

Auditory Training for Auditory Processing Disorders

*Victoria A Hamilton, Au.D.
Auditory Processing and Therapy, LLC
Kaiser Permanente*

Determining Therapy Goals

- Goals are based on the significant scores
- Always start with Phonemic Synthesis if it is significant for Quantitative or Qualitative – Always
- Begin with the less severe scores, strengthen these areas first and leave the weakest area to last
- Do not include goals for auditory memory initially – retest after strengthening dichotic listening ability, discrimination ability, phonemic ability to see if it even needs to be addressed



		Score	Limits of Normal
DICHOTIC LISTENING			
<i>Staggered Spondaic Words Test (SSW)</i>			
NOE Analysis	Right Non Competing	1	1 or less
	Right Competing	1	2 or less
	Left Competing	6	4 or less
	Left Non Competing	1	1 or less
	Ear Effect	-7	-2,+2
	Order Effect	3	-2,+3
	Reversals	9	1 or less
	Type A Pattern	yes	difference of 3, 2x other C
<i>Dichotic Digits</i>			
	Right Ear	100%	90% or better
	Left Ear	80%	88% or better
BINAURAL SEPARATION			
<i>SCAN-3 Competing Sentences</i>			
	Scaled Score	9	Average
MONAURAL LOW REDUNDANCY SPEECH			
<i>Filtered Speech SCAN -3</i>			
	Scaled Score	7	Low Average
<i>Time Compressed Speech SCAN -3</i>			
	Scaled Score	6	Borderline
<i>Auditory Figure Ground SCAN -3</i>			
	Scaled Score	10	Average
PHONEMIC SYNTHESIS			
	Quantitative	20	23 correct or better
	Qualitative	19	22 correct or better
WORD DISCRIMINATED			
	Scaled Score	6	Borderline
TEMPORAL RESOLUTION			
<i>Pitch Patterns Test</i>			
	Verbal	96%	75% or greater
	Nonverbal	DNT	75% or greater
<i>Gap Detection</i>			
	Gap	5 ms	15 ms or less
SHORT-TERM AUDITORY MEMORY			
TAPS -3	Number Memory	11	Average
Scaled Score	WordMemory	9	Average
	Sentence Memory	14	Superior
AUDITORY COMPREHENSION			
TAPS -3	Scaled Score	11	Average

Dichotic Listening Training

- Use both word and number sets, but primarily words
- Words are in three sets with each set having five levels
- Sets are +10 dB, +5 dB and +0 dB
- Sets can be either 3 seconds between presentations or 8 seconds between presentation

Dichotic Listening Therapy

- Levels are:
 - Basic Kindergarten Words
 - Words Phonetically Different
 - Words Phonetically Similar
 - Compound Words
 - Two Syllable Words
- Offset lists are rarely needed
- Lists with a male voice
- Lists with words that focus on certain consonants (m/n, s/z, p/b/d, sh/ch)

What I Have Found

- Both speed and accuracy of dichotic listening improves
- Either speed or accuracy seems to be the bigger issue
- If it is possible for the child to handle the 3 second interval between presentations instead of the 8 second intervals without too much frustration, you can be working on speed and accuracy initially
- Most children and adults have better initial success with the dichotic listening task with compound and two syllable words as opposed to one syllable words

What I Have Found

- The phonetically similar lists are the most difficult for everyone
- I do have dichotic digit lists as well but like the idea of working the phonemic area as well with words
- An added value of dichotic listening task is that the child / adult learns to relax and just let the words come without using the compensation strategies they have acquired (guessing or shutting down, panicking or getting angry). Good lesson in that you hear what you hear and you will hear it again. Find that optimal learning zone where there is a little stress but not too much.

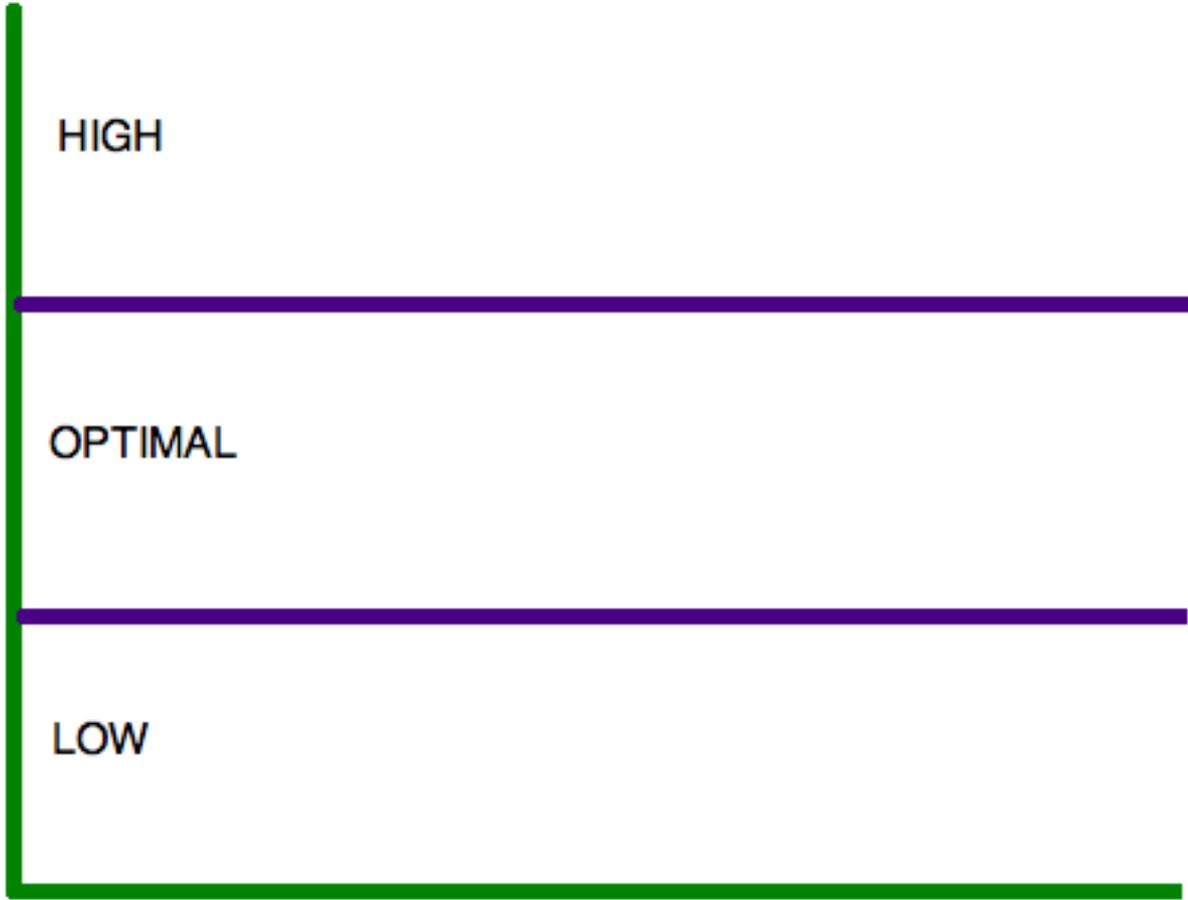
A
R
O
U
S
A
L

HIGH

OPTIMAL

LOW

T
I
M
E



Binaural Separation

- I use a poem (Sally Parker) in one ear and a story (Nicholas, Laura and Chadwick) in the other ear
- The story and the poem continue throughout the three levels, being +10 dB, +5 dB and +0 dB.
- Progress is measured by number of words missed
- I also use unrelated sentences at +10 dB, +5 dB, 0dB
- For patients with a particularly poor score for Binaural Separation, I will start with music in one ear and a story in the other ear

What I Have Found

- The entertainment value of the poem and story is motivating to the children and adults
- There are idioms in the poem “she began to unravel” and “she woke up ten feet tall” may create too much confusion
- My post test for binaural separation does show improvement of this skill

Therapy Tools I Use

- Vowel/Consonant Pair Training
- Education / Self Advocay
- Nonsense Words for discrimination training
- Hear Builders
- Visualization of phonemes using colored tabs
- Compensation strategies / correction of mishearing
- Active listening for auditory memory
- Auditory / visual integration
- Interhemispheric Exercises

**

S

Z

S

Z

/ɪ/ bit, /ɛ/ wet, /æ/ cat, /ə/ glove, /ʊ/ took, /i/ feet,

/ʊ/ soon, /o/ toe, /ɑ/ palm, /ɒ/ pot, /ʌ/ rug, /e/ ate

Advantages of a Live Person!

- You adjust your rate of presentation to their rate of response
- It is auditory only / computer programs also use graphics
- You can quickly change approach according to how the child is performing
- You can recognize opportunities presented by the child to discuss the impact of an auditory processing disorder and recognize when they turn a corner.

Vowel/Consonant Training



**



**





		Score	Limits of Normal
DICHOTIC TASKS			
<i>Staggered Spondaic Words Test (SSW)</i>			
NOE Analysis	Right Non Competing	0	3 or less
	Right Competing	4	7 or less
	Left Competing	7	10 or less
	Left Non Competing	1	4 or less
	Ear Effect	na	-7,+5
	Order Effect	na	-6,+6
	Reversals	1	3 or less
	Type A Pattern	na	difference of 3, 2x other CN
<i>Competing Words</i>			
	Scaled Score	7	Low Average
<i>Dichotic Digits</i>			
	Right Ear	84%	75% or better
	Left Ear	30%	65% or better
BINAURAL SEPARATION			
<i>SCAN-3 Competing Sentences</i>			
	Scaled Score	9	Average
MONAURAL LOW REDUNDANCY SPEECH			
<i>Filtered Speech SCAN -3</i>			
	Scaled Score	7	Low Average
<i>Time Compressed Speech SCAN -3</i>			
	Scaled Score	6	Borderline
WORD DISCRIMINATED			
	Scaled Score	7	Low Average
PHONEMIC SYNTHESIS			
	Quantitative	17	17 correct or better
	Qualitative	11	15 correct or better
TEMPORAL RESOLUTION			
<i>Pitch Patterns Test</i>			
	Verbal Right	21%	40% or greater
	Hummed Right	21%	40% or greater
	Verbal Left	24%	40% or geater
	Hummed Left	21%	40% or greater
<i>Gap Detection</i>			
	Gap	20 ms	15 ms or less



Long-term Goals

Increase speed and accuracy of Auditory Processing

Increase knowledge and use of Compensation Strategies

Short-term Goals

Complete Phonemic Synthesis Lessons through lesson 15 x 100% by 3/15/2015

Completion Date: _____

Parent/Guardian will demonstrate ability to facilitate auditory training for both Dichotic Listening and Discrimination Training with 100% accuracy by 3/1/2015

Completion Date: _____

Explain with 90% accuracy the basics of auditory processing and diagram the pathways by 5/1/2015

Completion Date: _____

Complete Dichotic Listening Exercises x 90% by 6/1/2015

Completion Date: _____

Discriminate target vowel/consonant pairs with 90% accuracy by 7/1/2015

Completion Date: _____

Complete Auditory - Visual Exercises x 90% accuracy by 7/1/2015

Completion Date: _____

Complete targeted games in Hear Builders by 8/1/2015

Completion Date: _____

Utilize six communication strategies in daily life x 90% by 9/1/2015

Completion Date: _____

Increase tolerance to speech in noise by completing speech in noise training by 8/1/2015

Completion Date: _____

Complete interhemispheric exercises with 90% accuracy by 8/1/2015

Completion Date: _____



DICHOTIC LISTENING			
<i>Staggered Spondaic Words Test (SSW)</i>			
NOE Analysis	Right Non Competing	0	3 or less
	Right Competing	6	9 or less
	Left Competing	27	16 or less
	Left Non Competing	1	4 or less
	Ear Effect	2	-10,+5
	Order Effect	-6	-9,+13
	Reversals	0	6 or less
	Type A Pattern	None	difference of 5, 2x other CN
Dichotic Digits	Double Pairs		
	Right Ear	76%	70% or better
	Left Ear	52%	70% or better
BINAURAL SEPARATION			
<i>SCAN-3 Competing Sentences</i>			
	Scaled Score	4	Borderline
MONAURAL LOW REDUNDENCY SPEECH			
<i>Filtered Words Scan-3</i>			
	Scaled Score	7	Low Average
<i>Time Compressed Speech Scan-3</i>			
	Scaled Score	7	Low Average
<i>Auditory Figure Ground Scan-3</i>			
	Scaled Score	7	Low Average
WORD DISCRIMINATION			
	Scaled Score	10	Average
PHONEMIC SYNTHESIS			
	Quantitative	20	17 correct or better
	Qualitative	10	15 correct or better
IMMEDIATE SHORT-TERM AUDITORY MEMORY			
<i>TAPS - 3</i>	Number Memory	12	Average
Scaled Scores	Word Memory	11	Average
	Sentence Memory	9	Average
Note: Discrimination errors for Word Memory were counted as correct			
AUDITORY COMPREHENSION			
<i>TAPS - 3</i>	Scaled Score	12	Average



Long-term Goals

Increase speed and accuracy of Auditory Processing

Increase knowledge and use of Compensation Strategies

Short-term Goals

Complete Dichotic Listening Exercises x 90% by 5/1/2014

Completion Date: 2/15/2014

Complete Phonemic Synthesis Lessons through lesson 15 x 100% by 3/1/2014

Completion Date: _____

Parent/Guardian will demonstrate ability to facilitate auditory training for both Dichotic Listening and Phonemic Synthesis with 100% accuracy by 1/15/2014

Completion Date: 1/15/2014

Demonstrate six compensation strategies for difficult listening situations with 100% accuracy by 5/1/2013

Completion Date: _____

Increase tolerance to speech in noise by completing speech in noise training by 5/1/2014

Completion Date: _____

Complete binaural separation exercises x 90% by 6/1/2014

Completion Date: _____

Demonstrate appropriate advocacy skills for obtaining auditory information that is misunderstood x 90% by 6/1/2014

Completion Date: _____

App for the Auditory System

Blue Tree Publishing



App shows sound traveling to the brain
(animated) and otoscopic view of the tympanic
membrane (actual)





Ways to Deliver Therapy

- Traditional – come into the clinic weekly and biweekly, therapist driven
- Home Based – Parent is given therapy materials and taught how to train
- Skype – connect with Skype, most training can be done, works well with adults
- Web Based – logs in and trains
- Combination of above dependant on what works best with the child and the family

Vickie's Golden Rules For Therapy

- A Montessori Approach
- Training for 10 – 15 minutes 5 days a week
- Parent kept completely informed – therapy notes sent via email
- Phonemic Synthesis always first
- Address the weakest area last
- You Hear What You Hear / Never Correct the Patient
- Child should become a Junior Audiologist

**

