

# Feasibility study on the use of the Dutch translated version of the Penn Web-based Neurocognitive Battery in twin families.

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The aim of this study is to test the feasibility, reliability and validity of a Dutch version of the Penn Computerized NeuroPsychological testing system (CNP). It is tested whether our translated version is feasible for use in the Dutch population at...

<b>Ethical review</b>	Approved WMO
<b>Status</b>	Recruitment stopped
<b>Health condition type</b>	Cognitive and attention disorders and disturbances
<b>Study type</b>	Observational non invasive

## Summary

### ID

NL-OMON36602

### Source

ToetsingOnline

### Brief title

Use of computerized neuropsychologic testing in twin research

### Condition

- Cognitive and attention disorders and disturbances

### Synonym

attention, cognition, memory

### Research involving

Human

### Sponsors and support

**Primary sponsor:** Vrije Universiteit

**Source(s) of monetary or material Support:** NWO

## **Intervention**

**Keyword:** cognition, feasibility, heritability, reliability

## **Outcome measures**

### **Primary outcome**

Prestatiematen tijdens verschillende CNP taken:

1. Motor Practice Test
2. Emotion Recognition Test
3. Continuous Performance Test (number/letter version)

BREAK

4. Face Memory Test
5. Word memory Test (parent/child version)
6. Short Letter N-back test
7. Face Memory Test - Delayed Memory
8. Word memory Test - Delayed Memory (parent/child version)

BREAK

9. Conditional Exclusion Test
10. Emotion Differentiation Test
11. Short Computerized Fingertapping Test
12. Matrix Reasoning Test

BREAK

13. Visual Object learning Test
14. Logical reasoning (parent/child version)
15. Age Differentiation Test

16. Line Orientation Test

17. Visual Object learning Task - Delayed Memory

### **Secondary outcome**

Covariates: sex and age, body mass index, educational attainment, reading ability, current profession (for adults), lifestyle information (exercise, smoking, alcohol), sleep duration, general health, blood pressure, and medication use.

## **Study description**

### **Background summary**

The University of Pennsylvania has developed a computerized neuropsychological test battery, which has been used in scientific studies extensively. It was developed for several reasons, one of which was to overcome logistic problems that are part of pen-and-paper neuropsychological tests such as long administration times, and the administration and scoring of these tests that require training and may vary among administrators. The tests used in the CNP are based on existing tests, but have been modified to computer administration, providing domain scores for accuracy, speed and efficiency on all tasks. The CNP tests performance on a range of cognitive measures, like speed of information processing, emotion processing, attention, memory and executive functions. The battery used here consists of 17 subtests and takes on average one hour to administer. The cognitive functions that these tasks measure have proven to be related to brain structures and functioning, to be associated with psychiatric disorders, and to be heritable. Because of this, the tests are considered good endophenotypes in genetic studies for example for schizophrenia, and anxiety and depressive disorders.

### **Study objective**

The aim of this study is to test the feasibility, reliability and validity of a Dutch version of the Penn Computerized NeuroPsychological testing system (CNP). It is tested whether our translated version is feasible for use in the Dutch population at large, specifically adolescents and their parents. Relevant questions are, for example, do subjects understand the instructions at all ages and education levels. Are there floor or ceiling effects in one or more subtests? What is the distribution of the performance scores? Can the CNP be

administerde at home with a laptop? What are the physiological reactions of the study?

In addition, the reliability of performance on the 17 subtests is assessed by examining the monozygotic twin correlation as a proxy for test-retest reliability. Validity of the battery will be tested by comparing the mean scores and distributions to those obtained in different countries (for instance UK and the US), and by testing the effects of educational attainment. The final goal is the availability of a Dutch translation of the Penn Web-based Neurocognitive Battery that is used in many countries in research on normal and abnormal brain development.

## **Study design**

During the study the twin families can visit the VU University or will be visited at home by two researchers/assistants. Using a laptop version of the Penn Neurocognitive test battery and a short interview data will be collected on:

1. performance on 17 subtests reflecting 30 different cognitive functions (information processing speed, emotion recognition, attention, short and long term memory, executive functioning).
2. covariates including sex and age, body mass index, educational attainment, reading ability, current profession (for adults), lifestyle information (exercise, smoking, alcohol), sleep duration, general health, blood pressure, and medication use.

Administration of the Neurocognitive test battery will take approximately one and a half hour. Two subtests, Word Memory test and the Short Logical reasoning test have special versions for adults and children. In between testing we take three breaks ; in the last break a short interview is conducted to assess the covariates. During the other breaks the blood pressure will be measured.

## **Study burden and risks**

The computer test battery has been constructed to be as user friendly as possible. Instructions emphasize that some of the trials will be very hard on everybody. We deliberately make it possible that the families can choose between visiting the VU University or be visited at home to reduce the total time that they need to invest in the study as much as possible.

## **Contacts**

### **Public**

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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**

Twin families with twins in the range 13 year or older. Both twins and at least one parent must be willing to participate.

### **Exclusion criteria**

Known neurologic disorders (epilepsy, psychosis, pareses, paralysis, etc) or the use of neuroleptics, antihistaminergic, or antidepressives, pregnancy, cardiac disease (under treatment of the cardiologist); metal objects in thorax.

## **Study design**

## Design

**Study type:** Observational non invasive

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Diagnostic

## Recruitment

NL

Recruitment status: Recruitment stopped

Start date (anticipated): 15-03-2011

Enrollment: 400

Type: Actual

## Ethics review

Approved WMO

Date: 18-02-2011

Application type: First submission

Review commission: METC Amsterdam UMC

Approved WMO

Date: 05-12-2011

Application type: Amendment

Review commission: METC Amsterdam UMC

## 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

CCMO

### ID

NL34493.029.10