

Basic principles of sensory integration therapy

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Sensory integration

- Integration is a dynamic process that allows a child to influence and adapt to events in a constantly changing environment
- Incoming information is processed with different intensity and significance
- Tasks are shaped in the same way as everyday life, which requires a series of increasingly complex, tailored responses based on sensory perception
- Positive experience, helps to shape the child's growth and development and promotes the further development of communication

[Ayres Theories of Autism and Sensory Integration Revisited: What Contemporary Neuroscience Has to Say. \(Kilroy, Aziz-Zadeh & Cermak, 2019\)](#)

Therapeutic and professional support

- The sensory environment alone does not promote the child's integration
- A positive atmosphere where the child can feel safe and comfortable, to establish a connection with the therapist (J.Aires described it as a “connection of pleasure”)
- Scaffolding - a process in which parents support a child's achievements beyond their current ability to develop the skills and competencies needed for growth
- It is: "the process by which a therapist or other assistant adjusts and controls elements of a task that do not match the child's skills, allowing the child to focus on elements that are within his or her abilities, thus achieving success in the task."
- [*Sensory integration: Theory and practice. FA Davis. \(Bundy, Lane, & Marray, 2002\)*](#)

Multisensory environment

- Artificially created environment devoted to stimulating all the senses.
- The room is a safe, comfortable, demand-free environment designed to empower the individual by providing self-choice.
- The room or space can be passive and/or interactive providing cause-and-effect relationships.
- The action in the room is facilitated by a three-way interaction between the participant, the skilled companion and the environment itself.

Multisensory environment

- The most important means of sensory integration in practical development is the provision of an appropriate level of environment
- Accessibility - environment and equipment motivate and facilitate communication
- To work in the "near development" zone, emphasizing attention to touch (fine motor skills), maintaining balance and proprioception
- Safety is the most important aspect
- [The Sensory Modulation Program for Adolescents & Adults \(Champagne, 2017\)](#)

Multisensory environment

- Multisensory stimulation that is produced in sufficient frequency, intensity, and duration increases brain arousal leading to a more organized brain that permits increased functional activity and learning
- Intense periods of sensory stimulation that use repeated movement, sound, touch, and visual exercises help slowly to create new neuro pathways in the brain where they were damaged or underdeveloped (DeBoer & Sutanto, 1997; Robbins, 2000)

Child - centered intervention

- In a child-centered session, the child's reaction is determined by activity and communication, not adult guidance
- The therapist provides an adapted environment for those children who have minimal opportunities to create their own games, environment or communication. In this structure, the child has the opportunity to make choices and plan their interactions
- Activities are modified as needed to allow the child to maintain an optimal level of arousal, attention and a positive emotional state, while challenging his or her motor skills, organizational skills, and ability to plan and organize his or her activities and environment. [*The everyday routines of families of children with autism: Examining the impact of sensory processing difficulties on the family \(Schaaf et al., 2011\)*](#)

Play and games as intervention

- The therapist involves the child as an active partner in the treatment process, expanding the ideas that child suggests
- Role-playing games and creative themes
- Take into account the child's ability level, sensory sensitivity and sensory choices
- Activities are often fun and exciting, so they motivate and reward themselves
- [A motion-sensing game-based therapy to foster the learning of children with sensory integration dysfunction \(Chuang & Kuo, 2016\)](#)

Challenge strategy

- It is necessary to anticipate the child's ability to perform certain activities in order to provide appropriate support to the child, so that he or she will be able to perform more complex activities than before.
- To promote the child's success by adapting to the social and physical environment, the level of the test and the rules of play
- A constant series of adaptive reactions must be created in order to meet the dynamic requirements of the environment efficiently and appropriately
- *Sensory Strategies to Calm and Engage Children with Autism Spectrum Disorder.* ([Piller](#) & [Barimo](#), 2019)

Intervention based on sensory integration theory

Yes	No
Provided within the general professional field and process	Used outside the professional practice place
Therapists provide special classes as part of sensory integration	The service is provided by people without special training and education
Think about organizing the senses and using them further	Think of the senses without results
Playful activity	Forced activity
Child - centered	Adult- centered
The therapist is constantly adjusting the environment	Pre-scheduled
Rich in tactile, vestibular and proprioceptive activities	There is a lack of opportunities for tactile, vestibular and proprioceptive development
Focuses on increasingly complex adaptive responses	Sensor excitation without adaptive response
Can be done by moving, swinging and flexibly positioning equipment	Can be done while sitting, during sedentary tasks

Designing the environment and supporting the child's activities

	Therapeutic adjustments	Results
Sensory assessment	This is the start point of the analysis; determine what environmental aspects the child perceives; rearrange the environment so that the therapist and the child focus on important things	Improved focus on key aspects, people and environmental objects; Willingness to interact
Excitement	Decide whether the communication will be exciting or restrictive	The level of alertness and comfort of your condition and the environment is improving
Sensory modulation	Adjusting the intensity, duration and diversity of environmental incentives to maintain the organization of action	Improved behavior, self-regulation of emotions and interaction
Sensory diversification	Adaptation of sensory properties of time and space	Understanding in a wider field of perception is improving
Skills	Classification test for small and large motor areas	Improves the acquired communication with objects and people
Praxis	Based on the novelty, the needs of creative ideas, sequences of action and adaptations change	More automatic and dynamic adaptive response, complex interactions with objects and people
Organization of action	Adjusting responsibilities for increasingly complex tasks in time and space	Improved self-organization, so the child can sequentially divide several spatial interactions both now and in the future

Modifying of sensor challenges

- **Step 1**

- Increase or decrease sensor demand:
- Intensity;
- Duration;
- Speed;
- Complexity;
- Change the positions of the head and body;
- Take into account the child's activity or passivity
- [*Sensory Input Techniques to Calm and Focus your Child \(Jackson, 2012\) YouTube*](#)

Modifying of sensor challenges

- **Step 2**
- Add or remove the number of sensory senses:
- Change the speed, amount and type of senses in the activities;
- Combine sensory senses and activities in different ways;
- Use different combinations of sensory senses during one activity;
- Be aware of immediate and contextual sensory senses
- [*Sensory Processing Disorder: Occupational Therapy Demonstration \(YouTube, 2015\)*](#)

Modifying of sensor challenges

- **Step 3**
- Consider the social environment and human sensory testing
- People in the environment also provide the child with tests that can be so tailored to the child's needs
- [*The Sensory Room: Helping Students With Autism Focus & Learn \(Edutopia, 2017\)*](#)
YouTube

Combining the senses with motor and practical skills

Sense	Vision
Activity	Visual-motor
Intervention	<p>Consider using tactile and proprioceptive activities to complete a vision-motor task;</p> <p>To focus on your goals, add an audio component to your goal</p> <p>Intensify tactile activities through texture and using gravity, intensify proprioceptive activities</p>

Combining the senses with motor and practical skills

Sense	Vestibular
Activity	Control of posture
Intervention	Consider using enhanced vertical or linear vestibular activities with proprioception to activate tonic posture straightening
Activity	Mutual integration and sequence
Intervention	Use audible rhythms to increase both vestibular and proprioceptive activities

Combining the senses with motor and practical skills

Sense	Proprioception
Activity	Fine motor skills
Intervention	Consider using more enhanced visual activity through dark and bold light-enhanced prints; Use enhanced tactile and proprioceptive activities for internal muscles to increase endurance and build skills
Activity	Gross motor skills
Intervention	Consider stepping up the activities of the vestibular apparatus, thereby increasing postural tone, and introduce proprioceptive activities through endurance (weight) and exercise activities, and then make the task more difficult.

Combining the senses with motor and practical skills

Sense	Touching
Activity	Practical
Intervention	Consider greater use of proprioceptive activities; Provide cognitive, visual and auditory activities to increase kinesthetic function
Activity	Organization of action
Intervention	Provide the opportunity to physically create the environment through exercise activities; In addition, provide opportunities to solve cognitive problems, thus anticipating the intended results

Combining the senses with motor and practical skills

Sense	Hearing
Activity	Audience
Intervention	Increase the link between vestibular activities and rhythm and music activities;
Activity	Consecutive and social expression
Intervention	Increase nonverbal understanding of the body; If possible, use visual instructions to develop memory and comprehension

PEO model

- P - person - values, interests, skills and life experience, as well as cognitive, physiological, mental, neuro-behavioral and psychological aspects of the individual
- E-environment - physical and cultural environment, as well as social support
- O-occupational - actions that are observed as behavior that is performed with a specific goal
- OP-occupational performance - combination of the above factors that is realized in modified behavior

References

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My Trip to the Dentist Social story

<https://www.youtube.com/watch?v=2mNYubCfXbk>

Bill Nason, MS, LLP discusses tools that help children on the spectrum feel safe, accepted and competent <http://www.facebook.com/autismdiscussionpage>