



Sources of Information about the Development of Joint Attention Related to Autism Spectrum Disorder

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Abstract

This *CASEmaker* bibliography includes selected references and information about joint attention, how difficulties in developing joint attention are core to autism spectrum disorder, and strategies practitioners can teach caregivers to use to develop and maintain a child's joint attention. The research supports increasing both practitioners' and caregivers' knowledge of how joint attention skills impact social engagement and how early intervention strategies improve joint attention skills of children with autism spectrum disorder.

Introduction

Autism spectrum disorder (ASD) is becoming more pervasive in the child population based on recent Centers for Disease Control and Prevention (CDC) statistics, which report 1 in 36 children 8 years of age have ASD (Maenner et al., 2023). Recent autism and brain science research has identified early markers that resulted in the Academy of American Pediatrics updating early developmental milestones to help alert families and healthcare providers to delays in early development that may signal ASD (Hyman et al., 2020; Klin et al., 2020; Mundy, 2018; Shultz et al., 2018). This research has also provided insights into how early infant and toddler pivotal communication skills can be enhanced or developed to promote social communication for children with ASD. The *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* lists deficits in social-emotional reciprocity as a criterion for diagnosing ASD. The pivotal development skill of joint attention is closely related to social-emotional reciprocity, and current research is focusing on joint attention to understand its relationship to language function, social skills, communication, adaptive function, and intelligence (Mundy, 2023; Sano et al., 2021). This *CASEmaker* provides selected references and information about joint attention, difficulties in developing joint attention that affect social communication, and evidence-based strategies practitioners can teach caregivers to develop and maintain a child's joint attention.

Overview of Joint Attention

Joint attention is one of the skills humans develop to facilitate social communication and connectedness to

others (Mundy & Newell, 2007; Van Hecke et al., 2016). Most young children develop effective social communication by learning joint attention skills along with other pivotal social skills like eye contact, vocalizations, and social referencing before mastering more complex cognitive and language skills (Neimy et al., 2017). Joint attention is "social sharing of awareness, experience, affect, or interest" (Holth et al., 2009), and this skill is often exemplified by following the eye gaze of another person or shifting eye gazes between persons to share interest in an object or event (Salley & Colombo, 2016; Van Hecke et al., 2016). Joint attention is a specific communication skill involving the understanding of others' intentions (Mundy et al., 2007). Responding to joint attention is the earliest component of joint attention and develops between 3 to 4 months of age, while initiating joint attention develops between 8 to 13 months of age (Lasch et al., 2023; Thorup et al., 2018; Van Hecke et al., 2016).

Joint attention precedes social cognition and is fundamental to a child's ability to learn, develop language,

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and understand social interactions (Lasch et al., 2023; Mundy & Newell, 2007). Joint attention promotes language acquisition, helps a child to indicate their interests to others, and enables a caregiver to understand early child communicative vocalizations (Schertz et al., 2018; Wetherby, 2006). Joint attention is also pivotal in providing a foundation for imitation and social engagement (Neimy et al., 2017). The following references provide descriptions of joint attention and its part in the development of social engagement skills:

Mundy, P., Block, J., Delgado, C., Pomares, Y., Van Hecke, A. V., & Parlade, M. V. (2007). Individual differences and the development of joint attention in infancy. *Child Development, 78*(3), 938-954. <https://doi.org/10.1111/j.1467-8624.2007.01042.x>

Rx Prescription for Practice Rx

Increase your understanding of joint attention, how difficulties in developing joint attention are core to autism spectrum disorder, and strategies practitioners can teach caregivers to help enhance joint attention development:

Adamson, L. B., Bakeman, R., Suma, K., & Robins, D. L. (2019). An expanded view of joint attention: Skill, engagement, and language in typical development and autism. *Child Development, 90*(1), e1-e18. <https://doi.org/10.1111/cdev.12973>

Gaffrey, M. S., Markert, S., & Yu, C. (2020). Social origins of self-regulated attention during infancy and their disruption in autism spectrum disorder: Implications for early intervention. *Development and Psychopathology, 32*(4), 1362-1374. <https://doi.org/10.1017/S0954579420000796>

Mundy, P. (2018). A review of joint attention and social-cognitive brain systems in typical development and autism spectrum disorder. *European Journal of Neuroscience, 47*(6), 497-514. <https://doi.org/10.1111/ejn.13720>

Van Hecke, A. V., Oswald, T., & Mundy, P. (2016). Joint attention and the social phenotype of autism spectrum disorder: A perspective from developmental psychopathology. In D. Cicchetti (Ed.), *Developmental psychopathology: Maladaptation and psychopathology* (pp. 116-151). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119125556.devpsy304>

Wetherby, A. M., Guthrie, W., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2014). Parent-implemented social intervention for toddlers with autism: An RCT. *Pediatrics, 134*(6), 1084-1093. <https://doi.org/10.1542/peds.2014-0757>

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Salley, B., & Colombo, J. (2016). Conceptualizing social attention in developmental research. *Social Development, 25*(4), 687-703. <https://doi.org/10.1111/sode.12174>

Van Hecke, A. V., Oswald, T., & Mundy, P. (2016). Joint attention and the social phenotype of autism spectrum disorder: A perspective from developmental psychopathology. In D. Cicchetti (Ed.), *Developmental psychopathology: Maladaptation and psychopathology* (pp. 116-151). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119125556.devpsy304>

Wetherby, A. M. (2006). Understanding and measuring social communication in children with autism spectrum disorders. In T. Charman & W. Stone (Eds.), *Social and communication development in autism spectrum disorders: Early identification, diagnosis, and intervention* (pp. 3-34). Guilford Press.

Difficulties in Developing Joint Attention

Joint attention is a persistently problematic socialization skill for children with autism, and delays in this skill may become more noticeable as the children get older. Delays in responding to and initiating joint attention vary among children. Responding to joint attention is less evident in toddlers without cognitive delays, but delays in initiating joint attention are evident and observed in all children with ASD and used to differentiate ASD from other disabilities (Lee & Schertz, 2020; Leekam & Ramsden, 2006; Van Hecke et al., 2016). Delays in initiating joint attention tend to show up between 12 to 24 months of age, thus often limiting crucial interactions with others that are necessary for subsequent language development (Adamson et al., 2019). Other early markers related to joint attention delays are lack of visual tracking, disengagement of visual attention, and failure to orient to name (Neimy et al., 2017). Researchers are also beginning to understand how delays in responding to joint attention and initiating joint attention result in delayed social communication. Since social communication is a turn-taking exchange, delays in joint attention create limits in the interactions between the child and caregiver (Adamson et al., 2019). Gaffrey and associates (2020) report early atypical social interaction is connected to later developmental delays, and fostering caregivers' sensitivity to multiple cues of their child's struggle with joint attention will help caregivers adjust their re-

sponses to promote joint attention and ultimately social engagement. The following references discuss how joint attention is key to understanding delays in social engagement for children:

- Adamson, L. B., Bakeman, R., Suma, K., & Robins, D. L. (2019). An expanded view of joint attention: Skill, engagement, and language in typical development and autism. *Child Development, 90*(1), e1-e18. <https://doi.org/10.1111/cdev.12973>
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- Neimy, H., Pelaez, M., Carrow, J., Monlux, K., & Tarbox, J. (2017). Infants at risk of autism and developmental disorders: Establishing early social skills. *Behavioral Development Bulletin, 22*(1), 6-22. <https://doi.org/10.1037/bdb0000046>
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Strategies to Develop and Maintain Joint Attention

Acquiring an understanding of joint attention provides a practitioner with the foundation for helping expand the caregiver's knowledge and capacity to help a child develop this pivotal social communication skill. Research evidence (Kasari et al., 2010, 2014; Karaaslan & Mahoney, 2015; Rollins et al., 2021; Schertz & Odom, 2007; Wetherby et al., 2014) supports caregivers' abilities to learn and use multiple strategies to increase a child's joint attention across everyday activities and routines. By helping caregivers understand why the joint attention strategies work and supporting generalization to other settings, practitioners help build capacity of the caregiver to promote the child's joint attention throughout the child's day.

Engaging around mutual interests is more important than instructing the child to do something when encouraging joint attention (Kasari et al., 2014). Effective strategies help caregivers focus on the child's bids for interaction or initiation of joint attention and require

child-initiated rather than adult-prompted engagement (Shire et al., 2016). Early interventions should emphasize caregiver attunement to child interests and behavior (Dunst & Kassow, 2008) and ways caregivers can reinforce a child's joint attention without redirection (Hansen et al., 2018). With any child, typically developing or with a disability, using responsive teaching strategies (e.g., take one turn and wait, follow your child's lead, or imitate your child) have been shown to increase a child's attention, persistence, interest, cooperation, initiation, and joint attention (Mahoney & Perales, 2005). Several especially relevant references include:

- Kasari, C., Siller, M., Huynh, L. N., Shih, W., Swanson, M., Helleman, G. S., & Sugar, C. A. (2014). Randomized controlled trial of parental responsiveness intervention for toddlers at high risk for autism. *Infant Behavior and Development, 37*(4), 711-721. <https://doi.org/10.1016/j.infbeh.2014.08.007>
- Rollins, P. R., De Froy, A., Campbell, M., & Hoffman, R. T. (2021). Mutual gaze: An active ingredient for social development in toddlers with ASD: A randomized control trial. *Journal of Autism and Developmental Disorders, 51*(6), 1921-1938. <https://doi.org/10.1007/s10803-020-04672-4>
- Shire, S. Y., Gulsrud, A., & Kasari, C. (2016). Increasing responsive parent-child interactions and joint engagement: Comparing the influence of parent-mediated intervention and parent psychoeducation. *Journal of Autism and Developmental Disorders, 46*, 1737-1747. <https://doi.org/10.1007/s10803-016-2702-z>
- Wetherby, A. M., Guthrie, W., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2014). Parent-implemented social intervention for toddlers with autism: An RCT. *Pediatrics, 134*(6), 1084-1093. <https://doi.org/10.1542/peds.2014-0757>

Conclusion

Joint attention, for most children, will develop naturally without much instruction from caregivers. Understanding the pivotal skills of social communication is valuable in helping caregivers enhance a child's social development if delays appear. An early interventionist with knowledge of joint attention, an understanding of its importance to other higher skills, and strategies to facilitate joint attention can help a caregiver improve a child's joint attention and advancing social communication skills. The information and references included in this *CASEmaker* highlight the connection between joint

attention and autism spectrum disorder and strategies for improving delays in joint attention.

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