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Infants at Risk for ASD Show Aberrant Preferences for Speech at Six to Nine Months

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Introduction

• Typically developing (TD) infants listen longer to (i.e., prefer) child-directed speech (CDS) than to adult-directed speech (ADS; See Jusczyk, 1999; Thiessen, Hill, & Safran, 2005 for review), as do toddlers with Down Syndrome (Glenn & Cummingham, 1983).
• Studies of young children with ASD show differences from TD in preference for attending to speech stimuli (Kuhl et al., 2005; Paul et al., 2007).
• These preferences have been shown to be linked to language development (Paul et al., 2007; Tsao et al., 2004).

Purpose

• To examine auditory preferences for speech stimuli in infants at risk for ASD due to the presence of a diagnosed sibling.

Methods

Participants

• High Risk (HR) infants
  • Sibling of a child diagnosed with ASD
  • Proband diagnosis confirmed with ADI-R interviews
• Low Risk (LR) infants
  • No sibling with any diagnosis of developmental disorder
  • No family history of ASD
• Participants seen at:
  • 6 mo. (41 HR and 20 LR)
  • 9 mo. (35 HR and 26 LR)

Methods

• Child seated on parent's lap
• Views monitor with checkerboard
• Auditory stimuli begin when child looks at checkerboard
• Continues playing as long as child looks
• When child looks away for 2 seconds, auditory stimuli stop
• Child receives 4 training trials
• Time spent looking during each stimulus is recorded

Auditory Stimuli

• Female speaker reading nursery rhymes with CDS intonation or ADS intonation.
• 6 CDS trials and 6 ADS trials
• Intonation quality of the recordings verified by ten typical adult listeners.

Results

Figure 1. Mean (and SD) MSEL* T-Scores for High- and Low-Risk Groups at Six Months.

Figure 2. Mean looking times for Low Risk infants listening to nursery rhymes with CDS and ADS prosody.

Figure 3. Mean looking times for High Risk infants listening to nursery rhymes with CDS and ADS prosody.

Conclusions

• Infants at HR for ASD show differences in preference for speech-like stimuli in the first year of life, when compared to LR peers; that is:
  • LR infants failed to show a preference for CDS at 6 months, consistent with recent reports (McRoberts et al., 2009), but did show a preference for IDS at 9 months.
  • HR Infants showed the reverse pattern; 6-month-old HR infants had, like typical in younger infants (Pegg et al., 1992), a significant preference for CDS; 9-month-old HR infants did not.
• These results suggest that infants at risk for ASD begin to show a delay in the pattern of attention to speech as early as 6 months.
• This preliminary investigation suggests an aberrant pattern of auditory preference that points to the need for continued research on the origins and consequences of developmental differences in this population.

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References
