Occupational Therapy and Auditory Processing:

The Relationship of Listening to the Development of Movement and Functional Skills

(Why do occupational therapists put children on swings?!)

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The Occupations of Children

- Learning
- Play
- Becoming independent / self-help skills

The energy we spend constructing a world of objects, shapes, dimensions and other directions is enormous. Without the incredible and finely-tuned machine called our body, our brain would be at a loss to describe the world. Our ability to see, touch, feel, hear, move and control ourselves in relation to the environment is the slate that academic learning is etched on.

Athena Oden, PT
(Ready Bodies, Learning Minds)

Through the neuroanatomy of the vestibulocohlear system listening is related to:

- Arousal
- Self-regulation
- Emotions
- Respiration
- Postural adaptation
- Visual motor skills

Auditory Processing Supports:

- Self regulation
- Training in the sequence of movement
- Orientation regarding place in space / spatial awareness
- Executive Functioning

8 Senses:

1. Tactile
2. Auditory
3. Vision
4. Olfactory - smell
5. Taste

8 Senses continued:

6. Vestibular – Movement
7. Proprioception - joint and muscle sensation
8. Interoception - Awareness of sensation originating internally in organs of the body, the physiological "feelings" of all of the body parts including pain, temperature, itch, hunger, thirst, stomach ache, etc.

All senses facilitate understanding of the world and enhance skill development.

Assessment and Observation:

- Parent questionnaire
  - Sensory history
  - Medical history
  - Academic records
  - Standardized testing

Sensory Processing Disorder

Sensory Modulation Disorder

- SOR
- SUR
- SS

SENSORY-BASED MOTOR DISORDER

- Dyspraxia
- Postural Disorder

Sensory Discrimination Disorder

- Vision
- Hearing
- Touch
- Taste/ Smell
- Position/ Mvt.
- Interoception

SOR = Sensory Over-responsivity

SUR = Sensory Under-reponsivity

SS = Sensory Seeking/Craving

Review:

- Auditory processing is what we do with of what we hear.
- Sensory processing is what we do with all other sensory information

Orienting Reflex

- Fundamental to attention
- Our first reaction to any stimulus
- Tunes us in,
- Sound activates the postural muscles
- Suppresses body movement
- Increases our sensitivity
- Head orients to stimulus
- “What is it?”

Vestibular system :

Answers two questions:

- Which way is up?
- Where am I going?

Provides orientation in time and space

- auditory and visual system

EXPERIENCE IT:

- rotation / acceleration and deceleration
- Lateral / side to side
- Close eyes, partner sings abc's

- Experience movement – linear, inversion
- Examples – combing hair, brushing teeth, putting shoes on

Proprioception

- Definition
- Receptors- located in the muscles, tendons, joints
  - Muscle spindles
  - Golgi Tendon Organ
  - Ruffini endings (joint capsules)
  - Pacinian corpuscles
- Feedback System

Body awareness:

- Components
  - Orienting Reflex
  - Postural Organization
  - Core stability
  - Vision

Developmental progression:

- Every movement begins with a weight shift
- Proximal to distal
- Gross to Fine
- Cephalo (cervical) to caudal

Developmental progression of postural stability

- Weight shift on floor or mattress or parent
- Trunk rotation – muscle activation
- Bilateral integration

Therapy programs and techniques: (All individualized and used according to client's therapy goals)

- Sensory Integration Therapy
- Interactive Metronome
- Therapeutic Listening
- Integrated Listening Systems
- Astronaut Training – Mary Kawar, Sheila Frick
- Music wall and Boom Wackers
- Therapeutic use of self (voice modulation)/ co-regulation
- Bal-A-Vis-X
- Ease

Review:

- How are movement and listening related?
- What movement interventions are used in OT?
- Why do OT's put children on swings?

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