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#### **Authors**

White, Holly A.  
Shah, Priti

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# Training Task-Switching Skill in Adults with Attention-Deficit/Hyperactivity Disorder

**Holly A. White (hawwhite@memphis.edu)**

Department of Psychology  
University of Memphis  
Memphis, Tennessee 38152-3230

**Priti Shah (priti@umich.edu)**

Department of Psychology  
525 East University  
University of Michigan  
Ann Arbor, MI 48109-1109

## Background

Task switching involves rapidly switching back and forth between multiple tasks and is part of an executive control system (e.g., Rogers & Monsell, 1995). Using a variable training approach, we found training on attention switching tasks and transfer of training to related tasks. These findings have potential for those with impairments of executive function, such as older adults or people with Attention Deficit Hyperactivity Disorder (ADHD). Kramer, Hahn, and Gopher (1999) trained younger and older adults on a task of attention switching. Results showed that age-related switch costs evident early in practice disappeared after training.

Cepeda, Cepeda, and Kramer (2000) studied task switching with ADHD and non-ADHD children and found that non-medicated ADHD children showed larger switch costs compared to non-ADHD children. Dowsett and Livesey (2000) trained children on several tasks of executive control and found that a variable training procedure resulted in improvement of generalized response capabilities, such as inhibitory control. The present study applied the variable training procedure to adults with characteristics of ADHD and demonstrated that training effects are not limited to task-specific strategies.

## Methods

Undergraduate students from the University of Memphis were recruited to participate in the study on the basis of their responses to a questionnaire used to assess adult ADHD. Participants were divided into ADHD and non-ADHD groups and assigned to either the training or control condition. The training condition included a pretest, six training blocks, and a posttest. The control condition included a pretest, six filler blocks (non-executive control tasks), and a posttest. The training tasks were variants of the number-letter task used by Rogers and Monsell (1995).

## Results and Discussion

The ADHD and non-ADHD groups showed training effects greater than the control groups. Additionally, training effects transferred to related tasks of attention switching. These results may have implications for efforts directed at cognitive rehabilitation of ADHD individuals. In future research, we would like to examine the mechanisms underlying training, perhaps using neuroimaging. Such research may help to determine whether subjects are using compensatory strategies or actually improving some underlying attentional process. Future research will also be directed at examining the scope of training. Specifically, how much transfer occurs for less related tasks (e.g., WCST)? How long do the effects of training last, and will children show training comparable to that seen in adults? Perhaps training, in the form of cognitive rehabilitation, will be helpful in place of, or in combination with, the stimulant medications traditionally used to treat ADHD.

## References

- Cepeda, N.J., Cepeda, M.L., & Kramer, A.F. (2000). Task switching and attention deficit hyperactivity disorder. *Journal of Abnormal Child Psychology*, 28, 213-226.
- Dowsett, S.M., & Livesey, D.J. (2000). The development of inhibitory control in preschool children: Effects of "executive skills" training. *Developmental Psychobiology*, 36, 161-174.
- Kramer, A.F., Hahn, S., & Gopher, D. (1999). Task coordination and aging: Explorations of executive control processes in the task switching paradigm. *Acta Psychologica*, 101, 339-378.
- Rogers, R.D., & Monsell, S. (1995). Costs of a predictable switch between simple cognitive tasks. *Journal of Experimental Psychology: General*, 124, 207-231.