ARE YOU OVERWHELMED & OVERSTIMULATED?

STRATEGIES & TRAINING FOR SOUND SENSITIVITY

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OBJECTIVES

• Understand cognitive-communication disorders
• Recognize symptoms of hearing sensitivities
• Learn strategies to compensate for hearing sensitivity/auditory processing difficulties
• Understand Berard Auditory Integration Training (AIT) and how it can be of help for hearing sensitivity/auditory processing difficulties
• Learn about Jeremy’s personal experience with recovering from a concussion and what he found to be helpful for his sound sensitivity
• Recognize the challenges that may be improved with Berard AIT
WHO CAN WE HELP?

- Adults and adolescents with cognitive-communication disorders
- A cognitive-communication disorder is any aspect of communication that is affected by a disruption of cognition (thinking).
  - Attention
  - Memory
  - Speed of Processing
  - Organization
  - Problem Solving/Reasoning
  - Task Management
  - Time Awareness
  - Planning
  - Mental Endurance
  - Language (speaking, listening, reading, writing)

WE HELP PEOPLE WITH DIAGNOSES INCLUDING:

- Traumatic Brain Injury
- Concussion
- Acquired Brain Injury
- Stroke
- Multiple Sclerosis
- ADHD
- High Functioning Autism
- No medical diagnosis, but impaired functioning
COMMON SYMPTOMS OF A BRAIN INJURY

- Headaches/Migraines
- Fatigue
- Changes in perception of visual, auditory, and other sensory stimuli
  - Hypersensitivities to light and sound
  - Issues with visual processing
  - Issues with auditory processing
- Cognitive Dysfunction
  - Attention difficulties
  - Memory difficulties
  - Processing difficulties
  - Language difficulties
  - Executive function difficulties

VISUAL AND AUDITORY PROCESSING

“We are used to problems of vision being complex and varied, and it is necessary for us to realize hearing problems can be more complex and varied than we have previously recognized.” - Dr. Guy Berard

- The kind of hearing problem people are most familiar with is loss of hearing or "hard of hearing"
  - This is usually a problem in amplitude dB (power/loudness)
- The kind of hearing problem Dr. Berard addressed involved the other characteristic of sound which is frequency Hz (pitch)

Berard and Brockett, 2011
WHAT DOES HEARING SENSITIVITY LOOK LIKE AFTER A BRAIN INJURY?

- Sounds that were barely noticed before are startling now
- It feels like you have megaphones in your ears
- Background noises become overwhelming
- Large gatherings of people become overwhelming
- Irritability

Berard and Brockett, 2011

WHAT DOES HEARING SENSITIVITY LOOK LIKE AFTER A BRAIN INJURY?

- Apparent disinterest
- Anger/abrupt changes in mood
- Reduced tolerance for busy, noisy environments
- Difficulty focusing
- Present, but not actively participating
- Difficulty with learning
- Social difficulties, avoidance of social situations

Berard and Brockett, 2011
Auditory overstimulation is a roadblock to recovery after a brain injury.

People are unable to participate in their lives (socially or vocationally).

Types of auditory dysfunction which may be at the root of symptoms:
- Painful hearing
- Problems in response timing
- Fatigue
- Hearing errors
- Auditory selectivity
- Auditory distortion
- Auditory laterality

Berard and Brockett, 2011
STRATEGIES TO ADDRESS AUDITORY OVERSTIMULATION

- Ear plugs
- Avoid loud, crowded areas
- Plan ahead to manage amount of time spent in a situation with crowds
- Sit along a wall or in the corner at a restaurant
- So shopping errands early in the week and early in the day when stores are less crowded and quieter
- Use bowls for food instead of eating from noisy bags

www.brainline.org

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STRATEGIES TO ADDRESS AUDITORY OVERSTIMULATION (CONTINUED)

- Have conversations in quiet places
- Ask people to speak one at a time
- Keep TV volume low
- Keep the radio volume low or off completely when driving
- Watch for your warning signs when sounds are becoming too much
- Do not sit under or near speakers in public spaces
- Know your exit, sit towards the back

Backhaus and Burra (2012), Webster (2011)
STRATEGIES TO ADDRESS AUDITORY OVERSTIMULATION (CONTINUED)

- When arriving in a public spot, acclimate to the place for 3-5 minutes in a quieter spot
- Eat out at restaurants when they are quieter, between regular meal times
- Leave a busy spot, such as a restaurant, every 15-20 minutes or whatever is needed for mini “brain breaks”
- Gradually expose yourself to different sounds to build a tolerance
- Monitor your fatigue, pain, and stress levels - these make symptoms worse

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BERARD AUDITORY INTEGRATION TRAINING (AIT)

- Developed by Dr. Guy Berard, M.D.
- Individualized listening program which helps to improve auditory and sensory processing
- Takes place in 2-30 minute sessions per day, for 10 consecutive business days
- An assessment and audiogram is needed before training can begin
- Listen to modulated, fast-tempo music
- Frequencies may be filtered
The middle ear contains the body’s three smallest bones and two of the smallest muscles.

- The bones are stimulated by movement of the ear drum.
- The muscles are responsible for proper tension between the bones.

**Theories of Berard AIT**

**The Middle Ear Theory**
1. The muscle tension is not adequate for the middle ear to function correctly.
2. The two muscles do not work together to form the acoustic reflex.
   - May result from a trauma to the middle ear.

**Cerebellar-Vestibular Theory**
- The cerebellar-vestibular system (CVS) is the sensory-motor processing center of the brain.
- Made up of the:
  - Vestibular system (inner ear system).
  - Cerebellum (back of the brain that coordinates and regulates muscle activity).
- The cerebellum is connected to the inner ear by the vestibular nerve.
- The CVS is responsible for sensory processing (hearing and vision), coordinating voluntary and involuntary movements, and controlling sense of balance, direction, and time. If the CVS is disrupted, any of the above listed responsibilities of the system may be impaired.

Berard & Brock, 2011
IMPROVEMENTS SEEN AT OUR CLINIC FROM BERARD AIT

○ Karla - middle aged female diagnosed with encephalitis (ABI) due to West Nile Virus
  • Improvements noted:
    ○ Can more effectively “block out” sounds
    ○ Can more effectively concentrate in noisy environments (phone ringing and people talking)
    ○ Infrequently needs earplugs at work, used to be daily and almost constant
    ○ No longer wears earplugs to bed, used to hear cats eating in another room and would wake up whenever the fridge kicked-in
    ○ Can go to restaurants and stated that she functioned 90% better
    ○ Improve mental endurance
    ○ FAS improved from 1.83 SD above to 3.39 SD above
    ○ Alternating attention improved from .20 SD below to .82 SD above
    ○ Divided attention improved from 2.75 SD below to 1.0 SD above
    ○ Auditory concerns improved from 10/16 items to 4/16

IMPROVEMENTS SEEN AT OUR CLINIC FROM BERARD AIT (CONTINUED)

○ Michael - no diagnosis, healthy young man, until a significant medical event that required multiple surgeries
  • Improvements noted:
    ○ Can read a book while other noises are occurring (home and school)
    ○ Now reads for enjoyment
    ○ Can enjoy parades, games with loud music and fireworks again! (used to have to leave crying after 10-20 minutes of exposure)
    ○ Can play and enjoy basketball, previously basketball(s) bouncing on the gym floor was too loud for him
    ○ It is now easier for him to ignore kids in his class who are talking or whispering and stated, “I can block them.”
    ○ Stopped wetting the bed
    ○ Finds it easier to pay attention in class
  • Improvements were noted through interview and questionnaires
**JEREMY’S STORY**

- Sustained a concussion on 03/27/13 at work
  - Initial changes noted:
    - Daily headaches, sensitive to light and noise
    - Felt “confused, foggy, and lethargic”
    - Three to four naps per day due to fatigue
    - Difficulties with speed of processing, focus, memory, insight, etc.
  - Sound sensitivity noted:
    - Traffic noise was a “killer”
    - Lunch room noise
    - General background noise

**JEREMY’S STORY** *(CONTINUED)*

- Strategies used to compensate for sound sensitivity prior to Berard AIT
  - Ear plugs
  - Avoiding lunchroom at busy times
  - Taking work lunches at times when others were not in the lunchroom
- Improvements noted since Berard AIT:
  - Can go to a restaurant for at least two hours without difficulty
  - Attended a musical at the Chanhassen Dinner Theatre in November of 2015
  - Attended first movie in December of 2015
  - Can enjoy daughter’s swim meets
**CHALLENGES THAT MAY BE IMPROVED WITH BERARD AIT**

- Attention
- Memory
- Low tolerance for distractions
- Slowed thinking and processing
- Overly sensitive to sounds
- Tuned out to certain sounds
- Difficulty ignoring background sounds
- Speech and language delays
- Difficulty with reading, writing, and spelling
- Challenges learning
- Poor balance and coordination
- Difficulty listening and understanding
- Speaking too soft or loud
- Challenges with social skills

**BERARD AIT PRACTITIONERS IN NORTH DAKOTA**

- **Medcenter One**
  300 N. 7th St.
  Bismarck, ND 58501
  Phone: 701-323-8399

- **Progressive Therapy Associates**
  1150 Prairie Parkway, Suite 105
  West Fargo, ND
  Phone: 701-356-7766

- **Music Therapy in Motion & AIT Services**
  1606 Dellwood Court
  Grand Forks, ND 58201
  Phone: 218-791-0908

For additional information regarding Berard Auditory Integration and training sites in other states, please go to: [www.berardaitwebsite.com](http://www.berardaitwebsite.com)
REFERENCES


