical and occupational therapy,

increase their focus, and allow parents of children with ASD to socialize in the waiting room. Parents of children with ASD must attend multiple forms of therapy with their children which is time consuming, so by combining the practices of physical and occupational therapy, and having the patients participate in groupwork will be more time-effective and facilitate socialization of the parents.

Every child is different, so it is impossible to generalize treatment for all children with ASD, but it is possible to understand the benefits of each form of therapy and how each form of therapy can be used to improve the lives of children with ASD. An overarching outline of a perfect therapy session for children does not exist but understanding the benefits of cotreatment and groupwork will give therapists the ability to personalize treatments and maximize the outcomes of each form of therapy.

An interview was conducted between myself and my coworkers Dr. JT Doscher PT, DPT and Giulia Vitolo OTR/L. Dr. JT Doscher is a practicing physical therapist who has four and a half years of experience in outpatient orthopedics, outpatient pediatrics, school settings, and hospital-based outpatient orthopedics. Giulia Vitolo is a practicing occupational therapist who has 16 months of experience in hospital-based outpatient pediatrics, pediatric long-term care, private pediatric outpatient, adult hand clinic, adaptive sports, and school settings.

II. Physical Therapy for Children with Autism Spectrum Disorder

Physical therapy is a form of therapy that is crucial for many populations as it is a holistic form of therapy. An overarching goal of physical therapy is improving gross motor function. Gross motor function involves the use of large muscle groups throughout the entire body, so physical therapy assists in improving function of muscle groups that need strengthening,

stretching, or mobility work (Shea). Everyone who attends physical therapy receives a personalized plan with exercises structured to improve the area which requires improvement. A specific specialty within physical therapy is pediatrics, which is the care of infants and children. A population of children that attend physical therapy are children with ASD, so the therapist typically develops a plan circulating around the improvement of the gross motor functioning of children with ASD.

Many children with ASD attend physical therapy, regardless of their specific injuries. But why? In a study titled “Autism Spectrum Disorder an Emerging Opportunity for Physical Therapy,” the connection between physical therapy and ASD is made, where “a growing body of evidence from research on autism spectrum disorder (ASD) confirms a substantial sensory motor component to ASD” (Mieres). This sensory motor component can be observed within the internal and external timing of individuals with ASD. Internal timing, provided by the basal ganglia which aids in executive functioning, is a concept which encompasses the ability to initiate self-timed tasks, such as picking up an object. External timing is the combination of one’s internal timing, and an environmental stimulus, such as catching a ball (Whyatt et al.). Many children with ASD have difficulty with controlling their own movements and anticipating other’s actions, which together define “fundamental problems with the temporal control of movement” (Whyatt et al.).

To improve internal and external timing, obstacle courses are typically implemented within physical therapy sessions for children with ASD. Obstacle courses facilitate self-initiated tasks which include but are not limited to stepping through cones, climbing stairs, jumping on lily pads, and a stoop and recover maneuver. Games are used to provide external stimuli such as playing catch and kicking a ball back and forth. The activities listed improve internal timing,

external timing, and gross motor function with the use of games that are engaging for children with ASD.

Difficulty in the control of movement stems from an over responsive sensory system which causes many children with ASD to react to certain stimuli by engaging in repetitive actions that could include bouncing, spinning, or other behaviors (Geslak 20). Additionally, though research is ongoing regarding structure and function differences in the brain of those with and without ASD, “evidence now suggests that aspects of cerebral morphology are also different in people with ASD” (Mieres). The cerebellum is responsible for “unconscious planned movements,” which is the area of the brain in children with ASD that appears compromised (Mieres). Because of these potential differences in structures, and thus different functions of their cerebellums, physical therapy intervention can be used to limit “excessive demands of attention to enhance cognitive strategies” in children with ASD (Mieres). These repetitive behaviors can be curbed by physical therapy as exercise can be used as the sensory input those with ASD are seeking. Within physical therapy, the repetitive actions, such as completing multiple sets and repetitions of the same exercise, has the potential to replace the uncontrolled repetitive actions that children with ASD typically engage in. Replacing an uncontrolled repetitive action with exercise could minimize interruptions throughout children’s daily lives which will increase their value of life.

Along with differences in neural structure, muscular deficiencies have been found in some children with ASD. Low muscle tone, also known as hypotonia, is when muscles at rest have less resistance than usual and has been found in nearly 30% of children with ASD (“Autism Society”). Low muscle tone can be improved by participating in strengthening activities. Children with ASD, especially those with low muscle tone, benefit from physical therapy as it

provides structured muscle-strengthening activities. Improving low muscle tone will give the children more control over their bodies.

. A typical session for children with ASD includes an obstacle course which is repeated multiple times, as well as gross motor skills including running and skipping. The benefits of physical therapy in children with ASD include satisfying sensory needs, practicing motor control, and aiding in better overall health by promoting physical activity during sessions. These benefits directly affect the children, while indirectly affecting their families. Parents of children with ASD are interrupted by the repetitive, uncontrollable actions of their children, so by helping these children satisfy those needs during therapy, it minimizes the interruptions while with family. Parents are also affected by the overall health of their children, so improving the children's health within physical therapy sessions by promoting exercise deters future health risks. Physical therapy benefits children with ASD directly through strengthening exercises, and indirectly by providing tactics to improve overall quality of life.

III. Occupational Therapy for Children with Autism Spectrum Disorder

No two children with ASD are the same, but the reasons and benefits of incorporating occupational therapy in these children's lives are similar. Children with ASD have difficulty with communication, restricted interests, repetitive behaviors (Willis 82). Regarding difficulty with communication, children with ASD may make little eye contact, infrequently express emotions, and difficulty adjusting to social situations (Willis 82). Regarding restrictive and repetitive behavior, children with ASD may repeat certain behaviors and become upset with slight changes in routine (Willis 82). A misconception regarding children with ASD is that they are disabled

due to the traits listed above. In reality, they are able bodied, and it is the therapist's duty to understand how to treat children with ASD to allow them to flourish in society.

Occupational therapy is a form of therapy that focuses on fine motor skills. Fine motor skills use smaller muscles in the hand to perform specific tasks. Plans for occupational therapy, similar to those of physical therapy sessions, are personalized to each patient. A common patient population is pediatrics, and more specifically those with ASD. Occupational therapy for young children with ASD is based on enhancing sensory processing, sensorimotor and behavioral performance, self-care, and participation in play. Examples of activities to improve fine motor skills include coloring, playing board games, and completing puzzles. For older children, occupational therapy is tailored around behavioral performance, transition to work, and independence in community (Case-Smith). To enhance sensory processing, occupational therapists use sensory integration (SI) therapy. SI therapy is a form of therapy which helps fulfill sensory needs, and "can help a child with sensory problems experience an optimal level of arousal and regulation" (Arky). Most, but not all, children with ASD have sensory issues, so SI therapy is beneficial in helping improve these issues to "improve the nervous system's ability to process sensory stimuli" (Lang).

Occupational therapy focuses on the tactical, proprioceptive and vestibular systems using an abundance of practices which aid in the sensory needs of the children with ASD. Respectively, these systems regard one's body awareness and balance. Typical services provided during an occupational therapy session are structured around "enhancing performance of activities of daily living (ADLs)" (Tomchek). Children with ASD have difficulties with functional and pretend play, social participation, sensory modulation, self-regulation, and motor imitation, so occupational therapists should initially analyze these aspects of the child to

productively structure the therapy session (Tomchek). Regarding sensory processing, occupational therapy clinics typically have materials to aid in this practice, such as mats with different textures, swings, and colorful games. Though attending multiple forms of therapy in person places a high time demand on the children and families, it is beneficial to children with ASD to attend occupational therapy due to the resources available.

IV. The Co-Treatment of Children with Autism Spectrum Disorder

Co-treatment involves the treatment of the same patient in the same timeframe with physical and occupational therapists. Co-treatment involves interdisciplinary work between physical and occupational therapists to provide one another with information about the same patient. Co-treatment within physical and occupational therapy can be performed in separate sessions, ranging from 40 minutes to an hour for children with ASD. In these sessions the therapists discuss the progress the patient is making in each form of therapy. This allows therapists to tailor their sessions to the needs of the patient using the cues from the other treatment. Co-treatment can also be used as a mechanism for physical and occupational therapists to combine their sessions to incorporate physical and occupational practices in the same session. Because every child responds to therapy differently, the therapists must first understand the child, and then determine whether it is beneficial to combine the sessions or not.

Regardless of if therapists are co-treating within the same session or in different sessions, transitions will occur. Children with ASD typically become upset by changes in routine and have difficulty with transitions, so co-treating within the same session is helpful to reduce the need for children to transition from one form of therapy to another (Willis 86). Though co-treatment within the same session will minimize the therapy-to-therapy transition, transitions will still

occur, and may even occur more frequently as there will be multiple forms of therapy. It is the therapist's duty to understand this concept and practice smooth transitions from activity to activity. According to Dr. JT Doscher the transitions from one therapy to the next are extremely important. Both therapists must communicate beforehand to understand how to facilitate a smooth transition rather than a "clean break" which may cause the child to shut down, making it more difficult to initiate the subsequent therapy session.

Another benefit of co-treatment within the same session is the socialization between the therapists and the child. Though children with ASD have been understood to have trouble processing and expressing emotions, they tend to understand body language and emotions of others (Candida). Dr. JT Doscher explained that "so many times, the children are able to understand and feed off of the energy in the room." Co-treatment will be effective regarding this principle if the therapists have positive relationships and are friends with their co-workers.

Dr. JT Doscher recounts his experiences with co-treating within a session, saying, "the child can feel when the therapists are friends or when they are more so acquaintances." He believes that when therapists are friends, it is typically more beneficial as the children can pick up on the relationship between the therapists. It does not always work out that the co-treating therapists have a friendly relationship. Because children tend to understand the emotional connection between people, they can sense the lack thereof. If a physical therapist and occupational therapist are treating a child with ASD within the same session, but do not enjoy working together, it will be counterproductive for the child. In the case of co-treatment within the same session, physical and occupational therapists must first develop a relationship further than simply working together to help the child enjoy the session and benefit from it. It is the

responsibility of the therapists to use their best judgement to understand whether the relationship they have with each other will benefit the child or hinder the session.

Co-treatment within the same session minimizes the time demands of therapy. Children with ASD attend many forms of therapy weekly. As expressed by Dr. JT Doscher it can be very overwhelming to have to attend back-to-back physical and occupational therapy sessions for children with ASD. On the contrary, if a child is a good candidate for physical and occupational therapy and is only allotted 40 minutes for both forms of therapy, this may reduce the benefits of each form of therapy compared to if the child was exposed to 40 minutes of each form of therapy weekly. Combining physical and occupational therapy sessions is not exclusively beneficial or detrimental to the child. Because of this, therapists must understand the goals presented and tailor the session around them.

Co-treatment is beneficial whether it is within the same session, or just treating the same child for physical and occupational therapy in separate sessions. According to Dr. JT Doscher, co-treating is helpful from a physical therapy perspective because occupational therapy provides them with sensory regulation and can prepare them for physical therapy sessions. Additionally, a benefit of working on a team is that physical and occupational therapists can separate stability or postural therapy and executive function therapy respectively. Dr. JT Doscher says, “if you are working on a team, you are always actively communicating with the other therapist” regarding the goals for the child and what is being worked on that day. Being able to have interdisciplinary communication helps structure the sessions for each discipline.

Overall, co-treatment is a beneficial tactic for maximizing the outcomes of physical and occupational therapy. Unfortunately, not all clinics facilitate interdisciplinary work. Some clinics have both a physical and occupational therapist, or even more than one of each, while other

clinics are solely physical therapy clinics, or solely occupational therapy clinics. Co-treatment is crucial for maximizing the benefits of therapy, so ensuring connections are made within other disciplines is necessary.

V. Groupwork and Social Interactions

Groupwork is a form of therapy where children are able to interact with each other within therapy sessions. Groupwork can be within co-treatments or within physical and occupational therapy alone. Giulia Vitolo OTR/L explained that typically, groupwork is among two to six patients, depending on age, and the recommended ratio of therapists to patients for this type of practice is one-to-one or one-to-two with "two or more volunteers, therapy aides, or other staff members" when working with children with ASD. Groupwork is not fit for all children with ASD, but there are many benefits, including social interactions, peer demonstration, and the ability for parents to socialize.

For many children with ASD, social interactions can be uncomfortable, because "difficulties with social interaction and understanding lie at the heart of the communication barriers faced by individuals with autism spectrum disorder" (MacKay). Groupwork within physical and occupational therapy can help children with ASD become comfortable in having social interactions with children of a similar age group. Working on tasks with others will allow them to practice communication skills, how to work with others, and how to express emotions. The skills listed are important aids in communicating with others, thus developing social connections. It has been reported that "feedback, increased communication and social participation, and peer role modeling were identified as the most common benefits of group intervention" (Higgins 326). Though the reason for children with ASD to attend physical or

occupational therapy is not strictly to improve communication or social skills, it a potential benefit if the session is structured in a way to yield this outcome.

Children with ASD can benefit from groupwork within physical and occupational therapy through peer demonstration and modelling. Peer demonstration is when one child performs an action while the other child observes, in hopes that the child observing will perform a similar action to the one demonstrated. Groupwork allows for potential peer demonstration, which will benefit children with ASD because “peer-mediated interventions can effectively increase the social and communication skills of targeted children with ASD” (Locke et al.). By including groupwork and peer demonstrations in physical and occupational therapy sessions, the child with ASD’s confidence in communicating with others has the potential to increase.

Within two forms of therapy that are not intended to directly increase social skills, social skills will inevitably be improved due to group work, which can minimize the time demands of other forms of therapy that are strictly structured to improve social skills. Giulia Vitolo believes that there are benefits in allowing older children with ASD to demonstrate skills to younger children with ASD in occupational therapy sessions. Older children demonstrating to younger children benefits both the older child and the younger child. The older child potentially benefits from the feeling of having authority which can cause an increase in confidence. The younger child benefits from having a visual of what the skill should look like if they are having trouble initiating the task and being able to participate in reciprocal play, a form of imitation.

Because improving social interaction is not the central goal for physical and occupational therapy sessions, Dr. JT Doscher and Giulia Vitolo believe that groupwork should not be done throughout the entirety of a therapy session for a child with ASD. Dr. JT Doscher suggests that groupwork should only be done for an activity that is 10-20 minutes in an hour-long session, or

7-15 minutes in a 40-minute session. This timeframe provides the optimal benefits of groupwork within a physical therapy session without distracting the child from the focus of the physical therapy session of improving gross motor function. Giulia Vitolo also agrees that groupwork should not be done for the entirety of a child's occupational therapy session because, similar to physical therapy, social interaction is not the focus of a child with ASD's occupational therapy session.

In addition to children with ASD benefitting from groupwork, their parents also reap benefits from this practice. Parents of children with ASD are typically overwhelmed with the number of therapy sessions they must attend with their children. When physical and occupational therapists schedule children at the same time and facilitate groupwork for part of the session, this allows parents to socialize. As human beings, socialization aids in combatting the feeling of loneliness and can lead people to relate to one another. Parents of children with ASD can use this time to decompress and relate to other parents, gain advice from one another, and feel heard. One way these conversations can be facilitated is through the set-up of the waiting room. I asked Dr. JT Doscher his experience with waiting room set-ups in different facilities he has worked in. He recounts that the design of the waiting area is not typically arranged with the intention of facilitating conversation, but like the facility he currently works in, the open floor set-up of the waiting area allows for more comfortable, organic conversations to occur. These conversations can be emotionally supportive and educational as their children are experiencing similar childhoods and obstacles.

Children with ASD have the potential to benefit from groupwork, but it is not a universal solution. All children with ASD are different, therefore what each child tolerates is also different.

A disadvantage of groupwork is that it may take away from another child's therapy. The reason for keeping the ratio of therapist to patient within a group as well as the number of children small is to ensure no child is being overlooked. In groups, there is typically a child who consumes most of the therapist's attention, which decreases the amount of attention spent on other children. If groupwork tends to have this effect, it may be detrimental. Because physical and occupational therapy are not mainly focused on having the children practice social skills, adding groupwork into the plan should only have positive effects on the children's therapy session. If one child is more demanding than another and causes one child to have less attention placed on them, that would be a scenario where groupwork is more harmful than it is helpful.

The addition of groupwork into a child's physical or occupational therapy session should depend on if the child with ASD tolerates working with other children. In physical and occupational therapy, children with ASD should not be forced to go out of their social comfort zone. Forcing children with ASD to go out of their comfort zone will distract them from physical and occupational therapy practices or could potentially lead to tantrums. When deciding whether to implement groupwork into a physical or occupational therapy session, these factors should be considered first. Also, there may be scenarios where the same child tolerates groupwork one session, and the next session they do not tolerate it. The therapist should have a backup plan other than groupwork to prepare for a time where the child with ASD may not want to socialize.

Groupwork is a tool which has the potential to improve or worsen a physical or occupational therapy session for children with ASD. It is the responsibility of the therapists to understand how each child with ASD tolerates working with others. Though groupwork can be functional in both physical and occupational therapy, it is typically more intradisciplinary than interdisciplinary, that is, it is typically groupwork within solely physical therapy or solely

occupational therapy, not combining the two therapies with multiple children. Therapists should understand that this can be used as an option in therapy sessions but should first understand the child with ASD before making decisions to have the child participate in groupwork.

VI. Conclusion

To conclude, children with ASD deserve to be met with the resources to live their lives to their fullest potential. With the help of physical and occupational therapy, children with ASD are able to gain skills within the practices of these therapies and will translate them to their everyday lives. Physical and occupational therapy sessions go beyond just acute benefits, as they last a lifetime. As discussed, using the plethora of options regarding the set-up of a session for children with ASD, and with the diligence of the therapists, the child will ultimately benefit for life.

Above all, it is the therapists' responsibility to first understand the benefits and detriments of groupwork and co-treatment, then understand the child and ultimately change the child's life. No two children with ASD will tolerate physical and occupational therapy the same. It will take trial and error before coming to an appropriate set-up for each child, but with the knowledge of the different tools, and persistence from the therapists, the appropriate set-up will be achieved. Board games, coloring, and obstacle courses, oh my! These are the tools that will change a child's life.

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