

# Research Briefs

## Understanding Scientific Literature

by Sam Goldstein, Ph.D., and George DuPaul, Ph.D.



**Conference Note**  
**Sam Goldstein**  
will speak about negotiating the maze of information about AD/HD and the diagnosis and treatment of AD/HD in adults during CHADD's Annual Conference in Nashville, Tenn., October 28–30, 2004. He will also facilitate the Research Poster Session.

**U**NDERSTANDING and interpreting scientific literature is a complex process that can challenge the everyday person as well as experienced researchers. This month's issue of *Attention!*<sup>®</sup> introduces a new department, entitled Research Briefs.

Each month our editorial staff, with the assistance of CHADD's Professional Advisory Board, will review recently published, peer-reviewed research on attention-deficit/hyperactivity disorder (AD/HD) and summarize approximately a half dozen important studies. The term "peer review" refers to the process by which studies are accepted and published in scientific journals. These studies are reviewed by professional experts and refined until they meet the scientific standard required for publication. This column is intended for parents and professional readers and provides a brief introduction to understanding and interpreting scientific research.

Scientific research in the areas of child psychology and mental disorders has grown tremendously over the past several decades. Literally thousands of articles were published on AD/HD between 1974 and 1994. Since that time, the monthly rate of articles published on the subject of AD/HD has continued to increase at near light speed.

Numerous newsletters and an entire peer-reviewed journal, *The Journal of Attention Disorders*, are devoted specifically to AD/HD. Although researchers and clinicians—such as psychiatrists, psychologists and social workers—read the articles in these publications, the studies are often unavailable to parents and teachers. Furthermore, research articles are written for a scientific audience and are frequently difficult to translate into everyday language.

To assist parents, teachers and other interested readers in understanding the research that will be reviewed in this new column, we offer several guidelines:

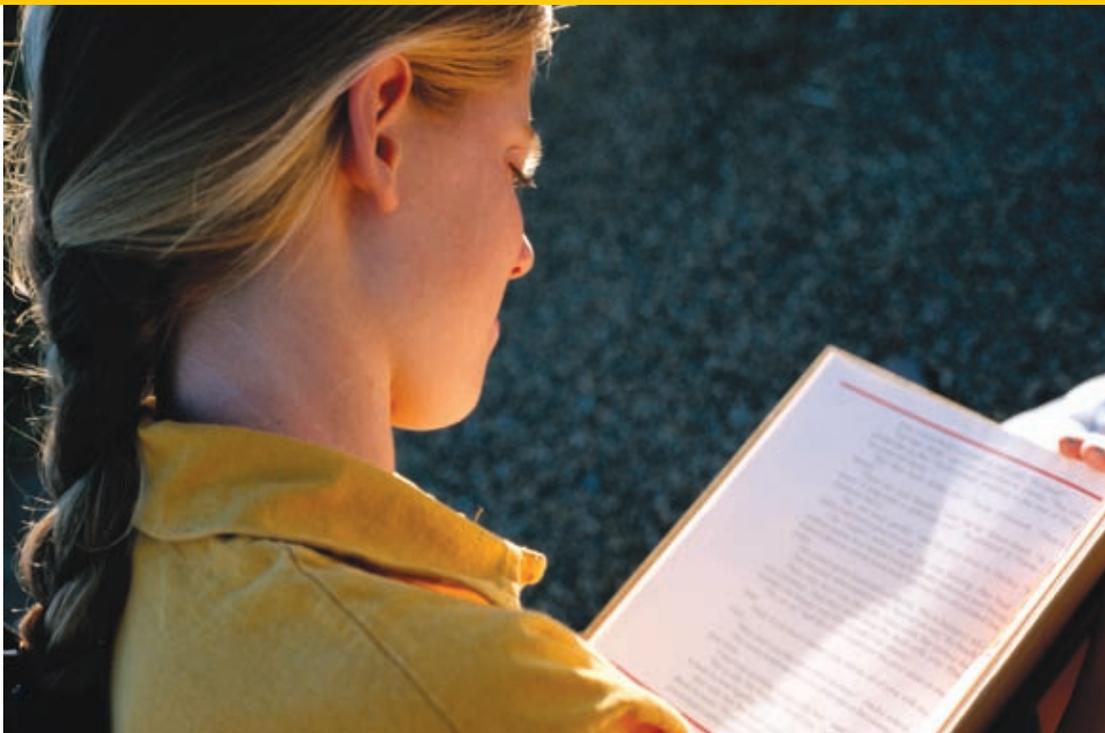
**1. Don't rely on media or Internet accounts of research studies.** Media reports of scientific research from the popular press to the Internet can present a distorted and incomplete picture of investigation results. The media often select the most sensational findings regardless of scientific merit. Further, the results of individual studies typically are publicized as

conclusive without considering appropriate limitations in how participants are selected, the methodology used and the way the data are analyzed. As a result, consumers often only receive a partial picture of the research literature, which frequently leads to incorrect beliefs and, in some cases, misguided practices.

For example, one recent study popularized in the media suggested that young children exposed to television were more likely to develop AD/HD. Yet the study did not test for AD/HD. Rather, it asked parents specific questions about certain kinds of attentional skills in their children. Consequently, results of this study may or may not suggest that "attention problems" identified in this study increase the possibility of developing AD/HD because of television viewing. Yet many media outlets led the article with misleading headlines such as "Young Children Who Watch Television Develop AD/HD." [An in-depth analysis of the *Pediatrics* article can be found in the June issue of *Attention!*<sup>®</sup>.]

**2. Consider the source.** Professional journals vary considerably in terms of quality, scientific standards and the type of peer review. Although it may be difficult for non-professional readers to evaluate the quality of a journal, at the very minimum articles must undergo peer review. As noted earlier, this is a process whereby other scientists evaluate the quality of an article prior to publication. In most cases, this is done in a blind fashion, meaning reviewers are not told who the article authors are to avoid any potential bias in publication decisions. As a result, most high quality journals reject many more manuscripts than they accept. This helps to ensure that only the very best research actually gets published. Further, many public speakers may refer to the results of their own or others' "informal" studies. But as, Russell Barkley, Ph.D., an authority in the AD/HD scientific community, points out, "If it hasn't been published, it hasn't been done."

**3. Don't put too much stock in the results of a single study.** All research studies have limitations. It is impossible to conduct the "perfect study." As a result, firm conclusions are best reached by examining



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the results of many investigations rather than any single experiment. If the same results are found across several studies, more confident conclusions can be reached. On the other hand, if results vary across experiments, further study is necessary.

**4. If possible, evaluate how participants were identified.** Most readers assume that once selected groups are given a label (for example, AD/HD), they are somehow equal in comparison. In the field of AD/HD this has been a particular problem. The criteria used to diagnose AD/HD have changed significantly over the past 30 years. As a result, comparing research articles published from one decade to the next is nearly impossible. Some studies identify individuals with AD/HD solely on the basis of a diagnosis provided by a practicing clinician. Others use a combination of relatively objective measures such as rating scales and structured diagnostic interviews. The differences in how individuals with AD/HD have been identified can lead to dramatically different results across different studies.

**5. Take three.** Although the details of scientific studies may be difficult to recall over time, focusing on major conclusions and/or questions may help you

remember the most important messages from the research. Always attempt to take away three ideas, conclusions or questions or a combination of all three from each research article you read or review.

Given the large number of research studies in the field of AD/HD, health professionals, parents, teachers and other readers can feel overwhelmed when trying to make some sense of the literature. In future issues, our Research Briefs column will help readers understand important conclusions from recently published studies. In reading these research briefs and other accounts of scientific investigations, we hope that readers will follow these guidelines and develop skills to distinguish helpful research information from that which has limited value. It is our intent that readers become informed consumers, willing and able to ask important questions and critically examine the answers provided. ■

Sam Goldstein, Ph.D., is on the faculty at the University of Utah. He is former chair of CHADD's Professional Advisory Board and sits on the Editorial Advisory Board for *Attention!*® magazine.

George DuPaul, Ph.D., coordinates the School Psychology training program at Lehigh University. He is a member of CHADD's Professional Advisory Board and sits on the Editorial Advisory Board of *Attention!*® magazine.