

Acoustic realisation of the question-statement contrast in children with dysarthria and cerebral palsy

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Background

The speech of children with dysarthria due to cerebral palsy (CP) is characterised by difficulties with respiratory and phonatory control. This can affect how they use acoustic parameters to convey linguistic function such as marking sentence stress or signalling questions and statements. Recent work by the author has revealed that children with dysarthria and CP are able to manipulate duration to mark sentence stress, but are less successful in varying fundamental frequency (f0) and intensity. This raises the question how this group would use acoustic parameters to signal questions and statements – a contrast that in questions without wh-question words primarily relies on f0 modulation. Thus, the aim of this study is to investigate the children's ability to mark the question-statement contrast using acoustic parameters, with the ultimate aim to enhance our understanding of functional prosody in children with dysarthria and CP.

Method

Eight children with dysarthria and CP and eight typically-developing children matched for age, gender and dialect completed a picture description task eliciting question-statement contrasts on word, phrase and sentence level. Data were analysed using Praat regarding the acoustic parameters of duration, intensity and f0.

Results

Preliminary results show that typically-developing children used duration, intensity and f0 to mark statements, whereas the children with CP primarily relied on the temporal parameter. In terms of f0, both groups realised statements through a falling pitch contour. However, only the typically-developing children raised f0 in questions.

Conclusions

The findings suggest that the children with CP use acoustic parameters differently from their typically-developing peers to mark questions and statements. Perceptual studies will establish to what extent this affects listeners' ability to identify questions and statements.