

# NTR Biobank Enrichment: Neuropsychological Phenotyping

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## Background

- The Computerized NeuroPsychological test battery (CNP) consists of traditional tests modified for computer administration
- Cognitive functions measured in the CNP are:
  - related to brain structures
  - sensitive to cognitive problems related to psychiatric disorders
  - show individual differences influenced by genetic factors
- The tests are considered good endophenotypes in genetic studies in normal brain functioning and development, and in for example schizophrenia, and anxiety and depressive disorders.



## Aim

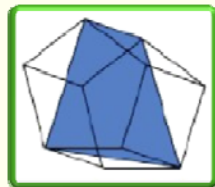
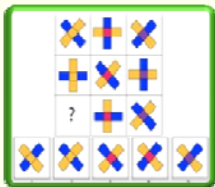
Test the feasibility of the Dutch version of the CNP in order to create a version suitable for use in genetic and neuropsychological research addressing normal and deviant brain functioning.

Questions concerning usability, reliability and validity will be addressed.



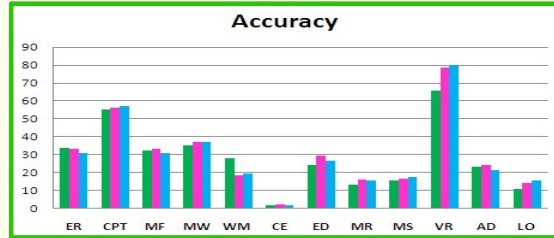
## Methods

- Participants: 100 healthy mono- and dizygotic twin pairs (age 14-16) and their parents, recruited from the Netherlands Twin Registry
- Procedure home visit: cognitive testing, reading ability, blood pressure, lifestyle questions
- Materials: The CNP subtests provide accuracy and speed measures on 10 domains (attention, memory face/word/spatial, working memory, abstraction and mental flexibility, sensomotorical, language, visuospatial, emotion).



## Preliminary Results

Based on the first data collected in students and twin families (N=42, 31 female, age range 15-58, mean age 22.5), test scores (both accuracy and speed) are similar to a healthy American normgroup.



USA norm

NL female

NL male

- MP Mouse Practice
- ER Emotion Recognition
- CPT Continuous Performance
- MF Memory – Faces
- MW Memory – Words
- WM Working Memory
- CE Conditional Exclusion
- ED Emotion Differentiation
- FT Fingertapping
- MR Matrix Reasoning
- MS Memory – Spatial
- VR Verbal Reasoning
- AD Age Differentiation
- LO Line Orientation

Performance of women is more accurate on emotion processing tasks and faster on verbal tasks, whereas men are faster on the motor speed task.

Response time on word memory and emotion processing tasks increases with age.



## Conclusions

The CNP promises positive usability, mainly because of its quick and automated assessment and minimal interference from the test leader.

Based on the first data the Dutch CNP seems a valid measure of individual differences in cognitive functions.