

Sensorimotor development in Autism:

A longitudinal assessment of first signs, the emergence of core symptoms and the role of early intervention

1. Summary

Once considered an uncommon neuropsychiatric condition, current prevalence estimates of Autism Spectrum Disorder (ASD) suggest it affects approximately 1% of the general population. However, diagnosing ASD with certainty only occurs around 24 months of age, when differences in social abilities become apparent enough to distinguish from other neurodevelopmental trajectories. While it has been established that sensorimotor atypicalities can be early warning signs of ASD, the specific mechanisms by which they contribute to the development of the disorder are unclear. Hence, there is a need for a deeper understanding of early warning manifestations that could be associated with subsequent ASD core features. Specifically, by identifying the precursors of atypical developmental paths, we could contribute to enhancing clinical guidelines, provide an earlier detection for children who are at risk and improve recommendations for timely intervention and parental support.

The present proposal aims to explore how difficulties in sensorimotor development that appear in early childhood are related to the emergence of core ASD symptomatology. Additionally, we seek to evaluate whether early intervention strategies could assist in dealing with these difficulties. To that end, we designed a two-year longitudinal observational study in which we will assess the evolution of sensorimotor function in two groups of ASD children, within or outside of an early intervention programme, and compare them to their typically developing counterparts. Each group will be evaluated using the same core measures at 24, 36 and 48 months of age. The study will include a subset of at-risk children recruited prospectively at 12 months of age. Within the ASD field, the present project is the first to apply an innovative methodology to identify neurophysiological predictors of the disorder's developmental trajectories.

ASD is a neurodevelopmental disorder that affects children's autonomy and health, and its prevalence is continually increasing, making it a noteworthy public health issue with significant societal costs. We believe that our project will help to detect early clinical and neurophysiological indicators specific to young children with ASD, as well as predictive factors of their response to early intervention. Achieving these goals will help to tailor support and develop precise intervention approaches for each child's specific needs. The outcomes of this project may contribute to define more accurate care policies that can be disseminated to professionals and used by decision-makers to create a public health policy adapted to early intervention in ASD. Adapting treatment decisions based on individual characteristics and patient stratification has the potential to reduce healthcare costs associated with "one-size-fits-all" intervention strategies.