

HOW iLs INFLUENCES AUDITORY PROCESSING

EXERCISES IN AUDITORY FIGURE GROUND, FILTERED WORDS, DICHOTIC LISTENING

iLs' Interactive Language Program (ILP) provides a means to enhance sensory input (i.e. address subcortical functions) while addressing targeted auditory processing skills such as auditory figure ground, filtered words, repeating words and dichotic listening. The exercises can be customized per user ability level, and the immediate feedback through headphones provides a unique training. The organizational components of speech and language are simultaneously addressed, as is one's sense of self, as expressive language confidence builds. When employed by speech therapists, the ILP is typically used as a dynamic and integral component of speech therapy.

Impacted Skills: speech, language, expressive language, confidence

DECODING, PHONEMIC AWARENESS, READING

Decoding, phonemic awareness, listening in a noisy classroom and speaking clearly require efficient processing and storage of information. The iLs auditory program emphasizes specific frequencies of classical music to achieve therapeutic objectives. The goal is to train the ear and the brain to analyze and process sound more efficiently and accurately. For example, the iLs Reading & Auditory Processing Program focuses on the mid-range frequencies of the English language to train and improve perception and discernment of the subtle differences in closely related phonemes. This skill is essential for the development of spelling and reading proficiency.

Impacted Skills: pitch discrimination, auditory processing, spelling

VESTIBULAR FUNCTION

Directly connected to the cochlea of the inner ear, the vestibular system is primarily responsible for balance and coordination, but also has a strong impact on sensory modulation and emotional regulation. Once the vestibular system is functioning well, children are better able to participate in higher brain functions such as reading, writing and expressive language. iLs provides specific and comprehensive stimulation to the vestibular system through bone conduction delivered via headphones, balance board activities and body movement exercises.

Impacted Skills: coordination, balance, focus, self-regulation

PROCESSING INFORMATION, LEARNING NEW TASKS

The cerebellum has 10% of the volume of the brain, but it has 50% of the brain's neurons. In computer terms, it's our processor, receiving input from sensory systems and various parts of the brain, and integrating these inputs to fine tune motor activity. Most neuroscientists agree it is involved in motor functions, cognitive functions such as attention and emotional functions such as regulating fear and pleasure responses. The iLs Playbook's repetitive activities are believed to stimulate cerebellar function. Inputs from the visual, vestibular

and auditory systems, session after session, train the cerebellum to become efficient at processing multi-sensory information.

Impacted Skills: motor control, “automaticity” (motor activities becoming automatic), processing

EMOTIONAL REGULATION, BODY AWARENESS

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Impacted Skills: coordination, balance, focus, self-regulation

SENSE OF CALM, “GROUNDED”

The Autonomic Nervous System (ANS) controls many organs and muscles that work in an involuntary, reflexive manner. The ANS is important in two situations: emergencies that require us to “fight” or take “flight” and non-emergencies that allow us to “rest and digest”. The part of the ANS which governs the latter is the Parasympathetic Nervous System (PNS). iLs’ auditory program stimulates the PNS through the Vagus nerve (auricular branch). Many children and adults beginning iLs programs are in a state of hyper-arousal, not far from “fight or flight”. The gentle stimulation of the PNS brings about a balance of the ANS which is reflected by increased calm and self-regulation.

Impacted Skills: behavior, the calm state which allows one to better focus on higher cognitive functions

HEMISPHERIC INTEGRATION

Receptors in the body deliver sensory information to the brain (and vice versa). If these receptors and the pathways leading up to the brain are not working because they were damaged or did not develop properly, the activity level of the brain decreases and different areas of the brain may not communicate with each other properly. In addition, connections between the right and left sides of the brain must be robust in order to allow for proper communication to take place between the different areas involved in higher brain function. The combination of listening and cross-lateral activities in the iLs Playbook require the almost constant transfer of information from one hemisphere to the other, “exercising” the bridge that transfers information, the corpus callosum.

Impacted Skills: processing speed, cognitive functions, emotional health