

**Title:** How Toddlers with and without Autism Share Music with their Parents

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**Introduction:** Although previous studies suggest that toddlers enjoy music, there is little research on how they share music with other people. This study aims to observe how toddlers with autism spectrum disorder (ASD), developmental delays other than ASD (DD) and typically developing (TD) toddlers attend to and share musical sounds with their parent. We expect to find that TD toddlers will exhibit these behaviors more so than ASD toddlers and DD toddlers.

**Method:** A total of 126 toddlers ( $M = 23.0$  months of age; 86 male; 45 TD, 42 DD, and 39 ASD) participated in a video recorded play session as part of an NIH-funded project focused on auditory joint engagement. The session included a 3-minute music scene that contained two phases. Phase 1, Child Only: a musical sound (either piano or guitar) played for 30 seconds while the parent and child interacted, and the parent was asked to ignore the sound; and a 1-minute Phase 2, Parent Child phase: the sound played and the parent was asked to share the sound with the child. Videos were reliably coded to document the toddlers' *alerting to*, *sharing of*, and *sustained engagement* with the sound. In addition, specific child actions related to music, including *speech*, *rhythmic movement*, *clapping*, and *singing*, were coded.

**Results:** Most toddlers in all three groups alerted to the sound in the first phase (72%, 69% and 80%; ASD, DD, and TD, respectively) and levels of *sustained engagement* were also high (69%,

69%, and 80%; ASD, DD, and TD). In contrast, toddlers in the TD group had more *sharing*, *speech*, and *rhythmic* movement than toddlers in the DD and ASD groups.

**Conclusion:** Our observations indicate that toddler's ability to share music, but not in attending to or sustaining engagement with musical sounds with others, may be hindered by developmental delays including ASD. These findings merit further investigation on sharing ability and impairment and how these difficulties may affect joint engagement.