Processing of visual information in infants - an fNIRS study

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON44531

Source
ToetsingOnline

Brief title
Visual processing in infants

Condition

- Other condition

Synonym
n.v.t.

Health condition

geen betrekking op aandoeningen

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Utrecht
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: fNIRS, infant, vision

Outcome measures

Primary outcome

fNIRS activity reflecting multiple aspects of perceptual and social processing.

Secondary outcome

To answer the second research question we will study fNIRS activity reflecting multiple aspects of social processing. In addition, the results of the questionnaire will be used to relate social development to differences in brain activity.

Study description

Background summary

In recent years it has become clear that the ability to process socially relevant stimuli, such as faces, depends on perceptual processes. In a number of studies in children, we have shown that impaired development of perception is associated with a disturbance in the social information processing, in particular in autism. However, it is still unknown how perceptual and social information processing develops during infancy, when the foundation is laid for social interaction. Important in this development is the involvement of specific brain areas. Although this can be measured in adults with fMRI, is fNIRS a child-friendly alternative. Brain activity is measured using sensors in a cap, similar to EEG, which provides freedom of movement to the baby. Although fNIRS is often used to study brain activity in infants, there are no longitudinal studies on the involvement of brain areas in social stimulus processing. The developmental trajectory that can be mapped using longitudinal research provides insight into the changing involvement of brain areas during the first year of life. This provides a background for understanding of

abnormal perceptual and social information processing, such as in children with autism.

Study objective

The main objectie of the study is to map the developmental trajectory of processing perceptual and social information in infants using fNIRS. In addition, with the measurement in 5 month-old children we aim to replicate previous research. The additional group of 10-month-old infants can lead to novel insights in the longitudinal and learning effects in our study. Furthermore, by administering a questionnaire on social development we can investigate whether differences in development relate to differences in brain activity.
In addition, we will study adults before studying infants. The goal of studying adults is to optimise methods using participants that can communicate well and have a long attention span.

Study design

A longitudinal, observational, non-invasive study. During presentation of meaningless and social stimuli brain activity will be registered.

Study burden and risks

Children and parents don't benefit from participation in the research. The risks associated with participation are negligible and the burden is low (measurement of maximal 3 periods of 15 minutes per measurement day). The research is group related which means that the research question cannot be answered without participation of children in the regarded age-range.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Children (2-11 years)

Inclusion criteria

- Children between 2 and 4, and 4 and 6 months of age (measurement 1) or between 4 and 6, and 9 and 11 months of age (measurement 2 and control group), or adults (only 1 measurement)
- at least 1 of the parents speaks Dutch with the child (this does not have to be the native language of the parent)

Exclusion criteria

- born premature or too late (<37 or >42 weeks)
- too low birthweight (<2500 gram)
- abnormalities in development (e.g. delay) as indicated to the parent by a doctor or health-care system
- visual or auditory abnormalities as indicated to the parent by a doctor or health-care system

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	07-12-2015
Enrollment:	185
Type:	Actual

Ethics review

Approved WMO Date:	17-12-2014
Application type:	First submission
Review commission:	METC NedMec
Approved WMO Date:	02-04-2015
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	29-07-2015
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	03-06-2016
Application type:	Amendment
Review commission:	METC NedMec

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	NL50617.041.14