The processing of quantities and numbers in children

Published: 12-01-2007
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We want to get a better picture about the causes of math difficulties

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

Summary

ID

NL-OMON30492

Source
ToetsingOnline

Brief title
processing of quantities

Condition

- Other condition

Synonym
dyscalculia, math problems

Health condition

fundamenteel wetenschappelijke studie met gezonde kinderen

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Utrecht
Source(s) of monetary or material Support: NWO

Intervention

Keyword: automatisation, children, ERP, number representation

Outcome measures

Primary outcome

we will look at the p300 (attention) and the lrp (response related processes)

signal of the EEG. here the congruent and incongruent conditions of the

numerical stroop task will be compared.

Secondary outcome

not applicable

Study description

Background summary

Already early in life, children are able to make a distinction between distinct amounts. At their 5th year of life they start to learn the number symbols. The automatisation of these numerical symbols is present at the end of the 6th year of life (Rubinsten, 2002). Some children are faster and better in abstract thinking and learn how to use the numerical symbols faster than others. The cause of the differences in time necessary to acquire this knowledge is still under debate. Several theories and ideas about this have been postulated. The most important stream says that the problems are of a spatial nature. Several tasks have proven that numbers, amounts and space are functionally related. But it has also been suggested that the problems could derive from problems related to a cognitive function such as working memory.

In this study we want to get more information about the factors that may be the cause of math difficulties. We will check the cognitive and math abilities of the children, knowledge of quantities, and the biological substrate with the help of EEG.

The outcomes of the EEG will at the end be compared to the results found with adults on the same task.

Study objective

We want to get a better picture about the causes of math difficulties

Study design

observational design

Study burden and risks

the subjects will have to spend one hour in the EEG and one and a half hour doing paper and pencil tasks. The latter will be repeated one and and two years later. No risks are associated with participation in this study.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Children (2-11 years)

Inclusion criteria

afwezigheid van neurologische of psychiatrische aandoeningen
geen gebruik van psychoactieve medicatie
geen cardivasculaire aandoeningen
schriftelijke toestemming van voogd (informed consent)
rechtshandig (edinburgh handedness inventory)

Exclusion criteria

none

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):	18-01-2008
Enrollment:	100
Type:	Actual

Ethics review

Approved WMO

Date:	08-05-2007
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

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	NL12822.041.06