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Comparative study on selected physiological variables between yoga practitioners and sedentary college girls

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Abstract

Yoga is an ancient technique used for promoting physical and mental health through postures, the regulation of breathing and meditation. Studies have shown that the practice of yoga reduces perceived stress and negative feelings and that it improves psychological symptoms by lowering the levels of anxiety and anger. Yoga is a psycho-somatic-spiritual discipline for achieving union & harmony between our mind, body and soul and the ultimate union of our individual consciousness with the Universal consciousness. Yoga is mind-body technique which involves relaxation, meditation and a set of physical exercises performed in breathing. The purpose of the study was to investigate the comparative study on selected physiological variables between yoga practitioners and sedentary college girls. 40 college girls students were selected purposively (20 yoga practitioners) from Bajkul Milani Mahavidyalaya and (20 sedentary girls) from Khejuri college, Purba Medinipur, West Bengal as subjects for this study. The average range between 18- 21 years. In order to find out the significant difference on selected physiological variables between yoga practitioners and sedentary college girls Students "t" test were set at 0.05 level of confidence, which was considered as appropriate and adequate for the purpose of this study. The result reflected a significant difference on Resting Heart rate, Diastolic blood pressure and pulse rate but in case of Systolic blood pressure no significant difference was found variables between yoga practitioners and sedentary college girls.

Keywords: Resting heart rate, diastolic blood pressure, systolic blood pressure and pulse rate

Introduction

Yoga is an ancient philosophical and religious tradition which is thought to have originated in India in at least 1000B.C. It refers to a large body of values, attitudes and techniques. Whose primary objective is the pursuit of enlightenment or self-knowledge. The word yoga is probably derived from the Sanskrit word "Yuj" which means to "unite" or "connect" and in the higher levels of yoga this is often said to mean the experience of union of the individual self with the universal self. Over the centuries, the techniques of yoga evolved into a number of different paths, any of which are said to lead a person to self-realisation. Four of the major paths are: Karma Yoga, which is the pathway of selfless service through charity work for example, Jnana Yoga, which means intellectual understanding through philosophical study, Bhakti Yoga, which is the practice of love and devotion, and Raja Yoga, which translates as the "royal path". Raja Yoga is a psychological approach, which incorporates guidelines about behaviour, physical posture and exercises for steadying the breath and ultimately the mind. The method of Raja Yoga was formally systematized in a body of writing known as the Yoga Sutras, authored by Patanjali sometime between 200B.C. and 300A.D. Hatha Yoga, also known as the yoga of physical discipline, is 2 daily Australian television program devoted to yoga and a large number of books on the subject. This includes not only books for athletes, older persons and pregnant women, but also for children, such as "Yoga for Children" (Australian Association of Yoga in Daily Life, 1996) and "I Can't Believe it's Yoga for Kids". The rise in popularity of Hatha Yoga (Yoga Journal, 2001) is perhaps not surprising given that it can be practised at a basic level without adherence to any particular religious or spiritual belief-system. Although the ultimate goal of Hatha Yoga may be the attainment of enlightenment, it also recognizes a number of sub-goals such as physical and mental wellbeing and social harmony. These claimed flow-on effects seem to underlie many of the reasons why

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people take up yoga in the West. The rise of Hatha Yoga in Australian culture coincides with a period in which the notion of health promotion is being given a great deal of attention by the media, the medical profession and the government. It is reflected in the government's active support of health promotion campaigns the costs of which, according to a National Health Strategy Report, are already far outweighed by the savings achieved in the prevention of untimely deaths and disability. Children are considered a priority group for health promotion campaigns because of the belief that attitudes and behaviours established in childhood lay the foundations for later adulthood. The State, Territory and Federal ministers of education declare that by the end of their schooling career, students should "have the knowledge, skills and attitudes necessary to establish and maintain a healthy lifestyle" (Commonwealth Department of Education Training and Youth Affairs, 2001, p3). Furthermore, there is enough evidence to suggest that children already experience significant levels of stress at an early age. Some 14% of children in Australia suffer from mental health problems. This rate is consistent across age groups (4-17) and has been rising over recent decades. 3 Part of the health promotion approach has involved informing the public about the benefits particularly of physical activity and, to a lesser degree, physical relaxation on physical, social and emotional wellbeing. Researchers and educators expound that inadequate physical activity is a risk factor for a number of diseases including cardiovascular disease, diabetes, certain kinds of cancer, and mental disorders. There is also some evidence to suggest that inactive children tend to grow into inactive adults. In the light of an increasingly sedentary lifestyle brought on by rapid technological change, educators argue that even small amounts of moderate physical activity can produce significant physical and mental health benefits. Similarly, relaxation programs such as progressive relaxation and biofeedback are reported to lead to improvements on certain psychological and physiological dimensions, and are currently recommended by many GPs as part of stress management strategies. Despite this increased public attention

on the influence of physical lifestyle choices on physical, mental and social health, the empirical basis upon which these claims are made is still in its development stages. For instance, while psychological wellbeing and physical exercise are clearly associated, relatively few studies have established a causal link empirically. This is because researchers have tended to examine pre-existing groups of exercisers or made use of inadequate controls. Furthermore, the majority of research has focussed on aerobic or strenuous exercise at the expense of non-aerobic and moderate exercise. Although consensus statements from the National Institute for Mental Health in the US declare that exercise produces beneficial emotional effects in children, the evidence to support such statements is actually quite thin (Biddle, 1993) [12]. Research which has been conducted into the influence of physical activity on children has focussed predominantly on self-esteem.

Statement of the Problem

The purpose of the study was to investigate the comparative study on selected physiological variables between yoga practitioners and sedentary college girls.

Methodology

The proposed of study 40 college girls students were selected purposively (20 yoga practitioners) from Bajkul Milani Mahavidyalaya and (20 sedentary girls) from Khejry college, Purba Medinipur, West Bengal as subjects for this study. The average range between 18- 21 years.

Statistical Procedure

In order to find out the significant difference on selected physiological variables between yoga practitioners and sedentary college girls Students "t" test were set at 0.05 level of confidence, which was considered as appropriate and adequate for the purpose of this study.

Finding

Table 1: Mean Standard deviation and 't' test in Resting Heart rate, Systolic blood pressure, Diastolic blood pressure, Diastolic blood pressure and pulse rate of yoga practitioners and Sedentary college girls Students

Variable	Mean		Std- Deviation		t-Ratio
	yoga practitioners	Sedentary girls	yoga practitioners	Sedentary girls	
Resting Heart rate(Min)	81.85	84.65	7.65	8.02	6.60*
Systolic blood pressure (mm/Hg)	111.15	115.7	5.7	6.10	1.58 NS
Diastolic blood pressure (mm/Hg)	76.7	82.2	6.91	7.45	5.80*
pulse rate (beat/min)	89.05	82.3	7.32	6.80	4.56*

Tab_{0.05}(38) = 2.021, *=Significant, NS= not significant

Table-1 indicated that the mean and standard deviation scores of Resting Heart rate, Systolic blood pressure, Diastolic blood pressure, Diastolic blood pressure and pulse rate of yoga practitioners college girls Students had been found 81.85 ± 7.65 , 111.15 ± 5.7 , 76.7 ± 6.91 and 89.05 ± 7.32 and sedentary college girls Students had been found 84.65 ± 8.02 , 115.7 ± 6.10 , 82 ± 7.45 and 89.05 ± 6.80 . The calculated "t" value 6.60, 5.80 and 4.56 of Resting Heart rate, Diastolic

blood pressure, and pulse rate were found to be greater than the table value so the result reflected a significant difference at 0.05 level of confidence but in case of Systolic blood pressure calculated "t" value was 1.58 which is lower than Tabulated value so no significant difference. The results had been presented graphically in figures –

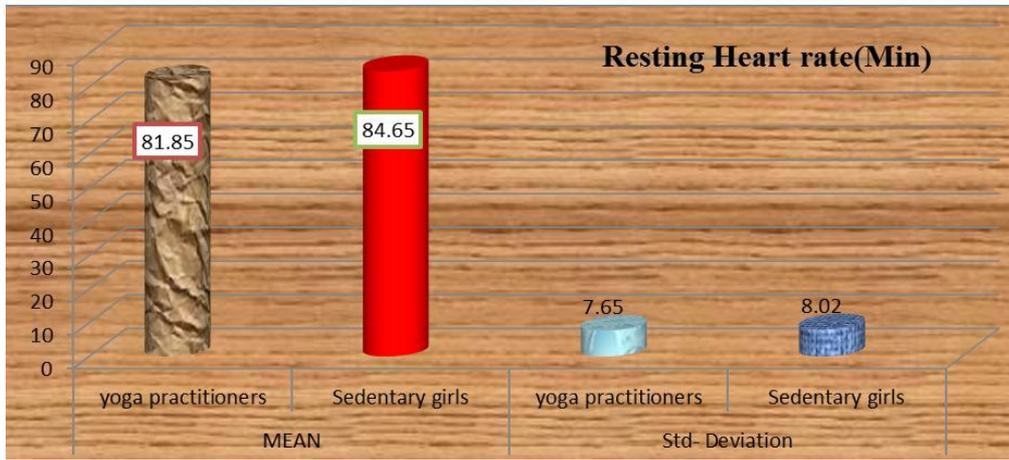


Fig 1: Comparison of Resting Heart rate between yoga practitioners and sedentary college girls Students

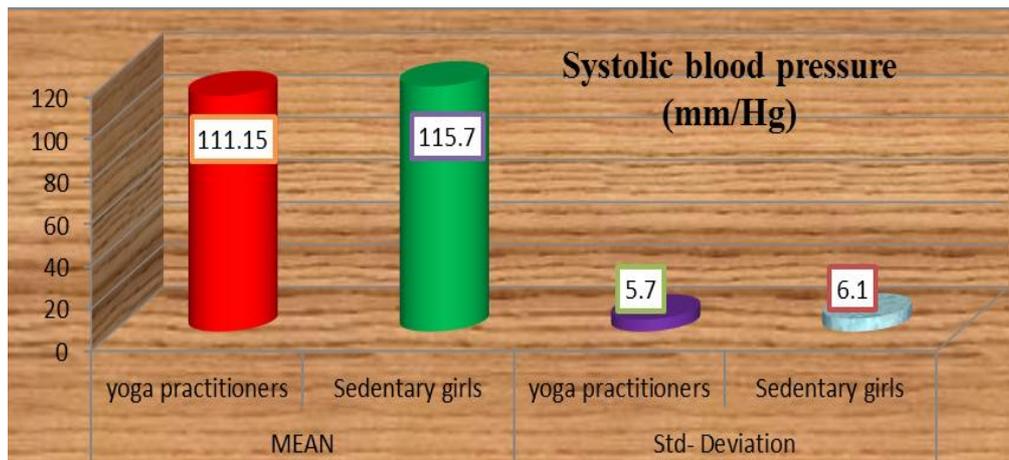


Fig 2: Comparison of Systolic blood pressure between yoga practitioners and sedentary college girls Students

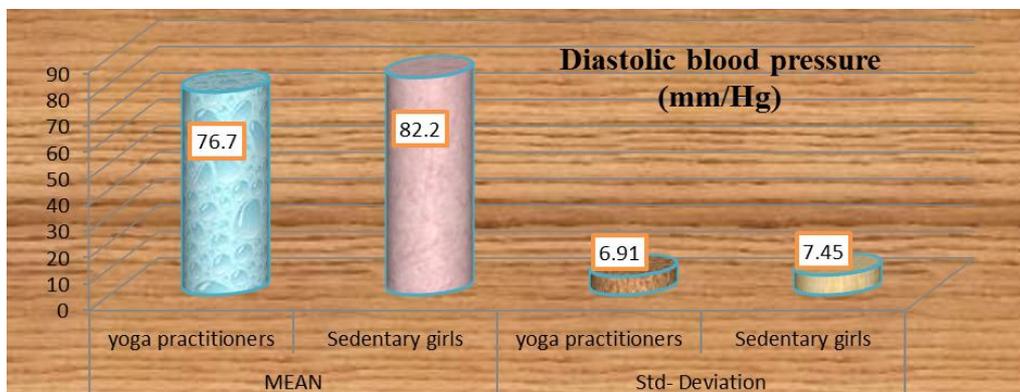


Fig 3: Comparison of Diastolic blood pressure between yoga practitioners and sedentary college girls Students

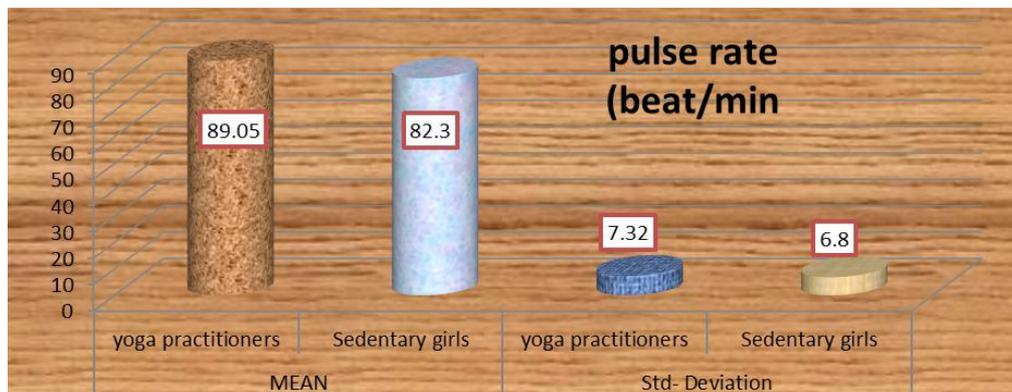


Fig 4: Comparison of Pulse Rate between yoga practitioners and sedentary college girls Students

Discussion of Findings

From the findings of Table-I It was found that there is a significant difference in Resting Heart rate, Diastolic blood pressure, Pulse Rate but not significant difference in Systolic blood pressure between yoga practitioners and sedentary college girls Students. Resting Heart rate (per minute) are developed, in this study as the yoga practicing group practiced regularly. Systolic blood pressure (mm of Hg) is developed. As the yoga practicing group practiced regularly, diastolic blood pressure (mm of Hg) is developed, than this study as the yoga practicing group practiced regularly (Sing, *et al.* 2011) Pulse rate is developed, than this study as the yoga practicing group practiced regularly. It may be due to heart rate and blood pressure indicate a shift in the balancing components of autonomic nervous system towards the parasympathetic activity which was reported by (Santha Joseph *et al.* 1981) ^[2] and (Anand BK *et al.* 1991) ^[3]. This modulation of autonomic nervous system activity might have been brought about through the conditioning effect of yoga on autonomic functions and mediated through the limbic system and higher areas of central nervous system was reported by (Selvamurthy *et al.* 1983) ^[14]. Regular practice of yoga increases the baroreflex sensitivity and decreases the sympathetic tone, thereby restoring blood pressure to normal level in patients of essential hypertension was reported by (Vijaya Lakshmi *et al.* 2004) ^[5]. Meditation by modifying the state of anxiety reduces stress – induced sympathetic over activity thereby decreasing arterial tone and peripheral resistance, and resulting in decreased diastolic blood pressure and heart rate. This ensures better peripheral circulation was reported by (Bhargava *et al.* 1988) ^[6] and blood flow to the tissues reported by (Gopal *et al.* 1973) ^[7].

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