

The Impact of LearningRx Training

Auditory Processing Disorder Testing Results

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- Students screened with memory and digit span tests to ensure adequate memory before testing

Introduction

- The following graphs show change in performance of 7 children diagnosed with Central Auditory Processing Disorder (CAPD), on central auditory tests, after completing a LearningRx cognitive skills training program. The children ranged in age from 6 years to 15 years of age. All children were diagnosed using a test battery including the Willeford's Competing Sentences Test, a low-pass filtered speech test, the Staggered Spondeic Words Test (SSW), the Dichotic Digits Test and a Pitch Pattern Sequence Test. Results on central auditory results are shown both pre- and post- cognitive skills training. None of the 7 students scored outside the range of normal performance on the Pitch Pattern Sequence Test and therefore no data is given for this test. For some of the children, if they scored within the range of normal performance on the initial testing, no post-testing was completed for that particular test. These are denoted in the tables as N/A. All of these students struggled academically. Students were referred for cognitive training to address auditory processing deficits as well as academic concerns, primarily in reading, spelling and attention. Training was completed in 12-24 weeks by a certified cognitive skills trainer doing the LearningRx program, working with each student for 3 hours per week. Parents also practiced the activities at home. Time spent on home practicing varied from 1-3 hours per week. Post-training central auditory testing indicated excellent gains.

Competing Sentences

Right Ear

Left Ear

Student	Age	Pre	Post	Pre	Post
1	7	48%	70%	13%	55%
2	14	N/A	N/A	N/A	N/A
3	6	23%	78%	18%	23%
4	12	88%	100%	8%	48%
5	15	100%	100%	70%	90%
6	11	98%	100%	38%	85%
7	8	90%	93%	50%	83%

- Pairs of related sentences presented simultaneously. Patient repeats softer sentence (SL 35 dB) while ignoring louder sentence (SL 50 dB) presented to non-test ear.

Low-Pass Filtered Speech

Student	Age	Right Ear		Left Ear	
		Pre	Post	Pre	Post
1	7	36%	64%	28%	52%
2	14	32%	64%	40%	40%
3	6	60%	72%	40%	72%
4	12	28%	64%	44%	64%
5	15	64%	72%	60%	80%
6	11	60%	80%	88%	N/A
7	8	36%	64%	28%	52%

- This rest requires the patient to repeat words that have high frequencies filtered out to make them less understandable (SL 50 dB, filtered at a rate of 18 dB per octave above 750 Hz)

Staggered Spondaic Words (% error)

Student	Age	Right Ear		Left Ear	
		Pre	Post	Pre	Post
1	7	30%	30%	58%	40%
2	14	N/A	N/A	N/A	N/A
3	6	N/A	N/A	N/A	N/A
4	12	5%	3%	38%	28%
5	15	N/A	N/A	N/A	N/A
6	11	20%	13%	40%	23%
7	8	N/A	N/A	N/A	N/A

- Pairs of spondee words are presented to opposite ears in an overlapping fashion. The patient is required to repeat both words heard. (SL 50dB) **Note: Results are reported as % error.** Improvement is represented by a drop in the score.

Dichotic Digits

Right Ear

Left Ear

Student	Age	Pre	Post	Pre	Post
1	7	86%	94%	60%	76%
2	14	86%	98%	92%	94%
3	6	N/A	N/A	N/A	N/A
4	12	92%	86%	68%	80%
5	15	98%	94%	82%	94%
6	11	90%	94%	62%	80%

- This test consists of 2 pairs of numbers presented to each ear simultaneously. The patient is required to report all 4 numbers heard for each test item.

Scan-A: Test for Auditory Processing Disorders in Adults

	Percentile Performance			
	Subject # 1		Subject # 2	
	Pre	Post	Pre	Post
Filtered Words	6	16	16	37
Auditory Figure Ground	2	9	1	37
Competing Words	1	16	1	50
Competing Sentences	2	75	1	75
Complete Test	1	16	1	50

Self-Reported Improvements post LearningRx Training Subject # 1

- Paying attention better
- Improved ability to remember phone numbers
- Not saying “What?” as frequently
- Not turning head to hear
- Being able to enjoy television at lower volume
- Sustained and selective attention better in crowds

Self-Reported Improvements post LearningRx Training Subject # 2

- Heading up projects at work with positive recognition from supervisor
- Fewer mistakes on key tasks at work
- Recognition of competence from coworkers
- Faster task completion at work
- Spouse not having to repeat themselves
- Improved concentration