

# Music and the Mind: Can Music Benefit Those with Autism?

## Elizabeth Aguila

Ashley is a child who was diagnosed with pervasive developmental disorder (PDD), which is part of the autism spectrum, when she was 21 months old. When her mother and grandmother tried to get her attention from the television by calling her name, she would not look up. When they banged around pots and pans, she still did not respond. At 21 months, Ashley still hadn't learned how to speak and only grunted. One of Ashley's psychologists suggested that she take part in music therapy in which she would listen to Mozart's music for several hours per day for several weeks. One day, when her parents were driving home from a therapy session, Ashley spoke her first words, "I want cookie". Ever since then, Ashley has been making even more progress, and today, like every normal 10-year-old girl she loves *Hannah Montana* and *High School Musical*, and can now use language to interact with others [1].

Ashley is one example of the fact that people have always had a significant relationship with music. Its presence in every culture is an indication of its universality [2]. Using music as a method of healing began after World War I and World War II when community musicians went to hospitals to play music for veterans suffering from physical and emotional trauma. When doctors noticed that patients responded positively - physically, cognitively and emotionally - to the music, they asked the hospital to hire musicians to play for the patients. Soon it was clear that these musicians required more training before entering hospitals, such as how to interact with and how to perform music to benefit the patients. Due to patients' positive responses to the music, the field of music therapy was born in 1940. To train musicians for therapy, Michigan State University founded the first music therapy degree program in 1944. The World Health Organization (WHO) first recognized music as a form of therapy in 1996. As an increasing number of people studied and became

music therapists, the American Music Therapy Association (AMTA) was founded almost fifty-four years later, in 1998 [3]. Today, there are more than 70 colleges and universities that have degree programs for music therapy. Thanks to modern technology and interdisciplinary researchers, the field of music therapy has been growing to incorporate many fields such as neuroscience, cognitive science, brain imaging, and psychology [4].

Over the years, different types of music therapy have been developed. In *Music Therapy: An Introduction*, Jacqueline Peters describes that music therapy is "a planned, goal-directed process of interaction and intervention, based on assessment and evaluation of individual clients' specific needs, strengths, weaknesses...to influence positive changes in an individual's condition, skills, thoughts, feelings, and behaviors" [5]. In other words, music therapists use the ways the mind and body are stimulated when patients listen to

and perform music. Music therapy promotes one-to-one interaction, creating a relationship between the music therapist and the patient. There are five main types of music therapy. First, is receptive music therapy, in which the client listens to live or recorded music. Second, is compositional music therapy, in which the client creates music. Improvisational music therapy is when the therapist guides the client to spontaneously create music. Recreative music therapy is when the client learns to play an instrument, and activity music therapy is when the therapist sets up musical games [6].

Autism is a lifelong developmental disability. It is often referred to as ASD, or autism spectrum disorder. People with autism have three main types of impairment: difficulty with social communication, social interaction, and social imagination. Social communication impairment involves limited speech and difficulty in understanding facial expressions, tone of voice, and sarcasm. Autistic individuals may also have difficulty with social interaction, and find it hard to recognize and understand people's emotions and implicit social cues, thus impairing their ability to form relationships



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with others. Finally, a defect in social imagination makes it difficult for people to understand and predict others' behavior, understand abstract ideas, predict what can happen next, and prepare for change and plan for the future. Unfortunately, people with autism often have difficulty with these tasks [7].

The theory behind music therapy is that since people have an innate affinity for music, they should continue to respond to it even after physical, cognitive, or emotional disabilities. One such disability, as seen with Ashley that benefits from music therapy is autism. The National Autistic Society claims that case studies have shown "music can stimulate and develop more meaningful and playful communication in people with autism." They also claim that since people with autism often have idiosyncratic and avoidant styles of communication, music therapy can encourage more self-awareness and other-awareness, leading to more social interactions [8].

Most of the research investigating the effect of different types of music therapy on autistic individuals has been in the form of case studies. Case studies can be categorized based on what aspect of autism therapists are trying to improve. There can be music therapy treatment based on the social, behavioral, and communicative abnormalities of autism. One case study used musical interaction therapy to improve the socializations, reciprocal interactions, and eye contact between an autistic three-year-old child and his mother. The results showed that after music therapy, the child had increased eye contact and initiations of involvement with the mother [9]. Researchers Starr and Zenker also studied how keyboard sharing during music therapy increased socializing skills of a five-year-old boy with autism. The therapy increased the boy's eye contact during sessions. However,

the researchers did not statistically analyze their data [10].

In the study of how music therapy improves behavioral abnormalities of autism, Griggs-Drane and Wheeler, a music therapist and educational consultant, respectively, in the Richmond Hospital Education Program, performed a study in 1997 with a blind, female adolescent with autism. The client was asked to listen to music, sing with music, and play instruments to decrease her self-destructive behavior. The study did show a decrease in her destructive behavior

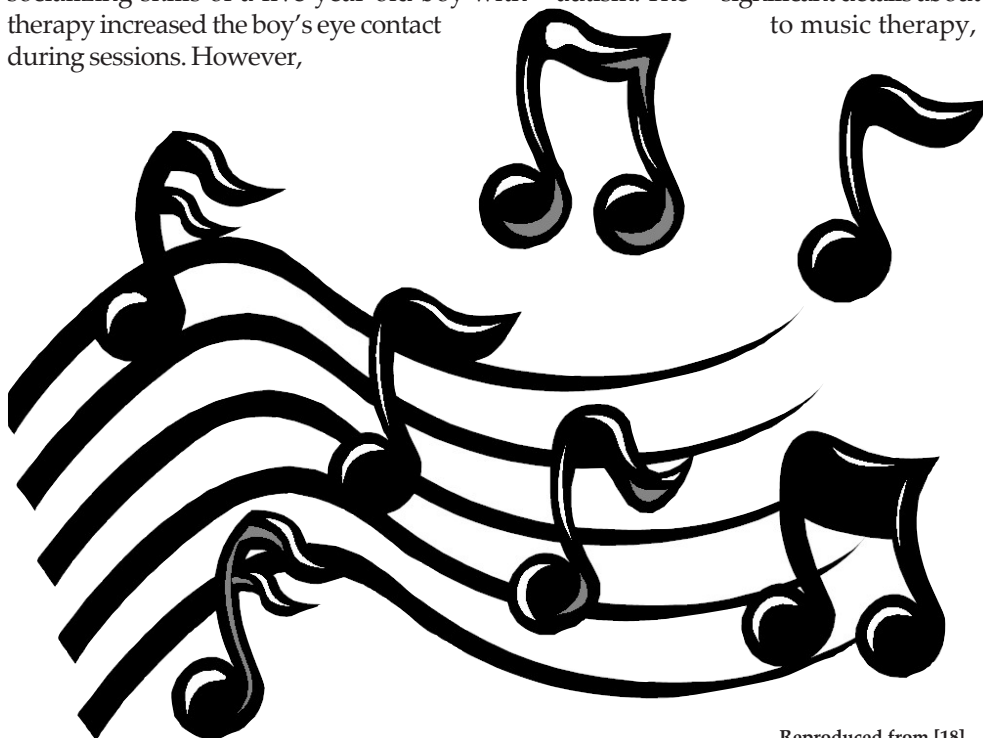
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[11]. Finally, for the treatment of the communicative abnormalities of autism, researchers Miller and Toca did melodic intonation therapy with a three-year-old, nonverbal male with autism. The music therapist sang to the child while tapping the rhythm of the words on the boy's body. The goal of the therapy was to increase the patient's understanding of a spoken language. This 1979 study claimed that the child began speaking words during

and outside the therapy sessions [12]. However, researchers did not include a qualitative analysis of changes in the child's communication.

Although many case studies have shown social, behavioral, or communicative improvement in people with autism after music therapy, many of these case studies lack sufficient statistical analysis or generalizability. Several researchers including Accordino, Comer, and Heller, researchers at Princeton University, who wrote an article examining the current research on music therapy with individuals with autism, have already criticized the use of case studies to show that music therapy is successful in treating people with autism. In their article, they state that although case studies provide significant details about particular patients and their responses to music therapy, these studies cannot be generalized

[13]. Music therapists argue, however, that case studies are only appropriate to show the effectiveness of music therapy for autistic individuals because treatments are individual and specific to each client. But Accordino, Comer, and Heller respond by stating that researchers can account for the differences between individuals in therapy through solid empirical designs, which, before 2006, had not occurred in this field. They also claim that it is important for researchers to monitor changes occurring during therapy and outside of therapy. This is because many of the case studies described have claimed that the music therapy improved certain behaviors in individuals with autism, but they failed to analyze possible external factors such as environment outside the therapy sessions or aging and



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development, as possible reasons for patients' improvements [14].

A few studies that have investigated the effect of music therapy on people with autism have tried to use more subjects. For instance, researchers Gold, Voracke, and Wigram, from Sogn og Fjordane University College in Norway, in 2004, did a meta-analysis of 11 empirical investigations of music therapy and they determined there was a significant effect on the outcomes [15]. Also, in 2007, Boso et al., a group of researchers from the University of Pavia in Italy, studied the effect of long-term interactive music therapy on young adults with severe autism. They acknowledged the fact that there is insufficient data about the potential effects of music therapy in autism, and therefore they tried to investigate whether interactive music therapy could enhance behavior of eight young adults with severe autism. Their results stated that after 52 weeks of music therapy, all subjects showed improvement. Unlike the case studies described before, they used statistical analyses and also studied potential external reasons for the subjects' improvements, therefore providing more thorough support for the beneficial effects of music therapy [16].

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the belief that music therapy positively affects people with autism, there is still a large need for empirical investigations on music therapy's impact on individuals with autism. Perhaps this can be accomplished by merging several different fields including music cognition, psychology, neuroscience, and music therapy. There may also be a stronger understanding of music therapy's effects if researchers studied why certain aspects of music can lead to any type of behavioral changes at the basic level. If we had a greater understanding of music's effects on normal subjects, we may be able to build on this knowledge to not only determine whether or not music therapy has an effect on people with autism, but also why. Understanding the mechanism through which music influences us may help us improve current therapies and widen the scope of music therapy to other neurological disorders. Also, if we can answer these questions, perhaps we can also expand the knowledge as to how music therapy can enrich a patient's quality of life. ■

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