

Prosody in Children with Atypical Development

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Developmental Disorders

**Autism Spectrum Disorder
(ASD)**

**Developmental Language
Disorder
(DLD)**

**Cerebral Palsy
(CP)**

**Hearing Loss
(HR)**

Autism Spectrum Disorder (ASD)

- Difficulties in social communication.
 - Normal/close-to-normal intellectual abilities.
 - Pragmatic abilities deficits.

Autism Spectrum Disorder (ASD)

Prosody production:

- Problems with [phrasing](#), [stress](#), and [resonance](#).
- [Prolonged duration](#) and [extreme variations in pitch](#).

Prosody perception:

- Struggle with understanding [emotional prosody](#).

<https://vt.tiktok.com/ZSY2SkN2m/>

Developmental Language Disorder (DLD)

- Expressive and receptive language impairments without apparent sensory deficits or neurological impairment.
- Delayed lexical development, grammatical impairments, and subtle pragmatic difficulties.

Developmental Language Disorder (DLD)

Prosody production:

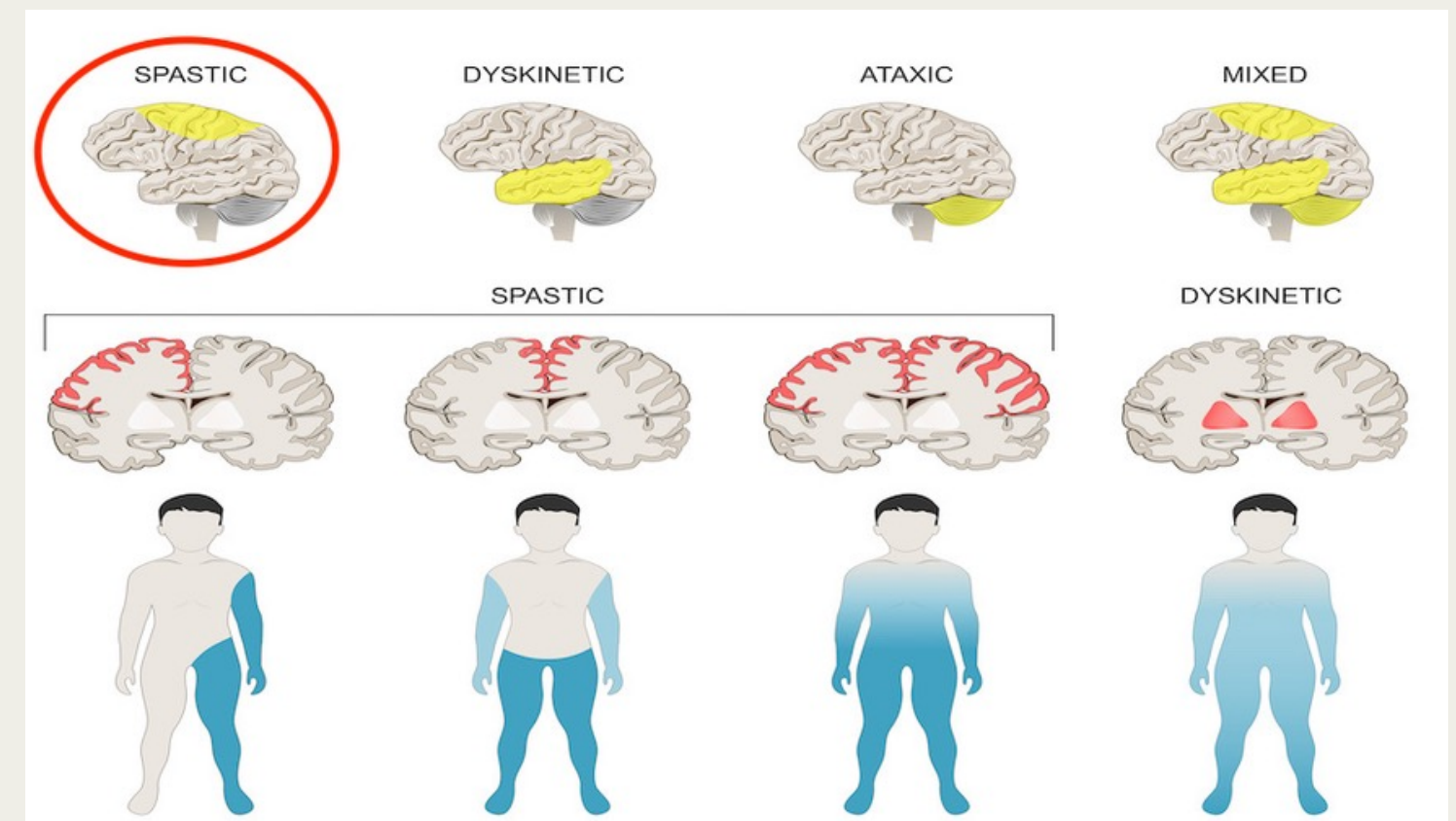
- Similar prosodic features to typically developing (TD) children.

Prosody perception:

- **Impairments** in basic auditory processing of **low-level prosodic** information, such as pitch and duration.

Cerebral Palsy (CP)

- Central nervous system damage mostly results from the lack of oxygen.
- **Speech motor control deficits (Dysarthria)**, which affects speech rate, pitch, intensity, rhythm, and articulation.



<https://www.legalfinders.com/wp-content/uploads/2022/05/Spastic-Cerebral-Palsy.jpeg>

Cerebral Palsy (CP)

Prosody production (adults):

- Produce contrastive pitches and durations.
- **Compensatory strategies:** exploiting loudness and duration control to convey contrastive stress.

https://www.youtube.com/watch?v=ShubnYpp_wl

Hearing Loss (HR)

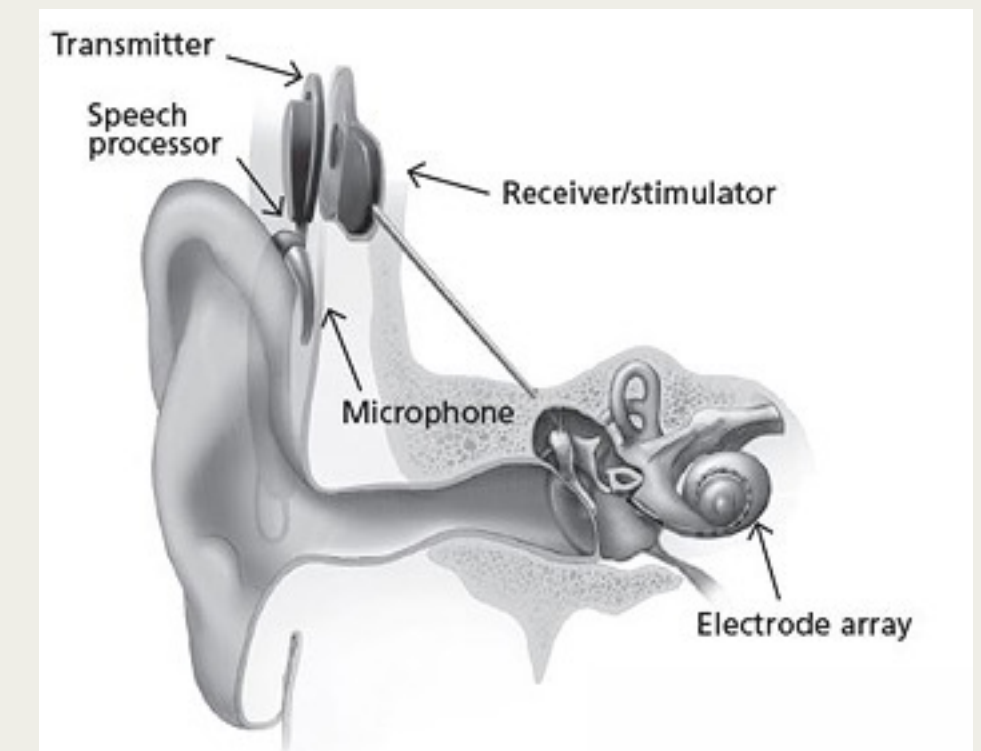
- Articulatory errors, distorted vocal, and prosodic deficits.
- Hearing technology
 - Hearing aids
 - Cochlear implants (CWCI)



<https://s.hdnux.com/photos/36/33/04/7975194/5/rawImage.jpg>



https://www.keckmedicine.org/wp-content/uploads/2022/11/shutterstock_1657967119.jpg



<https://www.nidcd.nih.gov/sites/default/files/Documents/health/hearing/images/cochlear-implant-web-pic.jpg>

<https://www.youtube.com/watch?v=b1xW40wL1BA>

Hearing Loss (HR)

Prosody production & perception in CWCI:

- Deficits in **stress**, **intonation**, and **emotional prosody** production.
- Music training has shown potential benefits.
- Early implantation of CWCI (especially before the age of 3) and specialized training can improve outcomes.

Assessing Prosody Deficits

The Prosody-Voice Screening Protocol (PVSP)

- Evaluates stress, rate, phrasing, loudness, pitch, and voice quality.

Diagnostic Analysis of Nonverbal Accuracy 2 (DANVA-2)

- Assesses emotion perception via prosody.

Notation systems and acoustic analysis.

- Codes turn-taking, focus, and tone-matching.
- Utilizes software like Praat.

Treating Prosody Deficits

Melodic contour training

- Used with cochlear implant users to improve consonant and prosody perception.

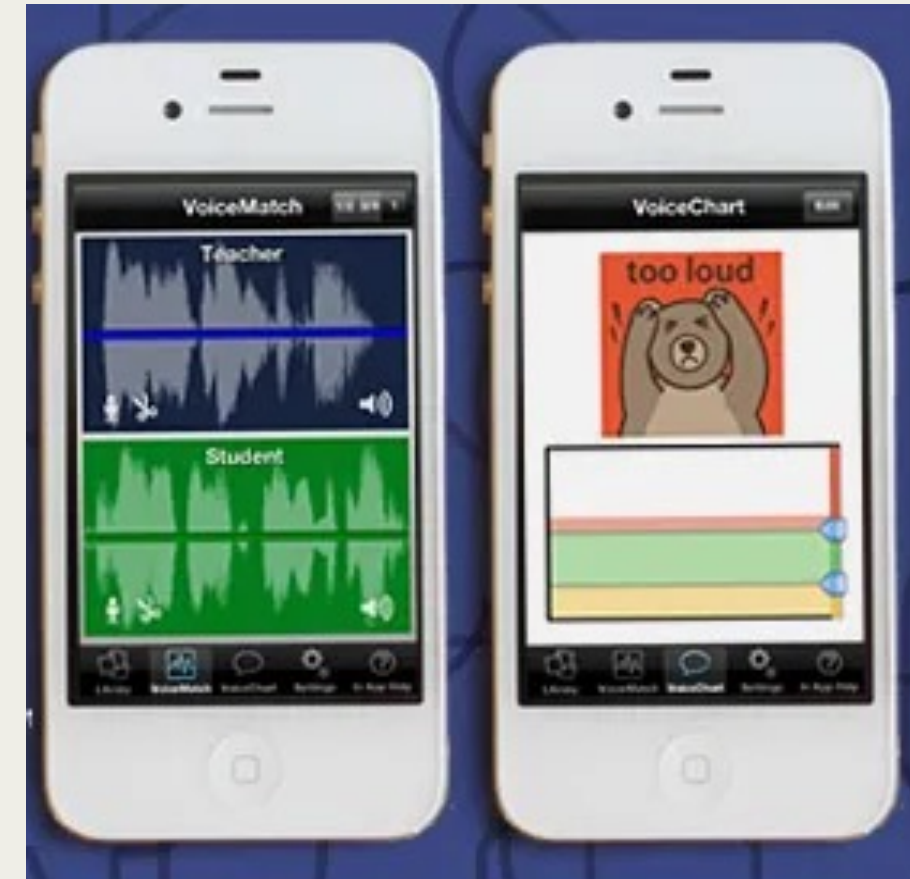
Activity-based programs

- Rothstein (2013) and Dunn & Harris (2016) provide manuals with activities targeting prosody for HL and ASD populations.
- Includes [singing](#), [character voices](#), and [rule-based activities](#) with [visual cues](#).

Treating Prosody Deficits

Mobile applications

- SpeechPrompts App:
 - Used for ASD and other communication impairments.
 - Provides [sample utterances](#) with [feedback](#) on [pitch and loudness](#).



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Conclusion

- Prosody deficits
- Lack of assessing tools
- Compensatory strategies, technologies, and training can lead to improvements in prosodic function.

Thank you!
