

1.0 INTRODUCTION

Intellectual disability is a term used when a person has certain limitations in mental functioning and skills such as communicating, taking care of himself or herself, and having social skills (AAID, 2010). As a normal mental capacity of these children is restricted, they cannot be educated by normal methods in normal schools like average healthy children (AAMR, 2002). These children are often mistakenly considered uneducable and allowed to languish in neglect and social deprivation. By adopting suitable techniques, these children can be well-trained and made fit for leading to a normal life. All behaviors are modifiable and small classes make individual attention possible. In fact, these children will be able to learn, but it will take them longer. There may be some things they cannot learn. Essentially, the term intellectual disability refers to a delayed intellectual growth that is manifested in immature reactions to the environmental stimuli and below-average social and academic performance (Harris, 2006).

The children with intellectual disabilities have difficulties in day to day activities since the ability to learn and adapt to the changing environment is limited (Vuijk, Hartman, Scherder & Visscher, 2010). As compared to other groups with disabilities, these individuals have more functional limitations in an adaptive behavior and motor function (Kubilay, Yildirim, Kara, & Harutoglu, Akdur, 2011). Due to their intellectual disability, the time taken to learn motor skills is prolonged. For children with intellectual disability, fitness and overall functioning is lower as they are not active during the course of the school day and have limited opportunities to participate in physical activities available to their peers. Therefore, these children tend to be weaker

and more susceptible to early fatigue than their peers (Durstine et al., 2000; Campbell & Ball, 1978; Dichter, Darbee, Effgen, & Palisano, 1993; Fernhall & Unnithan, 2002). They have higher metabolic, cardiorespiratory, and mechanical costs of mobility, which cause early fatigue and decreased exercise performance (Darrah, Wessel, Nearingburg & O'Connor, 1999; Horvat, 1987). Along with a developmental delay, these children have hypo-tonicity, hyper-mobility of joints or ligamentous laxity, light to moderate obesity, an underdeveloped respiratory and cardiovascular system and short stature which, in turn, lead to decrease in functional ambulation (Ghai 2001; Barbara, Connolly, Majorie & Woollacott, 1986). Hence, there is a need to assess physical fitness of these children so that a proper physical activity intervention can be implemented to improve their physical fitness. In this context, yoga seems to be a better approach for intellectually disabled children because earlier studies indicate that regular practice of yoga aids physical, mental, intellectual and emotional well-being.

In fact, these children are often mistakenly considered uneducable and allowed to languish in neglect and social deprivation. By adopting suitable techniques like yoga which is an experiential science, these children can be well-trained and made fit for leading to a normal life. Although a large number of publications is available studying various aspects of yoga in health and disease, however, scientific evidence on the role of yoga among intellectually disabled children is meager. The present study, therefore, may have a significant contribution.

1.1 HISTORICAL BACKGROUND OF INTELLECTUALLY DISABLED

About 2000 years ago, intellectually disabled were treated as animals. Also, intellectually disabled were used as a source of entertainment in king's courts during the 16th century. John Pabelo was the first physician who thought to provide education to IDs around 1620.

In 1689, a scientist named Loke did a crucial work and he differentiated between intellectually disabled and mad persons. Later, Edouard Seguin in 1839, opened the world's first school for the severely intellectually disabled, where he developed a method of treatment, later widely accepted, based on the then-revolutionary premise that the intellectually disabled had neither diseased nor abnormal brains but simply suffered arrested mental development before, during, or after birth. Treatment, therefore, consisted of sensory training designed to permit the patient to function as well as possible in society. Seguin's school gained international renown and led to the formation of similar institutions throughout Europe and the United States. In 1846, he published *Traitement moral, hygiène et éducation des idiots* ("Mental Treatment, Hygiene, and Education of Idiots"), which was quickly recognized as a classic work in psychology. Early nineteenth century saw the rise of different outlook towards intellectually disabled. French revolution was one of the favorable aspects (Gupte, 2005).

For the first time in America in 1890, special classes were started in public schools for intellectually disabled children. During this century it was found that every intellectually disabled was not similar. In 1905, Binete and Simon, researchers published a mental ability test. They introduced an idea of mental age; chronological

age and mental age which may differ in humans. Sieving, a researcher published the first book on intellectually disabled in detail.

In India, a school for intellectually disabled, under the name of “The school for children in need of special care” was started in a village called *Shivdi* in 1944. This was a ray of hope for the lives of intellectually disabled (Gupte, 2005).

1.2 NEED FOR THE STUDY

The findings of earlier investigations suggest that recreation and athletic activities are important for all children regardless of their mental capacities. A physician's recommendation about an athletic activity for intellectually disabled children, as is true with other children, must take into account differences in size, co-ordination, degree of physical fitness, and physical health. The stage of maturation, the level of mental development and the emotional stability of the child are all important considerations when organizing activities for intellectually disabled children (Melvin et al., 1974).

Children with an average mental development usually have multiple opportunities for athletic activities and recreation without special planning. In contrast, there is a tendency of parents and children in most communities to exclude an intellectually disabled child so that they completely lack the type of exercise and personal experiences needed. Children who are intellectually disabled frequently are not physically fit, have poor coordination, and are obese. These conditions become progressively more severe as the retarded child grows older, partly as a result of limited opportunity for athletic activity. The majority of children with intellectual disability can and should participate safely and productively in athletic or any other suitable activities like yoga to maintain

physical fitness when appropriate supervision is provided. Unfortunately, research findings reveal that most of the intellectually disabled children had a significantly lower level of physical fitness and more prevalence of obesity than normal students (Chaiwanichsiri, Sanguanrungrasirikul, & Suwannakul, 2000).

Despite the growing evidence that people with higher levels of physical fitness have a reduced risk of various chronic conditions (i.e., Type 2 diabetes, stroke, coronary heart disease) and are more physically independent later in life (Brandon, Boyette, Gaasch, & Lloyd, 2000) adults with Down syndrome continue to engage in high rates of sedentary behavior and have extremely low levels of physical fitness (Fernhall & Pitetti, 2001). Many researchers found that persons with intellectual disability lack in physical fitness when compared to peers without intellectual disability (Bar-Or et al., 1971; Fernhall & Tymeson, 1988; King & Mace, 1990; Pitetti & Tan, 1991). There can be many reasons and explanations for low levels of fitness, like a passive lifestyle (Pitetti & Boneh, 1995; Chanias, Reid, & Hoover, 1998), low motivation (Halle, Gabler-Halle & Chung, 1999), psychological or physiological barriers or motor passivity (Fernhall et al., 1988). Of all the factors examined, it was found that “inactive life style was the most harmful to physical fitness” (Bickum, 1995). The lack of physical fitness can lead to early aging phenomena and states of illness compared to the population with no cognitive disorders (Kessel, 1999).

Therefore, there is a need to include appropriate physical activities for health promotion and disease prevention. Parents of intellectually disabled children are often confused and uncertain about what to expect from their child. In fact, most parents are anxious for guidance to help determine what is best for their child. A pediatrician is in a unique

position to advise these parents because he or she is likely to know the family and to know emotional and personal needs of the child and his physical capabilities. Yoga therapy is supposed to be the best option as an effective therapeutic tool in many physical, psychological and psychosomatic disorders.

Moreover, it has been scientifically proved that practicing yogic exercises results into an improvement of certain factors of physical fitness like flexibility, lung capacity, endurance, neuromuscular co-ordination, etc. Yoga also improves functioning capacity of various systems of the human body. The investigator feels that these aspects of yogic activity would be advantageous for intellectually disabled children. Hence, the researcher thought that it would be beneficial if yoga is introduced for intellectually disabled children to improve health related physical fitness components and motor ability.

1.3 PROBLEM AND ITS RELEVANCE

Previous studies have indicated that individuals with intellectual disabilities score lower on standardized tests of physical fitness during all the phases of their life than individuals without an intellectual disability (Chaniyas et al., 1998; Graham & Reid, 2000). For this reason, individuals who are intellectually disabled are often unable to adequately perform everyday activities and are limited in their work-related duties (Fernhall et al., 2001). Cowley et al., (2010) established a direct connection between levels of physical fitness and the time needed to perform daily tasks in adults with intellectual disabilities. These findings indicate that physical activities can improve the quality of life of individuals with intellectual disabilities. Furthermore, some studies have shown that physical inactivity and obesity among individuals with intellectual

disabilities cause serious problems for their general health. For this reason, it is recommended that experts begin to include this population in various programmes and initiatives for the promotion of health, including greater participation in physical activities (Rimmer, Heller, Wang, & Valerio, 2004). Further, previous research studies demonstrated a therapeutic efficacy of yoga for improving a host of mental health conditions ranging from post-traumatic stress disorder, depression and schizophrenia (Lavey et al., 2005; Shapiro et al., 2007; Visceglia & Lewis, 2011). Similar benefits have been documented regarding physical health benefits of yoga.

Although benefits of yoga have been studied across a host of normal populations including many age groups and physical disabilities, however, the relevant literature is scarce investigating the benefits of yoga for children with intellectual disabilities. Therefore, the researcher has planned this study entitled “*Effect of Yoga on Health-Related Physical Fitness and Psycho-Motor Abilities in Children with Intellectual Disability*”