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Auditory-visual Perception of VCVs Produced by People with Down Syndrome: a Preliminary Study

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Purpose
- Evaluate the intelligibility of speech produced by people with Down Syndrome (DS)
- Analyse AV integration and compare with ‘ordinary’ speakers

Background
- Lack of studies of speech intelligibility of people with DS, especially quantitatively
- No studies on AV perception of speech produced by people with DS: can the visual modality improve speech intelligibility?

Methods

**Paradigm**

- **Participants:** 24 ‘ordinary’ native speakers of French (12f; mean = 25.1 - sd = 3)
- **BLOC 1** modality 1 (A or V or AV)
- **Speaker group**
  - With DS
  - Ordinary
- **V1 = /l/**
- **V2 = /l/**
- **Errors on V2**
  - almost no non perceptions
  - A: sig. more confusions for DS
- **Errors on V1**
  - AV and V: no differences between groups
  - A: confusion with another V: DS = ord
  - * non perception of V: DS >> ord
  - * DS: non perception >> confusion
- **Errors on the consonant (C)**
  - almost no non perceptions
  - mostly confusions with another C

- **Conclusions**
  - Reduced auditory only speech intelligibility for speech produced by people with Down Syndrome (DS)
  - No difference in visual speech intelligibility: it is not more difficult, at least for our speakers, to lipread speech produced by a person with DS than that produced by an ‘ordinary’ person
  - No real difference in auditory-visual speech intelligibility
  - The visual speech information is not degraded in the speech of our two speakers with DS and seems to compensate for the degradation of the acoustic information.
  - The most frequent errors are confusions of the consonant with another consonant. Confusion trees: the difference between groups is mainly observed for auditory perception.
  - It is more difficult to perceive the voiced/unvoiced feature in speech produced by people with DS.
  - Perception of vowels: the first vowel is significantly more often not perceived in the speech of people with DS.
  - People with DS have difficulties producing initial vowels.

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