Stonebriar Psychiatric Services News & Views

Helping Your Child with ADHD

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Helping Your Child with ADHD

I recently came across a review done by Dr. David Rabiner, PhD, of Duke University regarding a program in which parents may be able to help their preschool youngsters who have ADHD, although many of the concepts should also be applicable to older children as well. I am reproducing much of this review with his permission. Dr. Rabiner stated, and I quote:

As knowledge of the underlying neural and neurocognitive contributors to ADHD has grown, and knowledge that brain development is highly responsive to environmental influences has accumulated, a compelling theoretical framework for the development of more enduring ADHD interventions has emerged. Specifically, it has been hypothesized that particular kinds of experience can ameliorate - or at least diminish - some of the underlying neural factors that contribute to the development and expression of ADHD.

In fact, this possibility has already been demonstrated in several studies. For example, work in the neurofeedback domain has demonstrated changes in neural activity in individuals with ADHD following treatment. Similarly, significant changes in neural activity have been shown to occur in individuals following working memory training.

Neurofeedback, working memory training, and other forms of computerized cognitive training are distinctly different activities from typical daily experience and are not particularly social in nature. However, it may also be possible to provide children with environmental stimulation that can enhance neural and cognitive functioning within the context of the parent-child relationship. And, because such activities can be inherently enjoyable, and promote positive relations between parents and children, they may be sustained over time and thus provide children with ongoing experience that can enhance their neural functioning. In theory, such an intervention could produce enduring treatment gains in children with ADHD, particularly if introduced when children are young and neuroplasticity may be greatest.

This was the premise underlying an extremely interesting and important study recently published online in the *Journal of Attention Disorders* [Halperin et al., (2012). Training executive attention and motor skills: A proof-of-concept study in preschool children with ADHD. *Journal of Attention Disorders*, published online March 5, 2012. DOI: 10.1177/1087054711435681.]. To be candid, I found this to be one of the most interesting studies I have read during the past 10 years.

Participants were 29 four- and five-year old ethnically diverse children diagnosed with ADHD and their parents. Children and parents participated in a novel intervention called TEAMS - Training Executive, Attention, and Motor Skills. As discussed below, TEAMS was designed to "...apply frequent and enduring positive environmental stimulation to underlying neurodevelopmental processes in children with ADHD." Specifically, parents learned to engage in specific game-like activities with their child that placed increasingly challenging

demands on a variety of neurocognitive and motor skills. The theory behind TEAMS was that this would promote underlying changes in neural functioning that would lead to enduring improvements in ADHD symptoms.

The authors describe this as a 'proof of concept' study. Thus the goals were to learn whether parents would have positive feelings about the treatment experience, whether they would engage regularly with their child in the prescribed activities, and whether there was any preliminary evidence of positive effects. As such, there was no control group and no randomization to condition. Thus, even though favorable results were found, this was a preliminary study that could not establish the efficacy of the new treatment.

TEAMS Intervention Specifics

The TEAMS intervention was conducted in a 90-minute group format (between 5 and 10 group meetings were held) that included 3-5 families per group. In each group, children and parents were introduced to a predetermined set of games chosen to target an array of neurocognitive skills. For example, to target inhibitory control, i.e., the ability to refrain from responding impulsively, games would include variations of "Simon Says" and 'freeze dance'. To develop working memory skills, games would include things like remembering shopping lists or the locations of 'hidden treasures' under cups. Other targeted cognitive skills were visual-spatial abilities, planning and organization, and sustained attention. Games to develop motor skills were also included as was an aerobic exercise component.

Between group meetings, parents were instructed to spend 30-45 minutes each day playing these games with their child. The goal was to provide sufficient stimulation of the underlying neural processes targeted by the games so that these processes were repeatedly exercised and strengthened.

A focus in group meetings was working with parents to identify and overcome difficulties they had experienced consistently implementing the games with their child during the prior week. Parents also learned new games, discussed the cognitive skills being targeted, and were taught how to gradually increase the difficulty level so that children's cognitive skills were continually challenged. The importance of regular aerobic exercise was also stressed as there is emerging evidence that this can improve cognitive functioning.

Measures

To assess the impact of the TEAMS program, ratings of core ADHD symptoms and of children's impairment from symptoms were collected from parents and teachers. Ratings were obtained before treatment began, immediately after the groups ended, and at a 1- and 3-month follow-up. These latter measurement points enabled the researchers to learn whether any gains that were initially evident endured.

In addition, parents completed ratings of how often they engaged in the prescribed games each week and how long they engaged in these games with their child.

Results

Parental acceptance - Only one of the 29 families withdrew during the active treatment phase and this was because of transportation issues. Overall, parents attended 93% of scheduled sessions and nearly 70% attended all sessions. Satisfaction with the intervention was rated very highly.

Engagement in TEAMS activities - For TEAMS to be effective, children must engage in the prescribed games with considerable frequency. Throughout the intervention period, parents indicated that they engaged in the games nearly every day for an average of 35 minutes. One month after treatment ended they were still playing the games nearly 3 times a week for 30 minutes. At the 3-month followup, this had declined to an average of 20 minutes/day two days per week. Thus, despite the drop-off from the active treatment period, parents and children continued to regularly engage in the games for at least 3 months after treatment ended.

Ages Served

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Children ages 10 & up

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ADHD symptom severity - Significant reductions in parent and teacher ratings of ADHD symptoms were evident from pre- to post-treatment. Furthermore, these reductions remained evident at the 1- and 3-month followups. Equivalent reductions were found for inattentive and hyperactive-impulsive symptoms. The magnitude of the reductions were in a range that would be considered large for parents and moderate for teachers.

Impairment from symptoms - Ratings of impairment from symptoms declined significantly for both parents and teachers. Interestingly, these declines were not significant immediately following treatment, but became evident at the 1-month follow-up for parents and at the 3-month follow-up for teachers. The magnitude of the decline was in a range that would be considered moderate.

Summary and Implications

The premise of TEAMS is that consistently engaging children with ADHD in activities that challenge and exercise particular neurocognitive functions can strengthen the underlying neural activity that support these functions and thereby diminish ADHD symptoms. This premise is consistent with the rationale underlying neurofeedback treatment, working memory training, and other approaches to computerized cognitive training. What is unique about the TEAMS approach, however, is the idea that ***such stimulation can occur in the context of game like activities between parents and children that are inherently enjoyable and that also promote positive parent-child interactions.***

In my view, this is a very exciting study and the kind of work the field really needs. For years, evidence that ADHD is strongly influenced by genetic factors may have undermined efforts to examine whether experiential factors - particularly the ways that parents interact with their child - could play an important role in addressing core ADHD symptoms. What these researchers have suggested, and provided preliminary evidence of, is that this may be possible.

Note that their approach is very different from using behavioral principles to manage ADHD symptoms and encourage desired behavior. While behavioral management approaches are important and helpful, the focus is on symptom management and not on changing children's underlying capacities. Here, in contrast, the idea is that parents can provide ongoing opportunities to help children exercise neurocognitive functions that can lead to enduring benefits.

Also note that the TEAMS approach in no way implies that parents are somehow responsible for their child's development of ADHD. Instead, TEAMS strives to teach parents how to provide children with experiences that may lead to enduring reductions in ADHD symptoms over time. While I found this to be an exciting study, it is important to emphasize that this is only an initial 'proof of concept' of the approach. As the authors note, the absence of any control group makes it impossible to determine why children seemed to improve. Although the theory underlying TEAMS is that the children's ongoing involvement in the prescribed games and exercise program alters their underlying neural functioning, no such assessments were conducted. The sample size was also relatively small.

For further information regarding this study, you may contact Dr. Halperin at teams@qc.cuny.edu.

In my opinion this study suggests that we would all be better off spending direct, interactive time with our children and loved ones – ADHD or not - than watching as much TV or playing video games as frequently as we tend to do.

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