

# Eye Tracking in Early Autism Research

Falck-Ytter, Bölte, Gredebäck (2013)

## ABSTRACT

“Eye tracking has the potential to characterize autism at a unique intermediate level, with links ‘down’ to underlying neurocognitive networks, as well as ‘up’ to everyday function and dysfunction. Because it is non-invasive and does not require advanced motor responses or language, eye tracking is particularly important for the study of young children and infants. In this article, we review eye tracking studies of young children with autism spectrum disorder (ASD) and children at risk for ASD. Reduced looking time at people and faces, as well as problems with disengagement of attention, appear to be among the earliest signs of ASD, emerging during the first year of life. In toddlers with ASD, altered looking patterns across facial parts such as the eyes and mouth have been found, together with limited orienting to biological motion. We provide a detailed discussion of these and other key findings and highlight methodological opportunities and challenges for eye tracking research of young children with ASD. We conclude that eye tracking can reveal important features of the complex picture of autism.”

## SUMMARY & SIGNIFICANCE FOR GEMINI

Research on eye gaze is in its early stages, but studies suggest that children on the autism spectrum do not attend to faces in the same way that typically developing children do. It also suggests that non-social stimuli may distract children from the social clues presented in a video. Gemini's filming approach is intentional on its direct and full screen focus on the mouth, and the mouth's position on the models' faces. Gemini also intentionally removes all non-essential visual elements from its videos. The gains seen in Gemini's clinical trials would imply that this additional and forced focus on the mouth could create the additional visual support that ASD children need when processing information. Additionally, the Gemini filming technique does tend to emphasize that the information being taught is specifically child-directed. Parents have noted that their children tend to instinctively understand this and respond to it.

## QUOTATIONS

“It now seems fair to conclude that looking time to the mouth is related to language function at specific early periods in typical development ... It has been suggested that children with ASD look to the mouth because they tend to orient to audiovisual synchrony [29], so the ‘facial feature’ and ‘audiovisual synchrony’ controversies are in fact related..”

## LINK TO STUDY

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3849191/>