

## Auditory Processing Guide for Parents/Teachers

Understanding the influence of underdeveloped auditory processing has been historically confusing. This is a very high-level explanation of why it is important and what can be done to help if needed.

### EXAMPLE OF HEARING LOSS

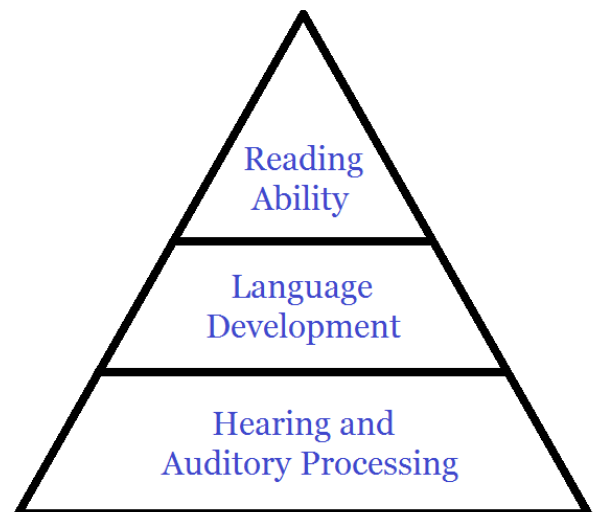
If you think about someone who was born with profound hearing loss 100 years ago or longer. That person would have most likely learned to communicate with sign language. They may have developed some speech with a lot of hypernasal sounds and been able to use their eyes to lip read to some degree, however they would never have been able to speak without severe impairment. Their language would have also been limited and their ability to read would have been at a much lower age equivalent compared to normal hearing peers.

Without being able to hear correctly, the brain is unable to identify the aspects of speech accurately (processing), and therefore language and therefore reading would be significantly impaired. For this is the hierarchy from hearing through to reading.

In the case of hearing loss, in which the ear itself has damage and the listener cannot hear correctly, today we can intervene with modern technology to turn sounds up or even send messages to the hearing nerve through electrodes (using cochlear implants).

### AUDITORY PROCESSING IMPACTS

If a listener has normal hearing ears, but the pathway to the language brain isn't fully developed, that will ALSO yield poorer language and reading (this is the auditory processing pathway). Auditory processing paths to the language brain are often underdeveloped from lack of stimulation as a younger child. Commonly from undetected fluid in the middle ear, which acts like grade 5 hearing protection for the child, and therefore doesn't expose the child to sounds as they would hear typically.



### KNOWN IMPORTANT AUDITORY PROCESSING AREAS

Two of the most common underdeveloped auditory processing areas are called Dichotic Listening (often labeled as binaural integration or binaural separation) and following Auditory Patterns (following patterns of sound that are not language).

Dichotic Listening is the ability of the brain to pay attention to both ears *relatively* equally. In difficult listening environments, like a busy classroom, someone with underdeveloped Dichotic Listening will hear more like an individual with hearing loss in one ear. That makes listening in a challenging place FOUR times more difficult. This impacts classroom learning, and therefore language and reading difficulties.

Auditory Patterns is the ability of the brain to hear differences in sound (that is not language) and attach meaning to this. A very commonly understood example of this would be Morse code. Morse code is simply a series of beeps that correspond to letters and the listener has to put them in order. This is VERY related to language. If you think about it, language is just a series of sounds in a specific order. For example, if three sounds are used: 'C', 'A', and 'T'. Depending on the order they arrive, changes which word it becomes. The options are 'CAT' or 'ACT' or 'TAC'. Same sounds, but a different order. Determining if children struggle to follow orders of sounds is the most related auditory processing skill to Reading.

Can Auditory Processing be helped? YES! With therapy designed specifically for Dichotic Listening or Auditory Patterns, improvement can be made for both the specific auditory processing ability AND the ability to learn Language and learn to Read.

**TAKE HOME:** What happens if a child is struggling with language or reading AND they qualify for auditory therapy for Dichotic Listening or Auditory Patterns BUT they don't get it? That child will learn to read at almost HALF the pace compared to someone that DID get the therapy. Language and Reading intervention are still needed but will be almost TWICE as effective with appropriate auditory therapy administered as well. (LSHSS, 2020).

## Improved Reading skills Post therapy??



In 10 months – child only improved 10 months

No Significant Gains

PLACEBO/  
CONTROL



In 10 months – child improved 17.5 months

Dichotic Listening Therapy

7.5 Months Advanced



In 10 months – child improved 20 months

Auditory Pattering Therapy

10 Months Advanced

