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Effect Of Yoga With Varma Therapy And Traditional Medicine On Lipid Profile Among Middle-Aged Diabetes Mellitus Men

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Abstract
Diabetic dyslipidemia, which is characterized by elevated lipid profiles directly linked to hyperglycemia. Lipid profile abnormalities can result from disrupted glucose metabolism, and a cyclical risk. The present investigation to find out the effect of yoga with varma therapy and traditional medicine on lipid profile variables among pre-diabetic middle-aged men. To achieve this purpose, forty men pre-diabetic parsons were randomly selected from Sivakasi, Tamilnadu, India as subjects. The selected subjects age, height and weight range were 42 ± 5 years, 165 ± 8 cm and 74 ± 8 kg respectively. The average blood glucose level of selected subjects observed 120 ± 4 as therefore the selected subjects were identified as pre-diabetic persons. They were randomly split into four equal groups, and all groups contains of ten (n=10) subjects in each, in which they known as group I yoga with varma group, group II yoga with traditional medicine group and group III yoga with varma and traditional medicine group. The group IV would be considered as control group, which did not undergo any specific physical activity or therapy except their regular activities and diet. The consent obtained from the participants, nevertheless, they were free to leave their consent, in case they feel any uneasiness during the tenure of their participation, but there were no withdraw in this study. All the subjects of the four groups were tested by selected dependent variables for the present study such as High-density lipoprotein (HDL), Low-density lipoprotein (LDL), Triglyceride and Total Cholesterol prior to and immediately after the training programme. All the subjects of the four groups were tested on criterion variables at prior to and immediately after the training program for significance by applying independent 't' test to find the initial and final mean differences on each variables. The analysis of covariance was used to find the difference among the group if the difference on initial and final mean. In addition to this, Scheffe's post-hoc test will be employed to find the paired mean differences. The magnitude of improvement also calculated to know the improvement from the baseline score on selected variables. The level of confidence is fixed at 0.05, for significance. The result of present study observed that the yoga, varma and traditional medical application had significant contribution for reducing of lipid profile profile. The present study concluded that the yoga with varma and traditional medicine group has highly positive impact in the management of lipid profile profile among middle-aged men.

Key Words: - Yoga, Varma, Traditional Medicine, Lipid profile Profile.

INTRODUCTION

Diabetic dyslipidemia, which is characterized by elevated low-density lipoprotein cholesterol (LDL-C), low HDL-C, and high triglycerides (TG), is directly linked to high blood sugar (hyperglycemia). This interaction is reciprocal; lipid profile abnormalities can result from disrupted glucose metabolism, and a cyclical risk for cardiovascular disease can be created by elevated lipid profile levels that also adversely affect glucose homeostasis.

Diabetes is not only quite common in India, but it is also fast rising among the urban population, according to studies done in the past ten years. It is estimated that there are approximately 33 million adults with diabetes in India. By 2027, this figure is probably going to rise to 67.2 million (Seth, 2004). Diabetes necessitates a multifaceted therapeutic approach because it is a complex disease that causes several complications. Diabetes patients' cells either do not respond to insulin or do not produce enough of it (Grover, 2002). Patients receive insulin injections if they are completely insulin deficient. However, numerous medications are created for those whose cells do not react to insulin. Considering potential disruptions in the metabolism of carbohydrates (Scartezzinim 2000).

Varmam is also known as Vazhi Aatral. One of the oldest and most widely used external treatments is Varmam. It is one of the marital arts of South India. In contemporary times, Varma therapy is referred to as Thanuology. Varma spots are referred to as "life centers" because saram, a living energy, flows through them. As stated in literature, Vata, Pitha, and Kapha normalize the disturbed humor by exerting pressure. In order to preserve homeostasis, energy is channeled to different sections of our body through the varma. Varma therapy is important when it comes to orthopedic disorders. Additionally, it is used to treat diseases like diabetes. osteoarthritis, hemiplegia, ligament injuries, cervical and lumbar spondylosis, etc. Varmam is a complete, reasonably priced, and successful orthopaedic treatment.

In the last few years there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects. Many traditional medicines in use are derived from medicinal plants, minerals and organic matter. To date, over 400 traditional plant treatments for diabetes have been reported, although only a small number of these have received scientific and medical evaluation to assess their efficacy. The hypoglycemic effect of some herbal extracts has been confirmed in human and animal models of type 2 diabetes. The World Health Organization Expert Committee on diabetes has recommended that traditional medicinal herbs be further investigated. [*Karthik Nagarajan, 2018*]

The critical components of diabetes management are medication, diet and physical activity and exercise (Falci, 2016). However, many complementary and alternative practices have been used by people in both the prevention and treatment of diabetes such as yoga, varma and traditional medical application (Medagama, 2014).

However, there are few reports as regards to the influence of yoga, varma and traditional medicine on lipid profile. Hence, the present study was undertaken to assess the beneficial effects of yoga, varma therapy and traditional medicine on lipid profile in middle-aged normal and diabetes mellitus men.

METHODOLOGY

To achieve this purpose, forty men pre-diabetic parsons were randomly selected from Sivakasi, Tamilnadu, India as subjects. The selected subjects age, height and weight range were 42 ± 5 years, 165 ± 8 cm and 74 ± 8 kg respectively. The average blood glucose level of selected

subjects observed 120 ± 4 as therefore the selected subjects were identified as pre-diabetic persons. They were randomly split into four equal groups, and all groups contains of ten (n=10) subjects in each, in which they known as group I yoga with varma group, group II yoga with traditional medicine group and group III yoga with varma and traditional medicine group. The group IV would be considered as control group, which did not undergo any specific physical activity or therapy except their regular activities and diet. The consent obtained from the participants, nevertheless, they were free to leave their consent, in case they feel any uneasiness during the tenure of their participation, but there were no withdraw in this study. All the subjects of the four groups were tested by selected dependent variables for the present study such as High-density lipoprotein (HDL), Low-density lipoprotein (LDL), Triglyceride and Total Cholesterol prior to and immediately after the training programme. The whole experimental program was implemented for six days per week for twelve weeks. In every day training session, the practice lasted approximately between forty-five minutes and an hour, which included warning up and relaxation. under yogasana, a batch of twelve asana, which are commonly called of Suryanamaskar was given to the subjects, followed by Ardhakaticakrasaa, Eka Pada Asana , Vajrasana, Janu Sirsasana, Parivritta Janusirsasana, Baddha Konasana , Ek Pada Kapotasana, Balasana, Makarasaa Majariasana, Pawanmuktasana, Sethubandhasana, Viparitakarni, Markatasana, Savasana, Chandra Bhendana, Nadi Shuddhi, Anuloma Viloma, Bhramari Pranayama, Ujjayi, Silent Meditation. The pranayama practices with 2 to 5 sets of 5 to 15 repetitions increased every 3 weeks respectively. Shanmuki Mudra, Aswini Mudra, Brahma Mudra, Bhujangini Mudra, ViparitaKaranifollowed as mudra practice. The varma therapy such as Urumi Kaalam (At the end of the Sternum bone in between the rib cage), Nangana Poottu (Sacrocliac joints), Aamai Kaalam (Mid of the thigh - Quadriceps Femoris), Vaayu Kaalam (T 12 Point of the Spinal Cord). The traditional medicine such as Sirukurinchaan Chooranam (Gymnema sylvestre), Morning before breakfast, Tirikadugu Chooranam (Sukku, Millagu, Tippili) every day after Lunch. TriphalaChooranam (Nellikkai, Kadukkai, Thandrikkai), every day after dinner. The traditional medicines are mixed with hot water before consume. All the subjects of the four groups were tested on criterion variables at prior to and immediately after the training program for significance by applying independent ‘t’ test to find the initial and final mean differences on each variables. The analysis of variance (ANOVA) was used to find the difference among the group if the difference on initial and final mean. After eliminating the influence of pre-test, the adjusted post-test means of experimental groups were tested for significance by using ANCOVA. In addition to the, Scheffe’s post-hoc test will be employed, when the F-ratio of the adjusted post-test means is significant, to find out the paired mean difference if any among the groups for each variable, separately. Further the magnitude of improvement between pre and post data of experimental groups and control group assess by using percentage calculation on selected criterion variables. The level of confidence fixed at 0.05, for significance. The data on selected criterion variables were analyses using IBM SPSS software version 21.0.

High-density lipoprotein (HDL), Low-density lipoprotein (LDL), Triglyceride and Total Cholesterol

RESULTS

Table - I

INDEPENDENT 'T' TEST AMONG EXPERIMENTAL AND CONTROL GROUP ON SELECTED LIPID PROFILE VARIABLES

	YVC	YTMC	YVTMC	CG
HDL	T – 19.09*	T – 20.36*	T – 22.36*	T – 1.23
LDL	T – 4.83*	T – 10.45*	T – 17.26*	T – 1.41
Triglyceride	T – 13.77*	T – 15.26*	T – 39.44*	T – 1.64
Total Cholesterol	T – 52.67*	T – 50.94*	T – 44.64*	T – 1.63

The table value for df-18 is 1.734. * Significant at 0.05 level.

YVC - Yoga with Varma Group, **YTMC -** Yoga with Traditional Medicine Group**,** **YVTMC -** Yoga with Varma and Traditional Medicine, **CG -** Control Group.

The pre and post data of YVC, YTMC, YVTMC and CG on HDL were 58.20-61.80, 57.90-62.70, 58.30-63.40, 58.10-58.40. The pre and post data of YVC, YTMC, YVTMC and CG on LDL were 103.60-100.70, 102.70-97.90, 103.30-96.00, 103.20-102.30. The pre and post data of YVC, YTMC, YVTMC and CG on Triglyceride were 151.90-148.20, 151.70-145.90, 152.30-145.10, 151.90-151.20. The pre and post data of YVC, YTMC, YVTMC and CG on Total Cholesterol level were 210.20-196.60, 210.20-195.30, 210.00-193.10, 210.30-209.70. the obtained 't' value significant of YVC, YTMC, YVTMC on selected lipid profile variables were as the CG no significant on selected lipid profile variables. The results on above table indicate that the experimental group's shows significant reduction on lipid profile level due to respective yoga, varma and traditional medical practice protocol, whereas, control group had no significant among pre-diabetic middle aged men.

TABLE- II

ANALYSIS OF COVARIANCE AMONG EXPERIMENTAL AND CONTROL GROUP ON LIPID PROFILE VARIABLES

Adjusted Post Test Mean	Yoga with Varma	Yoga with TM	Yoga with Varma and TM	Control Group	SOV	SS	df	MS	F
HDL	61.78	62.77	63.34	58.41	**B**	146.08	3	48.69	**176.30***
					W	9.67	35	0.28	
LDL	100.66	97.94	95.99	102.50	**B**	247.72	3	82.57	**152.93***
					W	18.90	35	0.54	
Triglyceride	148.19	145.86	145.15	151.19	**B**	221.05	3	73.68	**155.97***
					W	16.54	35	0.47	
Total Cholesterol	196.59	195.29	196.17	208.15	**B**	1102.7	3	367.56	**61.40***
					W	209.53	35	5.99	

*Significant, (The table values of df 3 and 35 was 2.866, 2.874 respectively)

The result of above table shows that, there was a significant difference among yoga with varma group, yoga with traditional medicine group, yoga with varma and traditional medicine group and control group on lipid profile variables such as

HDL, LDL, triglyceride and total cholesterol among pre diabetic middle-aged men. Since, the obtained 'F' value found significant, the scheffe's post hoc test was applied to find out the paired mean difference presented in table III.

TABLE- 4.3
SCHEFFE'S POST HOC TEST ON PAIRED MEAN AMONG EXPERIMENTAL AND CONTROL GROUP ON LIPID PROFILE VARIABLES

Variables	Test	Yoga Varma Vs Yoga TM	Yoga Varma Vs Yoga Varma & TM	Yoga Varma Vs Control Group	Yoga TM Vs Yoga Varma & TM	Yoga TM Vs Control Group	Yoga Varma & TM Vs Control Group
HDL	**Mean Difference**	**1.000***	**1.567***	**3.367***	**0.567***	**4.367***	**4.933***
	P Value	0.000	0.000	0.000	0.28	0.000	0.000
LDL	**Mean Difference**	**2.717***	**4.672***	**1.837***	**1.956***	**4.554***	**6.506***
	P Value	0.000	0.000	0.000	0.000	0.000	0.000
Triglyceride	**Mean Difference**	**2.329***	**3.042***	**3.000***	**0.713***	**5.329***	**6.042***
	P Value	0.000	0.000	0.000	0.032	0.000	0.000
Total Cholesterol	**Mean Difference**	**1.300**	**0.419**	**11.560***	**0.881**	**12.860***	**11.979***
	P Value	0.243	0.705	0.000	0.428	0.000	0.000

***Significance at 0.05**

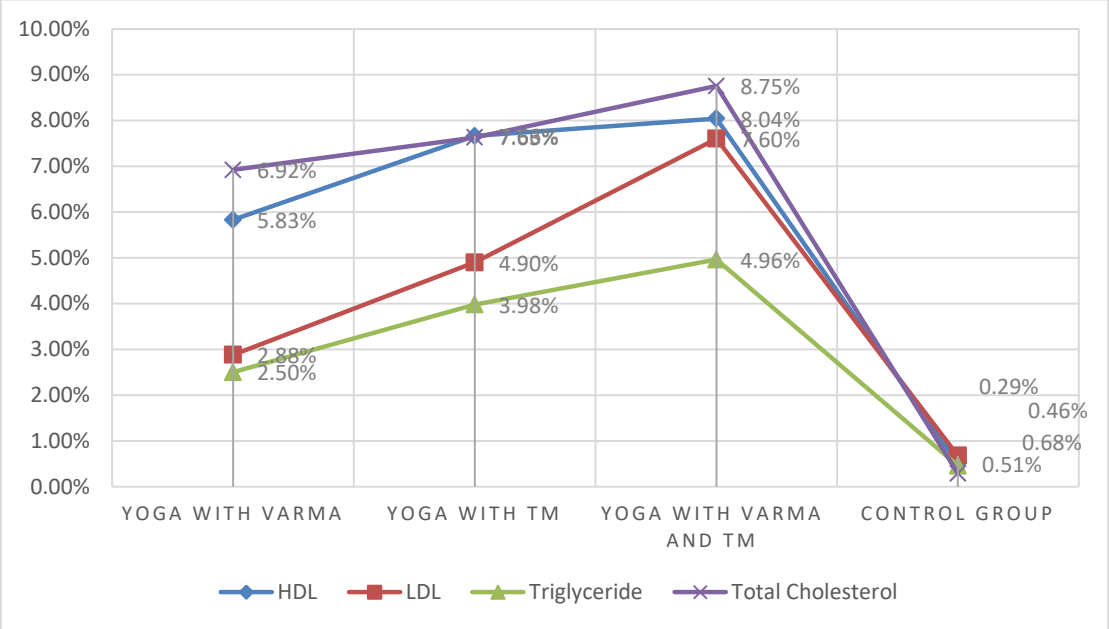
The result on paired mean difference shows that the experimental groups show better reduction on selected lipid profile when compared with control group. The results of study show that the yoga with varma group, yoga with traditional medicine group, yoga with varma and traditional medicine group had better reduction on lipid profile among pre diabetic middle-aged men. The table also shows that there was no significant difference on total cholesterol between yoga with varma group and yoga with traditional medicine group and yoga varma and yoga varma & traditional medicine also yoga traditional medicine and yoga varma & traditional medicine group. However, the improvement was in favor of yoga with varma and traditional medicine group when compare with rest of the experimental groups.

MAGNITUDE OF IMPROVEMENT

Magnitude of Improvement	Yoga with Varma	Yoga with TM	Yoga with Varma and TM	Control Group
HDL	5.83%	7.66%	8.04%	0.51%
LDL	2.88%	4.90%	7.60%	0.68
Triglyceride	2.50%	3.98%	4.96%	0.46%
Total Cholesterol	6.92%	7.63%	8.75%	0.29%

Figure I

Graphical Representation of Magnitude of Improvement on Lipid Profile



DISCUSSION

The result on present study reviles that the yoga, varma and traditional medicine on lipid profile among diabetes men. Therefore, the result was discussed with previous research results to identify the correlation with the same on logical manner as follows.

Rast et al., (2013) conducted the study on the effect of yoga training on lipid profile and blood glucose in type II diabetic females. The results indicated a significant difference in the changed levels of total cholesterol, triglycerides, LDL, HDL, and blood glucose between the control and experimental groups.

Pang GM et al., (2019) the effects of yoga on the connection of mind and body and reducing stress hormones have been proved since long times. Therefore, it seems that, patients with type II diabetes, along with fully compliance with their diet, can benefit these exercises in order to control some risk factors associated with diabetes.

The diabetes mellitus is a global health problem that causes significant distress for patients. Although many biologic agents have been developed to treat diabetes mellitus, attention to herbal medicine in the treatment of diabetes mellitus has been growing.

Herbal medicine is mainly used to treat diabetes mellitus through its anti-inflammatory, anti-oxidation, blood lipid profile regulation, and anti-glucose properties. Herbal medicine is superior in its holistic quality, which can treat diabetes mellitus through multiple targets, and is a good complementary and alternative treatment for diabetes mellitus (*Anne McIntyre, 2010*).

However, some deficiencies in herbal medicine need to be studied further. Herbs, especially some herbal formulas, contain a variety of ingredients, and it is difficult to accurately identify the active ingredients and toxic ingredients. Most of the above studies are animal experiments. Large-scale, multicenter clinical studies still lack reliable and detailed information. Furthermore, there have also been few reports on follow-up observations of patients with diabetes mellitus treated with herbal medicine (Chang, 2013).

Thus, it observed that yoga traditional medicine and varma therapy practice had significant contribution for normalizing blood lipid profile. Moreover, the

subjective feelings of participant were also support the result.

CONCLUSION

It is possible to draw the conclusion that the group that combined yoga, varma, and traditional medicine had the greatest effect on lipid profile based on the findings and discussion of the current study on these three practices for normalizing the blood lipid profile variables in middle-aged diabetes males. The groups that engaged in yoga with traditional medicine and yoga with varma therapy showed comparable increases in HDL and decreasing in LDL, triglyceride, total cholesterol. Based on baseline results, both groups also shown improvements in lipid profile indicators. This finding also encourages there is a scope to carry out the various research studies in this regard.

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