

The application and empirical study of sports activities in the intelligence development of children with autism in China.

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Abstract

Autism is a kind of psychological disease, which is hard to cure. It is not only affected by the external factors, but also congenital. This paper studied from the perspective of Chinese autistic children's intelligence exploitation to emphasize the importance of role that sport plays in it. It conducted the research aiming at the system construction of autistic children's sports activities and analyzed the value of system construction of autistic children's sports activities from the aspects such as: the government agencies, social activists, autistic children's parents and autistic children themselves; secondly, it carried out the comparison analysis on the behavioral ability of autistic children and normal children and studied by taking the autistic children's intelligence and their balance ability of participating in sports game as the breakthrough point. In this study, the run test, the comparative analysis and variance analysis in the SPSS software are used comprehensively. It gets the conclusion that part 4 group is relatively good for the overall construction supporting strength of the autistic children's sports events system, but there are still a small number of groups that do not support; there is a significant difference between the autistic children and normal children in aspect of intelligence, while after the training of the sports games, the autistic children's balance ability and intelligence have been changed significantly. Thus, the education and cultivation of the autistic children's intelligence are the most important at the present stage of the children work.

Keywords: Autism, Intelligence development, Sports activity, Run test, PPVT.

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Introduction

The autistic children, as the side with the most vulnerable strength in this group, their education and growth have been the focus of social attention. Whether the medical profession or academia, or even the sport, are all involved in the special educational problem of autism children and put forward some new ideas and new suggestions.

Family education is the most direct way for the autistic children to get education, and at the same time, it is also the aspect that influences the autistic children the most. Family members and the autistic children are together morning and night, and their movements all affect the behavior and thoughts of autistic children. To this, many scholars have made the research. For example, Li Anmao pointed out the importance of family education in the Relationship between Autistic Children's Behavior and Family Nurturing Environment, while the paper started from the perspective of sports training to study its influence on the special children's development and also pointed out that family education has an important influence on the development of special children, and the family educational environment can not only promote the development of special children, but also change the present

situation of the special children's education, which is also the key to improve autistic children's social adaptability at the same time. Another example, Liu Lulu's Control Study between Autistic Behavior and Cognition started from the perspective of autistic children's behavior and cognition to study their behavioral characteristics and also pointed out that in the cultivation of behavioral cognitive ability of the autistic children, through the way of participating in sports activities, it encouraged them to positively enter the society and to strengthen their social communication ability, which can promote the autistic children to adapt to the society and integrate in society as soon as possible [1-3].

Based on learning and concluding the predecessors' research results, this paper studied the intelligence development of autistic children, through analyzing the construction of autistic children's sports event system, as well as the change of autistic children's intelligence and balance ability after sports activities and the differences from the normal children, to thus emphasize the important role of sports activities in the process of curing the autism.

Construction System of Chinese Autistic Children's Sports Activity

Autistic children, as the vulnerable group of society, often live in the bottom of the society because of their physical defects, while their basic life ability is worse than normal children's, and various aspects also can't get good protection. Sports activities can not only relax the mood of children and comfort the mood, but also improve the mental health level of the autistic children, which is the key to affect the autistic children. Figure 1 below is the construction system of autistic children's sports activity system.

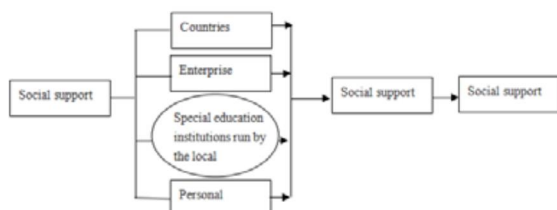


Figure 1. Autistic children sports system.

Analysis on the construction system of autistic children's sports activities can find that the basis of any system construction with the social support is also the most basic force, while the country, special educational institutions, individuals and others all are the core elements for the educational problems of autistic children. Only combining these core elements with the social support can play the role of social supporting force to the largest, so as to achieve the optimal effect of autistic children education, such as Table 1.

For building the system of autistic children's sports event, different people's views and supportive strength are different, which directly affects the building speed and process of autistic children's sports activity to a certain extent.

Table 1. Parties attitude to construction of autistic children's sports activity system.

| Percentage % | Very Support | Support | Do not support | Completely Indifferent |
|---------------------|--------------|---------|----------------|------------------------|
| Government Agencies | 45.2 | 30.1 | 20.8 | 3.9 |
| Social People | 43.3 | 35.2 | 19.7 | 1.8 |
| Autistic Parents | 48.2 | 37.7 | 13.5 | 0.6 |
| Autistic Children | 50.8 | 38.4 | 10.4 | 0.4 |

Comparative Analysis on Behavioral Ability of Autistic Children and Normal Children in China

There is the significant difference between autistic children and normal children no matter in terms of physical condition, mental factor, behavior or other aspects, here using the comparative analysis to study the intelligence of autistic children [4-7]. By comparing the difference significance

between the intelligence of autistic children and normal children, thus concluding.

Comparative analysis can be divided into the comparison of single index and the comparison of multi-index, namely the simple evaluation and comprehensive evaluation. The basic contents are as follows:

- (1) The comparability of connotation and denotation of research objects;
- (2) The comparability of time range of research objects;
- (3) The comparability of calculation method of the research objects;
- (4) The comparability of overall nature of the research objects,

Through comparative analysis on the above comparison principle, it uses the comparison of single objective, namely the comprehensive evaluation, to analyze the condition of all previous world martial arts tournaments. The relative number comparison is one of the most common analysis methods, that is, two interrelated indexes form the contrast relation, to study the quantitative relation between the research objects and carry on the comprehensive evaluation on them.

Comparison between the intelligence of autistic children and normal children

Autistic children and normal children not only have the difference in the aspects such as social ability, but also are significantly different in intelligence. Intelligence of autistic children tends to be about 2~3 times lower than that of normal children, and the training of their behavioral ability is also significantly related with acquired factors.

The acquired educational degree, the attention of the society, the parents' attention degree, the self-respect and self-confidence behavior of autistic children and others are all the key factors. Table 2 counts the difference in the intelligence of autistic children, children of mental retardation and normal children.

Table 2. Result statistics of autistic children's intelligence.

| | PPVT |
|--------------------------------|------|
| Autistic Children | 33.4 |
| Children of Mental Retardation | 48.8 |
| Normal Children | 75.5 |

By comparing the data of the autistic children, normal children and children of mental retardation, thus it can get the following statistic chart (Figure 2).

Through the statistical analysis above, we can see that compared with normal children, the autistic children's Peabody Picture Vocabulary Test (PPVT) value is the lowest, even lower than that of the children of mental retardation. Thus, the education and intelligence of autistic children are the priority

in the children work at the present stage, while the government and relevant departments must pay attention.

Therefore, in order to further analyze the significant difference existing in the intelligence of autistic children, children of mental retardation and normal children, now it uses the SPSS software to carry on the analysis of variance, thus determining the significance of the data among these three, which lays a foundation for further analysis.

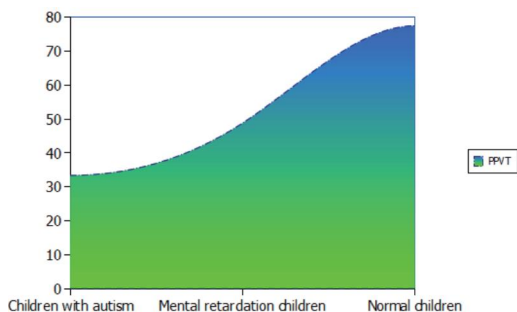


Figure 2. The results of statistical autistic children intelligence.

Variance analysis is to consider the effect size of factors on the index. Assuming there are two factors, A, B, A, B will be divided into several levels, and multiple tests will be conducted on each level to carry out the analysis of variance on the data, thus studying the significance of influence of two influential factors that are A, B on the research objects.

According to Table 2 and the statistical thinking of the variance analysis above, we can calculate to get the data result in Table 3 below by using SPSS software, analyzing the results.

Table 3. Variance analysis result of autistic children's intelligence.

| | PPVT |
|--------------------------------|------------|
| Autistic Children | 33.4r31.2 |
| Children of Mental Retardation | 48.8r12.56 |
| Normal Children | 77.5r12.02 |
| F Value | 14.01 |
| P Value | lj0.05 |

Through the above statistics Table 3 to conclude that the intelligence of autistic children is obviously lower than that of normal children, so to this end, the intellectual development of autistic children is still the important problem for curing the autism. For this, it is necessary to study the intelligence of autistic children and normal children.

Influence of sports games on balance ability of autistic children

Physical training is an effective way to cure autism. In aspect of the balance ability of autistic children, it has a very

significant effect. The Table 4 below is the change of autistic children's balance ability before and after physical training.

Table 4. Influence of physical training on autistic children's balance ability.

| | Before Training | After Training |
|----------------------------|-----------------|----------------|
| Single foot standing (s) | 3.8 | 9.2 |
| Balance beam (s) | 17.3 | 8.5 |
| Standing long jump (cm) | 43.3 | 82.4 |
| 10m*2 Shuttle run (s) | 14.4 | 11.8 |
| Sit-up (Number) | 13 | 20 |
| Softball Throwing (m) | 2.3 | 3.6 |
| Durable running (s) | 495 | 412 |
| 1min forward roll (Number) | 6 | 10 |

Figure 3 displays that, after the physical training, the autistic children's grades in single foot standing, balance beam, standing long jump and other projects have been significantly improved. It indicates that, after experiencing the physical training, the autistic children's balance ability has been increased, and the effect is obvious.

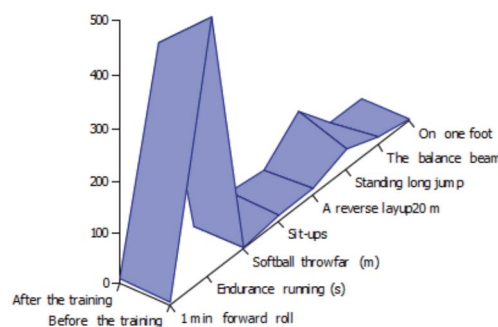


Figure 3. Sports training for autistic children's balance ability.

Conclusion

Through the comparative analysis on the behavioral ability of autistic children and normal children in China, it finds that there is the significant difference in the intelligence of the autistic children and normal children, and the intellectual development of autistic children is still the important issue to cure the autism. In addition, by comparing the change of balance ability of autistic children who participate in the sports game, it pays attention to emphasize the important function of sport in the autism and points out that the education and training issues of autistic children's intelligence are the priority among priorities in the children work at this stage.

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Reference

1. Hongling P, Yanling L. Case Study of Sports Intervention for Children with Autism. *China Sport Sci Technol* 2012; 48: 90-95.
2. Shichang H, Jiangzhu T. Comparative Study on Protective Legislation of Sports Right of Students with Disability. *J Wuhan Institute of Physical Education* 2012; 46: 28-33.
3. Yun X, Ling-zhi J. Effects of Motion Sensing Games on Children with Autism. *Chinese J Clin Psychol* 2016; 24: 762-767.
4. Zhiyong Z, Shuhong D. A Case Study on Physical Activity Games Intervention of Problem Behavior of Child with Autism. *JTUS* 2014; 27: 311-313.
5. Jingjing P, Yule J. Effects of Rhythmic Gymnastics Training on Postural Control Ability of Autistic Children. *J Shenyang Sport University* 2014; 33: 86-89.
6. Jianhua G. Dance Sport Teaching's Influence on Spontaneous Communication Behavior of Autistic Children. *Studies in Early Childhood Education* 2014; 6: 56-60.
7. Yandan W. Current Condition and Prospect of Special Physical Education of Universities under the Life Care in China. *China Sport Sci* 2006; 26: 64-69.

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