Vol 6 Issue 1 July 2016 ISSN No :2231-5063

International Multidisciplinary Research Journal

Golden Research Thoughts

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RNI MAHMUL/2011/38595 **ISSN No.2231-5063**

Golden Research Thoughts Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board.Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

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ISSN: 2231-5063 Impact Factor : 4.6052(UIF) Volume - 6 | Issue - 1 | July - 2016

Golden Research Thoughts
International Recognition Multidisciplinary Research Journal
RNI : MAHMUL/2011/38887
ISSN No: 2231-5063
Impact Factor 2.2052 (UIF) [Yr. 2014]
3.4052 (UIF) [Yr. 2015]
4.6052 (UIF) [Yr. 2016]

GRT Golden Research Thoughts

HEALTH IMPACTS OF YOGA, PHYSICAL FITNESS & PSYCHO-PHYSIOLOGICAL FUNCTIONS

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ABSTRACT

This report summarizes the current evidence on the effects of yoga interventions on various components of mental and physical health, by focussing on the evidence described in review articles. Collectively, these reviews suggest a number of areas where yoga may well be beneficial, but more research is required for virtually all of them to firmly establish such benefits. The heterogeneity among interventions and conditions studied has hampered the use of meta-analysis as an appropriate tool for summarizing the current literature. Nevertheless, there are some meta-analyses which indicate beneficial effects of yoga interventions, and there are several randomized clinical trials (RCT's) of relatively high quality indicating beneficial effects of yoga for pain-associated disability and mental health. Yoga may well be effective as a supportive adjunct to mitigate some medical conditions, but not yet a proven stand-alone, curative treatment. Larger-scale and more rigorous research with higher methodological quality and adequate control interventions is highly encouraged because yoga may have potential to be implemented as a beneficial supportive/adjunct treatment that is relatively cost-effective, may be practiced at least in part as a self-care behavioral treatment, provides a life-long behavioural skill, enhances self-efficacy and self-confidence and is often associated with additional positive side effects.

KEYWORDS :*yoga, Physical Fitness, Psycho-Physiological, self-efficacy and self-confidence.*

INTRODUCTION

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.

YOGA AND PHYSICAL FITNESS

1. Physical Fitness

There was one critical review which evaluated whether yoga can engender fitness in older adults. Ten studies with 544 participants were included; 5 of these studies were RCTs, and 5 studies had a single-arm pre/post-design. With respect to physical fitness and function, the studies reported moderate effect sizes for gait, balance, body flexibility, body strength, and weight loss. However, there is still a need for additional research trials with adequate control interventions (active and specific) to verify these promising findings.

One may expect that retaining physical fitness and improving physical functioning can have a positive effect on functional abilities and self-autonomy in older adults. Further studies should address whether or not individuals' self-esteem and self-confidence will increase during the courses, and whether or not regular classes may also improve social competence and involvement. A problem with studies enrolling elderly subjects can be compliance with the study protocol leading to low levels of study completion and long-term follow-up data. Future studies should investigate the most appropriate duration of yoga intervention and the most suitable postures and yoga style for the elderly.

SYMPATHETIC/PARASYMPATHETIC ACTIVATION

There were 42 studies on the yoga effects on sympathetic/parasympathetic activation and cardiovagal function, that is, 9 RCTs, 16 non-RCTs, 15 uncontrolled trials, and 2 cross-sectional trials. Most studies offered "some evidence that yoga promotes a reduction in sympathetic activation, enhancement of cardiovagal function, and a shift in autonomic nervous system balance from primarily sympathetic to parasympathetic". However, some of the studies included in the review showed less clear-cut or even contrasting, effects. Because most of these effects are short-term phenomena, more rigorous work is needed.

Another lacuna is that there are very few studies which have studied plasma catecholamine levels and most of them are early studies.

CARDIOVASCULAR ENDURANCE

Raub's literature review, which included 7 controlled studies, reported "significant improvements in overall cardiovascular endurance of young subjects who were given varying periods of yoga training (months to years)". Outcome measures included oxygen consumption, work output, anaerobic threshold, and blood lactate during exercise testing. As expected, physical fitness increased in adolescents or young adults (athletes and untrained individuals) compared to other forms of exercise, with a longer duration of yoga practice resulted in better cardiopulmonary endurance.

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) , and abdominal adiposity (Ortega et al., 2007; Brunet et al., 2007) , , several cardiovascular disease risk factors (Buchheit et al., 2007) , hypertension (Katzmarzyk et al., 2001) and low physical activity (Dencker et al., 2006) . 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) and declines in aerobic fitness (Tomkinson et al., 2003) 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 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 seems to be beneficial as previous research reports indicated favorable changes in health related physical fitness.

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 among all adolescent population groups and are particularly high among girls (Trojano and Flegal 1998) , . 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 et al., 1998) 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 et al., 2001) , , flexibility (Gharote & Ganguly, 1976; Tran, Holly, Lashbrook, & Amsterdam, 2001) , , muscular strength (Dash & Telles, 2001) , and muscular endurance (Ray, Hedge, & Selvamurthy, 1986) .

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.

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.

H_3: There will be significant effect of yoga practices on selected psychological variables of the school going girls.

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.

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.

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 programe 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.

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.

DISCUSSION

These reviews suggest a number of areas where yoga may be beneficial, but more research is required for virtually all of them to more definitively establish benefits. However, this is not surprising given that research studies on yoga as a therapeutic intervention have been conducted only over the past 4 decades and are relatively few in number. Typically, individual studies on yoga for various conditions are small, poor-quality trials with multiple instances for bias. In addition, there is substantial heterogeneity in the populations studied, yoga interventions, duration and frequency of yoga practice, comparison groups, and outcome measures for many conditions (e.g., depression and pain). Disentangling the effects of this heterogeneity to better understand the value of yoga interventions under various circumstances is challenging. For many conditions, heterogeneity and poor quality of the original trials indicated that meta-analyses could not be appropriately conducted. Nevertheless, some RCTs of better quality found beneficial effects of yoga on mental health (see Uebelacker et al.'s critical review). Further investigations in this area are recommended, particularly because of the plausibility of the underlying psychophysiological rationale (including the efficacy of frequent physical exercises, deep breathing practices, mental and physical relaxation, healthy diet, etc.).

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