

**Review****Yoga for children**Tikhe Sham Ganpat<sup>1,\*</sup>, Nagendra Hongasandra Ramarao<sup>2</sup><sup>1</sup>Swami Vivekananda Yoga Anusandhana Samsthana University, Bangalore, India; <sup>2</sup>International Journal of Yoga (Pubmed Indexed) and Vice Chancellor, Swami Vivekananda Yoga Anusandhana Samsthana University, Bangalore, India**ABSTRACT**

Excessive stress is harmful to academic performance in children and may lead to dropping out of school. To meet the demands of a modern life-style which is full of speed, stress and tension, an all-round child health program is crucial. The use of yoga for children has diverse applications in maintaining and developing their physical, mental, intellectual, emotional and spiritual levels. Yoga, through its physical postures (asana), breathing practices (pranayama), cleansing techniques (kriya), meditation therapies (dhyana) and relaxation training (yoga nidra) yields a positive effect in the management of stress in children. Yoga practice benefited children by improving their eye-hand coordination, attention span, levels of concentration, competitive performance and relaxation. Visually impaired children showed a significant decrease in their abnormal anxiety levels when they practiced yoga for three weeks, while a program of physical activity had no such effect. Socially disadvantaged children in a remand home showed significant improvements in sleep, appetite and general well being, as well as a decrease in physiological arousal after yoga. In one study, it is found that a 4-week program of asana and meditation lowers the aggressive behavior of children. Meditation helped to reduce problems related to maladaptive behavior, increase emotional and physical health and psychological well-being in children. Finally, the possible role of yoga in improving the mental state and general well-being of children with cancer is being explored.

**Keywords** stress, children, yoga**INTRODUCTION****Origin of Yoga**

The term yoga comes from a Sanskrit word which means yoke or union. Traditionally, yoga is a method of joining the individual self with the divine, universal spirit or cosmic consciousness. Physical and mental exercises are designed to help achieve this goal, also called self-transcendence or enlightenment. With growing scientific evidence, yoga is emerging as an important health behavior- modifying practice to achieve states of health, both at physical and mental levels. On the physical level, yoga postures, called asanas, are designed to tone, strengthen and align the body. These postures are performed to make the spine supple and healthy and to promote blood flow to all the organs, glands and tissue, keeping all the bodily systems healthy. On the mental level, yoga uses breathing techniques (pranayama) and meditation (dhyana) to quiet, clarify and discipline the mind. Yoga is not a religion, but a way of living with health and peace of mind. It is the gift of the oldest Indian Vedic philosophy to the modern world (Deshpande et al., 2009).

**Traditional medical theory**

Traditional medical theory of yoga is based on the concept of the five layered existence of the human being (pancha kosha).

The physical layer (annamaya kosha), the vital layer (pranamaya kosha), the mental layer (manomaya kosha), the wisdom layer (vijñanamaya kosha) and the bliss layer (anandamaya kosha) are the five layered existence of human being.

In the bliss layer, one is in the healthiest and most harmonious state possible. In the wisdom layer, there are movements, and they are channeled in the right direction. The yogic texts state that imbalances begin in the mental layer. Desire is aroused in this layer, and likes and dislikes come to the surface. Desire begins to govern our actions, and we become misguided. Illness originates here. Agitation starts, the desire intensifies, filtering through to the vital energy, manifesting as disease in the physical layer. The physical layer is disrupted when the vital energy is disturbed by the mental layer. Therefore, the origin of disease is the mental layer, and a remedy should be aimed at the cause, and not the effect. Any action that goes against nature is the cause of imbalance. This imbalance will be amplified, finally resulting in mental illness, called adhis. In turn, these adhis will manifest as vyadhi or disease in the physical layer. The disease is the secondary manifestation. A simple example of this is seen when anger disturbs the breathing - the physical action can be seen. Thus, we can understand the importance of the theory of pancha kosha as a diagnostic tool in the field of traditional medical theory of yoga (Deshpande et al., 2008).

**Yoga and Taiji Quan**

There are many traditional ways to achieve health. Yoga is very closely associated with Taiji Quan (literal translation "Supreme Ultimate Fist") which is an internal Chinese martial art practiced for both its defense training and its health benefits.

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These two traditional trainings have the same common goal, which is to achieve health. Taiji Quan is also typically practiced for a variety of other personal reasons: its hard and soft martial art techniques, demonstration competitions, and longevity. As a consequence, a multitude of training forms exist, both traditional and modern, which correspond to those aims. Some of Taiji Quan's training forms are especially known for being practiced at what most people categorize as slow movement. This concept of practice with slow movement is an important aspect of yoga to gain mastery over the mind. Today, both yoga and Taiji Quan have spread worldwide. Most modern styles of Taiji Quan trace their developments to at least one of the five traditional schools: Chen, Yang, Wu/Hao, Wu, and Sun. Similarly, most modern styles of yoga trace their developments to at least one of the four traditional schools: the path of intellect (jnana yoga), the path of will power (raja yoga), the path of emotions (bhakti yoga) and the path of action (karma yoga).

Child health has assumed a great significance all over the world. Its importance is being realized more and more by pediatricians and the general public in developing as well as developed countries (Bhola and Kapur, 2003). It is well known that parents of children with specific learning disabilities experience a lot of stress and impaired mental health (Telles et al., 1994). Yoga is a form of complete education that can be used with all children because it develops physical stamina, emotional stability and intellectual and creative talents. It is a unified system for developing the balanced and total health of the child (White, 2009). To meet the demands of the modern life-style, full of speed, stress and tension, an all-round child health program is crucial and yoga can play a vital role in this process. The use of yoga for child health has diverse applications for their physical, mental, intellectual, emotional and spiritual levels (Telles and Naveen, 1997).

#### **Yoga for mentally handicapped children**

A controlled study was carried out on 90 mentally retarded children, randomly assigning the children to two groups (yoga, control) so that there were equal numbers of mild, moderate and severely retarded children in both groups (Uma et al., 1989). The study assessed the effects of yoga practices (breathing exercises, pranayama, loosening exercises, suryanamaskara, asana and meditation) for a year. The moderately retarded among the yoga group performed significantly better on testing with the Binet-Kamat test (for general mental ability), Seguin form board (for co-ordination), and in the Vineland social maturity scale (to assess social adjustment and behavior), compared to their initial performance, as well as to that of the control group. The mild and severely regarded subjects of the yoga group had another benefit: they showed no deterioration in any score; whereas the mildly retarded subjects of the control group showed negative scores on retesting. Hence, yoga practices including meditation are useful in the rehabilitation of mentally handicapped children.

In the study of yoga on the attention span and behavior of boys with Attention-Deficit Hyperactivity Disorder (ADHD), results showed a significant improvement on the Test of Variables of Attention (TOVA) Response Time Variability with a trend on the ADHD score, and greater improvements on the Conner's Teacher Rating Scales (CTRS) Global Emotional Liability subscale in the yoga group. This indicates that yoga improved emotional stability in children with ADHD (Jensen and Kenny, 2004). Similarly, in a randomized controlled pilot study, it was demonstrated that yoga can be an effective complementary or concomitant treatment for children with ADHD (Haffner et al., 2006).

#### **Yoga for visually impaired children**

It has been shown that blind children learn yoga asana with great ease. In a controlled study (Naveen et al., 1998), it was shown that following three weeks of yoga practice (asana and breathing practices), blind children had a significant decrease in breathing rates and their abnormally irregular breathing became regular (reduced physiological signs of stress). There is also another possible area where the practice of yoga may benefit the blind. The blind are known to have a significantly better developed tactile sense than subjects with normal vision. Unfortunately this does not apply to their performance of motor skills (Naveen et al., 1997), which are increasingly required today, for example to use the specially designed computer keyboards. Yoga practices help in the development of motor skills in persons with normal vision (Telles et al., 1994), so a similar effect may be obtained in the blind. This is currently under investigation.

#### **Yoga for physically handicapped children**

Children who have suffered from polio and many other crippling disabilities have successfully practiced yoga with great benefit. What is more important, their social development and their well-being benefits come from the fact that they are able to participate in a class or sessions involving also the strongest and heartiest of children.

#### **Yoga for children with autism spectrum disorder (ASD)**

Children with autism exhibit significant deficits in imitation skills, which impede the acquisition of more complex behavior and socialization. Imitation is often targeted early in intervention plans and continues to be addressed throughout the child's treatment. It was reported (Radhakrishna, 2010) that Integrated Approach of Yoga Therapy (IAYT) may offer benefits as an effective tool to increase imitation, cognitive skills and social-communicative behaviors in children with ASD. In addition, children exhibited increased skills in eye contact, sitting tolerance, non-verbal communication and receptive skills to verbal commands related to spatial relationship. Similarly, the practice of IAYT resulted in significant improvements in imitation and other skills and in improved behavior at home and in family relationships in these children with ASD (Radhakrishna et al., 2010).

#### **Yoga for children with asthma**

There are many studies reporting improvements in children with asthma. In one such study (Chen, 2009) the effect of yoga exercise was investigated on the health-related physical fitness of school-age children with asthma. The study employed a quasi-experimental research design in which 31 voluntary children (exercise group 16; control group 15) aged 7 to 12 years were purposively sampled from one public elementary school in Taipei County. The yoga exercise program was practiced by the exercise group three times per week for a consecutive 7 week period. Each 60 min yoga session included 10 min of warm-up and breathing exercises, 40 min of yoga postures, and 10 min of cool down exercises. Fitness scores were assessed at pre-exercise (baseline) and at the seventh and ninth week after intervention completion. A total of 30 subjects (exercise group 16; control group 14) completed the follow-up. Results included: 1. Research found a positive association between exercise habits after school and muscular strength and endurance among asthmatic children. 2. Compared to the control group, the exercise group showed favorable outcomes in terms of flexibility and muscular endurance. Such favorable outcomes remained evident even after adjusting for age, duration of disease and steroid use, values for which were unequally distributed between the two groups at the baseline. 3.

There was a tendency for all item-specific fitness scores to increase over time in the exercise group. The Generalized Estimating Equations (GEE) analysis showed that yoga exercise indeed improved Body Mass Index (BMI), flexibility, and muscular endurance. After 2 weeks of self-practice at home, yoga exercise continued to improve BMI, flexibility, muscular strength, and cardiopulmonary fitness.

#### **Yoga for socially disadvantaged children (children in a remand home)**

Emotionally disturbed, destructive, aggressive, hyperactive children can benefit from yoga. Yoga helps the child to channel his emotions and stimulates creativity in emotionally disabled children, which is not easily done with other forms of physical education. Children who were committed to legal custody in a state remand home had signs of high physiological anxiety (higher heart and breathing rates, and lower skin resistance), compared to children of the same age who were staying at home (Telles et al., 1997). After six months of practicing yoga with an emphasis on relaxation and awareness, the children showed significant improvement (reduced heart and breathing rates, and an increase in skin resistance). In contrast, a matched group of children who had a physical activity program during the allotted time, for the six month period, showed no such changes in the breathing rate or skin resistance. Hence, yoga practice is a useful addition to the routine of prisoners or of young people in a remand home. It may help to reduce their stress and anxiety levels, improve their physical fitness, and perhaps even help in their social and moral rehabilitation. However, the last has yet to be tested.

#### **Yoga for children with cancer**

Children with a cancer diagnosis experience symptom distress, including anxiety, because of the disease and its treatment. Parents experience stress and anxiety because of the uncertainty of the disease as well as the suffering of their children. Yoga is a complementary intervention that has physiological and psychological benefits in healthy children and healthy and chronically ill adults. There are studies (Printz, 2010; Roth et al., 2009) reporting improvements in children with cancer. In one such study (Thygeson et al., 2010), on an inpatient hematology/oncology unit, 11 children aged 6 to 12 years, 5 adolescents aged 13 to 18 years, and 33 parents participated in a single yoga session tailored to the needs and abilities of the patients and parents. The sense of well-being, pre- and post class, was measured with the Spielberg State Anxiety Scale. Children had normal anxiety scores pre- class that did not change. Adolescents and parents experienced significant decreases in anxiety scores, and all cohorts gave positive feedback about the experience. The authors concluded that yoga is a feasible intervention for this population and is beneficial to adolescents and parents. However, the efficacy of yoga for HIV positive children and children with AIDS has yet to be tested systematically.

#### **CONCLUSION**

Yoga through its physical postures (asana), breathing practices (pranayama), cleansing techniques (kriya), meditation therapies (dhyana) and relaxation training (yoga nidra) yields a positive effect in the management of stress in children.

Yoga practice benefited children by improving their eye-hand coordination, attention span, concentration level, competitive performance and relaxation. Visually impaired children showed a significant decrease in their abnormal anxiety levels when they practiced yoga for three weeks, while

a program of physical activity had no such effect. Socially disadvantaged children in a remand home showed significant improvement in sleep, appetite and general well being, as well as a decrease in physiological arousal after yoga. In one study, it is found that a 4-week program of asana and meditation lowers the aggressive behavior of children. Meditation helped to reduce problems related to maladaptive behaviors, increase emotional and physical health and psychological well-being in children. Another important area is the application of yoga in the management of children with emotionally disturbed personality.

Thus, yoga is a form of complete education that can be used with all children because it develops physical stamina, emotional stability and intellectual and creative talents. It is a unified system for achieving the total health of the child.

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#### **CONFLICT OF INTEREST**

The authors have no conflicting financial interest.

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