

Impact of yoga therapy on homocysteine levels with distended superficial veins among middle aged Men diagnosed with asymptomatic varicosity

K. Badri¹ & Dr. V. Subbulakshmi²

1. PhD Scholar in Yoga Science, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education and Research, No.12, Vembuliamman Koil Street, West K.K.Nagar, Chennai-78, Tamil Nadu, India

2. Professor, Faculty of Yoga Science and Therapy, Meenakshi Academy of Higher Education and Research, No.12, Vembuliamman Koil Street, West K.K.Nagar, Chennai-78, Tamil Nadu, India.

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ABSTRACT

The primary objective is to determine whether yoga therapy will optimise pain and swelling in the leg in men who are diagnosed with asymptomatic varicosity. Impact of yoga therapy on homocysteine among middle aged men diagnosed with asymptomatic varicosity is a randomized, parallel group, active controlled trial. According to the National Clinical Guideline Centre and CEAP (Clinical, Etiological, Anatomical and Pathophysiological) Classification of lower limb varicose veins (2004): skin with varicose vein visible (C2) are selected for the study. The subjects will be middle aged men. The total number of sample size is determined to be 40. Based on the information obtained, subjects were divided into two groups: yoga therapy group (20) and control group (20). The Dependent variables are homocysteine. Pre-test and Post-test has been conducted for all the selected samples on all the outcome measures. Subjects had received yoga therapy training for 3 months, three days per week with the session lasting for 60 minutes of total 12 weeks duration. In the Control Group, they will engage in active rest. The results proved that yoga therapy intensify the practice and decrease in homocysteine levels among middle aged men diagnosed with asymptomatic varicosity at 0.05 level of confidence. So, it is concluded that yoga therapy is beneficial to middle aged asymptomatic varicosity men.

KEY WORDS: Yoga Therapy, Homocysteine, Varicosity, Middle aged men, Asymptomatic

INTRODUCTION

Varicose veins of the lower limbs are balloon-like bulges between them which are curled, enlarged, prolonged and painful (Pedrycz & Budzysk, 2016) Varicose,

which are physically diagnosed by enlarged internal veins that protrusion and resemble cords, especially in the lower limbs are derived from the latin word varix, which indicates “twisted” (Somers and Knaapen

2006) About one-third of men and fifty percent of females in the North Indian community of Indians have a high prevalence of the disease. (**Agarwal et al., 2016**) In Udaipur, a cross sectional research showed that nurses, particularly female nurses had a greater incidence of varicose than their compared to men (**Mishra, Solanki & Mishra, 2015**) Genetic inheritance (**Shadrina et al., 2018**) or Age, female gender, family history of venous disease, and chronically elevated intraabdominal pressure brought on by diseases including obesity, pregnancy, and number greater than three are all risk variables (**Jukkola et al., 2006**) prolonged standing or sitting for longer hours, chronic constipation, a tumour, or any of these conditions (**Lacroix et al., 2003**) Weightlifting, wearing fitted clothing, and wearing high heels can all significantly limit heel to leg mobility, which lowers calf muscle activation and aids in the development of varicose.

OBJECTIVE OF THE STUDY:

The objective of the research is to determine the effectiveness of YT on the Hcy among middle aged asymptomatic varicose veins men.

METHODS AND DESIGN:

The impact of yoga therapy on the homocysteine levels in middle-aged men diagnosed with asymptomatic varicosity was a randomized, active-controlled, parallel-group trial. According to the National Center for Clinical Guidelines and his CEAP (Clinical, Etiological, Anatomical, and Pathophysiological) Classification of Varicose Veins (2004): Skin with visible varicose veins (C2) is selected for study. The target audience is middle-aged men. All subjects will be informed of the purpose and nature of the study and will obtain written consent prior to data collection. The total number of samples is set to 40. Based on the information received, subjects were divided into two groups. Yoga therapy group (20)

and a Control group (20). The dependent variable is the Homocysteine level. Pretest and posttest were performed for all outcome measures for all selected samples. Subjects were trained in yoga therapy three days a week for three months, with sessions lasting 60 minutes. The control group were in active rest. The Yoga therapy group received yoga protocol session (table1).

INCLUSION CRITERIA

1. Completing the written consent form and indicating your willingness to participate in the study.
2. Those diagnosed with C2 VV based on CEAP classification
3. Asymptomatic varicosity of lower extremities.
4. Hyperhomocysteinemia (abnormally high level of homocysteine in the blood) are involved in the study.
5. The Homocysteine range shall be from Intermediate levels (30 to 100 $\mu\text{mol/L}$)
6. No history of practicing any yoga or other exercises.
7. Assessed suitable for practicing YT based on physical exam.

EXCLUSION CRITERIA

1. Current clinical surgery or another significant clinically relevant illness.
2. Problems with blood clotting.
3. Individuals undergoing long-term anticoagulant medication.
4. Subjects who has additional comorbidities.
5. Recent VV surgery, pregnancy, appearance of venous ulcers, vasculopathy, arterial disease, deep vein thrombosis, bleeding, varicose eczema.

INTERVENTION

For three months, the control group they were in active rest (AR), while the experimental group underwent yoga therapy (YT). The techniques administrated for YT group as part of Yoga were Sukshma-Vyayama (Subtle joint loosening), Asanas (yogic-postures), Pranayama (voluntarily

regulated breathing practices), Deep-relaxation techniques (DRT), OM-Dhyana (Meditation). The details about the above-mentioned practices and the duration are given below. For three months, a qualified therapist gave the YT treatments to the experimental group for sixty-minutes three days a week. Both groups were also

instructed to continue their interventions on regular basis mentioned in methodology and also as per the provided directions or instructions, and regular phone follow-up was done on time. During the trial, no injury or unfavorable impact of the procedure were observed.

CONSORT FLOW DIAGRAM

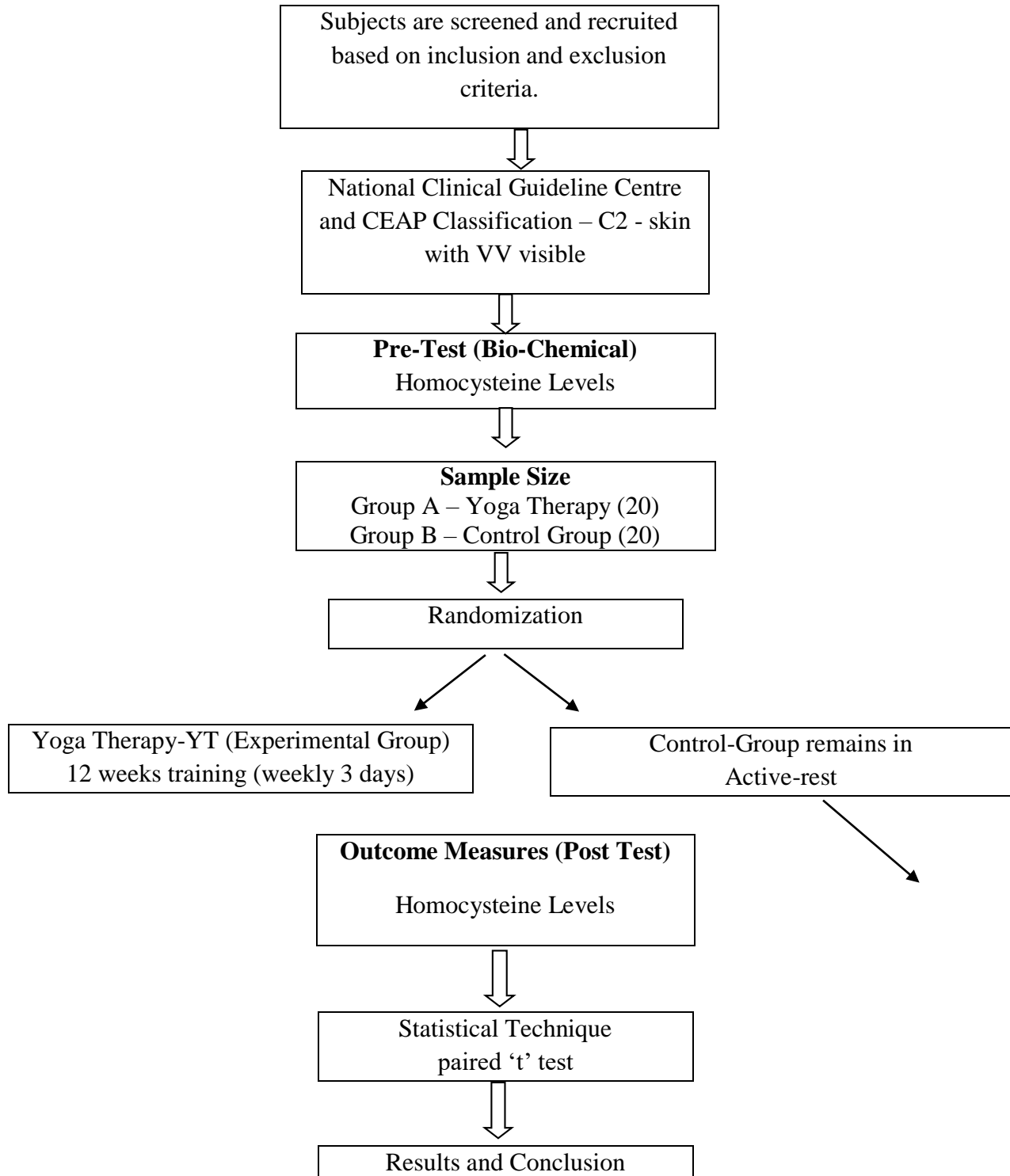


TABLE 1

The detail of practices introduces for both Experimental and Active control groups.

Groups	List of the Practices	Frequency	Duration
Experimental Group	<p>Yoga Therapy Practices</p> <ol style="list-style-type: none"> 1. Sukshma-Vyayama (subtle joint loosening practices) Baddhakonasan (full butterfly pose), Gulf-Chakra (ankle-rotations), Gulf-Goornan (ankle-rotations), Gulf-naman (ankle stretch), Janu-chakra (knee-crank), Janunaaman (knee-bending), Manibandhashaktivikasikaa (wrist-loosening exercises), Padangulinaaman (toes-stretch), Skandha-chakra (shoulder rotation) 2. Asanas (YP) Chakra-padasana (leg-rotation), Dhanuarsana (bow-pose), Jatharapariivartasana, Makarasana, Pada-sanchalanasana (cycling), Parsvakonasana, Paschimottanansna (forward-stretch), Salabhasana (locust-pose, Sarvangasana (shoulder-stand pose), Setubandhasana (bridge-pose), Trikonasana, Upavistkonasana, Utthanapadasana (raised-leg pose), Viparitakarani (inverted-pose) 3. Pranayama (voluntarily-regulated breathing techniques) Kaplabhati (frontal-brain cleansing), Nadisuddhi (alternate-nostril breathing), Shitali, Sheetkaari. 4. Deep-Relaxation technique 5. OM-Dhyana (OM-Meditation) <p style="text-align: center;">Total Duration</p>	<p>3 days a week</p> <p>3 days a week</p> <p>3 days a week</p> <p>3 days a week</p> <p>3 days a week</p>	<p>10 min.</p> <p>20 min.</p> <p>10 min.</p> <p>10 min.</p> <p>10 min.</p> <p>60 min/day</p>
Control Group	Control Group (They were in Active Rest)		

RESULTS AND DISCUSSIONS

- The data on the variable gathered from the two groups before and after the training period were statistically analyzed using the paired 't' test to evaluate the significant difference, and the hypothesis was 0.05 level of confidence.
- These are shown in the Tables below.

TABLE: 1
MEAN, STANDARD DEVIATION, AND INDEPENDENT ‘t’ TEST COMPUTATION
FOR YOGA THERAPY AND CONTROL GROUP ON PRE AND POST TEST

VARIABLE	PRE-TEST			POST-TEST		
	Yoga-Therapy Group	Control Group	Independent ‘t’ Test	Yoga-Therapy Group	Control Group	Independent ‘t’ Test
	Mean And Standard Deviation	Mean And Standard Deviation	P Value	Mean And Standard Deviation	Mean And Standard Deviation	P Value
HOMOCYSTEINE	23.3	22.3	T=0.8	17.9	22.3	T=4.8
	3.6	2.9	P=.421	2.3	2.8	P=<0.001

***Significant at 0.05 level of confidence**

The above table shows the results of “t” test of intervention group for homocysteine among middle aged asymptomatic varicosity men. In the case of Pretest and Post-test (Experimental Group), pretest of YT group and CG shows no statically significant difference among them whereas posttest of YT group shows statically significant than the post-test of control-group. The posttest of YT group has improved than the CG. Hence, it is concluded that, there is a significant large difference between the Pre-test and Post-test for experimental group on homocysteine.

TABLE II:
YOGA THERAPY EFFECTIVENESS BETWEEN THE YOGA THERAPY GROUP AND THE CONTROL GROUP ON PAIRED ‘t’ TEST AND INDEPENDENT ‘t’ TEST

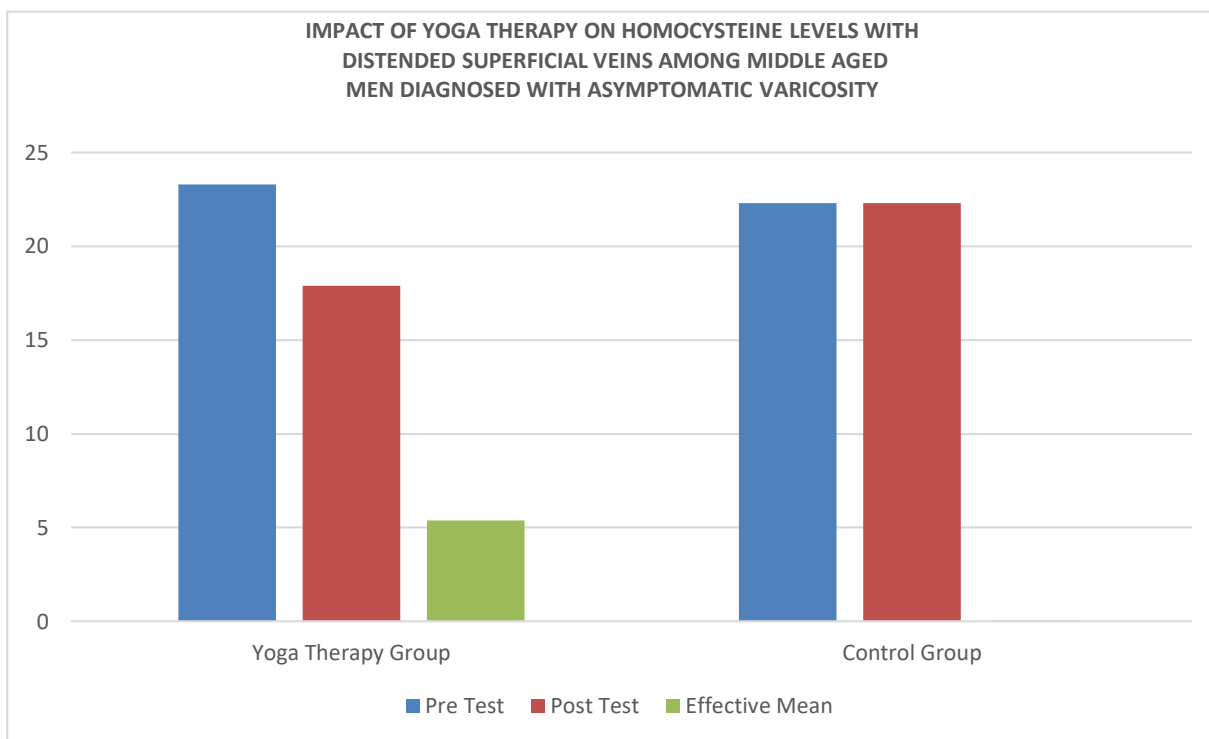
VARIABLE	YOGA-THERAPY GROUP		CONTROL-GROUP	
	Effective mean +SD	Paired t test T Value P Value	Effective mean +SD	Paired t test T Value P Value
HOMOCYSTEINE	5.39	T=10.5	0.04	T=0.3
	2.28	P<0.001	0.71	P=.783

***Significant at 0.05 level of confidence**

The effectiveness of the YT on homocysteine between YT group (M=5.39, SD=2.28) and the CG (M=0.04, SD=0.71) shows that the t-value for YT group is 10.5, p value p<0.001

and for CG t value is 0.3, p value is .783. This show that there is a significant difference. Hence, it is proved that YT group has intensify the measure in homocysteine levels (reduced) among middle aged asymptomatic varicosity men.

BAR GRAPH



Characteristics	Number	Percentage
Age Group (years)		
31-35	7	17.5
36-40	11	27.5
41-45	13	32.5
46 and above	9	22.5
Marital Status		
Un Married	2	5
Married	38	95
Occupational Status		
Un Skilled ¹	12	30
Semi- Skilled ²	17	42.5
Skilled ³	11	27.5
Distended Superficial Veins		
Left Leg DSV	23	57.5

TABLE 2:

¹Unskilled occupations include physical labor & watchman

²Semi-Skilled occupations include of hotel workers & Sales Persons

³Skilled occupations were Advocate & Teachers

DISCUSSION:

Varicose veins were reported to be prevalent among 27.8 per cent of males in the population of northern India. Also, according to an epidemiological study conducted in Indian rail road workers from the south and north India (**Malhotra S. L 1972**) in this study the prevalence of VV was significantly higher among South Indian sweepers (25.08 per cent) and North Indian sweepers (6.8 per cent) were reported. In this study subjects are chosen C2 classification of varicose veins. In Yoga Therapy (**Zulpe R 2023**) is the first who done research on VV (Ph.D) in India (as reported in shodhganga). Also, a study on Yoga with Hcy is going on in S-vyasa (**U. Yamuna, 2022**). As Hcy with Yoga Therapy is also a novelty in this study. Based on a review of the data, the current study may infer that the efficacy of YT on VV may be determined using the Hcy. This suggests that yoga can be a more effective treatment for VV. It was hypothesized that; the YT group would have a significantly lower the Hcy than the CG among VV. The study's findings revealed that the YT group had a considerably lower Hcy (reduced) than the control group. As a result, the hypothesis was accepted at 0.05 level of confidence. This is the study first study conducted on Hcy for middle aged asymptomatic varicose veins men with the YT treatment. Yoga is a tool or remedy for varicose veins. In our study, we did not observe elevated levels of homocysteine in our varicose disease subjects compared to control group. The results of our study showed that there was

less statistically significant difference between experimental group and control group based on the terms of baseline characteristics.

CONCLUSION

It was reported that YT resulted in significant differences in Hcy (reduced) for EG-A compared to control group CG among middle aged asymptomatic varicosity men. Yoga has the ability to heal those who are sick. As a result, YT is beneficial for males with VV in order to maintain Hcy levels. Hence, Yoga therapy is good for varicose veins men to maintain walking pattern in daily life.

DECLARATIONS

Ethical Considerations

We followed ethical guidelines. The institutional ethics committee (IEC) of Meenakshi Academy of Higher Education and Research-MAHER (Deemed to be University) examined and approved the experiment during its meeting on February 20, 2022. The reference number for the institutional ethics committee clearance certificate is MMCH/RI/PhD/01/JAN/23. The clinical study has been submitted to the Clinical Trials Registry-India (CTRI). The trial's registration number is CTRI/2023/05/052928.

Permission to publish

The final paper's content was agreed upon by all authors.

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Conflict of Interest

The authors reported no possible conflicts of interest.

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