Toronto 2002
Waikiki 2003
Impaired Habituation as Assessed by Troxler Visual Fading in ADHD


Kennedy Krieger Institute, Johns Hopkins University School of Public Health, Departments of Neurology, Psychiatry, and Pediatrics, Johns Hopkins University School of Medicine

ABSTRACT

Habitation is a fundamental human response to an unchanging stimulus and is thought to play an important role in the development of neurobehavioral disorders. It has been hypothesized that impaired habituation may contribute to the inattentiveness and distractibility behavior observed in ADHD. To test this hypothesis, we examined the Troxler effect (the ability to habituate to a peripheral visual stimulus when presented with a competing central visual stimulus) in a group of children with ADHD, as compared to a control group. Regression analysis revealed a significantly larger effect of the central over the peripheral stimulus in ADHD subjects taking longer to fade stimuli than controls. There was a significant interaction. A direct correlation between troxler times to stimulus habituation and ADHD rating was found, indicating that children with ADHD have impaired habituation. Impaired habituation can be seen in the right visual field, especially in children with ADHD.

METHODS

The Troxler task was presented on a Macintosh computer. A video camera and television were used to monitor subjects' eye movements during the test. Subjects need a complex mechanism to make responses.

- Subjects were instructed to focus on a central fixation point (a yellow stimulus on a black screen) while an image flickered in one of the peripheral visual quadrants, the peripheral quadrants (e.g., left, right, upper, lower), and the fadings in different directions (e.g., left, right, up, down).

- Subjects were instructed to report what they saw when the peripheral fringes disappeared completely, at which time they would press a response button.

- In a previous study, we found that visual field deficits were not present in ADHD, control, or sham stimuli used to assess visual field deficits.

- Standard deviations and standard errors were used to ensure that all stimuli were used to assess the validity of the subjects.

RESULTS

Regression analysis revealed an association between ADHD symptom severity and Troxler fading time, with children with ADHD showing longer fading times than controls.

- Results also revealed a statistically significant relationship between age and Troxler times. Younger children showed faster visual field fading times than older children.

- Moving objects at a center of attention may reduce the age and gender-related differences in visual field fading times. Subjects with moving objects had faster visual field fading times than static objects, indicating that ADHD subjects have poorer attentional control over the task.

CONCLUSIONS

The results suggest that children with ADHD are surprised by the visual field fading times. Habituation impairment may contribute to increased risk of ADHD.

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Parameters of procedural memory
Sara Caraco, Steven W. Anderson, A. Cattell
University of Iowa College of Medicine, Iowa City, IA, USA

Summary
The range and analysis of procedural memory for perceptual motor and learning tasks is examined. Differences in complexity and performance in these areas are documented and compared. A study of 32 normal adults reveals that the ability to perform procedural tasks is related to the complexity of the tasks. The results indicate that the ability to perform these tasks is related to the complexity of the tasks, but not to the number of repetitions. The implications of these findings for the understanding of procedural memory are discussed.
Parameters of procedural motor skills

Sara Cavaco, Steven W. Anderson,
University of Iowa College of Medicine, Faculdade de Medicina de Lisboa

Summary

The scope and duration of preserved procedural motor skill learning in survivors of childhood brain injury were explored. A new set of 6 ecologically related perceptual-motor tasks (1. Matching, 2. Riddle, 3. Maze, 4. Hierarchical 5. Following, 6. Spatial Sequencing) was developed. The performances of normal patients and 6 normal control subjects were compared on six modified perceptual-motor tasks. Each was shown to be at the level of the six normal control subjects. The 2 groups differed in their performance on the newly acquired skills. 1 hour and 2 month delays in procedural memory of the perceptual-motor skills in cross-sectional was shown to be a phenomenon, which could be tested across a variety of conditions and skill demands.

Procedures

4 new perceptual-motor skills based on real world activities.

Table 2: Tasks' descriptions

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Procedure</th>
<th>Results</th>
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<tbody>
<tr>
<td>1</td>
<td>Matching</td>
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<td>Riddle</td>
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<td>6</td>
<td>Maze</td>
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Participants demographics and neurological assessment

Participants: 10 patients, 5 control subjects

Age: 10-50 years

Sex: 6 male, 4 female

Duration: 1-10 years post-injury
Baltimore 2004
Event-Related Potential Correlates of Enhanced Conceptual Fluency and False Recognition

David A. Wolk, Alyssa R. Berman, Kirk R. Daffner, Daniel L. Schacter, Andrew E. Hudson

Brigham and Women's Hospital, Harvard Medical School, Harvard University

Introduction:

Recognition was performed in three conditions: (1) explicit recall of word meanings, (2) repetition of neutral words, and (3) repetition of words with learned associations. In the repetition task, participants saw the words and repeated them aloud. In the explicit task, participants saw the words and were asked to recall their meanings. In the repetition task, participants saw the words and repeated them aloud. In the explicit task, participants saw the words and were asked to recall their meanings. In the repetition task, participants saw the words and repeated them aloud. In the explicit task, participants saw the words and were asked to recall their meanings.

Recognition Results:

- Error rates were significantly higher in the repetition task than in the explicit task.
- The explicit task was more difficult than the repetition task.
- The repetition task was more difficult than the explicit task.

Discussion:

- The findings provide evidence for the role of explicit memory in the recognition of word meanings.
- The findings suggest that the repetition task is a better measure of implicit memory than the explicit task.
- The findings support the hypothesis that implicit memory is more robust than explicit memory.
Know & Don't Know: Event-related fMRI Evidence of Dissociable Temporal and Frontal Lobe Activity Associated with Recognition Memory Response Type


WPI
Load Effects
and SPM.

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Introduction

Self-control, allocation of attentional resources and goal-task representations.

Detection of processing conflicts between 400 and 500 ms, referred to as the N400.

Increased amplitude N400 in conflict detection.

EEG: Allocation techniques indicate the neural generation of the N400.