

**DIAGNOSTIC FEATURES OF CHILDHOOD APRAXIA OF SPEECH IN
ESTONIAN, FINNISH AND LITHUANIAN: A SURVEY OF SLPS**

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Research on diagnostic features of childhood apraxia of speech (CAS) in English is making headway, however, studies in other languages are scarce (Wong et al., 2020). Due to this gap in cross-linguistic research, it is unclear how applicable English-based diagnostic features are in languages other than English. This study investigated the diagnostic features that SLPs use for CAS diagnosis in three non-Germanic languages: Estonian and Finnish, both of which belong to the Finno-Ugric language family, and Lithuanian – a Balto-Slavic language.

A cross-linguistic survey was conducted among SLPs experienced with CAS from Estonia, Finland, and Lithuania. The participants were asked to rate the significance of 63 features for diagnosing CAS in their native language. The list included features that are commonly reported for English-speaking children with CAS, however, we also included language-specific features that may be associated with CAS diagnosis. For example, phonemic quantity is a central aspect in Estonian and Finnish, but not in Lithuanian. Given the duration errors prevalent in CAS (Grigos et al., 2015), we hypothesized that Estonian and Finnish SLPs are more likely to associate phonemic quantity errors with CAS compared to Lithuanian SLPs. Errors related to vowels are also common in children with CAS (ASHA, 2007). Thus, we expected diphthong reduction errors to be more common in Estonian (36 diphthongs) and Finnish (16 diphthongs) compared to Lithuanian (9 diphthongs). Finally, we predicted that palatalization errors are strongly associated with CAS in Lithuanian, where most consonants have a palatalized and non-palatalized variants that distinguish meaning. This could be challenging for children with CAS considering the precise coordination of tongue movements that is needed for palatalization (Grigos et al., 2015).

A total of 197 SLPs completed the survey (Estonia: n=59, Finland: n=69, Lithuania: n=69). An overview of the features rated as most significant for CAS diagnosis in the three languages is presented in Table 1. The table lists the features that were rated as a “very significant feature” by at least 50% of the SLPs from each country. Interestingly, prosodic errors were not rated as very significant in any of the languages, although they are considered a core feature of CAS in English (ASHA, 2007). The language-specific hypotheses were evaluated with ordinal logistic regression analysis. In line with our predictions, Lithuanian SLPs were more likely to regard palatalization errors as a significant feature for CAS diagnosis compared to Finnish SLPs ($t=2.80$; $p<.05$). Similarly, Estonian SLPs were more likely to regard diphthong simplification errors as a significant feature of CAS compared to Finnish SLPs ($t=2.10$; $p<.05$). Other comparisons did not reach statistical significance. Contrary to our predictions, no significant differences between languages were observed for quantity errors. In summary, the most highly rated features across the

three languages include features that are commonly reported in English-speaking children with CAS. However, language-specific differences were also identified. These findings highlight the need for empirical studies of CAS in different languages.

	Estonian	Finnish	Lithuanian
1.	articulatory groping, restarts and starting difficulties 89,8%	difficulties with diadochokinetic tasks 73,9%	articulatory groping, restarting difficulties 56,5%
2.	difficulties with diadochokinetic tasks 84,7%	speech is unintelligible even for familiar listeners 69,6%	difficulties with volitional non-speech oral motor tasks, oral apraxia 55,1%
3.	ability to use sound/word spontaneously but not volitionally 64,4%	Increased errors with increased utterance length 59,4%	increased errors with increased utterance length 53,6%
4.	inconsistent errors in repeated productions of the same word, where a word is sometimes produced correctly and sometimes not 62,7%	increased errors as the complexity of the syllable shape increases 59,4%	difficulty with fine motor movements and poor coordination 53,6%
5.	increased errors as the complexity of the syllable shape increases 61,0%	inconsistent errors in repeated productions of the same word, where errors are made on different phonemes in each production 59,4%	speech is unintelligible even for familiar listeners 53,6%
6.	inconsistent errors in repeated productions of the same word, where errors are made on different phonemes in each production 61,0%	limited phonemic inventory of consonants and vowels 53,6%	increased errors as the complexity of the syllable shape increases 52,5%
7.	high amount of within-class manner or place substitution errors 52,5%	ability to use sound/word spontaneously but not volitionally 50,7%	

Features that were rated very significant for CAS diagnosis by the majority (at least 50%) of the Estonian, Finnish and Lithuanian SLPs.

References

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