Received: 17 May. 2023 | Revised: 28 May. 2023 | Accepted: 14 Jun. 2023 | Published online: 26 Jun. 2023
RESEARCH ARTICLE

Journal of Global Humanities and Social Sciences
2023,Vol. 4(3)131-136
DOI: 10.47852/bonviewGHSS232011240304

Research on the Value of Sensory Integration Training in Families with Children Aged 3-6 Years

BON VIEW PUBLISHING

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Abstract: This article analyzes the value of sensory integration training for children aged 3-6 years from four aspects: the concept of sensory integration, the current status of research, the significance of sensory integration training, and a comprehensive analysis of the implementation of sensory integration training in the family. It is found that the family is the main activity place for children aged 3-6 years old, and parents, as the "first teacher of children", have irreplaceable importance in the development of children's physical and mental health by leading sensory integration training in the family.

Keywords: sensory integration; sensory integration disorder; family sensory integration training; children aged 3-6 years

Introduction

The phenomenon of sensory integration disorder has been increasing among children aged 3-6 years in recent years, causing much inconvenience to both the children themselves and their families. Most of the currently proposed sensory integration training methods need to be implemented in kindergartens or specialized training institutions. Since the family is the main place for preschool children, it is increasingly important to study the implementation of sensory integration training in the family.

1. Sensory integration concepts

The concept of Sensory Integration (SI) was first introduced by the famous British physiologist C.S. Sherrington. After that, Aryes, a clinical psychologist at the University of Southern California, formally proposed the theory of the sensory integration system in 1972. It refers to the ability of individuals to integrate sensory information, such as visual, auditory, olfactory, taste, touch, proprioception, balance, and movement, with information, knowledge, and memory already stored in the brain, and to respond meaningfully to the environment through the intake of sensory information (Wang, 2000).Sensory integrative dysfunction (SID) (hereafter referred to as sensory integration disorder) occurs when people are unable to carry out this process in its entirety and the organism is unable to respond correctly to external stimuli, auditory language disorders, and tactile defense disorders (Robert , 199 C.E.).

Sensory integration training is a method of improving the brain's processing and organization of sensory information and its composition through targeted physical exercises that stimulate different central nerves to gradually develop efficient and coordinated working mechanisms and make the sensory nerve centers work in a more coordinated and orderly manner (Chen, 2010) (hereafter referred to as sensory integration training). A combination of group training, individual psychological guidance, and parental cooperation can be used.

2. The current status of research on sensory integration

2.1 Research on sensory integration training and measurement and investigation of sensory integration

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(1) Sensory training

The current research on sensory integration training mainly focuses on problematic children, and the research objects are ADHD or autistic children, while the research on sensory integration training for normal children is less. Most of the training is limited to the implementation in specialized institutions, and there is little guidance for parents on how to cooperate with the sensory training of young children.

(2) Sensory integration measurement

The Sensory Integration Inventory developed by Dr. Els was first used by parents to test children with learning disabilities. Taiwanese scholars, such as Zheng Xinxiong, developed the "Sensory Integration Checklist for Children" based on the Chinese cultural background; in China, Ren Guiying and Wang Yufeng introduced and revised the Taiwanese version of the Sensory Integration Inventory (6-14 years old version) to establish domestic normative models by age and gender; later, other scholars, through pre-testing and validation of theory, developed a Later, some scholars developed a more comprehensive scale for assessing sensory integration functions through pretesting and theory validation and developed normative models for each dimension. The scale has good reliability and validity, and the normals of each dimension are valid and reliable and can be used for standardized assessment.

(3) Investigation on the rate of sensory integration disorder among children in different regions of China

A series of studies on sensory integration have been conducted in China since the 1990s. In Taiwan, Zheng Xinxiong used the "Children's Sensory Integration Checklist", which was developed based on the Chinese cultural background, to measure normal children and found that the rate of sensory dysregulation among normal school-age children was 15.9% and 28% among children with learning difficulties (Zheng , 1991). In 2012, Zhou Hong et al. studied preschool children in Haidian District, Beijing, and found that the rate of sensorimotor disorder in young children was 26.4%, with 19.3% and 7.0% for mild and severe disorders, respectively (Zhou et al., 2012). In general, it seems that the rate of sensorimotor disorders among young children in China has decreased in recent years, but it is still at a relatively high level; and less attention has been paid to the sensorimotor development of young children in remote areas, which still needs the attention of relevant personnel.

2.2 Research on specific manifestations of sensory disorders and influencing factors :

2.2.1 Specific manifestations:

(1) Visual integration disorder

The main manifestations are structural and spatial perception disorders. For example, they have difficulty in reading, skip lines in reading, have an inaccurate perception of spatial distances, inability to distinguish left from right, are easy to copy wrong numbers, reverse radicals, etc.

(2) Auditory integration disorder

The main manifestation of the disorder is language problems due to auditory problems. For example, they look around, do not listen to what others say, do not pay attention, have poor memory, and often forget what others say.

(3) Tactile Integration Disorder

The disorder is mainly related to the sense of touch. Some children are overly sensitive to touch, such as crying, timid, nail-biting, refusing to bathe and wash their hair, and unwilling to change clothes. The other part of the children showed tactile hypersensitivity, such as being uncooperative and clumsy.

(4) Vestibular balance disorder

The main manifestation is that the vestibular function of children is normal, but there is a problem with the integration of vestibular stimuli. For example, they have no sense of distance, poor coordination, tend to fall easily, hold things unsteadily, walk against the wall, are restless, and do not pay attention.

(5) Disorders of proprioceptive integration

The main manifestation of proprioceptive disorder is that there is a problem in body movement coordination, which leads to motor disorders. For example, slow movement in tying shoelaces and

buttoning, and frequent dropping of rice grains during meals.

2.2.2 Influencing factors

(1) Biological factors

①Young children's neurological damage and personality traits such as character and temperament can affect sensory integration. According to the research literature, the gender and age of the child also have an impact, with boys having a higher probability of developing sensorimotor disorders.

② Maternal pregnancy

Mainly, during the mother's pregnancy, viral infections, drug use, poor lifestyle habits, passive smoking, lack of exercise or rest, emotional instability, and severe pregnancy reactions can cause deterioration of the maternal environment and affect fetal development (Zhang et al., 2012). Secondly, the difference in the mode of delivery can also have an impact on the young child's sensory system. The fact that mothers do not breastfeed or rarely breastfeed after delivery is also a major reason. All of these factors can cause congenital deficits in sensory integration in young children.

(2) Environmental factors

①Educational environment

It refers to the educational atmosphere and education style created by parents or elders after the birth of infants and toddlers. On the one hand, due to the over-indulgence of parents and other family members, children do not have the opportunity to do what they can do, so they do not have the opportunity to exercise and develop their sensory perceptions, and thus cannot develop comprehensively and harmoniously. On the other hand, neglectful families lack rich and appropriate stimulation for toddlers because adults are busy with work and have less emotional communication with them, and parents do not communicate with their toddlers frequently and neglect their emotional needs.

②Living Environment

Parents' daily behavioral habits (e.g., overprotective or rejection of toddlers) can also cause sensory integration disorder in toddlers. As far as the growth process and living environment of toddlers are concerned, the crawling stage during the growth process of toddlers can better promote the development of sensory integration. With the urbanized lifestyle with modern house building design and having a relatively closed range of activities, toddlers lose the necessary friendship groups and lack objects for interpersonal interaction; at the same time, due to the scarcity of family members, there is a lack of imitation objects and the necessary imitation learning, etc (Chen, 2004).

3. The significance of sensory integration training

Sensory integration training requires the coordination and cooperation of the trainer's mental, brain, and somatic aspects(Zhai, 2004), which is important for promoting the overall development of young children. Recent studies have shown that sensory integration training has a 70%-90% improvement rate on sensory integration disorders, and the younger the child is and the longer the training time, the more obvious the effect.

(1) For individuals

Physiologically, sensory integration can promote the development of the brain's nervous system. Sensory training can greatly enrich young children's sensory perception and provide them with more direct perception, so it can promote better development of their audiovisual senses, as well as foster the development of their vestibular and proprioceptive senses. Sensory training also promotes the development of the motor system and the growth and development of young children. Psychologically, sensory training can make children more confident and better interact with others, which is conducive to the development of their interpersonal intelligence (Zhang et al., 2008).

①For children in general: it can promote children's perfect physical development, significant height growth, brain development, and psychological development. For young children with learning difficulties, it also improves inattention, emotional instability, reading difficulties, and procrastination (Zhang , 2015).

②For special children: sensory training can effectively improve the condition of sensory integration disorder in children with autism; introducing sensory training into the treatment of attention deficit and hyperactivity disorder in children will have a positive impact and can be the preferred program for the treatment of attention deficit and hyperactivity disorder in children; for young children with ADHD, cerebral palsy and other problematic children can help the development of their motor coordination ability.

(2) Family and society

On one hand, sensory training allows parents to worry less about their children, gives them a way to help their children, and promotes family happiness. On the other hand, providing appropriate sensory training to young children at an early age can reduce the burden on society in the future and provide a way for society to develop more complete people and improve the physical quality of its citizens. For education, sensory training also meets the requirement of developing a well-rounded person. In general, sensory training can improve children's motor skills and motor coordination and organization, exercise children's self-confidence and attention, improve children's persistence, and also allow children to develop in different degrees in treating others, aesthetic perception, expression, and creativity.

4.1 Comprehensive analysis of the implementation of sensory integration training in the family

A lot of practice proves that 3-6 years old is the key training stage for sensory integration disorder. It is a very meaningful activity to conduct sensory integration training in the family, which is economical and convenient, and can also enhance the parent-child relationship. Parents should not be overly anxious when they find that their children have the aforementioned sensory disorders. As long as the adults pay attention to them in time and adhere to the corresponding scientific and professional training for a long time, the child's sensorimotor disorder will be improved to a certain extent.

4.1 The value of implementing sensory training in the family

Compared to kindergartens or other childcare institutions, children are more relaxed and less guarded at home, so the implementation of sensory training at home can make children more engaged. Sensory training at home is also more affordable, promotes parent-child bonding, and is more focused on individuals than in a group setting. At present, there is more and more family-friendly sensory training equipment such as croquettes, tactile balls, tactile boards, balance caps, sticks, etc. Although there is less sensory training equipment designed specifically for families, they can meet the requirements for training at home. Parents can choose the appropriate training equipment for their own families according to their living area.

4.2 Problems of implementing sensory training in the Family

Because the actual situation of each family is different, the implementation of sensory training in the family faces many problems. First of all, parents and grandparents sometimes have differences in education, which may have a bad influence on the implementation of sensory training in families of young children. Secondly, urbanized life makes children live in a "concrete forest" since childhood, far away from nature, and there are few places to provide children with play equipment in the community or at home. In addition, parents are insensitive to their children's sensory disorders, lack of understanding of sensory training, and do not know how to carry out sensory training.

4.3 Insights into the implementation of sensory training at home

The most important thing to implement sensory training in families is to create a good environment for children.

(1)Physical environment

① The temperature and humidity are suitable and comfortable, and the windows are often opened to keep the air circulating; stay away from a bad environment with strong light stimulation, lots of noise, and unclean air.

② choose suitable furniture, modern cities in children's living space is relatively limited, the space available for physical exercise is insufficient, and physical exercise is not sufficient. Can be targeted to choose both to meet the needs of daily life and can achieve the efficacy of sensory training furniture.

(2)Spiritual environment

① Parents should maintain a good mood, have a harmonious relationship, try not to quarrel in front of the children, and do a good job of demonstrating emotional control. Make children grow up in a warm and comfortable family environment with mutual care.

② Try to choose to breastfeed if possible. Breastfeeding is the best parent-child activity and can achieve a win-win situation for both the mother and the nursing child.

③ Adults should adopt a democratic parenting style, neither overly favorable nor overly harsh. Parents should learn to update their educational philosophy on time. For example, they should understand the physiological and psychological characteristics of children of all ages, have reasonable expectations for children, and not give them too much psychological pressure. Adults should also master simple sensory training methods and exercise interaction with their children in a relaxed family environment.

④Interaction between fathers and young children should be emphasized. Some studies have pointed out that the more the father's playful role excites the child and the more unconventional it is, the better it is for the infant to develop more creative, socially oriented play activities.

⑤Parents should be more patient when dealing with their child's sensory dysregulation. Don't pay too much attention to the results of one training session, don't let the training become a burden for the child, and let the child get trained while playing with the parents. Sensory training is a long-term process, as long as we can persevere, quantitative changes will lead to qualitative changes and get the results that parents and children hope for.

Conflict of Interest

The authors declare that they have no conflicts of interest to this work.

Acknowledgement

This research was funded by a research on the development of the Family Finger course of sensory Integration Training 2021 Hunan College Students' Innovation and Entrepreneurship Training Program Project（4729）

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How to Cite: Long, Z., & Jiao, R. (2023). Research on the Value of Sensory Integration Training in Families with Children Aged 3-6 Years. *Journal of Global Humanities and Social Sciences*, 04(03), 131-136.
https://doi.org/10.47852/bonviewGHSS232011240304