TIME PERCEPTION IN DEVELOPMENTAL DISORDERS: ASPERGER’S SYNDROME

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Introduction
- Children with Asperger’s syndrome have usually problems managing timing in everyday life. Recent studies suggest deficits in a range of timing functions e.g. sensitivity to durations (Falster et al., 2012), but there are also contradictory results (see Allman & Meck, 2012, for a recent review).
- The aim of this study is to find out: 1) whether there is a difference in time processing tasks between children with Asperger’s syndrome and children developing typically and 2) whether their attentional problems might explain the results.
- It is planned to use the same methods to assess timing processing in children with ADHD in order to compare timing patterns between developmental disorders both known to show timing abnormalities.

Methods
- The participants will be: 30 children with Asperger’s syndrome and 30 typically developing controls aged between 8 and 14; recruited via Turku University hospital (Asperger group) and from schools in the Turku district (control group); matched group-wise on age, gender, IQ and maternal education.
- The inclusion criteria (Asperger group) will be Asperger's syndrome (ICD-10, DSM-IV) and the exclusion criteria (both groups) will be neurological or psychiatric diagnoses and major deficits in motor, visual or auditory skills.
- Each participant will be tested in the psychophysiology laboratory at the Centre for Cognitive Neuroscience of University of Turku during 1-3 sessions.
- The computerised timing tasks: A) Free tapping where participants tap a button with their index finger with a freely chosen tempo; B) Visual simultaneity (see figure 2) where two objects will appear on the computer screen at the same time or successively; (milliseconds deviation) and participants decide whether the objects‘ onset was at the same or at different times; C) Auditory discrimination where participants select the odd one out of three sounds.
- The ecological timing tasks: A) Participants estimate the durations of two breaks between tasks and of one task during the experimental session; B) Participants estimate post-hoc their performance on the time tasks; C) Participants parents will fill in a questionnaire concerning time related behavior in everyday life.
- The attention task (CPT II): Letters appear on the computer screen at varying tempo and participants press space bar after each letter except letter X.

Figure 1 shows the methods and the design that will be used in this study.

Expected results
Children with Asperger’s syndrome are expected to:
- be less accurate than controls to detect differences between durations than controls regardless the length of the stimuli or the modality
- give more varying responses and estimates than controls suggesting poorer sensitivity to time
- think less about time, future and past in their everyday life compared to controls.

Attention is not expected to solely explain the results on time tasks.

References

Figure 1. Research methods for Asperger- and control groups. Informants and references are placed in brackets after method.

Figure 2. Angry birds figures appear on the computer screen and participants have to decide whether they appeared at the same time or not.