



Enhancing Attentiveness (Continued)

ADHD

Although drug therapy improves ADHD symptoms in over 75% of the cases, it is not a curative measure, its effects lasting only as long as medication is taken. Another drawback of drug therapy is the occasional side effects such as appetite loss and insomnia (Barkley, McMurray, Edelbrock, et al 1990).

Behavior modification by parents and teachers involves techniques such as adjusting the time, amplitude, and frequency of consequences for the child's actions, rearranging home and classroom settings to facilitate attention, breaking down tasks into smaller sub-tasks that can be completed within the child's attention span, and setting up schedules to aid in the child's organizational problems (DSM-III-R, American Psychiatric Association, 1987). Behavior modification is a way to adjust the surrounding to facilitate the ADHD child's performance. However, as with drug therapies, behavior modification is only effective during the time that the therapy is administered.

Alternative forms of therapy, namely massage therapy and relaxation therapy, were investigated in the present study because they have been effective with other children and adolescents with attention problems. Relaxation therapy (Platania-Solazzo, Field, Blank, Seligman, Kuhn, Schanberg & Saab, 1992) and massage therapy (Field, Morrow, et al., 1992), for example, led to reduced anxiety and activity levels in child and adolescent psychiatric patients. In addition, following massage they had more organized sleep and lower stress hormone (cortisol and norepinephrine) levels. Massage therapy was also noted to decrease

off-task behavior in children with autism, as in the study just presented, (Field, Lasko, et al., 1996). In a similar way massage therapy was expected to lower the level of activity in adolescents with ADHD.

Method

Subjects were 28 adolescents (M age=14.6) recruited from self-contained classrooms for emotionally disturbed adolescents. All subjects were male, most were middle socioeconomic status (90%), and they were distributed 29% non-white Hispanic and 71% white. All subjects were diagnosed with ADHD according to the DSM-III-R criteria. Subjects were randomly assigned to massage therapy or relaxation therapy based on a stratification procedure to ensure equivalence between groups on age, sex, and socioeconomic status. The groups did not differ on these background variables.



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Procedure

Massage therapy. The massage therapy subjects received a 15-minute massage after school for 10 consecutive school days. The massage consisted of moderate pressure and smooth strokes for 5 minutes in each of three regions: up and down the neck, from the neck across the shoulders and back to the neck, and from the neck to the waist and back to the neck along the vertebral column. The 15 minute sequence was composed of 30 back and forth strokes per region, at 10 seconds each.

Relaxation therapy. The relaxation therapy subjects also participated in 15-minute sessions after school for 10 consecutive days. During their progressive muscle relaxation sessions a therapist asked the adolescents to tense and relax the same body parts that were massaged in the massage therapy group.

Assessments.

Pre/post therapy session measures included the Happy Face Scale completed by the adolescent and an assessment of Fidgeting based on a behavioral observation made by an observer who was blind to the child's group assignment. The Happy Face scale is a series of 5 drawings ranging from unhappy to happy faces used as a "barometer" to depict the adolescents' feelings before and after the sessions. Fidgeting was rated on a 3-point scale as one of the most characteristic problems of this group of adolescents.

First day/last day assessments included self-report measures of depression and empathy since depression and antisocial behavior are often comorbid with ADHD (Biederman et al., 1991). The Center for Epidemiology Studies-Depression Scale (CES-D) (Radloff, 1977) was used for the adolescents' self-report on depression. The Empathy Scale (Bryant, 1982) was adapted by one group from the Mehrabian and Epstein (1972) adult empathy scale. It requires the children to answer whether they agree or disagree with each of 22 statements designed to tap empathy, as defined by ability to take another person's perspective. It contains questions such as "It's hard for me to see why someone else gets upset".

Teachers' Assessments included observed time on task in the classroom and the Conners Scale (Conners, 1985) on the first and last days of the study. This is a 10-item scale that identifies behavior problems in children 3 to 17 years old.

Results

Data analyses suggested the following pre-post therapy changes: 1) the massage therapy group selected happier faces after versus before the sessions on both the first and last days of the study; and 2) the massage therapy group was observed to show less fidgeting after versus before the sessions. Data analyses yielded the following first day/last day changes: 1) the massage therapy adolescents averaged more time on task in the classroom as observed by their teachers; 2) the massage therapy group received significantly better scores on the Conners Scale; and 3) no changes were noted on the depression or empathy scales.

Discussion

While drug therapy and behavior modification techniques are commonly employed to treat ADHD, their limited effects led to this investigation of two alternative therapies, relaxation and massage therapy. The positive effects of massage therapy were perhaps not surprising inasmuch as that intervention has helped reduce depression and anxiety levels as well as stress hormones in child and adolescent psychiatry patients (Field, Morrow, et al., 1992) and has enhanced on-task behavior in children with autism (Field, Morrow, et al., 1996). Although the ADHD co-morbid problems of depression and lack of empathy were not altered in this study, the adolescents reported feeling better (happier) after their massage therapy sessions, and they were observed to fidget less. Longer-term effects were reported by their teachers including more time on task in the classroom and lower "hyperactivity" scores on the Teacher's Conners Scale.

Since hyperactivity, not depression, is the salient problem in ADHD, it is interesting that hyperactivity was uniquely reduced in this study. Although the underlying mechanism for the massage therapy/lesser activity relationship is not known, increased serotonin levels noted in other massage studies (Field, Ironson, et al., 1996; Ironson, Field, Scafidi, et al., 1996) might help modulate elevated dopamine levels noted in ADHD youth (Rogeness, Javors & Pliszka, 1992) and lower activity associates with elevated dopamine. Future studies might assay dopamine

levels as well as its known regulators, norepinephrine and serotonin.

Although relaxation therapy has been effective with depressed adolescents (Platania-Solazzo, et al., 1992), no changes were noted following relaxation therapy in the present study. The lack of effects may relate to the adolescents "not enjoying the relaxation therapy", as several of them reported during the course of the study. This more active form of therapy was labeled "hard work" by those who complained.

Although the underlying mechanism for the massage therapy effects on ADHD is not known, that form of therapy could become an important tool in the management of ADHD, in conjunction with currently used therapies. It may, for example, potentiate the positive effects of methylphenidate and other drugs and/or complement the effects of behavior modification. In cases where present therapies are not effective or are accompanied by undesirable side effects, massage therapy could be an effective substitute treatment for children diagnosed with ADHD.

In a more recent study thirteen adolescents with ADHD participated in Tai Chi classes twice a week for 5 weeks. Teachers rated the adolescents' behaviors on the Conners Scale during the baseline period, after the 5 week Tai Chi period and two weeks later. After the 10 Tai Chi sessions the adolescents displayed less anxiety, daydreaming behaviors, inappropriate emotions and hyperactivity and improved conduct. These changes persisted over the two-week follow up (no Tai Chi) period.

Attention Deficit Hyperactivity Disorder Benefits from Tai Chi

Attention Deficit Hyperactivity Disorder (ADHD) is characterized by cognitive and behavioral deficits including inattention, impulsivity and hyperactivity levels (DSM-III-R, American Psychiatric Association, 1987). Although short-term improvements have been reported in academic and social functioning with drug therapy such as methylphenidate or Ritalin (Schachar & Tannock, 1983; Swanson et al, 1995), side-effects such as motor tics, insomnia, headaches, and social

withdrawal make this treatment controversial (Handen, et al., 1991; Parraga & Cochran, 1992).

Non-pharmacological treatments include counseling, parent/family training in behavior modification techniques, relaxation and massage therapy. Counseling treatments have received little empirical attention and reports are mostly anecdotal (Schwiebert, Sealander & Tollerud, 1995). Behavior modification techniques have attempted to facilitate the child's performance and attention by including scheduling changes, rearranging home and classroom settings, and training teachers, parents and siblings in differential reinforcement techniques (Blakemore, Shindler & Conte, 1993). Although some studies have shown that behavioral modification is effective (Damico & Armstrong, 1996), one study showed that ADHD adolescents had a weak behavioral inhibition system (Iaboni, Douglas & Ditto, 1997), which made them poor candidates for behavioral programs. Although relaxation therapy has alleviated depression in adolescents (Platania-Solazzo, et al, 1992), it had limited effects in treating adolescents with ADHD in the study just presented (Field, Quintino & Hernandez-Reif, 1997), perhaps because of the demands that relaxation therapy place on concentration. In contrast, massage therapy, in the same study that increased the time adolescents spent on task, reduced their fidgeting, improved their mood and lowered their hyperactivity (Field, Quintino & Hernandez-Reif, 1997).

To be continued...



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