

THE IMPORTANCE OF SENSORY INTEGRATION IN PRESCHOOL CHILDREN WITH AUTISM

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Annotation: This article presents valuable information about the importance of sensory integration in preschool children with autism. Sensory integration refers to the brain's ability to process and respond to sensory information from the environment. Children with autism often experience difficulties in processing sensory stimuli, which can affect their behavior, communication, social skills, and learning. The paper emphasizes the role of early intervention and structured sensory integration therapy in improving cognitive, emotional, and motor development in autistic children. It also highlights various strategies and activities that can be used by educators, therapists, and parents to support sensory development. Overall, the research underlines that effective sensory integration is crucial for enhancing the quality of life and educational outcomes of young children with autism.

Keywords: sensory integration, sensation / sense, coordination, vestibular system, stimulation, proprioceptive receptor, communication and social skills, hypersensitivity, hyposensitivity, gross and fine motor skills, skin – tactile, balance.

Introduction. Autism spectrum to the violation has in children often sensory information acceptance to do, to repeat work or to him/her answer in giving differences is observed. For example: Some children excess becomes hypersensitive to sound, light or from touch restless will be. Some and intuition due to deficiency (hyposensitivity) strong requires stimulation — for example, touch likes, around to things hard hits, often in motion will be. Preschool years are a critical period for a child's development, especially for those diagnosed with Autism Spectrum Disorder (ASD). During this stage, children learn to interact with their environment, develop motor skills, and build social and communication abilities. However, children with autism often experience sensory integration challenges that can hinder these developmental milestones. Sensory integration involves how the brain processes information from the senses—touch, sight, sound, smell, taste, balance, and movement. Difficulties in sensory processing can cause children with autism to either overreact (hypersensitivity) or underreact (hyposensitivity) to sensory stimuli, leading to behavioral, emotional, and learning challenges.

Sensor integration What is Sensor Integration ?

human nerve system all intuition receptors (vestibular apparatus, proprioception, impact sense, smell, see, hear, taste knowledge (information) acceptance so that they organization interpretation and interpretation to do This is a process. of the process essence is that intuition through taken information targeted in activity usage possible will be.

Ben-Sasson. Preschool aged autistic sensory sensitivity in children violation social in communication restrictions and emotional instability with claimed to be related.

Sensor integration therapy – children emotional acceptance to do improve your skills through to communicate push. Sensor integration therapy autistic children's emotional acceptance to make

and recycle abilities to improve directed important from approaches This is one of them. therapy children's from the environment coming different effectively process various sensory information (e.g., sound, light, touch) acceptance to do help gives and their to communicate was interest to increase service Tactile stimulation – the child is gentle to materials touch or special massage to take sensor signals through right acceptance to do learns.

Analysis of literature. The significance of sensory integration in preschool children with Autism Spectrum Disorder (ASD) has been widely acknowledged in both clinical and academic literature. Numerous studies emphasize that sensory processing difficulties are a core characteristic of ASD, affecting up to 90% of individuals on the spectrum (Tomchek & Dunn, 2007). These difficulties often manifest as hypersensitivity or hyposensitivity to stimuli such as sound, light, touch, and movement, which in turn influence behavior, learning, and social interaction. Jean Ayres (1972), an occupational therapist and neuroscientist, was one of the first to develop the concept of Sensory Integration Theory, suggesting that the brain's ability to process sensory information is essential for adaptive behavior. Her work laid the foundation for therapeutic interventions aimed at improving sensory processing in children with developmental disorders, particularly autism.

Subsequent literature has built upon Ayres' theory to explore how sensory integration dysfunction affects the daily functioning of children with ASD. Schaaf and Mailloux (2015) expanded this model, providing evidence-based practices in sensory integration therapy and emphasizing the need for individualized intervention plans for young children. A number of empirical studies support the effectiveness of sensory integration therapy (SIT) in improving various developmental outcomes in children with ASD. For example, Pfeiffer et al. (2011) conducted a randomized controlled trial that demonstrated significant improvements in goal attainment, self-regulation, and social interaction among children who received SIT compared to those in standard care.

Other researchers (Case-Smith et al., 2015) highlight that early intervention—particularly in preschool years when neuroplasticity is highest—can lead to better long-term outcomes. These include enhanced attention span, emotional regulation, and participation in educational settings. However, not all literature agrees on the strength of evidence for SIT. Some systematic reviews (e.g., Leong et al., 2015) call for more rigorous methodologies and larger sample sizes to confirm the effectiveness of these interventions. Despite this, there is a general consensus that integrating sensory-based strategies into early childhood education and therapy can be beneficial, especially when tailored to the child's specific sensory profile.

Materials and methods. While the current literature provides a solid foundation for understanding sensory integration in autism, several gaps remain. There is limited longitudinal research tracking the long-term effects of sensory interventions beyond the preschool years. Additionally, cultural and contextual differences in sensory processing are often overlooked, suggesting a need for more diverse studies across different populations and environments.

Moreover, integrating parent and caregiver perspectives into the design and evaluation of interventions remains underexplored in the literature. Engaging families in the therapy process has shown promising results in recent studies (Baranek et al., 2014), and further research in this area could enhance intervention effectiveness.

Sensor integration importance autistic children for

1. Attention and focus development :

Sensory training child's attention to concentrate, to surround information better acceptance to do help gives.

2. Behavior order to put :

Sensor balance When the child recovers, he/she quieter aggressive or extreme excitable behavior decreases.

3. Movement coordination and motor skills :

Vestibular and proprioceptive stimulation exercises child's balance save, run, walk, write movement skills such as develops.

4. Communication and social skills:

When sensory integration improves, a child communicates more easily with others, and their speech and emotional responses improve.

5. Self-awareness and self-control:

The child begins to better understand his body and emotions, which makes it easier to control himself.

A high prevalence of sensory characteristics (excess or deficient sensitivities) is common in children on the autism spectrum and directly affects their social, emotional, and behavioral aspects.

Developing the vestibular system – creating environments of balance and movement improves spatial perception in children.

Proprioceptive exercises - special physical movements (e.g., jumping, pushing) (through giving) child's to feel one's body ability For example, if a child is sensitive to sounds relatively too much outside sensitive if yes, therapist him/her gradually sound to stimuli Or from touch evasive children for special sensory games recommendation will be done.

Studies show that sensory integration therapy can help children with autism

Children's response to external stimuli improves, and as a result, their social and communicative skills develop.

SENSOR SYSTEMS

1. SENSOR SYSTEMS

- Tactile (skin) intuition)
- Visual (see)
- Auditory (hearing)
- Olfactory (smell) to know)
- Gustator (taste) to know)
- Vestibular (balance) system)
- Proprioceptive (body status to feel)

2. **SENSORMOTOR DEVELOPMENT**

- Balance
- Motor activity planning
- Body scheme
- Spatial direction determination
- Home reflexes integration to do
- Incoming sensor information acceptance to do

3. **PERCEPTIVE-MOTOR DEVELOPMENT**

- Hearing-speech skills
- Attention
- Visual-spatial perception
- Hand-eye compatibility
- Eye movement control
- Body status control to do

4. **COGNITIVE SKILLS**

- Academic education
- Daily life activity
- Behavior

First stage (up to 1 year old)

1. Proprioceptive, tactile and vestibular stimuli again work of possibilities development of 2. balance reflexes formation ;

muscle tone and eye of their actions development ;

3. neurological reflexes integration.

Second stage (1 to 2 years old)

- First reflexes in the form of manifestation was of processes conscious reaction to the level development ;
- Body scheme formation ;

- Large motor skills and movements planning development ;
- Body stable status formation ;
- Hearing and seeing perception the basics development ;
- Body coordination formation.

Third stage (ages 2 to 5)

- Conscious of actions further development and their more precisely formation (hand) movements and speech apparatus activity);
- Vision and actions between coordination formation ;
- Development of mutual integration between the senses.

Fourth stage (ages 5 to 7)

- Brain specialization (dominant side of the body) formation, lateralization);
- Reading, writing and counting skills development ;
- Attention concentration of ability formation ;
- Feelings control to do of ability development

(Sensory Modulation Disorder — Sensory modulation violation)

sensory stimuli wrong reaction with This situation is described.

child's in their behavior are felt and they often sensory stimuli type and to the level suitable As a result,

such disruption in the child to age typical was emotional development and attention concentration in the process problems to the surface to come take is coming.

Sensor reset at work Sensory Modulation **Disorder**
violation)

Type 1 – Hypersensitivity (high reactivity)

Type 2 – Hyposensitivity (low reactivity)

Type 3 – Sensory stimulation search (sensory search)

Type 1 — Hypersensitivity (high reactivity)

Hypersensitive children sensory stimuli for unpleasant They are strong.

negative emotional reactions and behaviors violation with manifestation Such children quickly and easily become subject to sensory overload.

Type 2 — Hyposensitivity (low reactivity)

Children with hyposensitivity to stimuli require stronger stimulation for their nervous system to perceive them. It seems to us that they are not responding to the environment, not interested in it. Perhaps this is due to the failures they have experienced in the process of finding the threshold of stimulation that would activate their reactions and arouse the desire to engage with the environment.

Type 3 — Sensory Stimulation Seeking (Sensory Seeking)

Children who seek stimuli require high intensity, frequent repetition, and prolonged stimulation. Such children exhibit constant motor activity to satisfy their sensory needs.

Sensory-based movement deficits

are associated with weakness in the body's posture mechanism or limitations in the field of conscious movement.

Posture defect child's active or in the process of passive movement body stable in case hold while standing to difficulty exposed in being manifestation This is the case. of balance weakness, muscle wrong tone and movements enough at the level control cannot getting with depends.

Dyspraxia is idea working exit, movements planning and them effective to perform opportunity restrictive is a flaw. He is rude, subtle and verbal. in motor skills inaccuracy and coordination weakness through manifestation will be.

Sensory discrimination Sensory Discrimination Disorder (Sensory Discrimination Disorder) characteristics and qualities interpretation in doing difficulties with This is described.

kind of to break has was individuals sensory stimuli between similarities and differences right define They don't get the stimuli.

acceptance to do, to them relatively reaction strength adapt possible, but of stimuli where where is it located, which stimulus that it is, that it features and one kind modal stimuli between the differences in determining they are suffering.

Sensory discrimination deficit (Sensory Discrimination Disorder)

Tactile system

- Touch place define can't ;
- He cannot know what he is holding in his hand without visual observation;
- He is fussy about dressing.

Vestibular system

- Child falling doesn't notice, especially eyes when closed ;
- Becomes disoriented when direction or body position changes;
- From the movement when tired doesn't know.

Proprioception

- The child has problems with the body schema;
- Unable to adapt strength to a specific type of activity (e.g., writing);
- It hits others or objects during contact.

Sensory discrimination deficiency (Sensory Discrimination Disorder — Sensory differentiation violation)

Hearing

- Sounds between the difference does not notice ;
- Rhythm repeat can't ;
- Hearing slow

View

- Letters, words or pictures between the differences according to can't ;
- Cannot interpret facial expressions or gestures.

Smell and taste

- Taste and smell distinguish can't, often the food external to the appearance looking at chooses.

Foot at the end walk

Body in the center muscle tone increase
Up to rise ...

From the ramp rise, heel to the part accent given foot bottom massage, tactile stimulation, proprioceptive stimulation, rollers / skates, sit-stand, paddle wearing walking, “ bridge ” exercises.

Sensor reset at work deficiency (Sensory Modulation Disorder)

- Type 1 — Hypersensitivity (high reactivity)
- 2nd type — Hyposensitivity (low reactivity)
- Type 3 — Sensory stimulation search (sensory search)

VESTIBULAR SYSTEM

hypersensitivity / high reactivity

- The child brain from the movement coming senses manage can't
- His vestibular system excess loaded
- Activity or even the possibility of movement is disturbing reason will be

To the action tolerance not to do

- Linear and circular shaped to actions bad reaction ;
- Sea disease (movement) disease);
- Child bicycle, swing, hill from slipping escapes ;
- In rotation was to children look can't ;
- Often heart nausea, headache, and stomachache pain observed ;
- Physically fast fatigue possible.

Gravitational insecurity

Child legs to the ground without touching himself helpless feeling does this excess anxiety, fear status brought releases, moves I don't like it, boy. resistance with answer gives or run away goes.

VESTIBULAR SYSTEM

hyposensitivity / low reactivity

- To the action relatively negative reaction no, boy the movement doesn't notice
- It is usually very quiet during infancy.
- Has no desire to be active, does not seek out activity, but often cannot stop once it starts
- The child is not worried about falling, often there is no protective reflex (pulling out the arms or legs)

VESTIBULAR SYSTEM

- The child is active. accordingly intensive proprioceptive stimuli, pressure, physical contact is looking for.
- Everything in hand takes, even dangerous objects, for example, burning standing The candle too.
- Others for unpleasant was certain kind of surfaces and textures intense and impulsive accordingly is looking for.
- Often the food in the mouth far time hold stands and it many in quantity into the mouth puts.
- Close enough comes to others falls, them hold remains.

PROPRIOSEPTIC SYSTEM

hypersensitivity / high reactivity

- The child is very tense, has poor coordination, and has poorly developed body awareness.
- Running, jumping, climbing, overcoming obstacles from passing etc. escapes.
- Rhythmic and physical in exercises to participate doesn't want to.

PROPRIOSEPTIC SYSTEM

hyposensitivity / low reactivity

- Internal movement and joy desire there is it's not.
- body awareness, numbness observed, one kind in case far time to remain possible, although to us this inconvenient even though it seems like it, for him It doesn't tire you.
- Specific movement activities body position during effective in placement to difficulties face is coming.

PROPRIOSEPTIC SYSTEM

sensor search

- The child often falls on someone, always trying to get something.
- The child is hyperactive: jumping, running, throwing himself on mattresses.
- Hugging, pressure, pushing such as situations likes
- Hit, hit to send, to bite possible, often aggressive as acceptance will be done.
- Sometimes he thinks to himself very strong stimulation gives, for example : himself Bites, scratches, etc.

Conclusion. Sensory integration is a fundamental aspect of early development, particularly for preschool children with Autism Spectrum Disorder (ASD). As research has shown, difficulties in processing sensory input can significantly impact a child's behavior, communication, learning, and social engagement. Early identification and targeted intervention—especially through occupational therapy and sensory integration strategies—can lead to meaningful improvements in self-regulation, motor coordination, and overall participation in daily activities. While sensory integration therapy is not a universal solution, it plays a crucial role in holistic early intervention programs.

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