

Eyeblink conditioning in children with autism spectrum disorder

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Abstract Details

The eyeblink conditioning paradigm has commonly been used in many studies to probe various levels of functioning in different areas of the brain. It is an ideal paradigm that incorporates Pavlovian classical conditioning features and is useful to study neuropsychological disorders in a non-invasive manner, and is also extremely practical for autism spectrum disorder in particular because it does not require social or verbal skill competency. Previous studies have indicated that children with autism spectrum disorder show an impaired ability to properly time eyeblinks during delay eyeblink conditioning, which is a type of eyeblink conditioning in which the conditioned stimulus overlaps with the presentation of the unconditioned stimulus. This deficit may be due to a dysfunction of the cerebellar cortex in children with autism spectrum disorder, which may temporarily be impairing the accuracy of motor timing and in turn, the conditioned eyeblinks. In the present study, eyeblink conditioning data was collected from seven children ranging from two to five years old with autism spectrum disorder using delay conditioning. A tone and light puff of air were used as stimuli in the present study. Preliminary results from this study show that the young children with autism spectrum disorder did not learn the association between the tone and puff of air during the delay conditioning trials. These preliminary results from the study implicate that the brainstem and cerebellar regions in children with autism spectrum disorder are impacted in regards to brain anatomy and brain functioning. These findings are important for establishing the mechanisms behind neurological dysfunctions in autism spectrum disorder.

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