

Hear to help

Integrated Listening Systems is a therapy that combines an auditory listening programme with visual and movement exercises. Dr Ron Minson, who found auditory programmes successful for his own daughter, reports on how it can help



Two things at once: children listen to modified classical music while carrying out exercises such as hitting a ball

As parents, we want our children to reach their full potential. It's often on our minds how to improve their ability to learn by dealing with issues that get in the way, such as social and emotional difficulties or physical obstacles such as poor co-ordination and motor control.

Sound therapy helped my daughter significantly with her dyslexia and depression more than 20 years ago; since then Integrated Listening Systems (iLS) has made innovations to make it more effective. Research and clinical evidence show it can be very helpful for those with autism – especially in improving emotional regulation and social skills.

The therapy involves children listening to music while carrying out a range of movement exercises. It is based on the concept of neuroplasticity, which is an understanding that the brain is able to change with repeated stimulation.

In spite of the highly variable presentations of symptoms in autism, neuroscience increasingly recognizes that children with the condition commonly have faulty processing of sensory input from the environment and poor connectivity in the nervous system.

Sensory input

This processing of sensory information occurs below the level of consciousness in the subcortical system. When our nervous system is immature or in some way under-developed, the flow and integration of sensory input through the brainstem to the higher brain centres can be disrupted. This inability to process information sub-cortically interferes with higher-order functions such as language, learning, communication and relationship building.

To use the metaphor of a building: sub-cortical processing is the foundation and the roof is our higher-order cognitive functions. Optimal cortical functioning depends on the integrity of sub-cortical processing. When our goals are behavioural in nature, we often focus on the roof without paying attention to the neurological structures that govern language acquisition, social communication and emotional regulation.

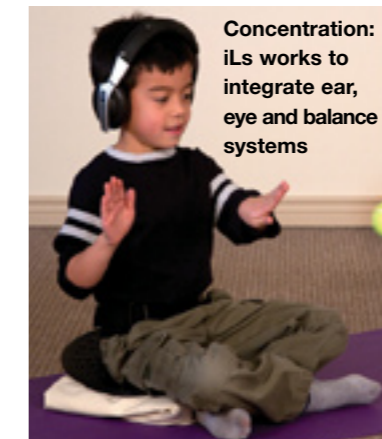
By strengthening sub-cortical function, we are creating a stronger neurological structure for the 'roofers', those educators and therapists who will focus on behaviour, language, relationships and other cognitive functions.

A case study sent to me by a psychologist, Dr Deborah Merritt, illustrates how 'structural' therapy can enhance the cognitive-based 'roof' work she typically focuses on with her behavioural tools. The client she refers to here is a nine-year old boy with autism:

"The client's teacher was initially upset by the behavioural counselling sessions taking place three times a week in the morning, resulting in the client coming to school 45 minutes late. Two weeks after initiation of the new treatment combination of iLS simultaneous with behavioural therapy, the teacher stated that she wished the therapy was every day. She stated that on the days he started with behavioural/iLS therapy, he was less aggressive, followed directions more, required less prompts and was on task more often."

"Within the first month, client's parents noticed a decrease in self-injurious behaviours, a decrease in screaming, improvements in sleep and more attempts at vocalizing needs. Clinician noticed improved mood, decreased anxiety, sustained attention during sessions, improvement in gross motor skills and decrease in aggression to self."

To administer iLS, the child listens to therapeutically treated classical music while carrying out exercises that maximize the interaction of sensory systems. The



Concentration: iLS works to integrate ear, eye and balance systems



Ron B Minson, MD (UCLA) is board-certified in Psychiatry and Neurology. His experience includes serving as a family physician, clinical psychiatrist, chief of psychiatry for Presbyterian Medical Center and Director of Behavioral Sciences at Mercy Hospital in Denver.

In 1990, Dr Minson witnessed the effectiveness of sound therapy in the successful turnaround of his daughter, who suffered from severe dyslexia and depression. He studied sound therapy techniques for many years before collaborating with Kate O'Brien Minson and Randall Redfield to launch Integrated Listening Systems in 2007

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music has been acoustically modified to provide enhanced or filtered signals in certain frequencies that are believed to correlate to particular brain functions. The music is loaded on an iPod paired with special headphones that deliver it through both air and bone conduction (a low-frequency vibration that is conducted by bone to the cochlea and vestibular system).

More stimulation

While listening to the music, the user engages in visual, vestibular, proprioceptive and motor exercises. The vestibular system, in the inner ear, helps to control balance and eye movements, while the proprioceptive system allows the body to sense movement within joints and joint position, so that we know where our limbs are in space without having to look.

From neuroscience we know that the more stimulation brain cells receive, the better their function, allowing the brain to process more information faster and for longer periods of time (Melillo and Leisman, 2004). The underlying premise of this intervention is that higher cortical function depends on the quality and integrity of sub-cortical processing of sensory input to the cortex.

Research to test the effectiveness of iLS as a therapy for autism is promising. Dr Teresa May-Benson and Alison Teasdale, of the Spiral Foundation of Boston, Massachusetts have completed a survey of practitioners who use iLS >>



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TAKE IT FURTHER
For more information on Integrated Listening Systems, visit www.integratedlistening.com. For professionals in the EU, a two-day iLs training course is being held in Royal Tunbridge Wells, Kent, UK on 13-14 May. Visit: www.ils-uk-2013.eventbrite.co.uk

“ Client’s parents noticed a decrease in self-injurious behaviours, a decrease in screaming, improvements in sleep and more attempts at vocalizing needs”

programmes with children with autism¹. Her results reveal significant gains in the areas of:

- Social skills and emotional regulation
- Quantity and quality of atypical and problem behaviours, including behaviour during treatment
- Number and severity of autistic behaviours; and overall functional adaptive behaviour skills
- Visual, fine and gross motor skills, including body functions and motor planning
- Auditory skills.

Impressive changes

The most impressive changes were in social skill functions, measured by effect size (a term showing the magnitude and observability of change; effect sizes greater than .80 are considered large). Dr May-Benson’s iLs research showed effect sizes of .88 for social awareness, 1.04 for social cognition and .98 for social communication.

On a clinical level, these changes are reinforced by a survey of iLs-trained therapists that was carried out to learn where iLs is most effective. Associates were asked how often they noted improvements in 24 outcomes, categorized in three functional

How many sessions?

An iLs programme can be carried out in a clinic, at school or at home. It may be used as a stand-alone therapy or alongside other therapies such as speech, occupational or behavioural therapy (ABA).

In a clinic, sessions are normally three to five times a week, with a programme lasting 20 to 60 sessions. Each session typically lasts 60 to 80 minutes. School programmes usually have 40-60 sessions over three months, with each session lasting 60 minutes. Home programmes are flexible, with each session lasting 30 or 60 minutes.



CLINICIANS’ PERCEIVED FREQUENCY OF IMPROVEMENTS

| Outcome Measure | Never | Rarely | Sometimes | Often | Always | Often + Always |
|-----------------------------|-------|--------|-----------|-------|--------|----------------|
| Motor Coordination | | 1% | 10% | 40% | 47% | 87% |
| Self-Regulation | | | 10% | 46% | 41% | 87% |
| Sensory Int/ Processing | | | 7% | 40% | 50% | 90% |
| Arousal | | | 13% | 53% | 28% | 81% |
| Attention | | | 13% | 54% | 33% | 87% |
| Mood | | 3% | 17% | 50% | 28% | 78% |
| Transitions | | 1% | 10% | 61% | 24% | 85% |
| Following Verbal Directions | | | 14% | 47% | 37% | 84% |
| Processing Verbal Commands | | | 13% | 45% | 36% | 81% |

areas: sensory-motor/behavioural skills, social-emotional skills and functioning; and language/academic skills. Respondents had completed iLs programmes with approximately 1,300 children with ASD. The results, shown in the table above, are encouraging, but more investigation is needed to fully understand how iLs can

improve the functioning of individuals with autism.

REFERENCE

¹Teresa May-Benson, ScD, OTR/L and Alison Teasdale: *Practitioner Survey on the Effectiveness of iLs Programs with Children with Autism Spectrum Disorder*, www.integratedlistening.com/ils-home-program-autism-study