

# Rehabilitation Effect of Behavioral Analysis Therapy on Sensory and Perceptual Impairment of School-Age Autistic Children

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**Abstract:** The cause of school-age autism is unknown, and the effect of rehabilitation is not good. In order to solve the above problems, combined with behavioral analysis therapy, the rehabilitation effect of school-age autistic children with sensory and perceptual impairment was studied. Through early rehabilitation training, autistic children's self-care, cognition, social interaction and daily life adaptability were improved. The rehabilitation training methods, rehabilitation institutions and rehabilitation workers of autistic children at home and abroad were summarized, and some suggestions were put forward the countermeasures and suggestions are expected to be helpful to the rehabilitation of autistic children.

**Keywords:** Behavioral analysis therapy; Autism; Sensory and perceptual disorders

## 1. Introduction

As we all know, autism is a widespread developmental disorder, more common in children. Based on this, combined with behavioral analysis therapy, the rehabilitation effect of school-age autistic children with sensory and perceptual impairment was studied. The main performance of children with autism was language and expression. Speech is an important means for people to establish contact, understand the world and express their emotions [1]. The language barrier of autistic children has a certain influence on their healthy growth. In fact, children with autism also have a variety of intellectual, cognitive and emotional problems. The obstacles and defects beyond the language ability make them face more serious practical problems. In order to understand the language barrier and language characteristics of autistic children more comprehensively and deeply, help school-age autistic children overcome language and communication barriers, and realize normal communication and rehabilitation training, it is necessary to carry out systematic research combined with specific cases to find more effective rehabilitation methods and measures.

## 2. Analysis of Sensory and Perceptual Disorders in School-Age Autistic Children

The survey shows that the number of children with autism has increased year by year in recent years. With the improvement of social and economic level and people's cognitive ability, the rehabilitation of autistic children has attracted more and more attention [2]. Timely inter-

vention can relieve the symptoms of autistic children and improve their social communication ability. In order to ensure the research effect, the classification of perception and perception disorders of school-age autistic children is analyzed [3]. At present, the rehabilitation training methods of autistic children mainly include: special effects, masturbation, sensory integration training, drugs, etc. It has a positive effect on the remission of autistic symptoms and the improvement of social function in children. However, as a lifelong disease, autism has not been effectively treated in the medical field. The research on the rehabilitation training methods of autistic children, such as symptom relief, social ability enhancement, bringing hope to family and reducing social burden, needs to be further studied [4]. The characteristics of autistic perception disorder, first of all, is manifested in language communication problems, including voice, tone, quality, volume and many other aspects. The most prominent acoustic feature of autistic children is the abnormal development of suprasegmental phoneme. Most autistic children read an article or a song or a sentence, often a word for word, it is difficult to continue, more lack of control, inhibition, natural pause [5]. Autistic children can also have aphasia, which is called aphasia. This is a serious situation, but it does exist. Aphasia refers to the language disorder of autistic children, which is very serious. Based on this, the evaluation criteria of perception and perception impairment of school-age autistic children are standardized as follows.

**Table 1. Evaluation criteria for sensory and perceptual impairment of school-age autistic children**

Degree score	Language communication performance	Nonverbal communication performance
Equal to age 1 point	Age appropriate language Language dullness	Age appropriate nonverbal communication
Mild abnormality: 2 points	Some imitate language Lack of language, imitation of language	Nonverbal communication is slow. Communication is only a simple or vague response, such as pointing out or getting what he wants
Moderate abnormal 3 points	Sometimes there is a strange language Seriously abnormal language	Lack of nonverbal communication, will not use or respond to non-verbal communication
Serious abnormality 4 points	Lack of understanding of language Use special and strange language	Particularly bizarre, unexplained nonverbal communication

The characteristics of autistic children's language disorders, first of all, are manifested in the phonetic problems, including voice, voice quality, volume, sound quality and so on; and the most significant sound feature of autistic children is the abnormal development of suprasegmental phoneme. That's why there's such a sound. Most autistic children read an article, a song, a sentence, often a word, difficult to adhere to, more lack of control, depression, natural pause. Autistic children also have aphasia, the so-called aphasia [6]. This is a serious problem, but it does exist. The aphasia problem of autistic children is very serious. Another feature of autistic children when their pronunciation is low is when their pronunciation is low. For example, when you express a sentence, the volume may decrease and the tone will decrease, but in the end you will suddenly lose control, the tone will rise and the volume will increase. And the pronunciation is fuzzy, has the hoarse murmur and the nasal sound mixed feeling. In addition, the language characteristics of autistic children are mainly reflected in their language content and expression, that is, the practicability of language [7]. Although language content and language function can be studied separately, there is an internal relationship between them for autistic children. Firstly, there are some problems and obstacles in the use of some words, such as "you, me, he", which are easy to be confused and misused; secondly, the language characteristics of autistic children are also manifested in repetition and "learning to speak". Autistic children often appear "toddler" when they imitate others, which is an inappropriate language phenomenon; thirdly, autistic children have difficulties in vocabulary conversion, that is, in different contexts, the ability of vocabulary conversion is poor, the vocabulary is small, and the thinking is rigid, so it is difficult to change and rotate words; finally, autistic children are confused in the logical relationship of language [8]. Most of the time, it's

because the words don't convey the meaning or the sentences are not coherent.

### 3. Rehabilitation Methods of Sensory Perception Disorder in Autistic Children

Based on the investigation of the status quo of the treatment of autistic children's perception disorder, it is found that the rehabilitation resources of autistic children are very scarce. At present, in the process of autistic children's sensory impairment rehabilitation training, there are more rehabilitation training equipment, and other equipment need to be strengthened. The main reason for this phenomenon is that special education schools do not invest enough in the education and rehabilitation of autistic children [9]. Hearing impairment, mental retardation, cerebral palsy and autism are the main types of special education schools, but compared with other types of schools, the number of such schools is less. In order to obtain re education resources, in the case of limited funds, first of all, according to the optimal principle, consider to meet the needs of the majority of students, and then meet the needs of a small number of students. Therefore, special education schools lack teaching pictures, rehabilitation software, rehabilitation equipment and other resources suitable for autistic children [10]. In addition, many special education schools lack of effective psychological assessment tools such as PEP and edu, which can not provide psychological guidance for autistic children. Because of the scale of use, special training is needed [11]. Many schools do not have relevant training, so they have no tools. In order to better carry out effective rehabilitation training for school-age autistic children with perceptual impairment, we first standardize the characteristic level of children's sensory and perceptual impairment, as follows:

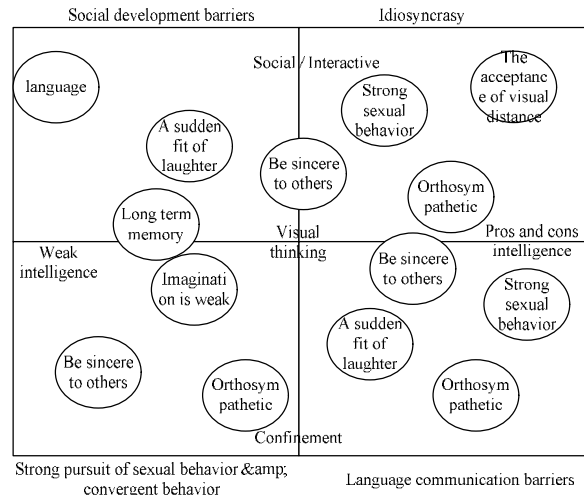
**Table 2. Characteristic grades of children's sensory and perceptual impairment**

Time slot	Perception	Expression
The 1 month	Laugh reflexively at movement and touch, and respond to familiar voices and sounds	Make a purring voice and make different crying responses to different sound stimuli
The 2 month	Begin to notice the voice, laughter, and respond to your voice	Murmur and cry for different feelings
The 3 month	Pay more attention to the environment, cry when you hear angry voice and laugh when you hear happy voice	Ah, learn to speak, laugh and start two syllables
The 4 month	Turn your head when you hear noise and voice	Repeated monosyllabic phonetics
The 5 month	In response to the laughter that pleases you, you begin to perceive the change in tone and the meaning of intensity	Begin to use the voice of learning voice to attract attention and express their own needs

The 6-7 month	Increase awareness and response to the environment	Begin to speak sounds and express communication in body language such as speech and non-verbal voice (hand, expression, eyes, face, laughter)
The 8 month	Pay more attention to new words, respond to specific people, and know your name	He began to use the intonation and began to accumulate the meaning of the words
The 9-12 month	Respond to some words, such as "no see you", nod and shake your head for simple questions and dialogues, and obey simple instructions	

At present, the most commonly used training methods for autistic children include daily language training, oral ability training and flexibility training. Tongue exercises mainly include mouth opening, mouth opening, tooth exposure and protrusion [12]. Tongue movement can exercise its flexibility, while elastic movement mainly includes massage, lip massage, pressing and whole body massage to enhance the flexibility and coordination of these muscles. The increase of physical activity is related to the language development of autistic children. For the improvement of autistic children's language expression ability, the methods and skills of physical exercise are mostly used; most of the autistic children are lack of sports ability to varying degrees, and do not like sports, which seriously affects the regulation of breathing. For autistic children, we should strengthen exercise rehabilitation training and pay attention to the formation of daily behavior habits. Running, fitness, up and down, sit ups and so on are good exercise methods and choices. At present, many people are constantly exploring and testing new technologies and methods, such as computer technology for language rehabilitation training for children with language disorders and autism [13]. Among them, high-tech is the most famous, including "resuscitation doctor" rehabilitation treatment equipment and hyperbaric oxygen therapy. The principle of assistant rehabilitation based on behavior analysis is to encourage autistic children to actively participate in communication so as to improve their communication ability and enthusiasm. According to the characteristics of autistic children, the system software can scientifically adjust the training parameters, start a unique interest training mode, and effectively evaluate the language training and rehabilitation status; hyperbaric oxygen therapy can make autistic children carry out systematic rehabilitation training in a safe, closed and high-pressure environment. In this process, doctors play a leading role. Hyperbaric oxygen chamber only provides special environment and space [14]. In this process, the therapist can train the communication ability of autistic children through direct communication and observation. At the same time, rehabilitation

requires the joint efforts of autistic children and their parents. We should continue to encourage autistic children to enhance their interest and initiative in rehabilitation treatment, avoid strong resistance and resistance psychology, and affect the rehabilitation effect [15]. Before treatment, the treatment principle, operation method and basic inspection skills should be understood. Based on this, the rehabilitation methods for perception impairment of autistic children are scientifically divided, as shown in the following figure:



**Figure 1. Rehabilitation methods for perception impairment of autistic children**

Autistic children have social disorder, do not like collective activities, do not like to communicate with the outside world, do not like the actions of others, do not like to ask and communicate. On this basis, teachers can design relevant courses combined with the principle of behavior analysis, so as to enhance the sense of teamwork of autistic children and improve their communicative and social skills. Teachers can design team relay competition, group pass, group message games and so on. In the process of play, autistic children need to complete the docking with others and deliver objects or words. To guide autistic children to express their ideas through the things or language they have mastered, guide them to actively communicate with others, improve their social communication ability, and respond to the words and deeds of others, so that autistic children can find the pleasure of communication with others and cultivate their willingness to communicate with others. As a social vulnerable group, autistic children need more attention, guidance and help them to get out of the predicament and improve their language ability. Although there are more studies on language disorders in autistic children, we still need to understand the severity of the problem. Therefore, we should analyze the specific problems and take different

treatment and rehabilitation programs according to different situations. In practice, we should pay attention to the summary and induction of autistic children, and carry out continuous personalized rehabilitation training for each case. No matter what kind of rehabilitation method is used, the most practical scheme is to achieve a certain effect. For autistic children, we should prevent their recurrence, and maintain the trend of continuous prevention to avoid more children falling into loneliness. Finally, the rehabilitation plan is "dead", genius is "living", so we must devote ourselves to the rehabilitation training of autistic children. Language rehabilitation of autistic children is a long and difficult process, and the short-term effect is not obvious. Maintain enough patience and actively cooperate with the therapist to achieve the desired results. Autistic children have social disorder, do not like collective activities, do not like to communicate with the outside world, do not like the actions of others, do not like to ask and communicate. On this basis, teachers can design relevant courses to enhance autistic children's sense of teamwork and improve their communicative and social skills. Teachers can design team relay running, team passing, group dialogue and so on. In the process of play, autistic children need to complete the docking with others and deliver objects or words. Teachers should guide autistic children, encourage them to use the things or words in their hands, guide them to communicate with others, increase their knowledge, respond to people's language or behavior, so as to improve their social skills, make autistic children find the fun of playing with others, and have the hope of communicating with others.

**4. Analysis of Experimental Results**

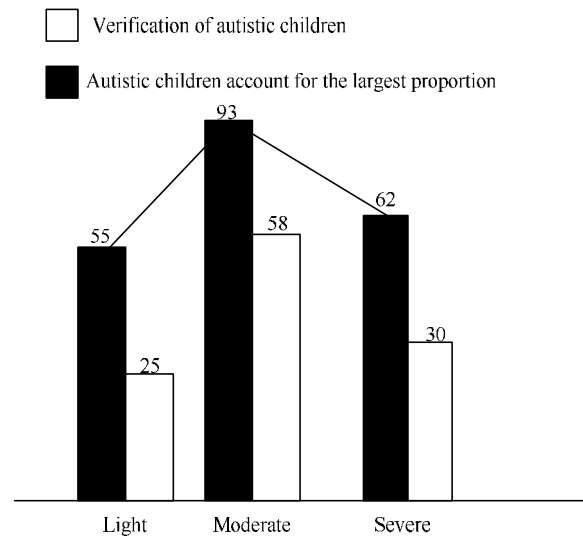
Taking 115 special education schools in 18 provinces of China as the research objects, this paper conducted a questionnaire survey on the education and rehabilitation teachers of autistic children. The effective rate was 91.2%. According to the status quo of education and rehabilitation of autistic children in special education schools, a questionnaire for educational rehabilitation of autistic children was developed according to the interview content. Questionnaires were distributed and collected to special education schools in the form of training, mailing, e-mail and entrance examination. No matter what method is adopted, relevant researchers should be trained and the matters needing attention and problems should be clarified. The school was also interviewed. Excel and SPSS16.0 for data processing. The basic information of the experimental research objects is shown as follows:

**Table 3. Basic information of experimental subjects**

Number of people	Age	Male	Female
Less than 10 people	5	5	5

10-30	6	18	12
50-70	7	27	23
70-100	8	54	46
Over 100	9	52	50

The survey shows that the number of autistic children in schools is less than 10, the number of autistic children in 33 schools is between "10-30", 10 schools are less than 30-50, 10 schools are less than 50-100, and 3 schools are less than 100. This paper takes the autistic children who receive rehabilitation training in different schools as the research object, and discusses the degree and proportion of them. Details are shown in the figure.



**Figure 2. Analysis of the degree of autistic children**

The survey results show that in these schools, the proportion of children with moderate autism is the largest, among which children with severe autism account for 30, and children with mild autism account for 25. It can be seen that the proportion of autistic children in special education schools is large, and the rehabilitation of autistic children in special education schools is facing challenges. The results showed that the prevalence rates were: language expression ability (100), communication ability (97), cognitive ability (91), corrective behavior (90), social adaptation (86), perception (82), and motor ability (81). The results show that special education schools can basically solve the problem of education and rehabilitation training of autistic children. Based on the survey of rehabilitation training methods (see Table 5), the order of occurrence frequency is: sensory integration training (93); music therapy (70); behavior application analysis (62); image communication (51); auditory integration training (51); structural teaching (50); interpersonal development intervention (36). According to the survey results, sensory integration training is a common training method, but other rehabilitation training methods need to be

strengthened. In order to better carry out rehabilitation training for autistic children with sensory and perceptual impairment, the content and satisfaction of autistic children's education and rehabilitation were investigated and counted. The specific structure is shown in the table below:

**Table 4. Rehabilitation content and satisfaction of autistic children**

Rehabilitation content	Frequency	Satisfaction of traditional methods	Satisfaction of this method
Communication skills	97	68	90
Social adaptation	95	55	92
Correcting problem behaviors	91	62	92
Speech language ability	95	67	95
Cognitive ability	96	72	94
Sensory perception	97	80	95
Athletic ability	90	78	96
Application behavior analysis	94	75	90
Structured teaching Interpersonal development intervention Picture exchange communication	95	76	95
Sensory Integration Training	97	74	96
Auditory integration training	96	75	98
Music therapy	92	70	95

The results show that the autism behavior rating scale is a commonly used scale, but the application of PEP psychological education scale in the evaluation and training of autistic children is relatively less. The study found that through education and rehabilitation training, the language, communication, emotional behavior, cognitive ability and social adaptability of children with autism have been significantly improved. It shows that the effect of rehabilitation training for autistic children in special education schools is good. At present, some schools point out that autistic teachers are seriously insufficient and lack of systematic training. It shows that there are many problems to be solved in the rehabilitation work of autistic children in special education schools. Through the investigation of the number of autistic children and the degree of disability in 114 special education schools, it is found that the proportion of moderate and severe autistic children in special education schools is high. At the same time, the study also conducted a survey on schools, and found that autistic children in special education schools are becoming more and more serious, and the proportion is also increasing, which is consistent with the results of

the questionnaire survey. At present, there are three kinds of rehabilitation approaches for autistic children: rehabilitation institutions, integrated classes in general schools and special education schools. Although rehabilitation institutions can carry out special training for some obstacles, the professional development of rehabilitation institutions is not balanced, and the level of each institution is uneven, which seriously affects the effect of rehabilitation training for autistic children. The integration class of ordinary schools is a way to make autistic children enter the ordinary class level learning, but its implementation needs comprehensive consideration and perfect supporting measures if there are special resource teachers and resource classrooms to provide one-to-one and targeted personalized education for autistic children, otherwise, it will be detrimental to their development. The results showed that only some children with mild and moderate autism entered ordinary schools, while children with moderate and severe autism entered special schools. In view of the increasing number of disabled students, some special education schools in China have set up autistic children's education and rehabilitation department. Teachers will specially develop personalized education and rehabilitation training programs for autistic children. Special education schools have become the main places for autistic children's education and rehabilitation.

### 5. Conclusion

Childhood autism, a subtype of developmental disorders, is more common in men and occurs in infancy. Autistic children are a special type of children. Compared with normal children, they are in a certain degree of disadvantage. We need to establish a long-term mechanism to pay attention to autistic children, pay attention to autistic children's behavior analysis therapy for the rehabilitation of school-age autistic children's sensory and perceptual impairment. Starting from the idea of language rehabilitation training, this paper focuses on the language characteristics of autistic children, the status quo of rehabilitation training, the existing deficiencies and related problems, and draw the corresponding conclusions, which is helpful for future research Reference value.

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