

Mandarin-speaking preschoolers with CIs can use prosodic cues to contrast compounds from lists

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Background: Prosodic cues such as pitch and duration can be used to mark boundaries to chunk utterances into different types of units, i.e., single-word compounds (N1+N2, e.g., *jellybeans*) or their list forms (N1, N2, e.g., *jelly, beans*) (Yuen et al., 2022). Mandarin is a tonal language where pitch is used to distinguish word meaning (i.e., lexical tone, including T1, T2, T3, and T4) and mark phrasal boundaries. This provides challenges for preschoolers with cochlear implants (CIs) since pitch information is not transmitted well by CIs, though duration is relatively spared. This raises questions about whether Mandarin-speaking preschoolers with CIs can use prosodic cues to contrast compounds (e.g., *xiong2-mao1*, ‘panda’) from their list forms (e.g., *xiong2, mao1*, ‘bear, cat’), and how this compares with their normal hearing (NH) peers.

Methods: Forty-three 3- to 7-year-olds with CIs (mean age: 5;6) and twenty-four 3- to 6-year-olds with NH (mean age: 5;0) were recruited. They were invited to describe picturable objects to elicit their productions of compounds, and then lists using a carrier sentence. Pitch range, duration of N1 and N2, as well as the pause between N1 and N2 were analyzed.

Results: Preschoolers with CIs and NH had overall similar patterns for duration, but not pitch. Preschoolers with CIs used longer word duration on N1 and longer pauses between N1 and N2 in the lists compared to compounds. However, they only expanded the pitch range of T2 significantly in lists compared to compounds while their NH peers also expanded pitch range of T4 in lists.

Conclusion: Preschoolers with CIs more reliably produced durational cues compared to pitch cues to signal the difference between compounds and lists. This raises questions as to what extent preschoolers with CIs can *perceive* these prosodic cues to distinguish compounds and lists.