



Yoga Therapy and Children with ADHD

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Introduction

Yoga has been found to reduce or alleviate painful symptoms in people with chronic back pain (Elesvier, 2006; Williams, et al., 2007), migraines (John, et al., 2007) and asthma (Murthy, et al, 2001). Yoga designed specifically for children has become increasingly popular in communities and schools. While there is little research to prove the benefits of yoga for children, anecdotally, yoga has been perceived to improve children's attention, relationships with parent/guardians, listening skills and peer interactions. Generally, children with ADHD have been found to have difficulty with these skills. The author was interested to determine whether the literature on benefits of yoga for children with ADHD supported her impressions.

Clinical Question: Can yoga therapy and/or meditation techniques increase the attention span and focus of children with ADHD?

The literature reviewed

The literature search was conducted in the Fall 2010 with a variety of data bases, including PsychInfo, PubMed and Cinahl and search terms including "yoga", "children", "ADHD", "meditation", and "mindfulness". Articles were retained if they described original quantitative research and were published in peer-reviewed journals. The intent was to select the three articles with highest level of evidence for this factsheet however, only three articles were found on this topic thus all three were reviewed.

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Factsheet Key points:

- There is a positive trend towards yoga therapy and meditation as an alternative treatment for children with ADHD
- Further studies should be conducted to confirm this experimentally. Single-case designs could be useful

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needs and their families.*

Article 1 — Jensen, P.S., & Kenny, D. T. (2004). The effects of yoga on the attention and behavior of boys with Attention-deficit/hyperactivity Disorder (ADHD). *Journal of Attention Disorders*, 7 (4), 206-216.

This before and after study design evaluated the use of yoga as a complementary treatment to medication in reducing the behavioral and attention deficit symptoms (i.e. inattentiveness, hyperactivity and impulsiveness) of ADHD in boys, ages 8-13. Boys diagnosed with ADHD were randomly assigned to a 20-session yoga group (n=11) or a control group (cooperative activities, n=8) and were assessed pre- and post-intervention on the Conners' Parent and Teacher Rating Scales-Revised (CPRS-R), the Test of Variables of Attention (TOVA) and the Motion Logger Actigraph. These scales were filled out by parents and teachers (not the same teacher each time) at home and at school. The yoga treatment was provided by a yoga instructor for one-hour a week, for twenty weeks and consisted of respiratory, postural, relaxation and concentration training exercises.

The study found that despite randomization, there were significant differences between the control and yoga groups based on pretest scores for the Conners' Rating Scales rated by both parents and teachers. The TOVA had no significant effects for either yoga or control group. The actigraph monitors many technical problems leading to incomplete data set being collected. Thus they were deemed unreliable.

The study results should be interpreted with great caution as the study had many flaws. The sample size was likely too small to find statistically significance differences between groups if they were truly important. There was cross-contamination between the intervention and control group. Parents were not blinded to the study purpose or group assignment which may have influence their ratings of their child if they expected benefits from the study. The study may have had greater value as a single-case multiple baseline design.

Article 2 — Harrison, L., Manocha R., & Rubia, K. (2004). Sahaja Yoga Meditation as a family treatment programme for children with Attention deficit-hyperactivity disorder. *Clinical Child Psychology and Psychiatry*, 9(4), 479-497.

The purpose of this before and after study was to determine the benefit of Sahaja Yoga Meditation (SYM) on improving stability of attention and concentration, motor activity, problems of inhibition, easily frustrated mood, poor self-esteem and difficulties at school of children with ADHD. SYM therapy was expected to be in addition to the child's already occurring medical therapy, and would provide a way of working with the whole family, not just the child. Forty-eight children (41 boys, 7 girls) met the criteria for inclusion in the study (i.e., DSM-IV diagnosis of ADHD and a score of 15 or higher on the Conners Parent-Teacher Questionnaire). Thirty-one children were receiving medication (such as Ritalin or dexamphetamine), 14 were not medicated and medical information was not given for 3 of the children. Over a 6 week period, SYM techniques were taught to children and adults twice weekly for 90 minutes. For the first 3 weeks, the parents and children were in separate groups. For the last three weeks, one of the weekly meditation sessions was conducted jointly with parents and children, enabling the instructors to train parents in guiding their own child's meditation.

The study found that participants who showed a marked improvement in ADHD symptoms as measured by the Conners' Parent Teacher Questionnaire. Post-treatment scores showed that SYM was associated with significant improvements in all of the parent-rated measures. 92% of parents agreed that the program had been personally beneficial, related to less stress, increase happiness, and increased ability to manage anger.

However these results should be interpreted with caution as the study had a quasi-experimental (i.e., no multiple baseline or control group) design. In addition, the high drop out rates were problematic in terms of data analysis and brings to question the feasibility of this model of intervention. improvement in behavior may have been due to medication the children were receiving, rather than the SYM program or from parents seeing the change they were expecting.

Article 3 — Peck, H., Kehle, T., Bray, B., & Theodore, L. (2005). Yoga as an intervention for children with attention problems. *School Psychology Review*, 34 (3), 415-424.

The purpose of this single case design study was to examine the effectiveness of yoga on improving attention in elementary school children with attention problems. Participants were ten students, aged 6-10 years, with attention problems but without a diagnosis of ADHD. The children all had documented attention problems in the classroom as evidenced by less than 80% time-on-task during two structured observations by the school psychologist. The control group was matched on characteristics (i.e., gender, classroom attendance and demographics). The *Yoga Fitness for Kids* commercial videotape was shown to the students for 30 minutes, twice a week, for a period of 3 weeks. Children were divided by grade level to view different versions of the video. The videotapes instructed the students to engage in deep breathing, physical postures and relaxation exercises. The design included baseline, intervention and follow-up phases, using Behavioral Intervention Form, Social Validity Scale, Bush and Serline's Approach One: No Assumptions Method and Treatment Integrity Checklist. The study found that on-task behaviors decreased slightly at follow-up, but generally remained higher than baseline levels. Time-on-task attention levels, as determined by the psychiatrist in the beginning of the study, remained essentially unchanged during the three phases of the study. The results of the study are limited by the small sample size, relatively short treatment (only three weeks), and the variation in activity during in-class observations of the students, effecting the variability of the data.



Take Home Message

Summary

From these studies, there is a positive trend indicating that yoga therapy and meditative techniques may have benefits for children with ADHD as an adjunct to medication. There is also a positive trend for treatment through parent-lead yoga and school-based yoga using a video. However, further studies with experimental design need to be conducted to affirm these trends.

Caveats

It should be noted that the important limitations of these studies brings to question the interpretability of the results. The primary limitations were 1) sample size too small that meaningful statistical analysis could not be conducted (Jensen & Kenny, 2004); 2) quasi-experimental design limiting interpretation of changes to the intervention (Harrison, Manocha & Rubia, 2004); 3) sample/selection biases; and 4) poor psychometric properties of the measurement tools used. Because of these limitations, the studies do not confirm or disprove with certainty the hypotheses that yoga is beneficial to children with ADHD.

Implications for Practice

Practitioners thinking about using yoga and/or meditation therapy for children with ADHD should consider the belief system of the family, as well as the developmental readiness of the child before beginning a program. They should explore the child and parent perspective including what is motivating and feasible for them. Replicating these studies on a larger scale, using a single-case design, is necessary to prove the benefits of yoga for children with ADHD.

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