CHAPTER I
INTRODUCTION

1.1 Background of the Study

Explosion of knowledge compels us to change our mode of education and behaviour too. Therefore, today’s education has become child oriented for social transformation. Along with improvement in health related physical fitness and mental health, we are equally concerned with other factors of their personality development. It is well accepted personality plays an important role in determining not only the behavior of an individual but also his overall success and prosperity in life.

In fact, early childhood is a critical period for the development of active living behaviours, it is the period of growth for which we know the least about the health impact of physical activity (Timmons, Naylor and Pfeiffer 2007)\(^1\). In contrast, the health benefits of physical activity for school-aged children are well established (Janssen and LeBlanc 2010; Strong et al., 2005)\(^2,3\) . It may be that society has traditionally thought of the early years as a time when very young children are ‘active enough’, so important questions regarding physical activity and health in this age group have gone unanswered. There is also evidence that risk of metabolic disorders later in life can be attributed to poor health-related fitness levels during childhood (Ruiz et al., 2009)\(^4\). Further, it has been observed that the fitness levels of children and adolescence are in

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declined state (Tomkinson et al., 2003; Tomkinson and Oliver 2007)\textsuperscript{5,6}. This is an alarming trend given that high levels of physical fitness in this age group are associated with improved physical and mental health both in the short- and long-term (Ortega et al., 2008; Malina 1996)\textsuperscript{7,8}. Recent studies have shown that children who display high levels of physical fitness, especially health-related fitness (Caspersen, Powell and Christenson 1985)\textsuperscript{9}, have a decreased risk of developing cardiovascular disease and other chronic illnesses (such as obesity, Type 2 diabetes mellitus, osteoporosis and some cancers (McMurray and Anderson 2010)\textsuperscript{10}, are less likely to suffer from anxiety and depression (Parfitt, Pavey and Rowlands 2009)\textsuperscript{11}, and more likely to perform better academically (Grissom 2005)\textsuperscript{12}.

In response to the declining health related physical fitness levels in children especially in Indian girls there is need to develop a exercise program which will be effective for maintaining good health. In this context, many exercises have been suggested by many investigators. However, still overall status of the school going Indian girls is in a dilemma. Since Yoga seems to


\textsuperscript{12} J. B. Grissom, “Physical fitness and academic achievement.” Journal of Exercise Physiology, 8, 2005, pp.11–25.
be interesting as well as an alternative to traditional aerobic and strength training programs, it was thought plausible to undertake this study on yoga. Moreover, Yoga requires little space, virtually no equipment, and has no harmful follow up effects (Raub, 2002; Labarthe and Ayala, 2002; Gimbel, 1998). Given these characteristics, researcher sought to determine the efficacy of yoga practices on health related physical fitness and psychophysiological variables among school girls.

1.2 Rationale of Yoga for promotion of Health related Physical Fitness & Psycho-Physiological Functions

It is known that physical activity helps in the reduction of excess body fat; it decreases blood triglycerides and increases the energy levels of the body. It improves blood circulation and helps in keeping all the body organs fit and functioning. Exercise benefits the body by increasing its capacity to take in oxygen. It increases the ability of the blood to carry oxygen. Moreover, physical activity is responsible for smoothening the process of digestion, thus avoiding constipation and digestion-related disorders. The loss of extra body fat helps prevent diseases like diabetes, hypertension and other obesity disorders. It improves our cardiovascular health by increasing maximal cardiac output and stroke volume, and helps in the prevention of diabetes by improving glucose resistance. Research has shown that a regular physical activity reduces the possibility of getting certain types of cancer. Studies have revealed that breast cancer is less often found in sportswomen and that intestinal cancers are more occurrent in physically inactive people.


Recent studies on Yoga have recorded similar but better health benefits than physical activities. Yoga works as a passive stretching by providing the muscles a state of relaxation which in fact increases the macro circulation in various internal organs and decreases stress, tension, anxiety etc. This, in fact, helps to increase overall psycho-physiological functions. Further, yoga is found useful for the release of certain hormones that are responsible for our psychological well-being too.

Thus, yoga practice seems to be rationale for the school going girls for enriching psycho-physiological functions and health related physical fitness of school going girls.

1.3 Statement of the Problem

Physical fitness can be thought of as an integrated measure of most, if not all, the body functions involved in the performance of daily physical activity and/or physical exercise (Ortega et al., 2008). Included in this definition are characteristics such as cardiorespiratory endurance, muscular strength and endurance, body composition and flexibility (Howley, 2001). These characteristics are often referred to as „health-related components“ (Powell et al., 1998), and are usually associated with disease prevention and health promotion. Childhood and adolescence are important stages of life, since remarkable physiological and psychological changes take place at these ages. Similarly, lifestyles and healthy/unhealthy behaviors are formed during these years, which may influence adult behavior and health status. Low physical fitness in children has been associated with impaired health


indicators such as increased body fatness (Ruiz et al., 2005; Dencker et al., 2006)\textsuperscript{19,20} and abdominal adiposity (Ortega et al., 2007; Brunet et al., 2007)\textsuperscript{21,22}, several cardiovascular disease risk factors (Buchheit et al., 2007)\textsuperscript{23}, hypertension (Katzmarzyk et al., 2001)\textsuperscript{24} and low physical activity (Dencker et al., 2006)\textsuperscript{25}. Therefore, it is important to promote high levels of fitness in modern youth. A number of recent studies have drawn attention to increases in fatness (Olds and Harten, 2001)\textsuperscript{26} and declines in aerobic fitness (Tomkinson et al., 2003)\textsuperscript{27} in school age children. The implications of decreasing fitness levels in children are considerable. Children are losing the metabolic effects of fitness that might protect them from excessive weight gain.


\textsuperscript{22} M. Brunet, J. P. Chaput, and A. Tremblay, “The association between low physical fitness and high body mass index or waist circumference is increasing with age in children: the “Quebec en Forme” Project.” \textit{Int. J. Obes. (Lond).}, 31, 2007, pp.637-643.


as well as other metabolic ill health (Stratton et al., 2007). As the risks of unfitness and obesity are cumulative, tracking from childhood to adulthood (Eriksson et al., 2003), this situation is extremely worrying for the future public health. Given that fitness is an important component of metabolic health (Eisenmann et al., 2005) and a strong independent predictor of premature death (Blair et al., 1996), examining the health related physical fitness and psycho-physiological variables of school girls could be useful for effective interventions to improve fitness. In this context yoga practices seem to be beneficial as previous research reports indicated favorable changes in health related physical fitness.

1.4 Problem and its relevance

Physical activity rates decline precipitously during the high school years. These rates are consistently lower among adolescent girls than among adolescent boys (Kimm et al. 2002). The National Heart, Lung, and Blood Institute’s Growth and Health Study reported that girls’ median activity scores decreased dramatically between the ages of 9 and 18 years. In fact, several government agencies and public health authorities have established guidelines for physical activity among young people, but most adolescents are not active at the recommended levels. Perhaps as a consequence of these low physical activity levels, rates of obesity and type 2 diabetes are increasing.

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among all adolescent population groups and are particularly high among girls (Trojano and Flegal 1998)\(^{33,34}\). Young people need to become more active, and physical activity interventions in schools have the potential to reach nearly all children and adolescents. Few studies have attempted to increase physical activity among older students, and none have tested a comprehensive physical activity intervention that targets high schools and high school students (Stone \textit{et al}., 1998)\(^{35}\) or is designed specifically to increase physical activity among high-school girls. Decreasing rates of physical activity and increasing rates of obesity and type 2 diabetes among adolescent girls show an urgent need for a determination of how school-based programs can effectively promote physical activity among this group. Accordingly, the researcher of this study has planned to introduce yoga practices among school girls which would enhance their health related physical fitness. Further, previous Researchers have shown that yoga practices may improve body composition (Bera & Rajapurkar, 1993; Ray \textit{et al}., 2001)\(^{36,37}\), flexibility (Gharote & Ganguly, 1976; Tran, Holly, Lashbrook, & Amsterdam, 2001)\(^{38,39}\), muscular strength (Dash & Telles, 2001)\(^{40}\), and


muscular endurance (Ray, Hedge, & Selvamurthy, 1986). Although, increasing amount of research on effect of yoga on physical fitness and health in childhood and adolescence has been published but less is known about health related physical fitness and psycho-physiological outcomes in school girls. Hence, the researcher has undertaken this study entitled “Effect of Yogic Practices on Health Related Physical Fitness Components and Selected Psycho-Physiological Variables of the School going girls aged 11 to 13 years”

1.5 Objectives of the Study

This study was conducted with following objectives in perspective:

- To assess the status of health related physical fitness and psycho-physiological variables of school girls aged 11-13 years.
- To prepare and to implement yoga training programme for the school level girls.
- To evaluate the effect of the yoga practices on selected health related physical fitness and psycho-physiological profiles of school girls.

1.6 Hypotheses

On the basis of available literature it was hypothesized that-

\( H_1: \) Yoga practices may have significantly favourable effect on the factors of health related physical fitness of the school going girls.

\( H_2: \) Yoga practices may have significant effect on selected factors of Physiological functions of the school going girls.

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H₃: There will be significant effect of yoga practices on selected psychological variables of the school going girls.

1.7 Limitations of the Study

As the researcher has done this experiment on his own, there is a possibility of occurrence of some mistakes that might have affected the results of this study. The researcher has acknowledged such drawbacks, if any, as follows:

1. The researcher could not control day to day activities of the subject selected for the experiment, because all of them were staying in their respective residence during experiment.

2. Although the participants were clinically healthy, their food habits and lifestyle of daily living during the experiment could not be controlled by the investigator. Further, the participant’s menstruation cycle was not considered in this study, because menarche starts at different ages.

3. The investigator has taken utmost care while selecting subjects for this experiment and excluded the subjects who have got menstruation cycle. However, at the time of testing the effect of menstruation cycle has not been considered and hence it is considered as one of the limitations of this study.

1.8 Delimitation of the Study

Since there is a vast scope, the researcher has demarked this study for easy completion. The delimitation of this study has been given below –

- The study has been delimited to the school girls studying in Barshi of Solapur (Maharashtra) only.

- The study was delimited to age group of 11 to 13 years.
The subjects, who do not have any background of yoga, have only been selected in this study.

The measurement of variables has been delimited to the factors of AAHPERD health related fitness and Psychological as well as Physiological attributes which are useful for better learning.

The period of training preprogram has been delimited to 12 weeks only.

1.9 Significance of the Study

This study is important because it will elucidate the effects of yoga training programs on health related physical fitness components and psycho-physiological attributes of school girls.

The study helps the entire population of students, parents and society to know the inculcating ability of yoga for one’s health related physical fitness, psychological and physiological variables in growing children.

This study may provide a suitable yoga training programme for school girls to enhance health related physical fitness and psychological as well as physiological abilities, which are conducive for better learning.

Physical education teacher/Director of physical education in higher institutions and the state Govts. may get a readymade scientific yoga training schedule to promote health as well as to develop personality of school girls.
1.10 Operational Definition of Terms Used

Yoga

Yoga is a system of education that generates homeostasis among the body, mind and soul. Yoga teaches self-control through a series of postures and practices.

Health

Health is not merely the state of absent of disease, but it is concerned with the physical, mental, social and spiritual well being.

Health Related Physical Fitness

Physical fitness refers to the ability of a person to do his normal work in his daily routine and without getting undue fatigue. Fitness is a term that has wide range of meaning. Generally, physical fitness in sports competition means to exhibit top performance and here the real sense of fitness is performance-related. Such fitness may not consider one’s health. In this piece of research the researcher considers health related physical fitness as a state of physical fitness that has relation with one’s health. According to AAHPERD, it has components viz., Muscular strength, Flexibility, Body fat, Cardiovascular efficiency.

Psycho-physiology

Psychology is a study of human mind, behavior and human relationship. Physiology is science of the study of functioning of the human body, which includes the working patterns of different organs and systems in the functions of the body. However, psychophysiology is an overall state of physiological functions as influenced by some psychological attributes and vice versa.