



TAI CHI CHUAN: EXPLORATORY STUDY

The role of Tai Chi Chuan in reducing state anxiety and enhancing mood of children with special needs

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Abstract This paper reports the findings of a single-case research design which examined the effects of 1-h, twice-weekly Tai Chi Chuan sessions on state anxiety and mood of children with severe learning disabilities. The participants were three upper elementary children (mean age = 13.3 years). The intervention lasted 10 weeks. The State-Trait Anxiety Inventory for Children (STAIC) A-State Scale, a 28-item mood inventory, and Conners' Teacher Rating Scales-39 (CTRS-39), a scale used to assess whether a child has attention deficits and/or hyperactivity, were given at intervals during the pre-treatment baseline (A₁), treatment (B), and post-treatment baseline (A₂). Individual scores were the unit of analysis in this exploratory piece of work. Mean state anxiety and mood scores and the split-middle technique were used to analyze the data. Results suggest that the intervention had the strongest effect on the participant who presented with hyperactivity and heightened anxiety. The findings support the benefits of using a single-case research design with this population.

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Introduction

The study reported here investigated the effects of Tai Chi Chuan (Tai Chi) practice on the state anxiety and mood in a sample of children with severe learning disabilities. Single-case research designs are particularly useful with this population as researchers seek to describe how isolated factors function or are affected by specific interventions while also taking into account individual variation

(e.g. Hyrcenko and Martin, 1996; Mutrie, 1997; Shambrook and Bull, 1996; Tenenbaum and Bar-Eli, 1995). Additionally, little prior work has been carried out with respect to the psychological effects of a movement intervention like Tai Chi on children with special needs. This study was exploratory in nature.

Cue utilization theory (Easterbrook, 1959) has relevance to this study. The primary research question was to determine what will assist the participants to re-focus and redirect behavior in order to ultimately increase self-control. Cue utilization theory links moderate levels of arousal

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to optimal perceptual processing which, in turn, has an effect on behavior. Tests of this theory hold some promise for children with high levels of anxiety/arousal, and those who have particular difficulty with attention and concentration. The few studies that exist with this population of children have demonstrated both the physiological (e.g. increases in dopamine levels) and cognitive benefits of physical activity (Putnam and Copans, 1998).

Relaxation training has shown promise as a non-chemical means of reducing disruptive behavior and increasing adaptive behavior in children with behavior and learning problems (e.g. Brandon et al., 1986; Donney and Poppen, 1989; Porter and Omizo, 1984; Potashkin and Beckles, 1990; Raymer and Poppen, 1985). Martial arts training itself had been shown to instill self-confidence, calmness, concentration and self-control (Glanz, 1994; Trulson, 1986). Hernandez-Reif et al. (2001) uncovered the benefits of Tai Chi in adolescents with attention deficit hyperactivity disorder (ADHD). After a 10-week intervention, results revealed less anxiety, improved conduct, less day-dreaming behaviors, more emotional control, and less hyperactivity. Research has emphasized that the goal of treatment interventions for children with hyperactive tendencies has been to instill a sense of internal control and an awareness that they are capable of changing their behavior without the need for external support (Porter and Omizo, 1984).

Tai Chi consists of bodily postures that when linked together form a slow-moving, choreographed, sequence of movements. In doing Tai Chi, individuals shift their weight from one foot to another while slowing moving their arms. They also turn and rotate their body while maintaining their balance. Voluntary control of one's breathing in Tai Chi practice is similar to other meditative practices. Simpson and Nelson (1974) discovered that self-control and relaxation brought on by regulated breathing can affect attention and motor behavior in young children. Preliminary work with children using Tai Chi as the intervention has already demonstrated that they enjoy and find the activity relaxing (Baron, 1993, 1997, 1998). In his review, Cox (1993) emphasized the promising results already found with children having emotional, physical and cognitive disabilities including those with learning disabilities and behavioral problems. If Tai Chi is arousal-reducing, an extension of this benefit, according to cue utilization theory, would be the attention control that some children with special needs lack.

A major factor associated with learning problems is hyperactivity, and ADHD is receiving much attention in both research and practical domains. It has been thought that children with ADHD lack the ability to control arousal levels demanded by particular situations, exacerbating already present deficits in cognition and behavior (Kendall, 1993). Anxiety (related to arousal) and muscular tension often accompany ADHD, and often intensify the hyperactivity and behavior disorders (Braud et al., 1975) leading one to believe that reducing anxiety and muscular tension through forms of relaxation training would benefit these children.

The most common means of controlling the symptoms of ADHD are pharmacological treatments (e.g. Ritalin). However, besides non-compliance in taking medication, their use is somewhat controversial (Kendall, 1993; Potashkin and Beckles, 1990; Whalen and Henker, 1991). In fact, research has demonstrated that intermediate- to long-term psychostimulant medication may increase anxiety (Vance et al., 1999). Further, Barabasz and Barabasz (1996) reported that Ritalin use did not lead to significant improvements in reading, athletic or game skills, pro-active social skills, or improvement in achievement. Alternative and complementary treatments are needed (Chan, 2002).

In a long-term study, Jensen et al. (1999) uncovered the benefits of a combined, medication management/behavioral treatment group whose participants received lower doses of medication. They concluded that "three fourths of the behavioral treatment group were successfully maintained without medication throughout the study" (p. 1083).

Less invasive cognitive-behavioral treatments (CBT), with their focus on self-regulation, have produced positive results. Both anxiety and hyperactivity have been lowered in children with learning problems (Brandon et al., 1986; Denkowski et al., 1986; Donney and Poppen, 1989; Eason et al., 1986; Porter and Omizo, 1984; Potashkin and Beckles, 1990; Raymer and Poppen, 1985). Similar in concept to cue utilization theory, Jacobsen (as cited in Brandon et al., 1986) reported that relaxation techniques were beneficial to children by helping them attain optimal states of arousal which led to focused concentration. Comparable results have been found using meditation, biofeedback, neurotherapy and other relaxation training procedures (Barabasz and Barabasz, 1996; Kratter and Hogan, 1982).

Children with special needs often have difficulty maintaining and focusing attention in addition to exhibiting anxiety and muscular tension. The results of previous work in the area provide

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