

Abnormal EEG lateralization in boys with autism

[Tatiana A. Stroganova](#)

, [Gudrun Nygren](#)

, [Marina M. Tsetlin](#)

, [Irina N. Posikera](#)

, [Christopher Gillberg](#)

, [Mikael Elam](#)

, [Elena V. Orekhova](#)  

Accepted: May 6, 2007;

Abstract

Objective

Functional brain abnormalities associated with autism in 3–8-year-old boys were studied with EEG recorded under controlled experimental condition of sustained visual attention and behavioral stillness.

Methods

EEG was recorded in two independent samples of boys with autism (BWA) from Moscow (N = 21) and Gothenburg (N = 23) and a corresponding number of age-matched typically developing boys (TDB). EEG spectral power (SP) and SP interhemispheric asymmetry within delta, theta and alpha bands were analyzed.

Results

BWA comprised a non-homogeneous group in relation to theta and alpha SP. When four outliers were excluded the only between-group difference in absolute SP was a higher amount of prefrontal delta in BWA. BWA of both samples demonstrated atypical leftward broadband EEG asymmetry with a maximum effect over the mid-temporal regions. Concurrently, the normal leftward asymmetry of mu rhythm was absent in BWA.

Conclusions

The abnormal broadband EEG asymmetry in autism may point to a diminished capacity of right temporal cortex to generate EEG rhythms. The concurrent lack of normal leftward asymmetry of mu rhythm suggests that abnormalities in EEG lateralization in autism may be regionally/functionally specific.

Significance

The data provide evidence for abnormal functional brain lateralization in autism.