Beyond The Work Station
The Role of Our Sensory System on Work Occupations Performance

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Notes:
Objectives of the Presentation

1. Provide a basic overview of the nervous system related to sensory information
2. Explain ways to screen and identify employee/client responses in relation to sensory function
3. Demonstrate use of sensory information to augment a traditional workstation analysis
4. Explain how to facilitate a healthier work performance and daily routine

Notes:
Definition of Key Terms

1. **Sensory Processing:** Receiving information from the senses and producing appropriate behavioral motor response

2. **Instrumental Activities of Daily Living:** Important daily tasks, e.g. community mobility, which enhance quality of life

3. **Sensory Modulation:** A body’s regulation of sensory information and ability to form an appropriate response

Notes:
Neuroanatomy of the Sensory System

Consists of receptor cells, sensory neurons, neural pathways, and areas of the brain involved with sensory perceptions.

Consists of 5 special senses (sight, taste, hearing, smell and vestibular) and 2 typical body related, or somatosensory (touch/tactile and proprioception/pressure), senses.

Notes:
Neuroanatomy: Seven Senses

• **Sight:** Eyes takes in stimuli of light rays and transduces them into electrical and chemical signals for the brain to process into physical images.

• **Taste:** Reception through the tongue, papillae and taste buds to send inform about aspects of flavor.

• **Smell:** Odorants bind to specific sites on receptors located in the nasal cavity. This information integrates with taste to form the sense of flavor.

• **Hearing:** Sound vibrations stimulate receptors in the inner ear. This information is received in the brain’s hearing centers.

Notes:
Seven Senses (continued)

- **Vestibular:** Balance and spatial orientation arise in the inner ear; sense receptors, hair cells, send signals to the brain’s balance centers.
- **Touch/Tactile:** Receptors in the skin and deeper tissues identify objects coming into contact with our body and send this information to the cortex.
- **Proprioception/Pressure:** This sense combines sensory information from neurons in the inner ear (detecting motion and orientation) and stretch receptors in the muscles to give position in space information to the brain.

Notes:
Sensory Processing: Information up to brain and processing, resulting in response or output

Notes:
Motor and Behavioral Response to Sensory Stimuli

What you physically observe during functional task performance and through questioning about performance:

- **Vision**: squinting, closing one eye, eyes watering, complaints of double vision
- **Hearing**: use of hearing aides, states hearing better with one ear than the other
- **Touch**: dropping items, decreased hand coordination

Notes:
Motor and Behavioral Response to Sensory Stimuli (continued)

- **Proprioception/Pressure:** quality of movement during activity tasks, heavy footsteps, pressure on writing tools
- **Vestibular:** balance reactions while sitting, standing, bending, reaching and twisting
- **Smell:** perfumes, copier ink trigger physical discomfort, distracted by unfamiliar smells
- **Taste:** perceive different flavors through cells within our mouth and tongue

**Notes:**
Behaviors

• **Mental:** seeking or avoidance of sensory stimulation, e.g. restlessness, removing self from a noisy room, change in focus related to stimuli, change in level of alertness in response to stimuli

• **Emotional:** unable to satisfy either through seeking or avoidance which may cause an emotional response

**Notes:**
How We Use Sensory Information

Response to sensory information influences motor skills that become habits over time
• This becomes something learned which impacts changing behavior when addressing an issue
• In some situations, behaviors have changed or the situation has been modified without realization, e.g. turning off the overhead fluorescent lighting

Notes:
Coping Strategies

Used in a positive manner, strategies can be used to regulate our sensory system in an appropriate and safe manner
Positive: Modify work station lighting, e.g. indirect verses direct source
Less successful: Becoming restless, uncomfortable at workstation due to avoiding discussions with co-workers, supervisors

Notes:
Audience Participation

With your neighbor...
1. Discuss good and bad sensory habits/accommodations
2. Reflect on a time that you learned something new and your experience.

Notes:
Sensory System
Impact on the Workplace

• Our sensory system impacts our performance 24/7
• This continuous process enables to stay alert, focused and attentive.
• This continuous process distracts us, limiting our focus and attention.

Notes:
Sensory System
Impact on the Workplace

• Result of this ongoing process is “good” and “bad” days, depending on internal and external environmental stimuli
• Commonly, people are able to manage these fluctuating situations or conditions without intervention
• Sick with a cold (physical)
• Your child having a cold (emotional)

Notes:
Workplace Interventions

• You observe a change in previous level of engagement, impacting work performance

Notes:
Workplace Interventions

• It is important to gather information about what is occurring.
• Things that are frequently observed include the following:
  ➢ Physical
  1. Increased muscle tension, headaches, complaints of pain, slow verbal responses, frequent position changes

Notes:
Workplace Interventions

- Behavioral
  1. Increase in talking, restlessness, emotional dysregulation, quick to anger, distractedness, memory issues and foggy thinking
  2. A change in ability to participate

Notes:
Workplace Interventions

Need to determine what may be occurring that is leading to the responses that you are observing

1. Hyper or hypo sensitivity in any of the senses: Sensory sensitivities may cause sensory overload. But, it may also cause sensory stimulation craving.

If overwhelmed by sensory input may try to withdraw from the stimuli.

Diminished reception of sensory information may lead to sensory seeking in someway(s), e.g. “heavy walker” due to diminished deep pressure sensation, deep tissue massages, winding motorcycle rides or zip-lining adventures.

Notes:
Organizing Information for Appropriate Interventions

Use a Questionnaire: Obtain the employee’s self-report of their work station environment

Self report using the Sensory Processing Questionnaire

Identifies hyper and hypo sensory responses

Notes:
Sensory Processing Questionnaire

(Given Before the work station analysis)

Circle your response

This questionnaire is for (work) wellness use only.

1. I prefer work uniform, personal protective equipment/safety gear that is loose fitting, and without tags
   • Agree
   • Disagree

2. I feel uncomfortable in crowded places or large groups
   • Agree
   • Disagree

3. When using my hands, I visually attend to what I’m doing e.g. typing
   • Agree
   • Disagree

4. When at my workstation, I can be distracted by sounds e.g., machines/voices and can have difficulty concentrating on my work
   • Agree
   • Disagree

5. Odors such as perfumes or detergents trigger physical discomfort
   • Agree
   • Disagree

6. I am distracted by window glare, overhead fluorescent bulbs or other bright light so that it impacts my vision
   • Agree
   • Disagree

7. At times, I trip or bump into things from moving too fast
   • Agree
   • Disagree

Notes:
# Analysis: Environmental Factors – Sensory Checklist

**Name:** John Q. Public, Maintenance Buildings and Grounds  
**Reviewer:** WorkWell Therapist  
**Date:** August 28, 2019

<table>
<thead>
<tr>
<th>Work Site Condition</th>
<th>Never</th>
<th>Occasionally</th>
<th>Frequent</th>
<th>Constant</th>
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<tr>
<td><strong>Environment</strong></td>
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</tr>
<tr>
<td>Temperature</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>a. Cold</td>
<td>X</td>
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<tr>
<td>b. Hot</td>
<td>X</td>
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<tr>
<td>c. Indoor</td>
<td>X</td>
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<tr>
<td>d. Outdoor</td>
<td>X</td>
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<tr>
<td>Air</td>
<td></td>
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<tr>
<td>a. Fumes or airborne particles</td>
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<tr>
<td>b. Odors</td>
<td>X</td>
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<tr>
<td>b. Required to wear breathing protection</td>
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<tr>
<td>c. Wet, Humid conditions</td>
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<tr>
<td>Noise Level</td>
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<tr>
<td>a. Quiet</td>
<td>X</td>
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<tr>
<td>b. Moderate Noise (office with copier, printers)</td>
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<tr>
<td>c. Loud</td>
<td>X</td>
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<tr>
<td>Lighting</td>
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<tr>
<td>a. Bright</td>
<td>X</td>
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<tr>
<td>b. Average</td>
<td>X</td>
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<tr>
<td>c. Dim</td>
<td>X</td>
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<tr>
<td>d. Florescent</td>
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<tr>
<td>e. Incandescent task light</td>
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<tr>
<td>Working Space</td>
<td></td>
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<tr>
<td>a. Shared work space</td>
<td>X</td>
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<tr>
<td>b. Working within 3 ft. of co-workers</td>
<td>X</td>
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<tr>
<td>c. Organized and neat</td>
<td>X</td>
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<tr>
<td>Vibration</td>
<td></td>
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<tr>
<td>a. Operate Vehicle Golf cart</td>
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**Notes:**
Conducting the Analysis

Can the findings be addressed or should the issue be referred to outside professionals?

- Simple Changes (Quick Fix): adjustments to lighting, reorganize work station
- Refer to others: physician or other health professionals that specialize in the identified issues

Notes:
Case - Instructor

History:
Traumatic brain injury (TBI). They recently experienced a personal injury (slipped on ice) which resulted in a second TBI
1. Observations of performance
2. Behaviors, functional limitations

Notes:
Case - Instructor

Interventions:

- Internal:
  Changes/interventions e.g. modify lighting
- External:
  Optometrist for specific vision interventions

Notes:
Case – Maintenance Mechanic

History:
Right arm/upper extremity nerve (radial) injury
At work, experiencing moderate decreased activity tolerance of right arm and hand
1. Observations of performance
2. Behaviors, functional limitations

Notes:
Case – Maintenance Mechanic

Interventions:
• Internal:
  Review arm, hand positioning during tasks
• External:
  Not indicated

Notes:
Case – Box Truck Driver

History:
Recent decrease of left hand (long and ring fingers) functional mobility, strength and sensation. Left hand surgery (6 years ago – tendon contracture)
1. Observation of performance
2. Behaviors, functional limitations

Notes:
Case – Box Truck Driver

Interventions

• Internal:
  Reinforce wearing work gloves during truck pre/post trip inspections

• External:
  Physician follow – up secondary reoccurrence of contractures

Notes:
Case - Office

History:
For the past several years, employee has been under the care of a cardiologist (Congestive heart failure) and internist (Diabetes II)
1. Observation of performance
2. Behaviors, functional limitation

Notes:
Case - Office

Interventions
• Internal:
  Review strategies of pacing, energy conservation
• External:
  Equipment for lower extremity positioning

Notes:
Case – Custodial/Housekeeping

History:
Gradual decrease of right arm strength and work tolerance because of elbow pain
1. Observation of performance
2. Behaviors, functional limitations

Notes:
Case – Custodial/Housekeeping

Interventions
• Internal:
  Review strategies of pacing, energy conservation
• External:
  Equipment for lower extremity positioning

Notes:
Questions and Answers

Notes:
Resources

Use the following search terms when seeking information the Sensory System:
• Sensory modulation, regulation for adults
• Sensory processing

Some examples of sensory orientated resources on the web:
• Verywellmind.com
• pinterest.com “Sensory Tools”

Notes: