

The eyes have it: How we know when others are looking at us

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This proposed study will explore the stare-in-the-crowd effect and associated deficits in social processing. The stare-in-the-crowd effect is a gaze detection phenomenon in which humans are able to pick out gaze directed at themselves more quickly than gaze directed elsewhere ¹. This ability to pick out important social information has evolutionary roots and is still a vital aspect of social communication ²⁻⁴. Deficits in social processing, including eye-to-eye gaze, is one of the defining symptoms of autism ⁵. The looking patterns and fixation times of individuals with autism have been shown to vary from typical individuals ⁶. To capture differences in the stare-in-the-crowd effect, we will recruit a group of typically developing children and a group of children with autism. Using an eye tracking system, we will record the time to first fixation and total dwell time as they view a series of photographs. The eye tracking system allows up to manipulate stimulus photographs in response to the behavior of our subjects. There are 12 faces in each photograph, with gaze directed either directly at or varying degrees away from the camera. There are four conditions for the photographs: (1) Direct Gaze, when one face is directed at the subject, (2) Denial of gaze detection, when a previously subject-directed face directs elsewhere before the subject makes eye contact, (3) Delayed denial/You caught me looking at you, when the subject makes eye contact with a subject-directed face, (4) I was caught starting, when a previously averted face becomes subject-directed as the subject fixates on that face. We will simultaneously collect heart rate and skin conductance data to identify differences in physiological reactions to these instances of social looking behaviors.

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