

WEEK 11: Impact of Hearing

Brain development can be hindered by hearing loss at various stages of growth:

- The process of hearing and how that could be damaged < the subsequent consequences on language development or communication.
- Stimulating hair cells < promoting brain development.

- Vocabulary
 - Concrete words > abstract words and function words
- Sentence Structure and Phonological awareness
 - Complex/longer sentences
 - Relative clauses, passive voice
 - Suffixes = tense, plurals, possessives (s/ -ed)
- Speech and Phonology
 - Quiet sounds (s/sh/k)
 - High pitch (e.g. issues hearing their own voice) leads to lack of inflection/prosody
- Academic Achievement
 - Reading and maths
 - The gap widens without intervention
- Social Functioning
 - Isolated

Impact of hearing loss on development:

Prelingual hearing loss (Fogle, 2013)

- Impacts **language acquisition**
 - Difficulty hearing final consonants
 - Difficulty discriminating voiced and voiceless sounds
 - ↑ use of content words (cf closed class words)
 - Smaller vocabulary Difficulties in phonology, morpho-syntax and complex language.
- Some children may develop skills within normal limits.
- Some difficulties may persist into adulthood.
- Better language outcomes are associated with:
 - Use of assistive technology
 - Earlier enrolment in intervention
 - Newborn hearing screening programmes (ie early identification)

Prelingual hearing loss

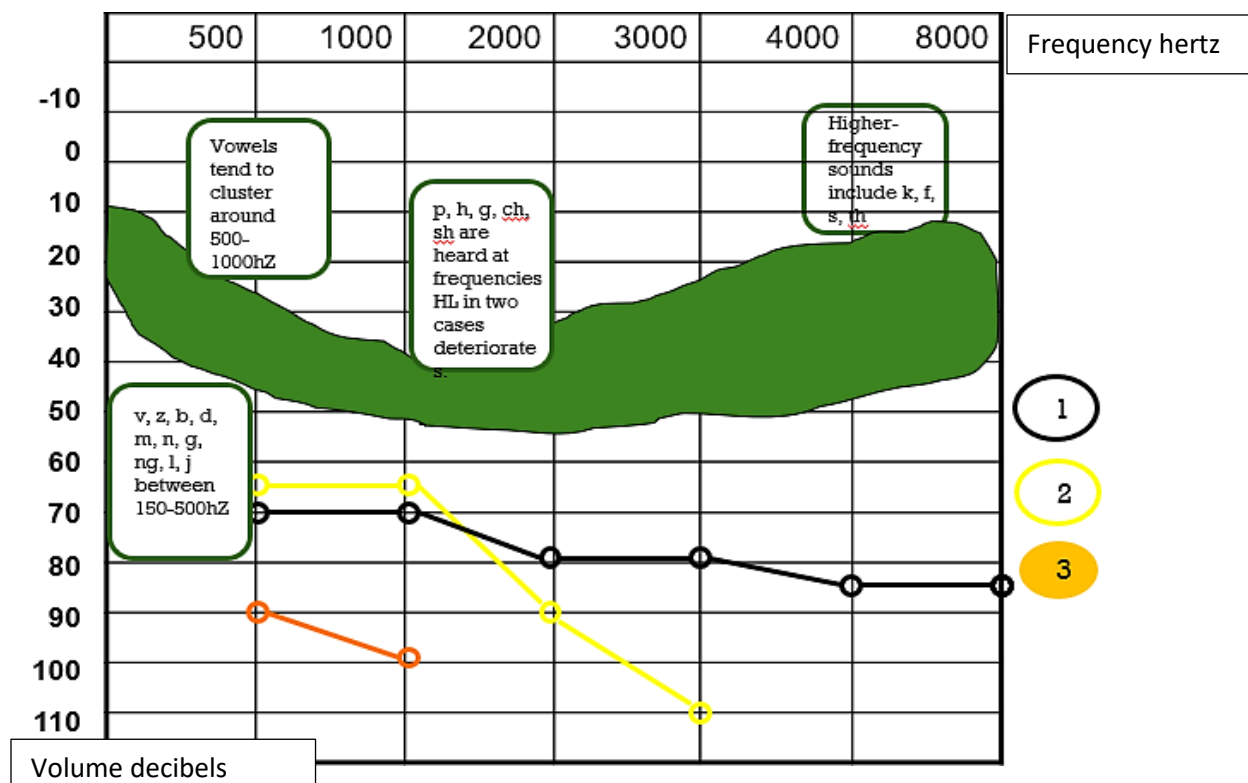
- Impacts **speech production:**
- Consonants may be distorted or omitted
- Increased nasalance and nasality, even with use of assistive listening technology
- Impaired feedback loop - e.g., peripheral auditory processing

Pre-lingual hearing loss

- Literacy
 - Population studies have shown links between implementation of New born hearing screening (numbers of children identified with permanent hearing loss) and improved literacy outcomes.
 - Will depend on whether child has access to phonological encoding via audition (e.g., as in Cochlea Implant).
 - Reading skills positively correlated with language and phonological processing skills.
- Later school performance
 - Greater functional limitations in adolescence than NH peers
 - Teenagers with late-identified HL have lower reading comprehension scores compared with earlier-identified peers.

Factors affecting developmental needs and outcomes:

- Age of identification / acquisition / amplification
 - Pre-lingual
 - Post-lingual (after the development of language)
- Age and nature of intervention provided
- Severity of loss (average age of sensorineural hearing loss detection is 2+yrs)
- When clients use Cochlea Implant, nonverbal intelligence, implant characteristics and oral-aural communication predict accuracy of speech sound production.
- Associated difficulties – Cognition - Anatomical issues



Exam Prep Hearing:

- Describe and measure sound
- Structure/function of outer, middle & inner ear
- Define, diagnose, causes Conductive Hearing Loss
- Define, diagnose, causes Sensorineural Hearing Loss
- Assessment hearing/ Interpret audiogram
- Hearing loss and language/literacy impact
- Process for diagnosing Sensorineural loss
- Structure & function in order Conductive loss
- Process required to hear and understand /s/ sound
- Structure and function impaired in following tympanogram

