

# SIMPLE & EFFECTIVE



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## Contributions from Six Members and

### *Third Spondee*

#### **Katie Teague, Au.D.**

**Location:** Hawaii

I saw a young man today, a 28 year old soldier with blast exposure injury and mild TBI with complaints of short term memory issues, severe difficulty hearing in back-ground noise, changes in music appreciation, difficulty hearing on the phone, tinnitus, and migraine headaches. All symptoms have occurred since his deployment (no prior learning issues, etc.)

He performed horribly on words in noise test only getting 5 correct in the right ear, 1 in the left. Did fine in quiet although had some delays.

### *Reply to Katie*

#### **Jack Katz, Ph.D.**

1. I commend you for stopping half way through as I'm sure that with such poor performance it was likely very frustrating for him. If the person is too tired or frazzled; after that it may have an adverse effect on the following tests. I think the best way to handle a half test is to double the scores. While this is a pretty good approach for the total score and likely for the four conditions, it may not be so accurate for the Ear and Order Effects. But it is what we have and because we have many indicators we often have plenty of information with or without these response biases (especially in severe cases).

2. Of course, his memory and noise issues suggest TFM-type problems and listening on the phone sounds like DEC. Music might be a right hemisphere indicator.

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Phonemic Synthesis yielded a score 15 correct for the Quantitative Score and 9 correct for Qualitative with lots of delays and quiet rehearsals and a few perseverations.

On the SSW, I only administered the first half because of the great difficulty he was having (and it was the first test I started with). He kept coming up with the "Third Spondee"; i.e. "Up Town" for item #1, "Out Law" for item #2, etc. occasionally he would give the first spondee (3 times, REF only) or the second spondee (4 times, REF only).

I can't remember what the "third spondee" is indicative of.

Thoughts/comments/suggestions/questions?

## *Reply to Katie, cont.*

3. Wow, Speech-in-Noise is 10 SDs poorer than the mean in the right ear and PS Quantitative is 8 SDs poorer. That is beyond the plain ol' APD range. But, these scores are consistent with his DEC and TFM complaints.

4. The Available Word (AW) forms a 3rd spondee. That is, *Out Side, In Law* and then *Out Law*. Usually, the person gets one of the competing words so they say *Out Side Out Law* or *Out Law In Law*. In this case the AW works just as well when he missed both of the competing words. Missing both on a number of items is not common except in the very elderly, those with brain lesions or quite severe APD. He acts more like what I have seen in the brain damaged population.

5. I'm not sure what to say about the single spondee for 7 out of 10 REF items. My guess is that it is more of a DEC issue but as he is working on one spondee his memory problem kicks in and he loses the previous one. When he misses the last spondee it may take him too long to get to it fully.

If he treats each spondee as 2 words then he would have 4 to remember and this could surely challenge his memory.

## *Lowest IQ: Dx, Rx*

### **Melissa Palmer**

I have been talking with a colleague who is an SLP about testing and treating APD for those with low IQ. We were wondering what your take is on this subject. Do you have a cutoff for IQ and do you find treatment beneficial with this population and if so, down to what IQ level typically?

I noted this to be one of the SSW Reports topics back in 1999 but wondered what your current ideas are on this. Thanks for your help!

## *Reply to Melissa*

### **Jack Katz, Ph.D.**

The lowest that we have tested is a person with ~36 IQ (in an adult). The bigger question is can the person echo back what was heard so you can decide if it was correct or not. And, is the person willing to be tested. As for therapy, the lowest IQ of someone that I have worked with is 31 IQ. This turned out to be my all-time favorite patient. He was 24 years old when we started.

I successfully tested each child that I had the opportunity to test. Among high school students whom I tested, the lowest was a 46 IQ. Among younger children I was not given their IQs but I would guess they were at least in the 70s maybe 60s. I only had 4 young children referred to me.

For therapy I did not have any of the three Buffalo Battery tests on the man with a 31 IQ but later on I did get results and retests on the PS-Picture test. After 4 years of therapy I was ready to give him the SSW but his family never showed up. I have a chapter on the Intellectually Challenged in my new book on therapy ([www.edaud.org](http://www.edaud.org) go to Store). The book is "Therapy for APD: Simple Effective procedures".

## *Importance of Qualifiers:*

### **Angela Loucks, M.A.**

**Location:** Kansas

Michael is a 9 year old boy who is having extreme difficulties in the reading portion of his class. The teacher or another student will read the story aloud every day and the next day they have to take a test over what they heard on the previous day. Michael comes home frustrated that he cannot remember what the story was about. If another child has been the narrator it is even more difficult for him to digest the story. Michael's mother will re-read the story with him that evening, but the next day he still struggles to get over 50% of the multiple choice questions correct.

The school SLP referred him to an ENT for APD testing. They referred him to me.

Michael's Speech-in-Noise results were 96% in quiet, for both ears and 76% correct in both ears with a 5 dB SNR (he even heard "start!") Phonemic Synthesis test results were within normal limits, quantitatively. SSW was barely outside 2 SDs for NOE (11 with NL= 10.) However, Michael had extremely long delays throughout the test and would repeat things in a staccato fashion when he would get them correct. I counted his delays and extreme delays and they added up to 67!

I was nervous writing the report. Michael's parents are so desperate to find help for their child, that I didn't want to lead them down the wrong path. So I jumped onto our Google-group site and posted about him. I talked to his parents and we decided to try 5 weeks of therapy to start and see if it seemed beneficial.

Last night (11/17) I had my first therapy session with him. He's quick as a whip and I was worried about him feeling bored. He had considerable difficulty understanding how to do the Phonemic Training

Program. I reinstructed about giving the cards a tap- and to say the itch words out loud. I started the WINT-1 program and I was instantly blown away. From the beginning (even speech-in-quiet) Michael struggled. I had to pause the player numerous times to wait for his response. At one of the easier SNRs he saw me writing something down and asked if he had gotten something wrong. I replied that he heard a word differently than I expected. The word was "five" and he heard "mine." I asked him if he would like to hear it again? "Of course," he said. He furrowed his brows and we listened to the word a few more times. I would prime the word with /f:/ and wait for it to play. He shook his head. "I still hear mine!" His mother looked at me wide-eyed. I told him that I would like him to trust me on the words until it becomes a little easier. I explained that this was the reason that he was here and he let me know he understood. He had 17 errors and 14 delays (10 extreme and 4 standard delays) during the WINT.

I saw clearer signs of decoding issues during therapy than during evaluation. I might even have a better Phonemic Error Analysis from my observations yesterday!

The moral of the story: Looking at the qualitative aspects of the Central Test Battery is a very important tool in identifying people who compensate so well, but still struggle to fulfill the demands of their worlds.

I'm very excited to see how Michael will respond to therapy and I have hope that he will be enjoying hearing stories instead of dreading that portion of school, soon. I suggested that his mother read the chapter that the class will read the night BEFORE, not after the class does in order to improve his confidence and, hopefully, his recall.

What do you think?

How interesting. As for the SN error you can click off the noise channel so he can hear it correctly in quiet. Then raise the noise level from perhaps +10dB SNR in 4 dB steps until he gets it wrong and then back off it a bit to get the correct response and go on to the next word.

### *Reply to Angela*

Jack Katz Ph D

### *Not an easy case*

#### **Diane Little**

I will be seeing a young man that you had tested with a diagnosis of very mild auditory processing difficulties several years ago. His primary complaint was becoming "overwhelmed" with homework when he feels that it is too much and remembering to do stuff (forgets to do it). He stated that he can do his homework at school, but when he gets home, the TV etc gets his attention and he forgets the steps involved with math problems, etc. His hearing tested normal for the first time.

My question is this: This seems more like an organization/structure/recall issue. Should I refer him for further testing since his auditory processing issues were very mild and he has been successful in school up until this time? He did report that his mother set him up with some structure and that is helping him. Insurance has only authorized the evaluation only and I will need to make a good case for him for therapy if indicated after the testing.

### *Reply to Diane*

Jack Katz Ph D

Wow Diane, that is not an easy question to answer not knowing what I had found before and if I have gotten any smarter in the interim period. If the parents approve, please send me his name and I will give you my informed opinion.

My most difficult diagnostic challenge is evaluating very bright kids over 10 years of age because they have learned to compensate so well and do better than their actual scores would suggest. You might plan to do a stint of APD therapy in the "mild" areas. There is a good chance that PTP will sharpen up his skills and the WINT program should do a good job of improving his speech in noise skills. But, you should surely check both his memory and organization abilities and work on those. If they are weak; as I suspect they are.

Of course when I see his file I might have a different point of view.

*A Poetic Look at APD:*

*The intensity dial goes round and round  
And the frequency dial goes  
up and down.*

*But APD therapy goes sound-by-sound  
until the problem is turned around.*

*-Susan Brandner, Ph.D.*

Thanks to everyone who contributed!

Please see Kavita's case on the next pages.

*Jack and Angela*

## Kavita Kaul, Audiologist and SLP

### Post Therapy Report

#### Therapy Summary

Name: Howard Zane

Age: 9 yr 1 mo

DOB: 5/1/2000

Initial Evaluation: 11/23/2008

Reevaluation: 6/19/09

Began Therapy: 1/17/2009

End Therapy: 6/18/2009

#Sessions:15

Measure	Pre	Post	Diff	Measure	Pre	Post	Diff
SSW				Order Effect	2 H/L*	7 H/L*	-5
Total NOE	52[16]*	37[10]*	+12	Ear Effect	-4 L/H*	5 H/L*	+1
RNC	2[2]	3[2]*	-1				
RC	23[5]*	13[4]*	+10				
LC	21[7]*	20[6]*	+1				
LNC	6[3]*	1[1]	+5	Reversals	2	0	+2
<b>Phonemic Synthesis</b>				<b>Word Recognition</b>			
Quantitative	20[17]*	25[18]	+5	% Quiet-Noise RE	92[90]	92[90]	0
Qualitative	9[15]*	18[16]	+9	% Quiet-Noise LE	80*[88]	92[88]	+12
				%Noise RE	80[75]	88[75]	+8
				%Noise LE	68*[73]	80[73]	+12
				% Inter-Aural Diff	12*	8	+4
				%Diff quiet & noise R	12[22]	4[21]	+8
Quick	10	4	+6	%Diff quiet & noise L	12[22]	12[22]	0

Age norms are in parentheses.

Diff= Difference between test and retest.

(a) '+' Indicates improvement and '-' poorer

(b) '\*' In Post box means still significant on retest.

#### General Review

Howard has made evident progress during the auditory therapy program. Howard's speech therapist Ms. Castle reported improved attention skills during therapy. His ability to attend to activities for extended amount of time to up to 60 minutes in therapy has improved per observation and reports.

#### Auditory Processing Therapy

##### Phonemic Training Program (PTP – Decoding):

Howard did very well on PTP. During initial evaluation Howard presented with 76% response accuracy on the Phonemic Recognition Test (PRT – Central Test Battery CD). PRT is a list of 34 sounds randomly presented twice and presented via loudspeaker at a comfortable loudness level. He had 16 errors out of 68 opportunities. The sound errors were: ar/r; boy/oi; p/h; ch/sh; f/th; mau/au; k/a; ol/l; boy/oi; ps/ sh; l/u; the/b; u/r; f/th; u/w. Following therapy he presented with a 89% response accuracy on the PRT. His errors were f/th; difficulty with z; l/w; thoi/oi, ch/sh; f/th. Response errors also seem to be related to impulsivity and difficulty with sustained attention.

**Phonemic Synthesis (PS – Decoding):** A series of 15 lessons were provided to improve sound discrimination, sound segmentation, and sound blending skills. Howard showed consistent improvement with each lesson. During the lessons he consistently showed increased ability to blend speech sounds independently. He developed his own strategies to improve rehearsals to blend sounds (as he improved he did not depend on these forms of assistance) and his response accuracy. He used finger count for each sound/ phoneme and also used verbal Test– Retest of the Phonemic Synthesis test showed significant improvement (see table above). Future therapy should focus on phonological skills related to reading ability including Rime words and Rhyme words (Rimes sound and look alike example ‘at’ in pat, sat, cat, etc. and .Rhymes sound alike but do not always look alike example care, hair, where).

**Speech-in-Noise (SN):** During each session Howard was presented monosyllabic speech sounds in the presence of background noise ranging from 40 dB Speech to Noise Ratio (SNR) to 5 dB SNR. During the test it was noted that Howard’s response accuracy improved significantly when he was presented with the list of words once visually (written word list) and auditorily (therapist presenting it orally) before the test. This improved his ability to retrieve information from his frame of reference better. Accuracy improved from about 50% to 75% at a variety of intensities ranging from 35dB to about 60dB at 5 dB SNR. His attention skills improved from the pre teaching strategy. This therapy reduces the child’s apprehension/ aversion to background noise and over time gradually improves the child’s ability to learn how to extract speech from the background noise. SN Test–Retest scores show significant improvement. Following therapy his scores fell within the average range in all areas.

**Localization Clock Training:** This therapy attempts to train the child to improve their ability to locate sounds in the space around them. A symbolic clock represented on the floor by numbers 1 through 12 allows the child to indicate the apparent direction of sound presented to him. The child is seated in the middle and is blindfolded to help with auditory localization skills. During the 15 sessions Howard presented with inconsistent skills to locate the sound and correspond it to the number on the clock. It appears that his ability improved to locate sounds by turning towards the source of sound, but needed help with labeling the time on the clock.

**Short Term Memory:** Howard was provided with a series of monaural, binaural, and dichotic auditory tasks. This provided a variety of challenges to his auditory system. Also it provided information about his abilities and weaknesses in different situations. At this time his responses are most accurate and efficient when presented in 4 unit chunks of numbers, digits, or words for both short–term memory and working memory activities. When presented with 5 unit chunks his responses improved from significant errors, and need for maximum external prompts and cues at all times to about 70% response accuracy at this time with minimal external help, delays, revisions, and omissions.

Following 15 sessions of a variety of auditory exercises the Staggered Spondaic Word test was administered again. The test indicated improvement in all areas in the number of errors although they continue to show significant impairment. This is not surprising as his initial test score was 11 SD poorer than the mean for a 9–year–old. He continues to exhibit difficulty with decoding and short–term memory deficits as evident from test scores. However the improvement in scores indicates a dynamic system that has positively responded to treatment protocol.

### **Addendum to Retest Report**

Recommendations based on the retest scores:

Using Lucker's model of Auditory Processing Skills Howard continues to show weakness in the areas of Memory; Attention; Phonemic Integration; Lexical Extraction; and Lexical Integration. These areas include Executive functioning, Auditory, and Language Processing skills. Continue using Lindamood Bell therapy principles to help strengthen these skills. Also visualizing and verbalizing techniques would be useful.

Memory and Attention skills can be improved with daily drills and by gradually increasing the demands on the system. Phonemic Integration activities are phonological skills required for reading including rhymes, rimes, sound-symbol association, sound and syllable manipulation within meaningful and nonsense words, understanding the ordinal positions of sounds in words etc. Lexical extraction activities may include understanding the total number of units in an utterance, manipulating units in the sentence while keeping the grammar intact, awareness of total number of units in a sentence presented auditorily, etc. Lexical Integration activities may include comprehension skills, recall of information in the right sequence, etc. Strength in this area may promote logical reasoning and critical thinking skills.

## *Reply to Kavita*

### **Jack Katz, Ph.D.**

Thanks so much for your case study. It is always informative to see what other people do. Yes, in DEC skills, if they use compensations we usually encourage them to phase them out and to increase their speed "just a little bit" when we continue to see a number of delays.