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Focus Program

A Pilot Study Of Integrated Listening Systems For Children With Sensory Processing Problems

Sarah A. Schoen, PhD, OTR, Lucy J. Miller, PhD, OTR, and Jillian Sullivan, PhD
Journal of Occupational Therapy: Schools and Early Intervention, 8: 1-21 2015

Summary: This study explores the effects of iLs on individualized parent goals for children with sensory processing impairments. The 40-session iLs Focus program was implemented at home and in clinic over a 3-month period. Important and clinically meaningful gains were achieved by all participants in both home and educationally-related goals. Individualized goal achievement was supported by gains in standardized measures of behavior and adaptive functioning. Changes in physiological arousal (measured by EDA – electrodermal activity) suggest the iLs program is impacting underlying regulation mechanisms that may be contributing to the observed behavioral changes. Behavioral changes included increased relaxation, fewer meltdowns and a generally calmer disposition for participants whose arousal decreased.

Read more:

https://www.researchgate.net/publication/283528511_A_Pilot_Study_of_Integrated_Listening_Systems_for_Children_With_Sensory_Processing_Problems

Safe and Sound Protocol

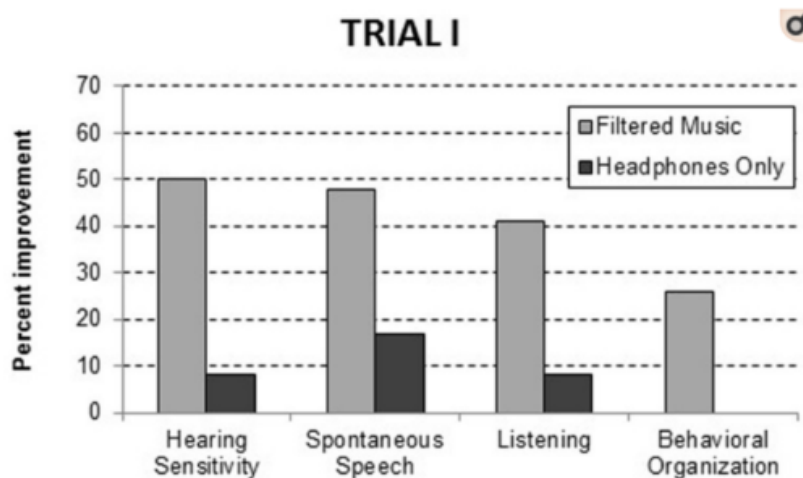
Reducing Hypersensitivities In Autistic Spectrum Disorder: Preliminary Findings Evaluating The Listening Project Protocol (A Precursor To The Safe And Sound Protocol)

Stephen W. Porges, Olga V. Bazhenova, Elgiz Bal, Nancy Carlson, Yevgeniya Sorokin, Keri J. Heilman, Edwin H. Cook, and Gregory F. Lewis

Frontiers in Pediatrics, 2014; 2:80

Children with ASD who used an early version of the SSP experienced significant improvements in emotional organization, listening, spontaneous speech and hearing sensitivities.

Trial I: In the first of two randomized control trials (n of 64), Dr. Porges and his team assessed the difference between hearing the filtered music (of the SSP) or a headphones-only condition.

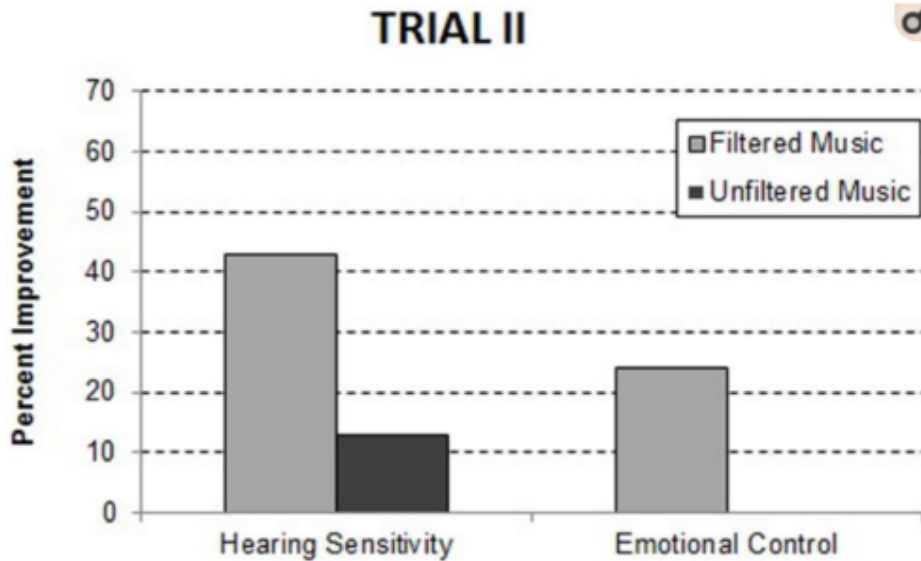


Behavioral improvements at the 1-week post treatment assessment in Trial I. The data are reported as the percent of participants with a specific behavioral problem who improved.

Safe and Sound Protocol

Reducing Hypersensitivities In Autistic Spectrum Disorder: Preliminary Findings Evaluating The Listening Project Protocol (A Precursor To The Safe And Sound Protocol)

Trial II: In the second trial (n of 82), the question was asked: Do effects exist beyond simply listening to music? Here, groups listening to either the filtered music (SSP) or unfiltered music with headphones were compared.



Behavioral improvements at the 1-week post treatment assessment in Trial II. The data are reported as the percent of participants with a specific behavioral problem who improved.

Read more:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4117928/>

Interactive Meditation iom2

Ready, set, relax: biofeedback-assisted relaxation training (BART) in a pediatric psychiatry consultation service

K McKenna, KAS Gallagher, PW Forbes, P Ibeziako - Psychosomatics, 2015 - Elsevier

Biofeedback-assisted relaxation training (BART) can treat several common pediatric presentations, including chronic pain and anxiety. Its effectiveness, applicability to a variety of conditions, and equipment portability make it an ideal treatment approach for use in an inpatient pediatric consultation-liaison service.

Since there is a paucity of published research on the utility of BART in this setting, we studied pediatric patients (≥ 8 y), medically-admitted to Boston Children's Hospital utilizing Unyte's iom2 program, and referred to the Psychiatry Consultation Service for assistance in managing pain, anxiety or both. The patients received at least 1 session of BART. In addition to heart rate variability and skin temperature data collection, participants completed the Wong-Baker FACES Pain Rating Scale and a brief mood/affective state rating scale (Youth Feelings Scale) before and after the BART sessions.

A total of 152 sessions were conducted with 66 patients across 11 referring services. BART was successfully used 61% of the time on the medical floor with common barriers involving patient unavailability or refusal. The patients completed an average of 1.57 sessions per admission. The post-BART session pain and mood ratings significantly improved over the pre-session ratings.

Patients with both pain and anxiety reported the greatest changes across sessions in comparison with those with only pain or anxiety. Higher heart rate variability was observed in the "pain-only" group. The use of BART in a consultation-liaison setting demonstrates promising utility in working with patients with pain, anxiety, or a combination of symptoms. BART was well-received by patients with subjective reports of benefit across sessions.

Read more:

<https://www.sciencedirect.com/science/article/abs/pii/S0033318214001194>

CASE STUDIES:

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Focus System: Sensory Processing And Attention Deficits Improve

Associate: Mark L. Prohaska, Ph.D. (Director and Primary Therapist), Heather C. Miller, B.S. (Clinical Coordinator and iLs Associate), Jodi C. Coon (iLs Associate).

Client: 7-year-old boy "N" with ADHD and SPD symptoms

Abstract: N, a 7-year-old boy was brought in for ADHD-like symptoms reported by teachers and family. N's performance on formal testing was not consistent with an ADHD diagnosis: results of executive functioning measures and his sensory profile yielded results that suggested underlying sensory processing deficits and delays. iLs Focus was used in conjunction with Cognitive-Behavioral Therapy, and after 5 months, the client saw gains of up to two years in academic testing, and an analysis of the DSM-V Symptom scales revealed an endorsement of symptoms that no longer meet criteria for any of the ADHD subtypes.

Background: When first evaluated, N was a 7-year-old, male in the 1st grade. He lived with his biological parents and 10-year-old brother. He got along well with his peers, though was sometimes selfish and did not share well. He was described as being artistic and creative and enjoyed riding his dirt bike. Family history included ADHD (mother, grandfather).

Presenting Problem & Initial Findings: N was initially evaluated for cognitive and behavioral symptoms of inattention, hyperactivity, and emotional dyscontrol. His problems were particularly evident in the classroom, where his teachers commented that he had significant problems maintaining his focus and concentration and staying on task. Although there were no behavioral issues in the classroom, N did not seem to retain information presented in class, often failed to get his work done, and frequently left items blank on tests.

His mother observed that he got his numbers and letters confused and that it was hard to get him to sit down and do his homework, which took much longer to complete than it should. N would become easily frustrated and had frequent "meltdowns." He was very distractible and often failed to follow through with instructions. Additional symptoms included poor fine motor skills (e.g., unable to tie his shoes), oral sensory seeking (e.g., fingers in mouth, chewing on clothing), and drooling.

Results of our evaluation, estimated N's level of overall intellectual ability to be in the average range. Evaluation of academic achievement revealed significant relative weaknesses in sight reading, phonetic decoding, and both reading and writing fluency. N's performance on formal testing was not consistent with an ADHD diagnosis and results of executive functioning measures and his sensory profile yielded results that raised underlying sensory processing deficits and delays in frontal system development as more likely etiologies of his presenting symptoms.

Therapeutic Goals: Show improvements in:

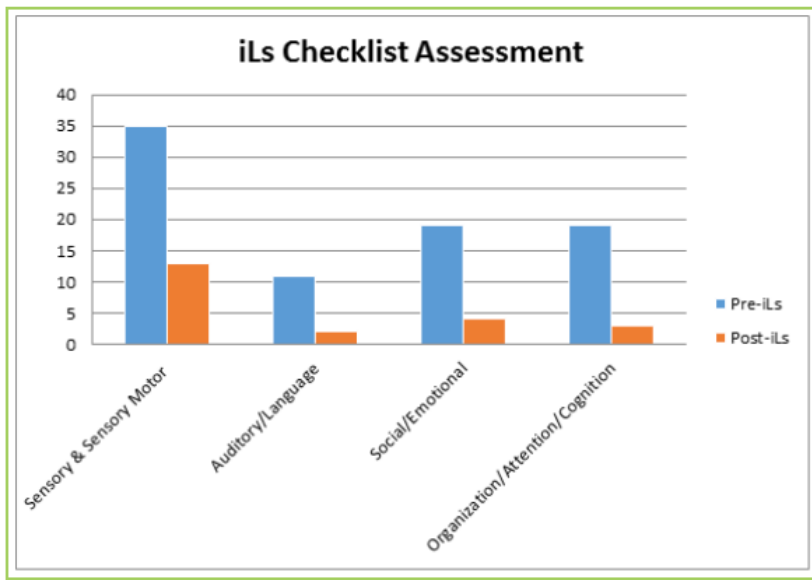
- higher order attention and executive abilities
- processing speed
- phonetic decoding
- reading skills
- sensory seeking behaviors

iLs Program Used: iLs Sensory Motor Program 1-hour-sessions, three times per week, in clinic.

Other Interventions Used: Cognitive-Behavioral Therapy (CBT) focused on specific difficulties identified in our assessment and over the course of therapy.

Post-treatment Evaluation: Pre- data was collected on in December and post- data was collected in May. At baseline, on the Wechsler Abbreviated Scale of Intelligence-II (WASI-II), N obtained an estimated Full Scale IQ of 101 (average range). An analysis of his index scores revealed equally balanced verbal and nonverbal abilities. N's post-treatment performance on this measure yielded similar results.

N's mother completed the iLs Checklist (the Measure of Foundational Abilities) at baseline and post-treatment. Her observations suggest notable improvements in all areas over the course of treatment.



*Higher scores reflect greater deficits

An analysis of the DSM-V Symptom scales revealed an endorsement of symptoms that no longer meet criteria for Oppositional Defiant Disorder or any of the ADHD subtypes with the Conners ADHD Index falling to only 64%.

Summary of Changes: N demonstrated significant improvements over the course of treatment, particularly in the areas of sensory-motor integration, executive functioning, working memory, oral fluency, and pseudoword decoding. External correlates of his improvements include a significant decrease in oral sensory seeking, a resolution of his drooling, significant decreases in hyperactive behavior and emotional dyscontrol, and significant improvements in classroom and academic performance.

N's performance on measures of academic achievement revealed notable improvements in his grasp of phonics (25-points; <1.0 to 2.7 grade level), oral reading fluency (13-points; <1.0 to 1.9 grade level) and spelling (12 points; 1.0 to 2.1 grade level). With the exception of writing fluency, N's performance in these areas is now generally consistent with or above his grade level. Cognitively, in comparison to baseline performance and ratings N has demonstrated significant improvements in visual response time and numerous aspects of executive functioning (e.g., attention, organization, planning, working memory).

Although N continues to demonstrate sensory seeking behaviors, his mother's post-treatment observations suggest a significant improvement in N's sensory threshold, which now fall in the typical range. External correlates of N's improvements include a significant decrease in oral sensory seeking, a resolution of his drooling, significant decreases in hyperactive behavior and emotional dyscontrol, and significant improvements in classroom and academic performance. His emotional outbursts were also alleviated and he began to get along better with his brother. Not surprisingly, these changes resulted in more adventurous and socially competent behavior.

Comments by Ron Minson, MD, iLs Clinical Director: Well, it appears as if N has “grown a new frontal lobe” in a short five months! His main areas of improvement – “attention, emotional regulation, inhibitory control, organization, planning, and working memory” – are the hallmarks of frontal lobe function. iLs and CBT are an excellent combination for a case like this: iLs' Sensory Motor program working from the bottom up to improve the processing of sensory information before it reaches the cortex, CBT working from the top down. With improved subcortical processing, the higher centers are freed up to better perform executive functions. There is also direct input into the frontal lobes from the auditory pathways as well as from the cerebellum and basal ganglia. These structures are intimately involved in frontal lobe and executive function. The beauty of this iLs/CBT approach is the combination of a neurological intervention (iLs), with a primarily cognitive one (CBT).

I want to thank the presenters for such a clear presentation of the history and pre/post therapy measures. Many of the improvements were two-year jumps in academic and cognitive performance within a five-month course of therapy. Pointing out the external correlates that indicate how the improvements in test measures are reflected in improved real world behaviors makes this case presentation all the more meaningful.

For more details about this case, visit:

<https://integratedlistening.com/blog/2016/02/26/sensory-processing-and-attention-deficits-case-study/>

SSP: Child With Autism Demonstrates Reduced Auditory Hypersensitivity And Increased Social Engagement

Associate: Clare Lanman, Occupational Therapist

Client: Jane (pseudonym), 11-year-old female

Background: Jane has an ASD diagnosis. Areas of difficulty identified prior to the SSP were auditory and tactile hypersensitivities, separation anxiety and a narrow area of interest both within her physical and social environments. Jane demonstrated poor interoceptive awareness. She also has a diagnosis of dyslexia.

Implementation of SSP: The SSP was carried out on 5 consecutive days to address sensory sensitivities and rigidity. Jane also receives regular occupational therapy intervention which was focussing on developing interoceptive awareness and independence with self-care.

Post-SSP Observations in clinic and school: Jane showed an increased interest in her environment and others post SSP. She would enquire as to how others felt in relation to herself i.e. if stating she was hungry would enquire if others around her were hungry, compliment her dad on his socks, notice a homeless individual outside a shop and ask if she could give the man some of her own money (reported by parents as never seen before). A fellow classmate was unsure what to do when a class teacher was absent and Jane volunteered the information and offered to help the other student which is reported to be unusual for Jane to initiate the information and offered support. Increased interoceptive awareness was also demonstrated with Jane identifying her stomach felt full (intervention to support this was also carried out alongside SSP).

Increased independence with self-care within the sessions observed with Jane independently putting on her shoes with no help requested. This did not carry over into the home environment. Parental observations: Appropriate eye contact during social interactions was identified as much improved with an example being Jane being able to talk directly to parents with good eye contact even within a busy restaurant.

Parental observations: Appropriate eye contact during social interactions was identified as much improved with an example being Jane being able to talk directly to parents with good eye contact even within a busy restaurant.

Jane converses more readily with her parents when a subject of interest is introduced.

A reduced sensitivity to noise was demonstrated with Jane being able to wait in line quietly in a noisy environment and being able to access noisy environments such as the cinema. Overall parents report the changes seen in Jane are slight but when they occur they have a big impact for Jane. The benefits seen are mainly that Jane is more aware of others and how they may feel. She pays compliments and observes details which before would have been overlooked.

Jane shows an increased ability to cope in noisy environments and remaining calm or if it is too much she is able to verbalise this before a meltdown occurs.

For more details about this case, visit:

<https://integratedlistening.com/blog/2019/03/27/child-with-autism-and-reduced-auditory-hypersensitivity-and-increased-social-engagement/>

SSP: Non-verbal 3 year old talking in sentences

Associate: Emma Ashfield – Neuro-developmental Therapist

Client Pseudonym And Age: Ollie, aged 3

Background: Ollie is 3 years old. He came to see me in clinic with his mother to be assessed before embarking on SSP for home use. His mother's concern is that he was not relating to others, has extremely delayed speech and lashes out violently. He was thrown out of a private nursery for hitting other children.

He had a traumatic birth, and spent time in intensive care. He contracted meningitis at a year old and spent three months in hospital. He is terrified of needles as a result and not trusting of new people. It has been suggested that he is on the spectrum. I strongly suspect extreme trauma and attachment is behind his presentation.

Ollie also sees an Occupational Therapist on a weekly basis for sensory integration as well as a speech therapist. I assessed Ollie for primitive reflexes. It was glaringly obvious that he was a very frightened little boy.

- He did not engage at all.
- He could not follow instructions.
- He did not make any eye contact with me or his mother.
- He had to be bribed to sit still with food.
- He got quickly overwhelmed and tired.
- He spoke in echolalia-like, single words, when prompted only.
- He had articulation difficulties.

I felt home use was better in this case because Ollie would have found a session in clinic very challenging and I felt that he would get better results at home. I discussed home administration with his mother, who is very sensible and level-headed.

I talked his mother through the SSP dos and don'ts for home use.

Implementation of the SSP: SSP was carried out at Ollie's home over five consecutive days, although on days one and three, the day was split into half hour sessions. Ollie mainly listened to the SSP first thing in the morning with his parents, in their bed. The parents pulled faces and got him to copy them, as well as making shapes with their hands and getting him to copy. Ollie really enjoyed the music, and tolerated the headphones better than expected.

Response to SSP: Ollie's mother reported greatly improved speech. At one week post SSP, he was making three-word sentences! She was also astounded to see him play alongside his cousin for the first time ever without any lashing out. He even called his cousin by name a couple of times.

Four Weeks Post-SSP: Ollie came back to see me in clinic.

- When he arrived, his mother said "say hello to Emma", and he said "Hello Emma", and looked at me.
- He followed almost all my instructions (all very simple instructions – sit here, lie on your tummy etc)
- He could sit still when asked I observed him communicating reciprocally in multi-word sentences.
- I gave him a mini rubix cube to play with and he said "Thank you"

He gave eye contact whenever I spoke to him His mother says that he's been a lot calmer, and hasn't lashed out at children in soft plays / playgrounds since finishing SSP.

We are now following up with primitive reflex integration work.

Interactive Meditation iom2

Eli Lebowitz, PhD, an expert in cognitive behavioral therapy (CBT) at Yale Medicine Child Study Center
Client: 17-year-old teenager with severe anxiety

Abstract: David, 17 years old, presented severe signs of anxiety. He avoided social interactions and had developed tics and involuntary behavior. His anxiety was debilitating and led him to fear situations in which there was no danger involved. His mother and sister reported that they did not know how to cope with his anxiety and as a result, David continued to distance himself from his loved ones.

Therapeutic Intervention: As part of his anxiety treatment, David was taught mindfulness and relaxation skills. This started with deep breathing, followed by using Unyte's relaxation training. Relaxation training gave David an immediate sense of what his body was doing, and through the Grapher's Resonance Score and relaxation games, he continued to practice, which helped him develop resiliency skills.

Results: As a result of the overall treatment, David was able to control his anxiety and go back to an active social life. His school performance flourished and he was accepted into college. He credits learning useful anxiety coping techniques to Unyte's relaxation training.

Watch the video:

<https://www.yalemedicine.org/stories/overcoming-anxiety/>

VoicePro

Auditory Processing Disorder Data From Therapeeds Center, Fort Lauderdale, FL

Julia Harper, PhD, OTR/L and Aimee Levine Weiner, Aud; published in Advance OT Magazine

Summary: Therapeeds, a private clinic in Ft. Lauderdale, Florida, gathered data on 29 children diagnosed with APD (auditory processing disorder) who completed the Therapeeds' H.O.P.E. sensory motor program combined with iLs. Among the pre- and post-program results are the following:

- **Vestibular function:** Pre-testing indicated 0 of the 29 children had intact vestibular processing skills measured by the PrN and functional skills. Post-testing showed all 29 in normal range.
- **Auditory Processing Skills:** Post-intervention, 22 of the 29 children had auditory processing skills that were completely within normal limits in every area.
- **Medications:** Seven of 29 children began this therapy on medication for attention-related concerns. By the end of the program, the medications for all 7 had all been discontinued.
- **ABR Binaural Summation:** Pre-intervention ABR tests showed all 29 children had little difference between listening with one ear and listening with both ears (binaural summation). Post-intervention, all 29 tested in the normal range.

Read More:

<https://integratedlistening.com/research/harper-attention-auditory-therapeeds/>