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Fidelity to Sensory Processing Interventions: What Are the Differences Between the Various Approaches and Interventions?

By
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Learning Outcomes
As a result of this course, participants will be able to:

1. describe Ayres Sensory Integration Intervention, sensory based interventions, sensorimotor interventions, and cognitive behavioral interventions to support self/emotion regulation.

2. compare and contrast various sensory interventions for diverse settings and populations.

3. identify the current status of evidence for the diverse sensory interventions to guide treatment planning.
Occupational Therapy using the Sensory Integration Frame of Reference (OT-SI)
AYRES SENSORY INTEGRATION® INTERVENTION

Ayres SI Intervention

- Hallmarked by its individualization to the child’s needs.
- Therapist to adjust the type of activity, its duration, and intensity from varying moments and glimpses of the child’s interests.
- Therapists attempt to tap into child’s inner drive (interests, motivations, and values) to facilitate a higher effort with the therapeutic activities.
- It is a constellation of principles that are sequenced together to facilitate an functional adaptive response.

(Roley, Mailloux, Miller-kuhaneck, & Glennon, 2007)

Ayres Sensory Integration Intervention

- Why was Ayres sensory integration® intervention trademarked?
  - Confusion between sensory integration intervention and sensory stimulation techniques implemented by OT’s, other health professionals, or non-credentialed individuals.
  - The exclusion of OT from the evaluation and treatment of children, adolescents, and adults with sensory processing disorders.
  - The use of sensory integration techniques as a reward as a part of other behavioral based interventions.

(Roley, Mailloux, Miller-kuhaneck, & Glennon, 2007)
Ayres Sensory Integration Intervention

- Why was Ayres sensory integration® intervention manualized?
  - Document how the intervention differs from other sensory interventions OT’s use.
  - Alignment of SPD, intervention objectives, and outcomes.
    - Knowing that specific outcome may be attributed to an intervention.
  - Replication of an intervention across cases
  - Ensure that the intervention was addressing occupation based outcomes.
  - Ensure the intervention practices align with the evidence that is being generated.

(Roley, Mailloux, Miller-kuhaneck, & Glennon, 2007)

Parham, Cohn, Spitzer, et al., (2007); May-Benson & Schaaf, (2015)
Sensory Integration Intervention

- The therapist presents the child with opportunities for various sensory rich experiences, which include:
  - Tactile
  - Vestibular
  - Proprioceptive
  - Visual
  - Auditory
  - Gustatory/Olfactory
- Intervention involves more than one sensory modality/channel
  - Proprioceptive
  - Vestibular
  - Tactile

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Sensory Integration Intervention

- The occupational therapist facilitates a just right challenge
  - tailors activities so as to present challenges to the child that are neither too difficult nor too easy, to evoke the child’s adaptive responses to sensory and praxis challenges.
    - Scaffolding: Hard vs. Soft
- The occupational therapist collaborates on activity choice
  - Treats the child as an active collaborator in the therapy process
    - allowing the child to actively exert some control over activity choice
    - does not predetermine a schedule of activities independently of the child

Parham, Cohn, Spitzer, et al., (2007); May-Benson & Schaaf, (2015)
Sensory Integration Intervention

- The occupational therapist supports and guides the child’s self-organization of behavior:
  - to make choices and plan own behavior to the extent the child is capable
  - encourages the child to initiate and develop ideas and plans for activities

- The occupational therapist ensures that the therapy situation is conducive to attaining or sustaining the child’s optimal level of arousal by making changes to:
  - environment or activity
  - to support the child’s attention, engagement, and comfort.
  - “Goodness of Fit”

Sensory Integration Intervention

- The occupational therapist creates a context of play by building on the child’s intrinsic motivation and enjoyment of activities.
  - facilitates or expands on:
    - Object play
    - Social play
    - Motor play
    - Imaginative play

- The occupational therapist presents or modifies activities so that the child can experience success in doing part or all of an activity that involves a response to a challenge.
  - Use scaffolding.
Sensory Integration Intervention

- The occupational therapist ensures that the child is physically safe either through
  - placement of protective and therapeutic equipment.
  - through the therapist’s physical proximity and actions.

- The occupational therapist designs environmental affordances to
  - support sensory exploration
  - occupational performance
  - arranges the room and equipment in the room to motivate the child to choose and engage in an activity.

Parham, Cohn, Spitzer, et al., (2007); May-Benson & Schaaf, (2015)

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Sensory Integration Intervention

- The occupational therapist establishes and maintains a therapeutic alliance.
  - respects the child’s emotions.
  - conveys positive regard toward the child.
  - seems to connect with the child.
  - relates a climate of trust and emotional safety.

Parham, Cohn, Spitzer, et al., (2007); May-Benson & Schaaf, (2015)
Ayres Sensory Integration® Intervention

Evidence:

Cases

Randomized Control Trials

Systematic Reviews

Sensory Diets

- Stickids
- Zone ‘in’
- The Alert Program
- Zones of Regulation

Sensory Diets
Sensory Diets

- Sensory Diets
  - Just as food is nourishment for the body, sensory input is nourishment for the brain. A sensory diet provides nourishment for the brain for children with sensory processing disorders (Case-Smith, 1996).
  - The therapeutic sensory diet provides the optimal combination of sensations at the appropriate intensities for an individual child.
  - For most typically developing children, the sensory diet does not require conscious monitoring by caregivers. The environment continuously feeds the child in a variety of nourishing sensations in the flow of everyday life.
- Prescribed type and amount of sensory stimuli.
- Externally implemented -------- internally managed

Definitions

Self regulation via synactive theory of development, in which self-regulation strategies aim to change physiological arousal:
  - the effectiveness of the strategy is determined by evaluating change in physiological arousal (Martini, Cramm, Egan & Sikora, 2016)

Self regulation theory framework, the strategies aim to guide a self-monitoring or problem-solving process:
  - the effectiveness of the self-regulation strategy would be ascertained by evaluating drives or how he throws the ball (Martini, Cramm, Egan & Sikora, 2016)

- Emotion regulation refers to the ability to adapt and modify behavior to maintain a balanced, calm, alert, and organized state (Bailer, 2017)
Sensory Diets

Assumptions

- The sensory diet is comprised of:
  - tactile
  - vestibular
  - proprioceptive
  - oral
  - auditory
  - visual
  - olfactory/gustatory
  - nourishment for the child unable to attain this input through self direction.

- The effects of sensation on overall organization can change and no one type of sensory input is always calming and organizing or always arousing. Much of it is dependent on the overall arousal level of the child at the time the activity is initiated (Williamson & Anzalone, 2002).

Formal Sensory Diet Programs

- Include varying levels of active involvement to sensory stimulation to cognitive strategies for active, independent self regulation.

- 1:1 or curriculum based
  - SticKids – Muscles, Motion n’ Touch
    - http://www.stickids.com/
    - https://www.alertprogram.com/
  - Zone ‘n’
    - http://www.zonein.ca/
  - Zones of Regulation
## Sensory Diets Evidence

### Expert Review

### Cases

### Pre Post Test Designs

### Randomized Control Trials

### Systematic Reviews
Ecological Model of Sensory Modulation

- Sensory Modulation Disorder = physiological/behavioral deficits
- External Dimension’s
  - Culture, environment, relationships, and task
- Internal Dimension’s
  - Sensation, emotion, and attention
- Each internal dimension interacts with each external dimension

Miller, Reisman, McIntosh, & Simon, 2001

A SECRET (Miller, 2006)

- Attention
- Sensation
- Emotional Regulation
- Culture/Context/Current Conditions
- Relationships
- Environment
- Tasks

Individual Characteristics (internal influences)
Contextual elements (external influences)

Miller, 2014; Bialer & Miller, 2011
“A SECRET”

- What is it?
  - A process to develop strategies.
  - In the moment way of approaching a sensory processing problems.

- What isn't it?
  - Prescribed list of predetermined activities.
  - Based upon a child profile of sensory difficulties.

Bialer & Miller, 2011

Sample A SECRET

<table>
<thead>
<tr>
<th>Challenged Area</th>
<th>Elements from &quot;A SECRET&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble falling asleep and staying asleep because of SOR</td>
<td>Attention Sensation Emotional Regulation Culture/Context/Current Conditions Relationships Environment Task</td>
</tr>
<tr>
<td>Use white noise, soft music to take their attention away from what is happening outside the door.</td>
<td>Use a weighted blanket to calm and organize the child such as a heavy down blanket.</td>
</tr>
</tbody>
</table>
Sensory – Based Interventions

• Assumptions:
  • Passive stimulation
  • Targeted sensory input will remediate a specific impaired sensory process
  • Preparatory based
  • May be as environmental modifications
  • May be incorporated within a Sensory Diet program

**Sensory-Based Interventions**

- **Vests**
  - Weighted
    - Provides resistance for sensory seekers (HT)
    - Proprioceptive input into the long axis of the body
    - Input should come from on top of the shoulders
    - Not as effective with clients who have postural control difficulties.
  - Deep Pressure
    - Vests, shorts, etc.
    - Deep pressure for an over responsive system (LT)
    - Similar to a wet suit made from neoprene.
Evidence

Systematic Reviews


Randomized Control Trial


Sensory-Based Interventions

- Sound-Based Interventions
  - Center/clinic delivery
    - Tomatis Method – 3-6 months (3x per week)
    - Auditory Integration Therapy (2 hours per day – 10 consecutive days)
  - Home based delivery
    - The Listening Program (TLP)
      - www.thelisteningprogram.com
    - Integrated Listening (iLs)
      - www.integratedlistening.com
    - Therapeutic Listening (TL)
      - www.vitalinks.net

Auditory/Vestibular-Based
Individualized

Auditory-Based w/ prescribed sensorimotor activities

Vestibular-Based w/ in conjunction with structured prescribed sensory diet.
**Sensory-Based Interventions**

**Evidence:**


**Sensorimotor Interventions**

- **Primary Assumptions**
  - A child’s motor system is unable to successfully operate with processing and integrating information
    - Motor information is essential for motor performance (Dunn, 1997)
  - Child actually initiates, executes, participates in the task/activity.
  - Inherently includes sensory stimuli but is not the primary focus or purpose.

Sensorimotor Interventions

- **Evidence:**
Discussion

- Hypothesis testing
  - Align with the assumptions of the intervention
  - Align with behavioral, neurological or physiological underpinnings.
  - Track performance with reliable observations, assessments, etc.

- What interventions fit best with which settings?

References


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