

Helping Children with Auditory Processing Disorders

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Webinar presented

By Dr. Jay R. Lucker



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Let's Get Started: What IS Auditory Processing?



How Our Professional Associations View APD

- ASHA and AAA view auditory processing as something occurring only in the auditory system (central auditory pathways)
- Most professionals agree with this position largely because that is what they are taught
- But is this REALLY all that APD is about?

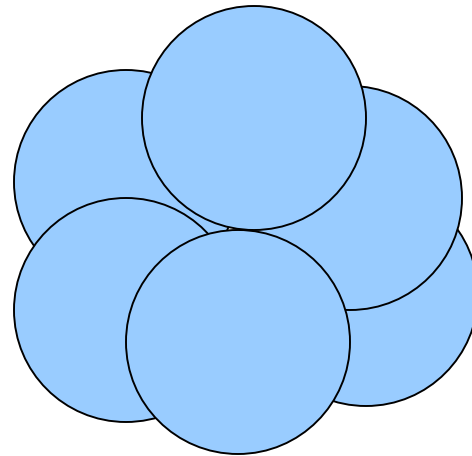
Lucker's Definition: Auditory Information Processing

- **Those things the entire central nervous system does when it receives information through the auditory system and gets it to the brain where it eventually will form meaningful concepts**
 - *Auditory Processing involves auditory pattern recognition and discrimination*

Lucker's System Concept

- Auditory processing disorders come from ***one or more of six systems***

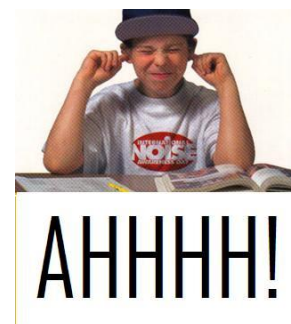
- Auditory
- Cognitive
- Language
- Behavioral/Executive
- Emotional
- Sensory



- In some cases, the problem is with the integration of these six systems

Lucker's Categories: Sensitivity

- ***Awareness, detection***, knowing that a sound exists (hearing loss vs. hyposensitivity)
 - Teach children to be aware of sounds and detect what sound it might be
- ***Hypersensitivity*** to loud sound



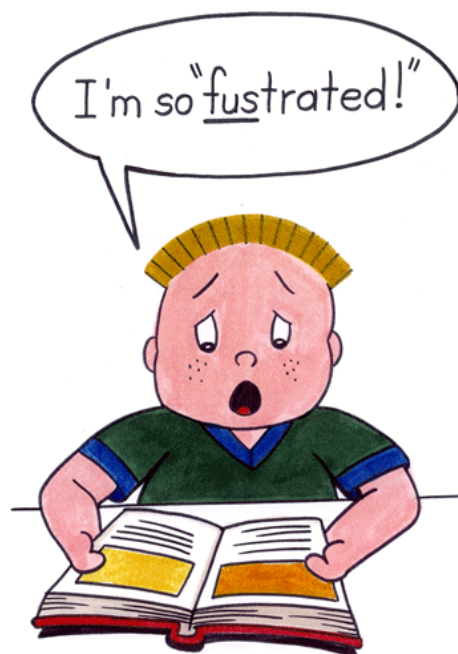
Lucker's Categories: Extraction

- **Extraction =**

- Extracting the “code” from the ongoing flow of auditory information

- **We extract at three levels**

- First = temporal
- Second = phonological
- Third = linguistic



Auditory Temporal Extraction

- Temporal Extraction
 - Involves using the time differences between words to identify whether you hear one word or two words, one continuous sentence or two different sentences, etc.
 - We also are able to integrate the time or temporal factors and we can understand slow speech or rapid speech
 - It is our understanding of rapid speech that we use to assess temporal extraction

Auditory Phonological Extraction

- Phonological Extraction
 - Eventually leads to phonemic awareness
 - Involves discrimination
 - Strategy = feature detection
 - Stops vs. Continuants
 - Voiced vs. Voiceless
 - Noisy vs. Smooth sounds
 - Identify the feature difference
 - Not just same-different



Auditory Lexical Extraction

- Lexical Extraction (linguistic level)
 - **Key words**
- Consider this sentence: “Mother went to the store to buy some bread.”
- What did you actually pull out of this sentence and place into memory?
- Did you pull out something like: “mother–store – bought - bread”

Lucker's Categories: Attention

- There are really different levels of attention:
- **Set to attend – Selective attention**
 - Not a problem with children with APD
- **Focusing and filtering** (relevancy)
 - Primary problem with APD due to poor filtering abilities so the background noises/sounds become an auditory distraction
- **Strategy:** *Improve focusing on the primary message*

Are You
Paying
Attention?

Lucker's Categories: Attention

- **Maintaining attention**
 - Not a problem with children with APD so long as they understand the message
 - This is the way we formally assess and differentiate between APD and ADHD or other attention/executive functioning/self-regulation problems
 - **Dividing attention – Switching**
 - Can be a problem for children with APD due to multitasking
- Strategy: Focus work on self-regulation and attention = executive functioning

Lucker's Categories: Memory or Storage

- Primarily a cognitive process and not primarily an auditory process
- The auditory memory part of memory actually involves language
 - How we tag or label information when we place it in memory
 - How we categorize and associate that information
- *Strategy: teach relabeling, categorization, association, organization, mnemonics, etc.*
 - Check out **auditory overloading/emotional issues**

Lucker's Categories: Integration

- Putting it all together
- Task analysis
- Problem solving
- Cognitive strategies
- Executive control
- Also, multisensory integration
- *Strategy: teach metacognitive, metalinguistic, metaauditory skills*



Lucker's Categories: Organization and Sequencing

- We organize and sequence the events in messages
- We can have problems with certain tasks if we can't sequence/organize properly
- *Strategy: teach child use of Graphic Organizers and other external organization strategies*
 - Be sure these organizational strategies work for the child



Summary

- Thus, APD is not merely a disorder of the auditory system
- It involves multiple systems
- It also involves the integration of these systems working together
- You need to identify the specific system(s) that leads to the APD problems – not “one size fits all”



Evaluating Auditory Processing



Evaluating Auditory *Information* Processing

- We need a comprehensive assessment to look at all of the systems
 - Audiological tests (Aud)
 - Cognitive test results (Psych)
 - Language test results (SLP)
 - Emotional/behavioral test results (Psych)
 - Executive functioning results (Psych)
 - Sensory results (OT)

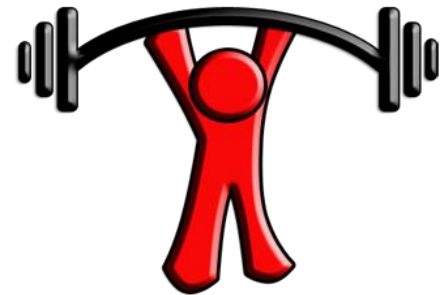


Accommodations

- Remember, accommodations **do not treat the disorder**
- Goal of accommodation is to provide equal access to the educational environment and curriculum
- We need to provide both accommodations **AND** treatments

Sample Accommodations

- FM Systems
- Preferential Seating
- Pre-teaching
- Extended Time
- Working in a distraction free environment
- Pre-Teaching is one of the best accommodations I know
- Reduce the Load



Treating APD Problems

- Since there is **no one thing called APD**, the first important thing is to identify the specific category of APD found with the child
- Identify how each category or APD factor affects the child educationally and communicatively
- Treat the greatest problems first

Treatment for Auditory Hypersensitivity

- The problem with hypersensitivity
 - See *Autism Science Digest* April 2012
 - See *Focus on Autism* March 2013
- Lucker identifies auditory hypersensitivity as an emotional based problem
- Treat the emotional systems
 - Systematic Desensitization
 - Listening Therapy



Systematic Desensitization

- It is based on behavioral therapy or behavior modification
- Give control to the child
- Systematically introduce the annoying sounds
 - Focus on length of hearing the sound
 - Intensity of the sound
 - Work from least to most annoying

Listening Therapy

- Lucker's recommendation and research has been with

- The Listening Program  **ABT** ADVANCED BRAIN TECHNOLOGIES

- www.thelisteningprogram.com

- www.advancedbrain.com

- Also, use of environmental music

- Sound Health Series from Advanced Brain Technologies

Lucker's Recent Research

- Dr. Lucker and a colleague (Dr. Vargas, OT) completed a META-ANALYSIS of published research on TLP
- Findings revealed those studies investigating auditory factors showed the greatest EFFECT SIZE (significance of magnitude of improvement) in the AUDITORY factors after TLP training

Treating Phonological Processing Problems

- First identify what is underlying the phonological processing difficulties
- Could it be auditory discrimination?
- Could it be mental manipulation of sounds in words?
- Is it sound-symbol association
- Treat the specific problem not the generic issue

Treating Lexical Processing Problems

- Is the problem lexical (key word) extraction?
- Is the problem phonological integration or the meta-cognitive/meta-linguistic aspects of comprehension?
- Is the problem sound-symbol association also known as visual imagery or visualization?

Strategies for Organization

- Use of graphic organizers
- Important to teach the child how to use the organizer and how to apply it
- Focus on relationship between the graphic organizer and to what it relates
 - Example would be graphic organizer and written material

Strategy for Organization

Who? What?	What's Happeni ng? What did (subject) do?	Where?	When?	Why?
Nouns, subject	Verbs, actions, also "is"	Place, locations	Time	Reasons, because
Person, thing, animals	Action words and the "is" equals	In, on, under, etc.	Hours, days, seasons, etc.	Go back to action tell why it occurred
Descriptiv es are the adjectives = which?	Descriptiv es are the adverbs = how?	Descriptiv es are the adjectives = which?	Descriptiv es are the adjectives = which?	Links to a new sentence

Memory Organization Strategy

Name of Planat	Distance from Sun	Distance from Earth	Composition	# of Moons
Mercury				
Venus				
Earth				

A Task to Develop Temporal Extraction Skills

- Use compound words like: fireman, hotdog, etc.
- Present pictures representing the compound word (fireman) and the two independent words (fire and man)
- Say the words and child has to identify whether you said the compound word (fireman) or the two individual words

Example #1



Example #2



Strategy for Memory: Consider the Following

- What is the best way to remember these items?
- Apple, shoe, green, banana, red, yellow, grass, sun, black
- What strategies can you use?
- Is this auditory or cognitive/linguistic?
- These are the types of things to do with children to help with memory

Activity for Listening in Noise/Auditory Distractibility

- The goal here is to teach the child to FOCUS on the primary speaker regardless of what are the background distractions
- Child has to localize the primary source of speech, face the direction of that source
- Play the game as a variation of the “Marco Polo” game



Final Goal

- **Independent Use of the Skills/Strategies Taught in Novel Situations**
 - In therapy, always consider 100% accuracy before moving from one objective (goal) to the next
 - If you provide cueing, prompting or other helps, this is **not** independent

To Learn More

- Check out www.ncapd.org
- Check out the www.mobilglobal.com
 - There are other webinars I have presented that are recorded and on the above website
 - Auditory lexical extraction and integration
 - Sound-symbol association
 - Phonological processing
 - Auditory hypersensitivity
 - Organization and memory
 - Auditory distractibility and attention

Let's Keep in Touch

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