Neural correlates of deficient multisensory integration in Autism Spectrum Disorders (ASD)

Published: 24-03-2015
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The primary objective is to investigate the neural correlates of the integration of multisensory information in adolescents with ASD.

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Developmental disorders NEC
Study type	Observational non invasive

Summary

ID

NL-OMON47507

Source
ToetsingOnline

Brief title
Multisensory integration in ASD

Condition

- Developmental disorders NEC

Synonym
ASD autism

Research involving
Human

Sponsors and support

Primary sponsor: De Grote Rivieren (Dordrecht)
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Autism, EEG, Multisensory integration

Outcome measures

Primary outcome

The difference between individuals with ASD and healthy volunteers with respect to the underlying mechanisms of multisensory integration. In Experiment 1 the parameter is the modulation of the auditory-evoked N1 component of the event-related potential by motor-auditory prediction. In Experiment 2 the parameter is the modulation of the auditory-evoked N1/P2 components of the event-related potential by visual-auditory prediction. In Experiment 3 the parameter is the modulation of stimulus omission responses, induced by motor-auditory prediction. In Experiment 4 the parameter is the modulation of stimulus omission responses, induced by visual-auditory prediction. In Experiment 5 the parameter is the audiovisual (McGurk) mismatch negativity. In Experiment 6 the parameters are mid-latency potentials associated with the multisensory gain of speech in noise.

Secondary outcome

n/a

Study description

Background summary

The earliest as well as the most current theories of autism are based on the premise that individuals with ASD process sensory information in a way that is different from others. Here, we investigate whether the interaction between the senses are impaired or atypical in ASD. The primary objective is to investigate

audiovisual perception in autistic individuals on the behavioral and neural level, using electroencephalography (EEG). Do autistic individuals differ from healthy controls in the brain mechanisms underlying audiovisual integration? Are impairments of autistic individuals in audiovisual integration as measured on the behavioural level linked to specific patterns in neural activity? The experiments will provide insight in the (neural) mechanisms of the deficits in audiovisual integration in autism.

Study objective

The primary objective is to investigate the neural correlates of the integration of multisensory information in adolescents with ASD.

Study design

Six separate counterbalanced quasi-experimental EEG experiments investigating multisensory integration.

Study burden and risks

The participants are seated in a comfortable chair, wear a cap containing sensors and are tested for a total of at most 1.5 hours each time in a dimly lit room. The task is to watch a monitor while auditory and visual stimuli are presented. Participants have to react to stimuli with a button press. The risks are negligible and the burden minimal. The study adds to our understanding of the processes underlying the (sensory) problems associated with ASD and could not be conducted without the participation of adolescents with autism.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

-Presence of an autism spectrum disorder (ASD; Autism, Pervasive Developmental Disorder) according to the DSM-IV-TR criteria for autism, diagnosed by a professional clinical team (added with an score of the Autism Diagnostic Observation Scale (ADOS) which is administered by certified raters)
-Age between 14 and 21 years
-Normal hearing and normal or corrected to normal vision
-Written consent by parents or caregivers and adolescent

Exclusion criteria

-Evidence of a serious medical, neurological or psychiatric illness (apart from ASD), seizure disorders, trauma or a use of medications affecting the nervous system
-learning disabilities
-mental retardation
-language delays
-head trauma

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	01-05-2015
Enrollment:	240
Type:	Actual

Ethics review

Approved WMO Date:	24-03-2015
Application type:	First submission
Review commission:	METC Brabant (Tilburg)
Approved WMO Date:	05-12-2019
Application type:	Amendment
Review commission:	METC Brabant (Tilburg)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL52250.028.15