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# Music Therapy & Autism Spectrum Disorders

## Definition:

Autism is a complex developmental disability that typically appears during the first three years of life. The result of a neurological disorder that affects the functioning of the brain, autism affects the normal development of the brain in the areas of social interaction and communication skills. Autism is one of five disorders which fall under the umbrella of Pervasive Developmental Disorders (PDD). The five disorders are Autistic Disorder, Asperger's Disorder, Childhood Disintegrative Disorder (CDD), Rett Syndrome, and PDD-Not Otherwise Specified (PDD-NOS).

## Incidence:

Autism is the fastest-growing disability, currently reaching epidemic proportions at a rate of 10-17 percent per year. At these rates, the Autism Society of America (ASA) estimates that the prevalence of autism could reach 4 million Americans in the next decade. It is the most common of the Pervasive Developmental Disorders, affecting an estimated 1 in 250 births. This means that as many as 1.5 million Americans today are believed to have some form of autism. Autism is four times more prevalent in boys than in girls.

*Reid Moriarty has autism and has been receiving music therapy for three years. Music is a motivating way for him to learn various skills due to his superior ability to remember*

## Characteristics and Need Areas:

Autism is a spectrum disorder. The following characteristics and need areas of autism can present themselves in a wide variety of combinations, ranging from mild to severe. Although autism is defined by a certain set of behaviors, children and adults can exhibit any combination of the behaviors in any degree of severity. The following is a general guide, not a diagnostic checklist.

- **COGNITIVE:** People with autism spectrum disorders (ASDs) represent the general population in that there is variety. Some have special talents, some are geniuses, some have intellectual limitations and

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some have average intelligence. However, most individuals display impairment in imaginative thought and play. In terms of learning, they process information in unique ways and have difficulty learning under ordinary teaching methods. Some learn to read and/or master math concepts at a very young age. Their abilities can fluctuate from day to day due to difficulties in concentration, processing, or anxiety. They may show evidence of learning one day, but not the next. Changes in external stimuli and anxiety can also affect learning.

- **SPEECH/COMMUNICATION:** People with autism may have difficulty with expressive and receptive communication. They may show problems with initiating and/or maintaining a conversation. Communication is often described as talking at others (for example, monologue on a favorite subject that continues despite attempts by others to interject comments). Individuals may show difficulty in expressing needs, use gestures or point instead of using words. They may repeat words or phrases (echolalia). Peculiar voice characteristics may be present, such as a flat monotone or a high-pitched voice. These individuals may not respond to simple requests or verbal cues, acting as if they are deaf when their hearing tests are within normal ranges.

- **MOTOR SKILLS/SENSORY**: For children with autism, sensory integration problems are common. Abnormalities in the brain give us some insight into how these issues may originate. In the amygadala, a center for the control of emotional responses to sensory stimuli, many autistic children have abnormally densely packed neurons. Some research shows reduced blood circulation in certain parts of the prefrontal cortex and a reduced number of the cells that relay messages from body movement centers to the cortex of the brain. Other neurological findings show that the brains of people with autism are larger than average. These factors all contribute to an autistic person's over-or under-active senses. For instance, the tag on the back of their shirt may feel like sandpaper on their skin. Some children with autism are particularly sensitive to sound, finding even the most ordinary daily noises painful. There may also be an apparent over-sensitivity or under-sensitivity to pain.
    - Motor problems may also be noticeable due to low muscle tone. This may include physical over-activity or extreme under-activity and uneven gross and fine motor skills. Individuals with autism may also have repetitive motor mannerisms such as hand flapping or spinning of objects.

- **SOCIAL/BEHAVIOR:** Individuals with autism show impairments in social skills, especially in building relationships with others. They may prefer to be alone, have an aloof manner and demonstrate difficulty mixing with others. As an infant, they may not want to cuddle or be touched. They may make little to no eye contact with others. They may display emotions such as laughing or crying at seemingly inappropriate times, and show distress for reasons that are not apparent to others. One theory explains that the reason for this is that persons with autism cannot communicate or express feelings normally because they do not fully understand that others have thoughts, desires, interest, and intentions. They may be very insistent, rigid on sameness, and resistant to changes in the environment or schedule. In some cases, aggressive and/or self-injurious behavior may be present. They might hit, or bite themselves and/or others and have temper tantrums for no apparent reason.

## How can music therapy address the need areas for an individual with Autism Spectrum Disorder?

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Research shows that individuals with autism respond positively to music and may show a heightened interest and response to music. Many people with autism show an innate talent for music as demonstrated by a superior ability to identify and recall pitches (tonal memory) and enhanced music processing.

**COGNITIVE:** Music therapy songs and techniques are effective in addressing academic skills. Some of these skills may include number identification, counting, and mathematical problem solving. Music therapy is motivating and can allow an individual to attend to a task for a longer period of time. Because music is processed in both hemispheres of the brain, music can stimulate cognitive functioning and may be used for remediation of some speech/language skills.

**SPEECH:** Music therapy can enable those without language to communicate, participate and express themselves non-verbally. Often music can assist in the development of verbal communication, speech and language skills. Singing is an effective technique used to increase sentence length, fluency, rate, and appropriate pitch and volume of the speaking voice. Rhythmic cueing can improve the rate of speech. Conversational skills can also be enhanced through "musical conversations" with instruments where the child takes turns "talking" with a peer.

*Ben has autism and is in our Banding Together group. He is developing his social skills by learning how to play the EZ Play guitar with his peers.*

**MOTOR SKILLS:** Music provides concrete, multi-sensory stimulation (auditory, visual, and tactile). The rhythmic component of music is very organizing for the sensory systems of individuals diagnosed with autism. As a result, auditory processing and other sensory-motor, perceptual/motor, gross and fine motor skills can be enhanced through music therapy. Music therapy strategies can be devised to address poor coordination and balance issues. For instance, tapping rhythm sticks together with a partner requires refined coordination and is a fun, motivating way to work on a motor skill. Because rhythm is structured and predictable, it is often used to improve an individual's gait or walking stride.

**SOCIAL:** Social song stories can be created specifically for the child to target specific social skills or behaviors such as turn-taking, shared play, joint attention, listening and responding to others and appropriate interaction with peers. In the music therapy setting, the individual has the opportunity to role-play different scenarios where this skill could be used which can lead to the generalization of skills to other settings. An individual may also learn these skills (such as eye contact) through cooperative instrument playing. For instance, if two people are taking turns playing the marimba (an xylophone-like instrument) they may make eye contact (without words) to signal that it's the other person's turn to play.

Music is predictable, structured and success-oriented. This brings a sense of security, encouraging the individual to take risks and be more spontaneous in interactions with others. Music therapy can provide additional opportunities for positive interaction and building relationships among family members and the person with autism. Participation in music therapy often allows family members to see their loved one in a "different light," to witness their relative's areas of strength and aptitude, maybe for the first time. Music therapy highlights what an individual can do, enhancing self-esteem and positive self-image.

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Music therapy can also allow individuals the opportunity to develop identification and appropriate expression of their emotions. For instance, individuals may listen to a "sad" (in a minor key) piece of music while singing about feeling sad and practicing making a sad face in a mirror.

**GOAL EXAMPLE FOR SOCIAL SKILLS**

**By (date), Reid will demonstrate understanding of social skills stories by correctly identifying and role-playing 100% social stories steps w/o prompting.**

*Baseline: Reid occasionally (20% of opportunities) demonstrates "escape" behavior through tantrums, and refusal to cooperate with instructions. Reid has made progress in this area and shows understanding and retention of social story concepts between sessions.*

## RESEARCH:


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## NATIONAL ORGANIZATIONS

### American Music Therapy Association (AMTA)

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### Autism Society of America (ASA)

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www. http://www.autism-society.org
*(music therapy is listed under the "autism info" included in the "complementary therapies" section)*

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