Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2016; 4(3D):899-903 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2016.v04i03.052

Original Research Article

Effect of Sahaja Yoga on Blood Glucose Level in Healthy Individual

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Abstract: Sahaja Yoga meditation based on Kundalini awakening and aims at achieving holistic health care for people. Aim is to evaluate the effect of Sahaja Yoga meditation on blood glucose level in healthy volunteers (n=100) and was compared with a group of normal healthy controls (n=100) who were not doing any meditation. The subjects were further subdivided into two groups, i.e. as Group A (in the age group of 20-35 years) and Group B (in the age group of 36-50 years) with equal participants in each group. Blood samples were taken before starting the sahaja yoga (baseline) and after 40 and 90 days. The Statistical Analysis was Mean and standard deviations were calculated for each group and results were statistically analyzed by Student's t- test and Paired t-test. In results the Blood glucose level was found to be significantly reduced ($p < 0.001$) after 40 days and even after 90 days. In conclusion the Results of the present study suggest that Sahaja Yoga is helpful in the maintenance of blood glucose in normal healthy subjects, work in disease conditions is in progress.
Keywords: Blood glucose, Sahaj Yoga, Meditation.

INTRODUCTION

Sahaja Yoga, a kind of meditation has a wide range of subtle effects on the body, and has been practiced worldwide since 1970. The meditative experience in Sahaja Yoga is characterized by the feeling of a complete mental silence along with a state of complete mental alertness leading to a sensation of positive mood, benevolence and relaxation [1]. It is assuming importance in improving mental health and quality of life in the treatment of a number of psychiatric and psychosomatic disorders. The effects of yoga on cognitive functions have also been shown to improve memory, vigilance & anxiety [2, 3]. Sahaja Yoga has also been demonstrated to have a role in reduction in anxiety levels [4], improvement in sensory-motor functioning, reaction time [5] and better autonomic control [6] in healthy practitioners

Sahaj Yoga has also been shown to be beneficial in the management of hypertension, bronchial asthma [7] and epilepsy [8]. However, the effect of Sahaja yoga has not been studied on various biochemical parameters as yet. With the increasing incidence of glucose intolerance and diabetic mellitus, everyone is conscious about maintaining blood glucose level within the normal range. The present study was accordingly planed to see the effect of practicing Sahaja Yoga on alterations in blood glucose concentration in normal healthy volunteers.

MATERIAL AND METHODS

This study was conducted in 200 healthy male volunteers, in the age group of 20 to 50 years, in Department of Biochemistry, Maharaja Agrasen Medical College (M.A.M.C), Agroha, and Hisar. Two hundred healthy male volunteers were divided into two groups as given below:

Group-I –which included 100 volunteers as control subjects who led their normal life without doing any yoga, meditation or exercise (n=100).

Gropp-II-which included 100 volunteers who started practicing Sahaja Yoga (meditation). Expert Sahaja yogis conducted the Sahaja Yoga session continuously for five days for 45 minutes on each day, and then once every week for follow up and compliance. The weekly sessions involved meditation, instructional videos, personalized instruction, and discussion of problems in relation to improving the experience of meditation.

Each group was further sub-divided into two categories, according to their age-

Sub- group "A" - 50 volunteers having age in the range of 20 to 35 years.

Sub- group "B" - 50 volunteers having age in the range of 36 to 50 years. For comparison, the subjects of the two age groups were put together in group C, which included all the 100 volunteers in the range of 20 to 50 years of age.

The project was reviewed and approved by the Institutional Ethics Committee. All subjects were explained about the study undertaken and informed written consent was obtained. These subjects were given a questionnaire and personal data form, which they were required to fill up with certain details like their dietary habits, extent of physical activity and family history. Subjects were asked to avoid food, tea, coffee, nicotine at least two hour prior to testing. The whole procedure was explained in detail to each subject in order to alley any fear or apprehension. The basic parameters like age, weight and height were measured and recorded in specific proforma.

Exclusion Criteria

Subjects having previous experience of yoga or sports training and suffering from any acute or chronic disease, chronic smoker, chronic alcoholics and subjects taking any vitamin or anabolic supplement were excluded.

Blood Glucose level Studied-

Firstly, a baseline fasting venous blood sample was collected from all subjects before starting the Sahaja Yoga under the study. After starting the Sahaja Yoga, two more samples were collected after 40 days and 90 days. The volunteers were assessed for blood glucose level.

Blood Glucose

This was estimated by GOD/POD method using commercially available kit (Autopak, Bayer diagnostics or equivalent). Glucose was oxidized by glucose oxidase (GOD) into gluconic acid and hydrogen peroxide. Hydrogen peroxide in presence of peroxidase (POD) oxidized the chromogen 4-aminoantipyrine/phenolic compound to a red coloured compound. The intensity of the red coloured compound was proportional to the glucose concentration and was measured at 505 nm [9].

RESULTS

In present study mean baseline concentration of blood glucose in the control subjects of two age sub-group (A and B) was not found to be significantly altered up to 90 days (Table-1). In the subjects practicing Sahaja Yoga, blood glucose concentration was found to be significantly reduced on day 40 as well as day 90(Table-2).

Table 1: Blood glucose concentration (mg/dl) in controls subjects (Mean± SD).

Groups	Baseline	After 40 days	After 90 days
Group-A n=50 (20-35 years)	79.07 ± 5.15	79.59 ±5.46	79.74 ± 5.13
Group-B n=50 (36-50 years)	79.88 ± 5.19	81.25 ± 5.22	81.35 ±5.33
Group-C n=100 (20-35 years)	79.47 ± 5.16	80.42 ± 5.38	80.54 ± 5.27

Table 2: Blood glucose concentration (mg/dl) in subjects practicing Sahaja yoga (Mean± SD).

Groups	Baseline	After 40 days	After 90 days
Group-A n=50 (20-35 years)	78.99 ± 6.41	77.75 ± 6.40*	75.92 ± 6.34*
Group-B n=50 (36-50 years)	81.52 ± 5.06	79.93 ± 5.04*	77.47 ± 5.02*
Group-C n=100 (20-35 years)	80.26 ± 5.89	78.84 ± 5.83*	76.70 ± 5.74*

*$p<0.001$ when compared with the baseline value

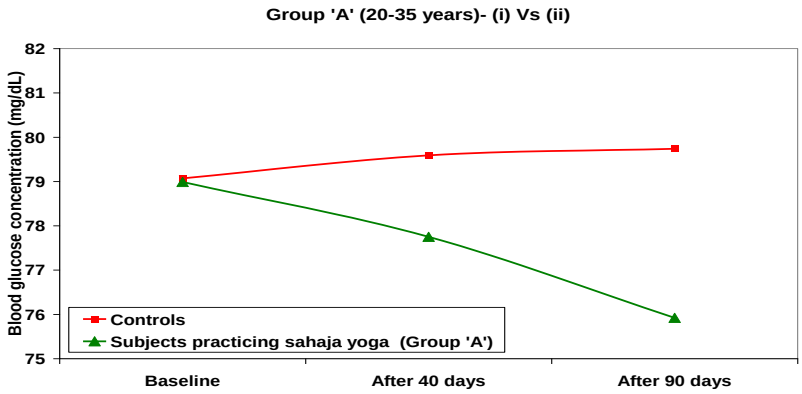

Fig 1: Comparison of blood glucose concentration in the subjects of age sub group –A of both Groups I vs II

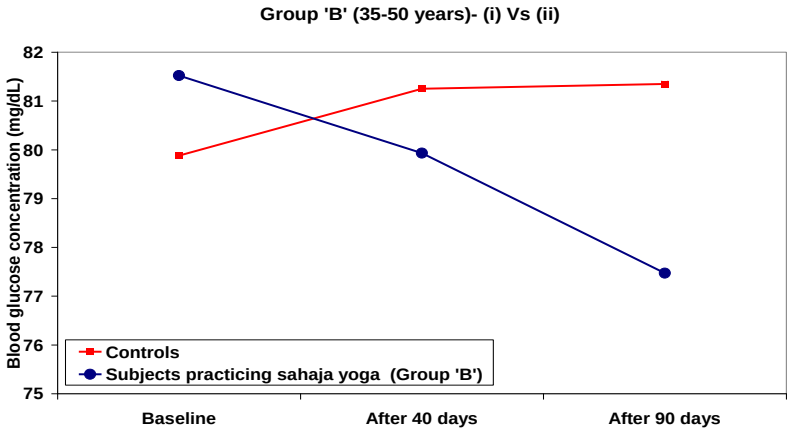

Fig 2: Comparison of blood glucose concentration in the subjects of age sub group –B of both Groups I vs II

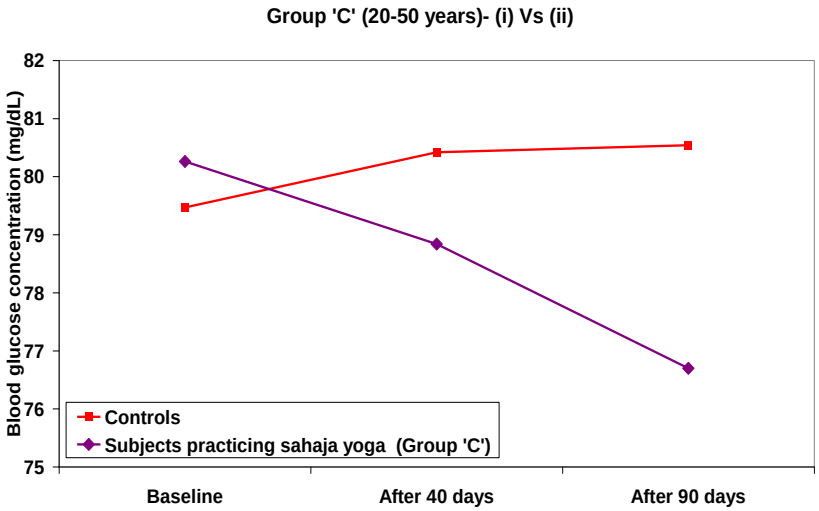

Fig 3: Comparison of blood glucose concentration in the subjects of age sub group –C of both Groups I vs II

Comparing the short term and long term effects of the Sahaja Yoga on blood glucose in the subjects of the two age groups, it was observed that the fall in blood glucose was comparatively more on day 90 when compared with the changes on day 40, in both the age groups. On comparing the changes in the two age groups, it was observed that decrease in blood glucose was comparatively more in the elder age group of (36-50 years) as compare to the young ones (20-35 years).

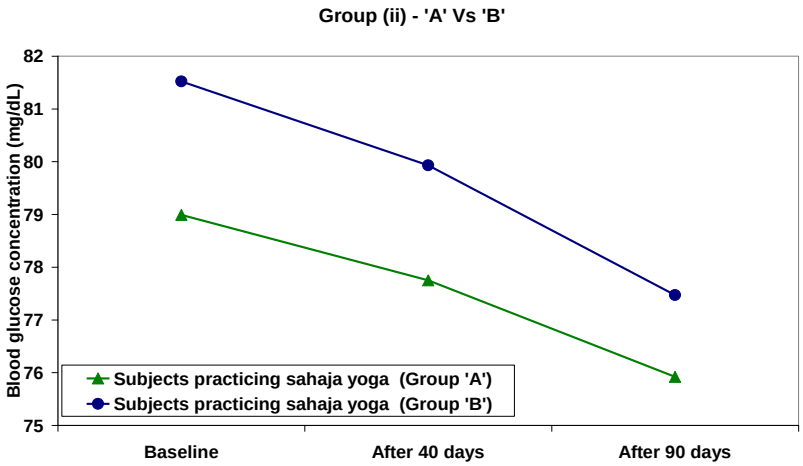

Fig 4: Comparison of blood glucose concentration in both sub groups A vs B subjects practicing sahaja yoga

DISCUSSION

Meditation, an ancient spiritual practice, is a mind-body technique that helps people in balancing mental, physical and emotional prospects that can be practiced by the people of any religion or culture. The science of Sahaja Yoga focuses on awakening the dormant primordial energy (the Kundalini), whereby a flow of subtle cool cosmic vibrations in the body is achieved. This in turn nourishes and rejuvenates each and every cell of the body. As a result of it, body manufactures certain fluids which have curative powers that help in overcoming the most severe of the ailments [10].

The beneficial effects of meditation and meditative movement on physical body have been revealed by several workers. In healthy people, physiological changes are concerned with reduction of heart rate, blood pressure, respiratory rate, metabolic rate and the levels of stress hormones [11, 12]. There are also reports suggesting that meditation enhances parasympathetic nervous system, cerebral blood flow, cerebral function of attention areas and release of dopamine and serotonin [13,14,15]. Additionally, clinical studies have illustrated its therapeutic effects in many pathological diseases, when used in combination with conventional treatment, such as in cancer,[16,17] cardiovascular diseases, diabetes mellitus,[18] hypertension and chronic pain.[19] However, various biochemical parameters still have to be studied in healthy individuals.

Sudsuang *et al.;* [20] have shown that practising Dhammakaya Buddhist meditation produces certain biochemical and physiological changes, and reduces the reaction time (the interval time between the presentation of a stimulus and the initiation of the muscular response to that stimulus). They reported a significant increase in serum total protein and reduction in serum cortisol levels in male subjects of age 20-25 years. Vandana *et al.;* studied the impact of integrated Amrita Meditation Technique (IAMT) on adrenaline and cortisol levels in healthy college students (age 18-21 years). They reported that IAMT has long-term efficacy in reducing the levels of these two stress hormones, within group comparisons, i.e., before the start of IMAT and during the follow up period up to 8 months [21].

To our surprise, we have not come across any study from literature, depicting the effect of Sahaja Yoga on alterations in blood glucose levels in normal healthy subjects practicing it. Meditation is believed to gradually diminish sympathetic dominance, resulting in a better balance between the sympathetic and parasympathetic. It also brings about a hypo-metabolic state [22]. Perez *et al.;* reported that metabolic effects of meditation include a decreased adrenocortical activity and long term decreased cortisol and thyroid stimulating hormone secretions [23]. This hormonal imbalance in turn may also affect glucose homeostasis.

The results of the present study demonstrate that practicing Sahaja Yoga reduces blood glucose concentration in normal healthy subjects and that changes were more marked in Group –B. It may be due to the differences in the metabolic status of the two age groups. It can be concluded from the present study that Sahaja Yoga helps in improving health status of an individual including blood glucose particularly in adults. Furthermore, the practice should be adopted and continued for a long duration.

ACKNOWLEDGEMENT

The authors wish to thank all participants of this study for their cooperation. This work has been supported by the Institute Research Grant, MAMC, Agroha, and Hisar India.

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