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Newborns' neural tracking of infant-directed and adult-directed speech in native and foreign language

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Abstract

At birth, the human brain is tuned to spoken language in general and to some extent also to native language in particular. In behavioral studies, infants also prefer to listen to infant-directed speech (IDS) to adults-directed speech (ADS), apparently most robustly in their native language. Recent studies demonstrated that this preference has correlates at the neural level as well. We test whether newborns show differential neural tracking of native over foreign, rhythmically different, language.

We assess neural tracking of native and non-native speech in Czech-exposed newborns. Newborns were played a children's story in two rhythmically different languages, Czech (lacking acoustic cues to word-level stress) and Russian (acoustically salient word-level stress), in IDS or ADS, while their EEG was recorded.

We predicted stronger neural tracking of the native Czech, evident in larger inter-trial phase coherence (ITC), and total power. Preliminary data ($n = 27$ out of planned 60) suggest this language-specific effect is most prominent in the theta band corresponding to the syllable rate. We will further test whether this native-language effect would be more prominent in ADS or IDS. Data collection is underway and the results will be presented & discussed at the conference.