

## **Effects of combined pharmacological and academic intervention on children with ADHD plus comorbid dyslexia**

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Attention-Deficit/Hyperactivity Disorder and Dyslexia (ADHD+RD) are both prevalent childhood problems, that frequently co-occur in the same child and persist into adolescence and adulthood, with poor outcomes. However, there is no robust evidence to date of an effective intervention approach to ameliorate both the behavioural and reading problems. Here, I present findings from our randomized controlled clinical trial of combined academic and pharmacological intervention, involving 65 children, aged 7 to 12 years of age, with confirmed diagnosis of ADHD+RD. Children were randomly assigned to receive one of three academic remedial treatment programs in combination with either stimulant medication (MED) or placebo (PL). Two programs focused specifically on reading remediation but differed in approach (PHAB, direct instruction in phonological analysis and blending; and WIST, word identification and strategy training). The third (CSS), focused on specific skills in the classroom, such as time, organization, planning, and the language of instruction. Each program provided 35 hours of instruction across a 10-week period (1 hr/day, four days/week); children were taught in small groups of three (matched for age and word identification skill) by an experienced certified teacher in a dedicated classroom in a public school in Toronto. Findings suggest that this combined treatment approach (reading instruction + stimulant medication) may be an effective approach for improving both the behavioral and reading problems in children with ADHD+RD. Both reading programs improved single word reading and phonological processing abilities as measured by standardized tests, with evidence of generalization of effects. As expected, stimulant medication improved behavioral symptoms of ADHD (as reported by teachers) but had no overall effect on phonological processing. However, evidence that the combination of direct phonological instruction plus stimulant medication produced the greatest gains in reading, suggests that stimulant medication may potentiate effects focused academic instruction. Also, combined treatment with stimulant medication and intense instruction in time concepts, organization and planning skills, enhanced children's performance on a standardized test of arithmetic computation. This study represents the first controlled, randomized treatment outcome study designed to address the cognitive deficits presumed to underlie comorbid ADHD+RD.