ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Effect of Yoga Practices on Total Cholesterol and High Density Lipoproteins among Female Diabetic Patients

Dr. Mrs. V. Uma

Physical Directress, A.D.M. College. Nagapattinam, Tamilnadu, India.

Received 20th August 2016, Accepted 10th September 2016

Abstract

The purpose of the present study was to find out the effect of yoga practices on total cholesterol and high density lipoproteins among female diabetic patients. For this purpose, thirty female diabetic patients around Annamalainagar, Chidambaram, Cuddalore District, Tamilnadu in the age group of 35 – 40 years were selected. They were divided into two equal groups, each group consisted of fifteen subjects, in which group – I underwent yoga practices and group – II acted as control that did not participate in any special activities apart from their regular day-to-day activities. The training period for this study was six days in a week for twelve weeks. Prior to and after the training period the subjects were tested on total cholesterol and high density lipoproteins. Total cholesterol and high density lipoproteins were tested after taking 10 ml of blood samples by venous puncture method, by using Boehringer Manheimm Kit Method. The Analysis of Covariance (ANCOVA) was used to find out any significant difference between the pre-test mean and post-test means and significant difference that was exists between the yoga practice group and control group on selected criterion variables. It was concluded from the results of the study that yoga practice has decreased the total cholesterol and increased the high density lipoproteins significantly (P > .05) after yoga practice. It was found that there was a significant difference was occurred between the yoga practice group and control group on total cholesterol, high density lipoproteins and uric acid level.

Keywords: Yoga practice, diabetic patients, total cholesterol, high density lipoproteins, Boehringer Mannheim kit method, ANCOVA.

Introduction

Yoga is one of the most ancient cultural heritages of India. The word *yoga* in Sanskrit means "to unite", and so *yoga* can be said to connote a unitive discipline.[1] Yoga is a complete science of life that originated in India many thousands of years ago.[2] Yoga is an exact science. It is a perfect, practical system of self-culture. It is the discipline of the mind, senses and the physical body.[3] Diabetes mellitus: Better known just as "diabetes" -- a chronic disease associated with abnormally high levels of the sugar glucose in the blood.[4] Diabetes mellitus is a group of metabolic diseases characterized by high blood sugar (glucose) levels, that result from defects in insulin secretion, or action, or both. Elevated levels of uric acid (hyperglycemia) lead to spillage of glucose into the urine, hence the term sweet urine. Normally, uric acid levels are tightly controlled by insulin, a hormone produced by the pancreas. Insulin lowers the uric acid level. [5] Yoga Asanas for Curing diabetes are Ardha Chandrasana, Bhujangasana, Salabhasana, Poorna Salabhasana, Dhanurasana and Ustrasana. Most of these postures cause the internal viscera to stretch, bringing stimulation to the pancreas and other glands and organs that otherwise receive no stimulation.[6] Cholesterol is also found in the blood circulation of humans. The cholesterol in a person's blood originates from two major sources, dietary intake and liver production. [7] The association of high serum uric acid with insulin resistance has been known since the early part of the 20th century, nevertheless, recognition of high serum uric acid as a risk factor for diabetes has been a matter of debate. [8]

Correspondence
Dr.V.Uma
E-mail: umaasports@gmail.com, Ph. +9198438 19922

Methodology

Thirty female diabetic patients living around Annamalainagar, Chidambaram, Cuddalore District, Tamilnadu were selected as subjects and their age ranged between 35 and 40 years. They were divided into two equal groups, such as, Group - I underwent yoga practices (n = 15) and Group - II acted as control (n = 15), which did not undergo any special exercises apart from their day-to-day activities. The yoga practice period was six days (Monday to Saturday) per week for twelve weeks. Self regulation in diet was followed and a regular interrogation about the subjects' diet was also followed. The researcher consulted with the yoga experts, selected the following variables as criterion variables: 1. total cholesterol and 2. high density lipoproteins. The total

cholesterol and high density lipoproteins was measured by using the Boehringer Mannheim Kit method. For the purpose of collection of data the subjects in both the groups (experimental group and control group) were asked to report at early morning, one day prior and one day after experimental period, in fasting condition. 5 ml of blood was collected from each subject by venous puncture method and the blood thus collected was stored in small bottles for pre and post-test for measuring the total cholesterol and high density lipoproteins. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental group and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Result and Discussion

The data collected prior to and after the yoga practice period on total cholesterol and high density lipoproteins on yoga practice group and control group were analysed and presented in the following Table – I

Table I. Analysis of Covariance and 'F' ratio for Total Cholesterol and High density lipoproteins for Yoga Practice Group and Control Group

Variable Name	Group Name	Yoga Practice Group	Control Group	'F' Ratio
Total Cholesterol (mg/dl)	**Pre-test Mean ± S.D**	217.88 ± 13.263	217.37 ± 13.29	0.89
	Post-test Mean ± S.D.	215.56 ± 12.561	217.85 ± 14.53	5.261*
	Adj. Post-test Mean	214.878	217.51	12.263*
High density lipoproteins (mg/dl)	**Pre-test Mean ± S.D**	48.45 ± 3.861	46.22 ± 4.126	1.163
	Post-test Mean ± S.D.	50.53 ± 2.331	45.39 ± 3.968	5.861*
	Adj. Post-test Mean	50.116	46.083	25.263*

* Significant at .05 level of confidence. (The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Result

After applying the analysis of covariance, the result of this study showed that there was a significant decrease in total cholesterol for the yoga practice group and also there was a significant increase in the high density lipoproteins level after the experimental period. Further, comparing the adjusted post-test means of the criterion variables, such as the total cholesterol (F- ratio – 12.263 $p > 0.05$) and high density lipoproteins (F-ratio – 25.263 $p > 0.05$) it was found yoga practices has significantly decreased the total cholesterol and increased the high density lipoproteins. The result of the study also shows that there was a significant difference in total cholesterol and high density lipoproteins level between the yoga practice group and control group.

Conclusions

1. It was concluded the results of the study that there was a significant decrease in total cholesterol and an increase in high density lipoproteins (Prasad et al 2006 [9] and Sayyed et al 2010 [10]) among diabetes patients after the twelve weeks of yoga practice.
2. It was also concluded from the results of the present study that there was a significant difference was occurred between the yoga practices group and control group on total cholesterol and an increase in high density lipoproteins.

References

1. Retrieved from http://hinduism.about.com/bl-yoga-define.htmon on 24-04-2012.
2. Swami Vishnu Devananda (2000), *The Sivananda Companion to Yoga*, New York: Fireside Book, Simon and Schuster.
3. Retrieved from http://sivanandaonline.org/html on 20-04-2012.
4. Retrieved from http://www.medterms.com/script/main/art.asp?articlekey=2974 on 22-04-2012.
5. Retrieved from http://www.medterms.com/script/main/art.asp?articlekey=2974 on 22-04-2012.
6. Retrieved from http://yoga2ayurvedha4healing.googlepages.com on 24-02-2012
7. Retrieved from http://www.health.am/topics/more/cholesterol_and_the_heart/ on 12-04-2012.

8. A. Dehgan, M. van Hoek, E.J. Sijbrands, A. Hofman and J.C. Witteman, "High Serum Uric Acid as a Novel Risk Factor for Type-2 Diabetes", *Diabetes Care*, 31:2, (February 2008), 361 – 2.
9. K.V.V. Prasad, M. Sunita, P.S. Raju, M.V. Reddy, B.K. Sahay and K.J.Y. Murthy, "Impact of Pranayama and Yoga on Lipid Profile in Normal Healthy Volunteers", *Journal of Exercise Physiology*, 9:1, (2006), 1 – 6.
10. Sayyed, Anjum, Jyotsna Patil, Vilas Chavan, Shrirang Patil, Sujeet Charugulla, Ajit Sontakke and Neelima Kantak, "Study of Lipid Profile and Pulmonary Functions in Subjects Participated in Sudarshan Kriya Yoga", *Al Ameen J Med Sci*, 3:1, (2010), 42 – 49.

Please cite this article as: Dr. V. Uma. Effect of Yoga Practices on Total Cholesterol and High Density Lipoproteins among Female Diabetic Patients. *International Journal of Recent Research and Applied Studies*, 2016, 3, 9(12), 56-58.