

# The Promotion of Music to Autistic Children's Perceptual Ability

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**Abstract:** *Childhood autism is a serious developmental disorder in children, once suffering from this disease, it will affect the development of life. Music therapy plays an important role in the rehabilitation of children with autism. It increases their attention and desire to communicate with others. It also effectively enhances their language expression and reduces their repetitive behaviors.*

**Keywords:** *music therapy; Autism; Rehabilitation treatment; self-isolation*

## 1. Introduction

The harmful effects of autism are numerous and can have a profound impact on individuals and their families. Autism, or Autism Spectrum Disorder (ASD), is a neurodevelopmental disorder characterized by difficulties in social interaction, communication, and repetitive behaviors. One major harm of autism is the challenge it poses to social interaction. Individuals with autism often struggle with understanding and interpreting social cues, making it difficult for them to build and maintain relationships. This can lead to feelings of isolation, loneliness, and even depression. Difficulty with communication, including both verbal and non-verbal cues, further exacerbates social challenges, hindering the individual's ability to express their needs, thoughts, and emotions effectively. Another harmful aspect of autism is the impact it has on academic and cognitive development. Many individuals with autism may experience delays or difficulties in areas such as language, learning, and problem-solving skills. This can impede academic progress and limit educational and career opportunities. Intellectual disability is also common among individuals with severe autism, further hindering their overall functioning and independence. In addition to social and cognitive challenges, autism can also lead to a range of sensory sensitivities. Individuals with autism often experience heightened sensitivity to sounds, lights, textures, and other sensory stimuli<sup>[1]</sup>. This can result in sensory overload and anxiety, making it challenging to navigate everyday environments and activities. These sensory sensitivities can also contribute to challenging behaviors, as the individual may resort to repetitive or self-stimulatory behaviors in an attempt to cope with overwhelming sensations. Furthermore, autism can place significant stress and burden on families. The constant need for specialized care, therapies, and interventions can be financially and emotionally draining. Families may also experience increased levels of stress and frustration due to the various challenges associated with autism, including managing behaviors, accessing appropriate services, and advocating for their loved one's needs. Autism is a disease that many countries in the world are concerned about, and no good cure has been found so far. Music can effectively break the closed world of children, and then let children realize the existence of people, and effectively establish the connection between children and the outside world. Music therapists can develop appropriate solutions according to the specific situation of children, and then effectively alleviate the symptoms of autism in children.

## 2. Analysis of the influence of music therapy on autistic children

### 2.1 The importance of depression intervention

Over the past few decades, there has been a greater recognition and understanding of autism spectrum disorder (ASD) among medical professionals, educators, and the general public. This increased awareness has led to improved diagnostic criteria and more accurate identification of individuals with autism. The diagnostic criteria for autism have evolved over time, resulting in a broader definition and inclusion of more individuals on the spectrum. This expansion of the diagnostic criteria has contributed

to the higher reported rates of autism. There is ongoing research exploring the potential role of various environmental factors in the development of autism<sup>[2]</sup>. These factors include exposure to certain chemicals, pollutants, infections during pregnancy, and parental age. However, the specific impact of these factors on the increasing prevalence of autism is still being studied and is not yet fully understood. Research has consistently shown that genetic factors play a significant role in the development of autism. There is evidence suggesting that certain genetic mutations or variations may increase the risk of developing autism. Advances in genetics research have allowed for better identification of these genetic markers, which has contributed to the rise in reported cases of autism. As awareness and understanding of autism have increased, so has reporting and data collection. Better surveillance systems and the inclusion of autism in national health surveys have contributed to the higher reported prevalence rates.

Music provides a non-verbal form of communication, allowing children with autism to express themselves in a way that may be difficult through traditional spoken language. Music acts as a medium through which they can convey their emotions, thoughts, and experiences. It allows them to communicate and connect with others on a deeply emotional level, bridging the communication gap that exists for many individuals with autism. Furthermore, music has a calming and soothing effect on individuals with autism. It helps to reduce anxiety and stress, which are often common symptoms of autism. Through rhythmic patterns, melodic tunes, and repetitive nature of music, it helps to regulate their sensory experiences, providing a sense of structure and predictability. Moreover, music therapy, which involves the use of music as a therapeutic tool, has been widely used to enhance cognitive abilities in individuals with autism<sup>[3]</sup>. Playing musical instruments, engaging in singing, and participating in musical games and activities can improve their attention span, memory, and motor skills. It also aids in developing their social skills, such as turn-taking, sharing, and cooperation, as music often involves group activities and collaboration. Additionally, music offers a form of self-expression and self-discovery for children with autism. It empowers them to explore their creativity and individuality, fostering a sense of identity and self-confidence. Through music, they can develop their own unique abilities and talents, which can further boost their self-esteem and overall well-being. In conclusion, music has a profound impact on promoting the physical, emotional, and cognitive development of children with autism. Its ability to facilitate communication, reduce anxiety, enhance cognitive abilities, and nurture self-expression makes it a powerful tool in improving the lives of individuals with autism, enabling them to experience joy and fulfillment in their journey towards growth and self-discovery.

## ***2.2 Music can promote perceptual development in children with autism***

Many autistic children may have certain defects in their perceptual ability. Some autistic children are slow in their perceptual ability, and some autistic children are sensitive in their perceptual ability. Music therapy can design music and dance according to the characteristics and individual needs of autistic children, so as to provide a series of auditory and visual stimuli for autistic children, further enrich children's sensory experience, enhance children's ability to perceive information, stimulate the brain activity of autistic children to varying degrees, and effectively promote the development of children's perceptual ability. Music can indeed facilitate the perceptual development of children with autism.

Autism is a developmental disorder that affects communication, social interaction, and behavior. One of the key characteristics of autism is sensory processing difficulties. Many individuals with autism experience either hypersensitivity or hyposensitivity to sensory information. This can result in difficulties in processing the abundance of sensory stimuli in their environment. Music has been found to be a powerful tool in helping children with autism regulate their sensory experiences. It provides a structured and predictable auditory input that can help in reducing anxiety and creating a calming effect. Through its rhythm, melody, and harmony, music helps children with autism focus their attention, which can enhance their perceptual abilities. Studies have shown that music therapy interventions can improve various aspects of perceptual development in children with autism<sup>[4]</sup>. For example, it can enhance their auditory perception by improving discrimination and recognition of different sounds and patterns. This can be beneficial in improving their ability to understand and interpret speech. Additionally, music can also improve motor coordination and body awareness. Through rhythmic activities such as clapping or playing instruments, children with autism can develop better kinesthetic perception and control. This can contribute to their overall motor development and coordination skills. Furthermore, music therapy can also facilitate social interactions. Group music therapy sessions provide opportunities for children with autism to engage with others in a structured and enjoyable environment. They can learn to collaborate, take turns, and communicate non-verbally through music. Through these interactions, their social skills and emotional expression can be developed.

In conclusion, music can play a significant role in promoting the perceptual development of children with autism. By providing a structured and predictable sensory input, enhancing auditory perception, improving motor coordination, and facilitating social interactions, music therapy interventions can positively impact the lives of individuals with autism.

### ***2.3 Music can promote language development in children with autism***

In music therapy, words learned by the child can be incorporated into lyrics, and the autistic child can sing repeatedly. Children with autism are more likely to remember lyrics in a musical environment, thus achieving the purpose of promoting language development. The main inspiration of music therapy to induce the language ability of autistic children comes from the fact that infants communicate effectively through sound and rhythm in the process of learning language. Some babies can sing and recite poems when they are very young, mainly because the language has rhythm and is easy to remember. Therefore, in the course of the treatment of autistic children, the effective combination of music can promote the development of autistic children's language ability on the basis of strengthening memory. Music can indeed promote language development in children with autism spectrum disorder (ASD). There are several reasons why music can have a positive impact on their language skills<sup>[5]</sup>.

Firstly, music has a rhythmic structure that helps children with ASD establish a sense of predictability and organization. Many individuals with autism struggle with sequencing and pattern recognition, but the rhythmic patterns in music provide a structured framework that can help them process and understand language more easily. Secondly, music has an inherent emotional quality that can capture the attention and engage children with ASD. Many individuals with autism have difficulties with social and emotional interactions, but music can help them connect and attune to the emotions expressed in songs or music pieces. This emotional connection can facilitate their engagement in language activities and encourage them to practice and develop their own verbal and nonverbal communication skills. Moreover, music can be used as a tool for individualized and interactive therapy sessions. By incorporating speech and language activities into musical experiences, therapists and educators can create a motivating and enjoyable learning environment. For example, using songs with repetitive lyrics or simple melodies can enhance language comprehension and production in children with ASD. Furthermore, music therapy can stimulate various areas of the brain that are involved in language processing. Research has shown that music activates both hemispheres of the brain, which can strengthen connections between different language-related regions. This enhanced neural processing may contribute to improved language skills in children with ASD.

In conclusion, music can be a valuable and effective tool for promoting language development in children with autism. Its rhythmic structure, emotional engagement, interactive nature, and impact on brain functioning make it an ideal medium for facilitating language skills in individuals with ASD.

### ***2.4 Music can delight autistic children physically and mentally***

Autistic children are emotionally unstable, often hyperactive and impatient, and will lose their temper when they encounter unhappy things. If autistic children listen to their favorite music, they can effectively relieve their mood, and they can also be encouraged to let them vent their inner repressed emotions by tapping, and then cooperate with the body rhythm to relieve their emotions. Therefore, music activities can allow autistic children to enjoy successful experiences for a certain period of time, build autistic children's self-confidence, and promote the development of autistic children's social communication skills. Music can indeed promote the emotional and physical well-being of children with autism. The therapeutic benefits of music have long been recognized, and for children with autism, these benefits can be particularly significant.

Firstly, music has the ability to engage individuals with autism on multiple levels. It allows them to express themselves non-verbally and provides an avenue for emotional release and communication<sup>[6]</sup>. Many children with autism struggle with verbal communication, and music can serve as a powerful tool for them to express their feelings and thoughts. Additionally, music can help children with autism regulate their sensory experience. Individuals with autism often have heightened sensitivity to sensory stimuli, and music can provide a structured and predictable auditory input that helps them to focus and reduce anxiety. Furthermore, rhythmic patterns in music can assist in improving motor skills and coordination, which can be challenging for children with autism. Moreover, music therapy can enhance social interaction and engagement. Group music activities provide opportunities for children with autism to collaborate, share, and develop social skills. The structure and predictability of music can create a safe

and predictable environment for children with autism to interact with others. Lastly, music can promote relaxation and decrease stress levels. Research has shown that listening to calming music can reduce the cortisol levels, thus lowering stress and anxiety. This can be particularly beneficial for children with autism who often experience heightened levels of stress.

In conclusion, music has a profound impact on children with autism. It can facilitate communication, regulate sensory experiences, enhance social interaction, and promote relaxation. Incorporating music therapy into the lives of children with autism can help them to experience greater emotional and physical well-being. Music can indeed promote a sense of well-being and enhance the overall development of children with autism. Autism, a complex neurodevelopmental disorder, affects a child's social interaction, communication, and behavior. However, music has shown promising benefits in improving the quality of life for these children.

### **3. Music therapy strategies for autistic children**

#### ***3.1 Clear goals and implement personalized music teaching***

Music teaching for autistic children is a systematic teaching system. Colorful music teaching methods, personalized music teaching content and professional music teachers are all important components of music activities. However, since this kind of music education is for autistic children, in the process of music education, therapists should be familiar with the personality characteristics of each autistic child, make clear the teaching goals, and choose the best teaching methods, so as to promote the development of autistic children and make every autistic child adapt to the current music teaching content in music education activities. For example, Little L has been suffering from autism since childhood, but he loves piano very much and has an extraordinary memory and comprehension of music scores. Teachers teach students according to their aptitude and spend a lot of time training Little L every day, thus promoting the further improvement of Little L's piano skills<sup>[7]</sup>.

When it comes to providing music education to children with autism, it is crucial to approach their unique needs with respect and individualized instruction. Autism is a developmental disorder characterized by challenges in social interaction, communication, and repetitive behaviors. Therefore, creating a suitable music curriculum while considering their individuality is of utmost importance. Firstly, respecting the individuality of children with autism is key. Each child with autism has their own set of abilities and challenges, so it is essential to take the time to understand their particular needs and preferences. By recognizing and respecting their individuality, we can tailor the music education to better suit their unique requirements and abilities. Secondly, selecting appropriate music pieces for children with autism is vital. Some children with autism might have hypersensitivity to certain sounds or textures, which might make it necessary to choose music that is calming and soothing. Soft melodies and carefully chosen instruments can foster a positive learning environment. It is also important to consider the tempo, rhythm, and complexity of the music, as children with autism might respond differently to various musical elements. Finally, incorporating personalized teaching methods is essential when providing music education to children with autism. Each child with autism has their own learning style and preferences, so it is essential to adapt the teaching methods accordingly. For instance, visual aids, such as pictures or charts, can be effective in facilitating understanding and engagement. Furthermore, breaking down tasks into smaller, manageable steps can help enhance their learning process.

In conclusion, providing music education to children with autism requires a respectful and individualized approach. By recognizing their unique needs and preferences, selecting appropriate music pieces, and tailoring teaching methods, we can create a meaningful and effective music education experience for these children. Through this personalized approach, we can support their learning and enhance their overall development.

#### ***3.2 Gather information to gain insight into children's music preferences***

It is very difficult for autistic children to really cure, mainly because autistic children have certain defects in social communication, language communication and interests. Therefore, when autistic children enter the treatment room to start treatment, the therapist should carefully observe, and then collect information about autistic children, and conduct an effective analysis of autistic children's music behavior, so as to further understand autistic children's strengths and psychological needs. With regard to the music therapy program for L students, teachers fully tap L's potential, effectively utilize the limited educational resources of the school, constantly explore new teaching methods, and combine L's physical

and mental development reality, interests, hobbies and life experience to give piano teaching to L students, and maximize L's advantages.

To implement music education for children with autism, it is essential to understand their preferences in music and design a variety of activities to encourage their active participation in music expression. Children with autism may have unique sensitivities to different sounds and types of music. Some may enjoy soft and calming melodies, while others may have a preference for more stimulating and upbeat rhythms. By observing their reactions and consulting with their parents or caregivers, educators can gain insights into the specific musical preferences of each child. Once the preferences are known, educators can design activities that incorporate these preferred elements. For instance, if a child shows a preference for classical music, activities could include listening to and discussing famous classical compositions, learning about different musical instruments used in classical music, and even experimenting with composing their own short melodies using classical techniques. To encourage active participation, it is important to offer a range of options for the children that cater to their different abilities and interests. Some children may excel at playing musical instruments, while others may have a talent for singing or dancing. By providing a variety of activities, children can choose the ones that resonate with them the most, allowing them to engage with music in a way that suits their abilities and interests. Incorporating multisensory elements into music activities can also be beneficial. For example, using visual aids such as colorful props or sign language alongside music can enhance the overall learning experience and make it more engaging for children with autism. Additionally, incorporating movement and dance into music activities can further encourage their active participation and self-expression.

In conclusion, to effectively implement music education for children with autism, it is important to understand their individual preferences in music and design a range of activities that cater to their unique needs. By doing so, educators can create a supportive and inclusive environment that encourages active participation and self-expression in music for children with autism.

### ***3.3 Monitor the treatment process***

In the process of music therapy for autistic children, the treatment process of autistic children should be monitored, and the gap between the therapeutic effect and the expected effect of autistic children should be evaluated in real time. If the treatment of autistic children has achieved the expected therapeutic effect, the status quo should be maintained and continued. If the expected effect is not achieved, it should be corrected in time and the treatment process should be re-examined to provide a basis for subsequent treatment. Xiao L's piano education program is relatively successful, and he has achieved excellent results in piano competitions held by the school and all walks of life in China, which has promoted the overall improvement of his piano skills and laid a foundation for his later treatment of autism.

Teachers need to strengthen supervision and management of activities to prevent conflicts among children with autism and to gain a better understanding of the psychological state of each child. Autism is a complex developmental disorder characterized by difficulties in social interaction, communication, and repetitive behaviors. Children with autism often struggle with social interactions and may have sensory sensitivities, making it challenging for them to participate in group activities without guidance and support. By strengthening supervision and management, teachers can proactively intervene and prevent conflicts. They can observe children's interactions closely, identify potential triggers, and provide appropriate guidance and support to help children with autism navigate through social situations. This can help create a positive and inclusive environment where conflicts are minimized, and children feel safe and supported. In addition, teachers should focus on understanding the psychological state of each child. Autism is a spectrum disorder, and each child with autism has unique strengths, challenges, and needs. By developing a comprehensive understanding of their psychological state, teachers can tailor their approach to better support individual children. They can learn to recognize signs of distress or anxiety, detect any changes in behavior or mood, and intervene promptly to address their needs. This can help prevent situations that may lead to conflicts and promote the overall well-being of children with autism. Furthermore, teachers could consider implementing strategies such as visual schedules, social stories, and sensory breaks to support children with autism during activities. Visual schedules provide a clear structure and routine, helping children understand what is expected of them and reducing anxiety. Social stories can be used to explain social situations and appropriate behaviors, providing guidance and promoting social interaction skills. Sensory breaks can help children regulate their sensory experiences and manage sensory overload, which can contribute to reducing conflicts and promoting a positive atmosphere.

Overall, by strengthening supervision and management, and by gaining a better understanding of the

psychological state of each child with autism, teachers can create an inclusive and supportive environment where conflicts are minimized, and children's well-being is prioritized.

#### 4. Conclusion

To sum up, music therapy can play a positive role in the rehabilitation process of autistic children. Therefore, in the process of using music therapy, teachers should develop scientific and standardized music therapy programs, effectively eliminate the psychological barriers of autistic children, help autistic children concentrate, cultivate imagination, and further develop autistic children's language ability. It is worth noting that while music education shows promise in enhancing the overall development of children with ASD, it should not be considered a standalone intervention. Music education should be integrated into a comprehensive treatment plan that includes various therapeutic interventions, such as speech therapy, occupational therapy, and behavioral interventions. This research provides valuable insights into the potential benefits of music education for children with ASD. Further research should be conducted to explore the specific mechanisms underlying these benefits and to develop evidence-based guidelines for implementing music education programs for children with ASD. Overall, the findings suggest that music education can play a significant role in improving the lives of children with ASD, promoting their social and emotional well-being, and enhancing their overall quality of life.

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