

Chapter – 1
INTRODUCTION

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YOGA

“Yoga” is a Sanskrit word derived from the root ‘*yuj*’ that means to join Individual consciousness- *ātman* or self with infinite, pure, Supreme Consciousness- *Paramātman*. They are eternally one and discipline.

According to sage Vasishtha ‘योग वाससष्ठ मनः प्रशमन उपायः इत्तत योगः।’ Yoga is a science of calming down the mind and Patanjali’s ‘योगश्चित्तवृत्तिनिरोधः ॥२॥’ i.e. cessation of all mental modifications to attain a state of bliss, silence or peace and cosmic knowledge. Therefore, Yoga is to purify, control (*nirodha*) and slowdown (*praśamana*) the mind and its modifications (*vṛttis*) by skill (*kauśala*) and wisdom (*prajñānani*).

Yoga, being an ancient Indian Art and Science of mind–body intervention. Correct yoga practices with proven techniques helps to solve multiple problems in everyday life. It becomes a second nature of a human being if practiced from an early age. It is an exercise that improves immunity and other systemic functionalities by balancing the elements of our bodies internally. In addition, yoga is a great channel for releasing our stress and anxiety through meditation and relaxation.

Yoga is absolutely an essential and wholesome methodology specially to educate and train children to maintain a good posture, develop power of sustenance, flexibility and concentration right from the beginning. Further, Yoga facilitates this aspect in totality as enlightenment received opens the previously unexplored and unattended faculties of their mind. Hence, yoga takes a vital role in the all-round development of personality such as physical, mental, emotional, moral and spiritual.

BACKGROUND:

Educators, researchers, and health care providers working with children have long been

interested in understanding what causes children with average intelligence to suffer from academic underachievement, particularly when these academic difficulties are not the result of physical, social and environmental factors. Behavioral problems in children including mood disorders, emotional distress, peer pressures and adjustment problems are all said to contribute towards academic underachievement. For example, emotional distress, disrupted cognitive functioning, and deterioration in academic performance have all been theorized to be the possible results of depressive moods. Specific clinical features of depression such as reduced attention span, lethargy, poor concentration and memory, as well as abridged task perseverance are all factors that have emerged as obstacles to effective learning. Furthermore, poor academic performance has been associated with an increase in social and behavioral problems (Strauss, Lahey, & Jacobson, 1982). Though, overt clinical depression is seen in few, most of them express depressive mood swings. The stress to perform better in academics and its accompanying physiological and behavioral stress response can result in mood swings, emotional distress, loss of sleep and cognitive impairment. Poor classroom performance is consistently demonstrated in children with depressive symptoms when no other intervening learning disability is present (Rapport, Denney, Chung, & Hustace, 2001). Negative correlations between severity of depressive symptoms and intelligence scores, particularly by adolescence, have also been reported (Lefkowitz & Tesiny, 1985; McClure, Rogeness, & Thompson, 1997). Similarly, a weaker performance on a variety of measures assessing cognitive functioning has been observed in cohorts of children with symptoms of depression including visual spatial perception (McClure et al., 1997) and problem solving tasks (Emerson, Mollet, & Harrison, 2005) as well as various aspects of memory such as verbal memory (Günther, Holtkamp, Jolles, Herpertz-Dahlmann, & Konrad, 2004) and list learning tasks (Horan, Pogge, Borgaro, Stokes, & Harvey, 1997; Lauer et al., 1994), working memory (Matthews, Coghill, & Rhodes, 2008), short-term memory processing and immediate recall (Günther et al., 2004; Osborn, 1990), and meta-memory (Lauer et al., 1994). Likewise, slowed cognitive response time (Ladouceur et al., 2005), decreased motor

speed (Kovacs & Goldston, 1991; Matthews et al., 2008; Rapport et al., 2001), and poor coordination (Kaslow, Rehm, & Siegel, 1984; McClure et al., 1997) have been reported. These children have also exhibited a weaker performance on academic achievement measures including mathematics and knowledge clusters (Hodges & Plow, 1990) and reading abilities (Vincenzi, 1987). In addition, behavioral manifestations of depression including attention difficulties. It has been reported that student fatigue also markedly increases from elementary school to junior high school (Spear, 2000). Identifying fatigue-related factors is thus important for preventing increased levels of fatigue during this transition period. Executive function is defined as a set of cognitive control processes that permit goal-directed behavior and that develop dramatically between childhood and adolescence (Travis & Tecce, 1998). In studies on the development of executive function, for example, age-related gain has been reported in working memory (Casey, Giedd, & Thomas, 2000; Vuontela et al., 2003), inhibitory control (Osborn, 1990; van der Molen, 2000), task switching (Ladouceur et al., 2005), control of attention (Cepeda, Cepeda, & Kramer, 2000), adaptive problem solving (Cowan et al., 2005), and various other planning and problem-solving tasks (Chelune & Baer, 1986). An earlier study has shown improvement in executive functions in adolescent children during their transition from childhood to adolescence (Welsh, Pennington, & Groisser, 1991). However, these findings have limitations as they are from a small cohort of population and different approaches have been used in different studies. Even studies with exercise training have shown improvement in cognitive performance in children.

In this study we evaluated the effects of two months of yoga vs. exercise in adolescent school children studying in higher primary and high school in rural districts of Karnataka on executive functions and physical performance.