

## Babbling and early consonant production in children with neurodevelopmental disabilities

**Background:** Babbling and early consonant production in infants and toddlers are precursors to speech and related to the speech and language development in typically developing children as well as in children with disabilities such as hearing loss and cleft palate (Oller, et al., 1999; Moeller, et al., 2007; Lohmander & Persson, 2008). Children with neurodevelopmental disabilities present with an increased risk for speech and language disorders. Despite this, babbling and early consonant production in children with neurodevelopmental disabilities have received only limited research attention (Levin, 1999; Kent & Vorperian, 2013).

**Methods:** In a cross sectional explorative study, 18 children with neurodevelopmental disabilities (Down syndrome, cerebral palsy and developmental delay), aged 12-22 months, were examined for babbling and early speech. The aim was to determine if early precursors to speech and language development; canonical babbling, occurrence of plosives, dental/alveolar plosives, and number of different consonants, could be detected in children with different neurodevelopmental disabilities. Children were observed and video recorded during interaction with parents. Canonical babbling ratio was calculated and consonants noted if heard more than twice. This was done from the recordings by an independent observer who also rated plosives and dental/alveolar plosives as present or absent. Consonant inventory was estimated from the notification of consonants. Intra- and interreliability were determined. Parent reported vocabulary was collected with the Swedish Early Communication Development Inventory, SECDI. Participants were compared to typically developing controls, matched for age and sex. Comparisons were made for the whole group, as well as for the subgroup of children with Down syndrome.

**Results:** The children with neurodevelopmental disabilities lacked canonical babbling and dental/alveolar plosives to a significantly greater extent than controls. They also had a significantly smaller inventory of consonant sounds. No significant difference was found for plosives. There was a significant correlation between canonical babbling and age appropriate expressive vocabulary. The delays in the development of babbling and early speech did not pertain to all studied individuals. One example of this was the subgroup with Down syndrome, which differed from controls only on number of different consonants.

**Conclusions:** Precursors of normal speech and language development can be identified early in children with neurodevelopmental disabilities and canonical babbling and consonant production were significantly different compared to controls on several measures. The significance for the long-term development of the children remains to be seen. Future research might clarify the role of babbling and early consonant production in predicting speech and language difficulties in children with different neurodevelopmental disabilities, thus guiding families and professionals in deciding which children might benefit from early speech and language intervention.

### References:

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