

Slide 1

**Sensory Integration**

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*College of Science & Engineering*

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Slide 2

**Debts of Gratitude**

- Kathleen Morris MS,CCC/SLP
- Deanne Jacobson O'Lenick, MS, CCC/SLP
- Professionals whose books have blessed our families, in particular Carol Kranowitz, MS
- Parents who have shared their journeys
- Children who have taught us ...
  - “And a child shall lead them ...”

Isaiah 11:6

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Slide 3

**Presentation Overview**

- Causes of SPD
- Features of SPD
- Interventions for SPD at home and at school
  - Sensory awareness
  - Sensory diet
  - Sensory-rich environ
  - Wilbarger Brushing
  - Alert Program



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Slide 4

*Where did it begin?*

- Stressful pregnancy
- Difficult birth and/or Prematurity/ NICU
- Early hospitalization
- Abuse
- Neglect
- Trauma



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Slide 5

*Sensory What?*

- A newly adopted two-year old is seizing.
- A six-year old unexpectedly punches another child standing in the lunch line.
- An eight-year old briskly rubs her mother's "good-bye" kiss off her face as she leaves for school.
- The teacher is complaining about this six-year old ... When he colors, he breaks all the crayons. In art, he refuses to use the play dough. In music, he has "melt-downs".

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Slide 6

**Functions of Sensory Input**

1. **Alert**  
Attend or orient to new and/or important stimuli.
2. **Protect**  
Defend us if a stimuli is too overwhelming.  
This is the first level of sensory integration.
3. **Select**  
Filter out the non-essential input
4. **Organize**  
This is accomplished by the central nervous system. It is done automatically, most of the time.

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Slide 7

**Fight, Flight, or Freeze**



**FIGHT:**  
Frustration,  
explosive or  
aggressive,  
resistive,  
acting out,  
saying "I  
won't", "NO!"

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Slide 8

**Fight, Flight, or Freeze**



**FLIGHT:**  
Distractible,  
clowning  
redirecting,  
escaping  
behavior,  
easily bored

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Slide 9

**Fight, Flight, or Freeze**



**FREEZE:**  
Whiny, tearful,  
clingy, fearful,  
reluctant to  
separate or to try  
new things,  
withdrawing,  
hiding, saying  
"I can't".

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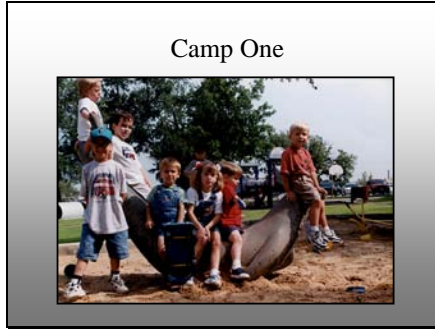
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Slide 10



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Slide 11

**Spontaneous Infantile Regression**

- Three young male children
- All with histories of neglect and maltreatment
- All with pain agnosia
- Novel attachment behavior
- Prosocial behavior
- Dramatic language advances!



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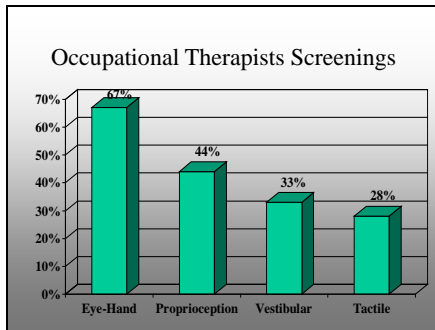
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Slide 12



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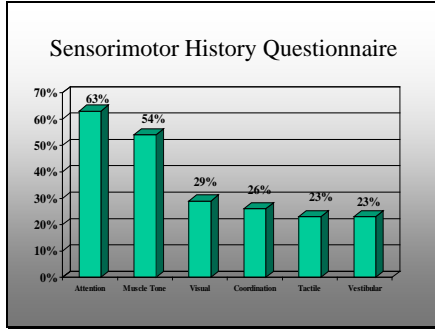
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Slide 13



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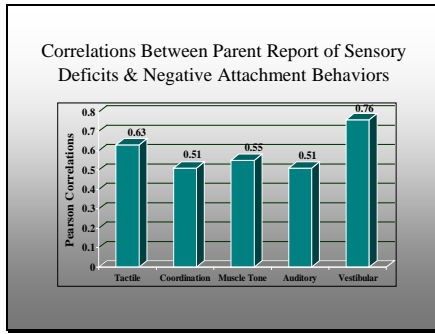
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Slide 14



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Slide 15

**The Out-of-Sync Child**  
Recognizing and Coping with Sensory Integration Dysfunction  
Carol Kranowitz, M.A.  
Foreword by Jane K. Steele, M.S.

**SPD Resource Book**  
*The Out-of-Sync Child*  
Carol Kranowitz

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Slide 16

### Understanding the Internal Senses

- Vestibular
  - the "powerhouse"
- Proprioceptive
  - firm, gentle muscle pressure, calming, organizing
- Tactile
  - the first sense to develop en utero in all known-species
  - the harbinger of attachment deficits
- *The Out of Sync Child*
  - by Carol Kranowitz,
  - Screening instrument in first section of the book (pages 28ff).
  - "Your child at home"
  - "Your child at school"
  - Recommendations for implementation of SI.

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Slide 17

### *The Out of Sync Child*

*Screening Tool, page 28ff*

- Over reacts and/or under reacts to painful experiences.
- Craves being touched and/or avoids being touched.
- Seeks out physically aggressive contact (roughhousing, crashing into walls or people).
- Has poor balance.

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Slide 18

*Out of Sync Child, p. 28*

- Seems fearful in "space" (swing, seesaw, heights).
- Is afraid of, or avoids vigorous, fast-moving activities at the playground (bouncing, swinging, balancing, spinning).
- Has difficulty with manual skills (scissors, crayons, buttons).
- Seems clumsy and accident-prone (falling, tripping).

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Slide 19

*Out of Sync Child, p. 28*

- Grasps objects too tightly and/or too loosely.
- Is overly sensitive to loud noises.
- Has difficulty paying attention.
- Often speaks in a loud voice.
- Fails to follow through on verbal requests.
- Needs directions repeated.
- “Jeckle-Hyde” Syndrome.
- Tires easily.

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Slide 20

*Out of Sync Child, p. 28*

- Appears sensitive to light, preferring dim lighting.
- Becomes excited with a lot of visual stimuli.
- Reverses or confuses numbers, letters, or whole words.
- Is overly sensitive to certain smells.
- Is restless or fidgety impulsive and has difficulty organizing or structuring activities.

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Slide 21

**Parent’s Exploratory Journal**

Behavior	Date	Circumstances
Tantrum over getting dressed!	Oct. 10, 8:30 a.m.	Says his socks are too tight and he hates his new turtleneck!
Inconsolable at school!	Oct. 14, 10:00	Teacher said he was fine until time for art project (finger paint).
At the restaurant, spilled his milk on the table and his clothes.	Oct. 22, noon	Sometimes he can’t manage getting milk into his mouth!
Screamed in grocery store and threw orange at friendly old lady	Nov. 23, 4:30 p.m.	Day before Thanksgiving. Crowded store. Lots of noise and cart-bumping. Old woman tousled his hair.
Fell apart at the playground. Tantrum lasted 20 minutes!	Dec. 18, 2:00 p.m.	All I did was spin her a few times on the tire swing – usually she loves the tire swing!

From: *The Out of Sync Child*, page 155

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Slide 22

**“Sensory Diet”**

- Based on the idea that the individuals need a certain amount of activity and sensation in order to be alert and maintain that level of alertness.
- Combination of proprioceptive & vestibular inputs get best results

**Lifespan of input effectiveness:**  
Proprioception lasts 2 hours  
Deep pressure to skin lasts 2 hours  
Vestibular input can last from 2 to 6 hours

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Slide 23

**Ubiquitous Sensory Input**

- Making up songs to reinforce scripts
- Crab crawl
- Riding bikes
- Trips to the park
- Playing on trampoline
- Basketball
- “... with LOTS of practice before we go!”



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Slide 24

**Ubiquitous Sensory Input**

- Sensory-rich games, foods, snacks
- Sensory-rich crafts and activities
- Fidgets available
- Internalized mechanisms of self-awareness & soothing



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Slide 25

### Calming & Alerting Sensory Input



- Calming
  - Sweet tastes
  - Sweet smells
  - Sucking, chewing
- Alerting
  - Sour tastes
  - “Spicy smells”
  - Grinding ice

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Slide 26

### Alerting & Calming Sensory Input

	<b>Alerting</b>	<b>Calming</b>
<i>Movement</i>	Fast paced, jerky	Slow, rhythmic, sustained
<i>Vestibular</i>	Fast, jerky	Slow, eyes with horizon
<i>Visual</i>	Red-yellow, bright, peripheral, changing	Blue-green, dark or dim, familiar
<i>Auditory</i>	Unexpected, loud, complex	Familiar, quiet, melodic
<i>Olfactory</i>	Nearly all odors!	Familiar odors, cooking

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Slide 27

### Sensory-Safe Environments

- Understand sensory seeking behaviors...”
  - Attention to blood sugar - meals or snacks every 2 hours
  - Attention to sensory processing needs - major sensory input every 2 hours plus ubiquitous sensory-rich activities



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Slide 28

### Schedules for Home & School

- Provide "felt safety"
- Consistent Schedule
- Access to sensory input
- Access to "quiet place"
- Sensory diet

A photograph showing two children wearing sensory masks. One mask is white with a pink tongue sticking out, and the other is blue with a pink tongue sticking out. The child in the blue mask has a name tag that says "SPY PARTNER".

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Slide 29

### Wilbarger Brushing Protocol

- Wilbarger Brushing
- Training by OT
- Parents brush their children every two hours over a period of months

A photograph showing a child lying on their back, being brushed on the back by an adult. The child is looking towards the camera.

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Slide 30

### The Alert Program

- How Does Your Engine Run?
- Self-modulation
- Self-awareness
- Fanny packs
- Fidgets
- Deep breathing
- Wilbarger Protocol

A photograph showing a child and an adult looking at a document together. The child is pointing at the document.

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Slide 31

**Practicing Self-Regulation**



- **Simon says!**
  - Red light
  - Green light
- **Breathing!**
  - Exercises
  - Practice

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Slide 32

**Proprioceptive Activities**

- Scooter board games
- Sandwich games
- Jumping jacks
- Wheelbarrow walking
- Crab walking



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Slide 33

**Proprioceptive Activities**



- “Child sandwich”
- Tug-o-war
- Play wrestle
- Weight-bearing tasks
- Wall push-ups
- Chair sit-ups

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Slide 34

**Proprioceptive Activities**

- Pushing others on "buddy-board"
- Oral-motor toys
- Bubble gum
- Theraband
- Chair sit-ups
- Chair push-ups



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Slide 35

**Tactile Activities**

- Fossil hunts
- Shaving cream & clean-up
- Water on the chalkboard-drawing shapes
- Playing in ball bath



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Slide 36

**Tactile Activities**

- Treasures buried in rice, water, or beans
- Making sand castles
- Drawing shapes
- Writing letters
- Tearing paper



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Slide 37

**Tactile Input**



- Playing in bean pool.
- Rolling on carpet or different textured areas
- Making play-dough
- Making bread
- Cooking activities

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Slide 38

**Vestibular Activities**

- Swinging on swing
- Slow rocking
- Spinning
- Log rolling
- Jungle-gym play
- Wheel-barrow games



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Slide 39

**Vestibular Activities**

- Horseback riding
- Somersaults
- Swinging in a circle
- Moving from sit to stand
- Leaning down to pick up items



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Slide 40

Combination: *Vestibular & Proprioceptive*



- Sit-n-Spin
- Going down slide, then climbing up backwards
- Swinging on gym bars
- Diving and swimming

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Slide 41

Watch for Sensory Overload



- Nausea
- Vomiting
- Level of arousal
- Pupil constriction
- Sweating
- Change in skin color
- Dizziness
- Withdrawn behavior

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Slide 42

Sensory Integration and the At-Risk Child



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