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Stephen V. Faraone and Kevin M. Antshel
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George J. DuPaul, Matthew J. Gormley, and Seth D. Laracy
- Children with attention-deficit/hyperactivity disorder (ADHD) experience significant difficulties with behavior, social functioning, and academic performance in elementary school classrooms. Although psychotropic medication may enhance classroom behavior, pharmacologic treatment is rarely sufficient in addressing the many challenges encountered by individuals with ADHD in school settings. This article describes 3 evidence-based strategies including behavioral, academic, and self-regulation interventions. Future directions for research on school-based interventions are discussed.
- Middle School-based and High School-based Interventions for Adolescents with ADHD** 699
Steven W. Evans, Joshua M. Langberg, Theresa Egan, and Stephen J. Molitor
- The development and evaluation of psychosocial treatments for adolescents with attention-deficit/hyperactivity disorder has lagged behind the treatment development work conducted with children with the disorder. Two middle school-based and high school-based treatment programs have the most empirical work indicating beneficial effects. Treatment development research addressing many of the basic questions related to mediators, moderators, and sequencing of treatments is needed. Implications for future treatment development research are reviewed, including the potential benefits of combining treatments of a variety of modalities to address the large gaps in the literature.
- Interventions with Families**
- Behavior Management for Preschool-Aged Children** 717
Amanda P. Williford and Terri L. Shelton
- This article summarizes behavior management strategies for preschool children who are at high risk for attention-deficit/hyperactivity disorder that have found to be effective in improving child behavior. Both parent and teacher training programs are reviewed, as these have been backed by substantial research evidence. In addition, multimodal treatments that include some combination of parent training, teacher training, and social skills training are also reviewed. Interventions emphasize the need for a strong adult-child relationship combined with proactive behavior management strategies to improve child behavior.

Behavior Management for School-Aged Children with ADHD

731

Linda J. Pfiffner and Lauren M. Haack

Behavior management treatments are the most commonly used nonpharmacologic approaches for treating attention-deficit/hyperactivity disorder (ADHD) and associated impairments. This review focuses on behavioral parent training interventions for school-age children in the home setting and adjunctive treatments developed to extend effects across settings. Empirical support includes numerous randomized clinical trials, systematic reviews, and meta-analyses showing positive effects of these interventions on child compliance, ADHD symptoms and impairments, parent-child interactions, parenting and parenting stress. These studies support categorization of behavior management treatment as a well-established, evidence-based treatment of ADHD. Factors for consideration in clinical decision making and directions for research are provided.

Family Therapy for Adolescents with ADHD

747

Arthur L. Robin

Adolescents with attention deficit hyperactivity disorder (ADHD) and their parents experience a great deal of conflict and coercion because the executive function deficits of ADHD interact with the parents' characteristics, family stress, and parenting practices. This article provides a step-by-step description of the defiant teen approach to family therapy, which is designed to help adolescents with ADHD and their parents reduce conflict and coercion. The article also summarizes 2 studies supporting the effectiveness of the defiant teen approach.

Interventions with Patients**Summer Treatment Programs for Youth with ADHD**

757

Gregory A. Fabiano, Nicole K. Schatz, and William E. Pelham Jr

Children with attention-deficit/hyperactivity disorder (ADHD) require intensive treatments to remediate functional impairments and promote the development of adaptive skills. The summer treatment program (STP) is an exemplar of intensive treatment of ADHD. STP intervention components include a reward and response-cost point system, time-out, use of antecedent control (clear commands, establishment of rules and routines), and liberal praise and rewards for appropriate behavior. Parents also participate in parent management training programming to learn how to implement similar procedures within the home setting. There is strong evidence supporting the efficacy of the STP as an intervention for ADHD.

Social Skills Training

775

Amori Yee Mikami, Mary Jia, and Jennifer Jiwon Na

Children with attention-deficit/hyperactivity disorder (ADHD) have prominent social impairment, which is commonly manifested in unskilled behaviors in social situations and difficulties in being accepted and befriended by peers. This social impairment often remains after administration of medication and behavioral contingency management treatments

that address the core symptoms of ADHD. This article reviews traditional social skills training (SST) approaches to remediating social impairment, and presents the evidence for their efficacy and significant limitations to their efficacy. The article introduces potential reasons why the efficacy of traditional SST may be limited, and concludes with some promising alternative SST approaches.

Neurofeedback for ADHD: A Review of Current Evidence

789

Martin Holtmann, Edmund Sonuga-Barke, Samuele Cortese, and Daniel Brandeis

Considerable scientific effort has been directed at developing effective treatments for attention-deficit/hyperactivity disorder (ADHD). Among alternative treatment approaches, neurofeedback has gained some promising empirical support in recent years from controlled studies as a treatment of core ADHD symptoms. However, a recent stringent meta-analysis of 8 randomized controlled trials published in 2013 found that the effects were stronger for unblinded measures and 3 recent subsequently published well-controlled trials found no effects for the most blinded ADHD outcome. Firmer conclusions must await upcoming evidence from larger controlled studies and future meta-analyses contrasting different forms of neurofeedback and different outcome measures.

Computer-based Cognitive Training for ADHD: A Review of Current Evidence

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Edmund Sonuga-Barke, Daniel Brandeis, Martin Holtmann, and Samuele Cortese

There has been an increasing interest in and the use of computer-based cognitive training as a treatment of attention-deficit/hyperactivity disorder (ADHD). The authors' review of current evidence, based partly on a stringent meta-analysis of 6 randomized controlled trials (RCTs) published in 2013, and an overview of 8 recently published RCTs highlights the inconsistency of findings between trials and across blinded and nonblinded ADHD measures within trials. Based on this, they conclude that more evidence from well-blinded studies is required before cognitive training can be supported as a frontline treatment of core ADHD symptoms.

Cognitive Behavioral Therapy for Adolescents with ADHD

825

Kevin M. Antshel and Amy K. Olszewski

Attention deficit/hyperactivity disorder (ADHD) often persists into adolescence and has the same functional impairments as were present during childhood. Medications lessen ADHD symptoms yet do not reliably affect functioning. Thus, there exists a great need for psychosocial treatments in adolescents with ADHD. Nonetheless, relative to the vast literature that has been reported on children with ADHD, much less data have been reported about psychosocial interventions for adolescents with ADHD. Cognitive behavioral therapy interventions that are being used with adolescents rely more on traditional behavioral principles than cognitive therapy tenets.

Neuropsychologically Informed Strategic Psychotherapy in Teenagers and Adults with ADHD 843

Larry J. Seidman

Stimulants are the primary treatment for ADHD. Psychotherapy may augment pharmacologic treatment. In this article, we discuss strategies psychotherapists may use in working with teenagers and adults, including individuals who reject medications or take them suboptimally. Individuals with ADHD often have other psychiatric issues, including affective or cognitive comorbidities. Having ADHD does not protect people from the difficulties of life, and psychotherapy can help to disentangle “ADHD” from other issues. A psychotherapist knowledgeable about ADHD assessment can improve diagnostic precision. Psychotherapy can integrate forms of treatment in which the central goal is increasing mastery and competence of the individual.

Traditional Chinese Medicine in the Treatment of ADHD: A Review 853

Xinqiang Ni, Yanli Zhang-James, Xinmin Han, Shuang Lei, Jichao Sun, and Rongyi Zhou

This review covers an introduction of traditional Chinese medicine (TCM) in treating attention-deficit/hyperactivity disorder (ADHD), focusing on the traditional theoretic basis from the perspective of TCM regarding ADHD’s cause, pathogenesis, methods of syndrome differentiation, and rationale for treatment. The authors present commonly accepted and successfully practiced clinical procedures used in China for diagnosis and treatment of ADHD by TCM clinicians along with the supportive clinical evidence. The authors hope to inspire more research to better understand the mechanisms underlying the therapies and to promote appropriate incorporation of TCM therapies with Western pharmacologic treatment to better help patients with ADHD.

Diet and Lifestyle Interventions

Nutritional Supplements for the Treatment of ADHD 883

Michael H. Bloch and Jilian Mulqueen

Polyunsaturated fatty acid supplementation appears to have modest benefit for improving ADHD symptoms. Melatonin appears to be effective in treating chronic insomnia in children with ADHD but appears to have minimal effects in reducing core ADHD symptoms. Many other natural supplements are widely used in the United States despite minimal evidence of efficacy and possible side effects. This review synthesizes and evaluates the scientific evidence regarding the potential efficacy and side effects of natural supplements and herbal remedies for ADHD. We provide clinicians with recommendations regarding their potential use and role in overall ADHD treatment.

Healthy Body, Healthy Mind?: The Effectiveness of Physical Activity to Treat ADHD in Children 899

Jeffrey M. Halperin, Olga G. Berwid, and Sarah O’Neill

Data from animal studies provide convincing evidence that physical exercise enhances brain development and neurobehavioral functioning

in areas believed to be impaired in children with attention-deficit/hyperactivity disorder (ADHD). To a lesser but still compelling extent, results from studies in typically developing children and adults indicate beneficial effects of exercise on many of the neurocognitive functions that have been shown to be impaired in children with ADHD. Together, these data provide a strong rationale for why a program of structured physical exercise might serve as an effective intervention for children with ADHD.

Restriction and Elimination Diets in ADHD Treatment

937

Joel T. Nigg and Kathleen Holton

Food elimination diets are defined and the history of their investigation in relation to attention-deficit/hyperactivity disorder (ADHD) is reviewed. After noting that a consensus has emerged that an elimination diet produces a small but reliable aggregate effect, the present review provides updated quantitative estimates of effect size and clinical response rates to elimination diets. It then highlights key issues that require research attention, in particular characterization of dietary responders. Finally, because some children may benefit, clinical guidelines at the present state of knowledge are summarized. It is concluded that updated trials of elimination diets are sorely needed for ADHD.

An Integrated Dietary/Nutritional Approach to ADHD

955

Elizabeth A. Hurt and L. Eugene Arnold

Dietary and herbal interventions for attention-deficit/hyperactivity disorder (ADHD) have been proposed by practitioners of Western medicine and traditional Chinese medicine. Children who are suspected to have nutritional deficiencies, insufficiencies, and/or food allergies should be evaluated and, if the suspicion is confirmed, treated with supplementation or specific food elimination as part of standard care. Limited research exists on the efficacy and safety of dietary intervention as an adjunct to conventional medication; thus, improvement and side effects should be closely monitored.

Interpreting Evidence Base for ADHD Therapies

Towards an Evidence-based Taxonomy of Nonpharmacologic Treatments for ADHD

965

Stephen V. Faraone and Kevin M. Antshel

We have created an evidence-based guide for clinicians to the relative utility of nonpharmacologic treatments for attention-deficit/hyperactivity disorder (ADHD). This article uses the term evidence-based in the sense applied by the Oxford Center for Evidenced-Based Medicine to help readers understand the degree to which nonpharmacologic treatments are supported by the scientific literature. This article also reviews the magnitude of the treatment effect expressed as the standardized mean difference effect size (also known as Cohen D). It then describes a meta-algorithm to describe how to integrate pharmacologic and non-pharmacologic treatments for ADHD.