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Clinical Study in the Management of Essential Hypertension with Pranayam, Suryanamaskar and Shavasana

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Abstract

High Blood pressure is considered as the third most important risk factor disease burden in south Asia and WHO rates HTN as one of the most important cause for premature death world wide.[1]

The modern life style, stress, smoking, and alcohol etc. which interfere with homeostatic mechanism and circadian rhythmic patterns, thus manifests its ill effects.

The regimen of modern medicine is effective to essential hypertension, but it having trouble some side effects also. In modern medicine sedative, hypnotic and anxiolytic drugs are also been used, to counteract the psychological factors (Manasika Bhavas). These drugs may lead to side effects like drowsiness, impaired motor function, forget fulness and sometimes, suicidal tendency may also be developed. But Ayurved line of treatment is safe and as effective as modern treatment without any major side effects.

The ill effects of faulty regimens of Triupastambh[2], Asatmendriyarth sanyoga, Pragnyapradha and Prinama[3] etc., influence the Rajo-doshain Manas, thus directly brings out the dosha vitiation so as it cause the ailment. Thus deviating from dinacharya, ritucharya, in an extreme competitive life, directly predisposes hypertension.

Hence, the study entitled "Clinical study in the management of essential hypertension with Pranayam, Suryanamaskar and Shavasana" was under taken. Study was carried out in two groups, Sarpagandhaghan Vati[4] as the control group and Yoga modalities as trial group.

In this study of 6 weeks, Yoga modalities proved to be the effective non pharmacological treatment in long term use in the management of essential hypertension.

Keywords: Pranayam; Suryanamaskar; Shavasana; Sarpagandha ghan Vati; Essential Hypertension; Yoga; Ayurveda.

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INTRODUCTION

Though, modern medical science has been developing advanced technologies and the rapeutics for the diagnosis and management of different disorders, still Indian medical system fulfill the health care needs of a vast majority of the population. Now days, large section of humanity globally is returning towards natural ways of life and they have lot of expectations from Ayurveda,

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which is not only a system of medicine rather the way of life, as it is easily available, toxic free and eco-friendly with its holistic approach.

Ayurveda is one of the most ancient medical sciences of the world. It conceives and describes the basic and applied aspects of life process, health, disease and its management in terms of its own principles and approaches.

As man has entered in 21st century with modernization in each and every walk of life, he has also paid for it by living in several stressful psychological conditions. The response to the psychological conditions varies person to person because each has different psychic and bodily constitution. However, these stressors play certain role in the development, progression, prognosis as well as management of the disease. This stressful lifestyle affects one's mind and homeostasis of body by several psychosomatic mechanisms and causes many psychosomatic disorders. The Essential hypertension is one of such diseases.

Hypertension is also known as silent killer of man kind because most sufferers (85%) are asymptomatic and as per available reports, in more than 95% cases of hypertension under lying cause is not found. Such patients are said to have Essential Hypertension (EHT).

Epidemiology / Prevalence

Nearly 63% of total deaths in India are due to non-communicable diseases, of which 27% are attributed to cardiovascular disease which affects 45% people in the 40-69 age group. Raised blood pressure is among the most important risk factors for CVDs. More over, it remains poorly controlled due to low awareness about hypertension, lack of appropriate care through primary care and poor follow up.[5]

A national level survey was conducted with fixed one-day blood pressure measurement camps across 24 states and union territories of India.

Overall prevalence of hypertension was 30.7% [95% confidence interval (CI): 30.5, 30.9] and the prevalence among women was 23.7% (95% CI: 23.3, 24). Prevalence adjusted for 2011 census population and the WHO reference population was 29.7% and 32.8%, respectively. There is a high prevalence of hypertension, with almost one in every three Indian adult affected.[6]

The disease burden (DALYs) attributable to hypertension increased from 21 million in 1990 to 39 million in 2016 (+89%). Social determinants of hypertension are important and Indian states with greater urbanization, human development and social development have more hypertension. There is poor association of hypertension prevalence with healthcare availability although there is positive association with healthcare access and quality. The health system in India should focus on better hypertension screening and control to reduce cardiovascular morbidity and mortality.[7]

The hypertension epidemic in India is further complicated by the fact that a large proportion of individuals is unaware of their hypertension status. A systematic review and meta-analysis of 142 studies on prevalence, awareness and control of hypertension in India published between 1950 and 2013 showed that only 25 per cent of rural and 42 percent of urban Indians were aware of their hypertension status.[8]

Essential Hypertension in Ayurveda

Hypertension can be correlated with Dushti of Vata (Vyana & Prana vayu), Pitta (Sadhaka) and Manovaha Srotasa involving Hridaya, Rasayani, Oja and process of Rasa Vikshepana. It is due to disturbed psychological factors like Chinta (Worry), Tanav (Stress), Krodha (Anger) etc., producing Hypertensive State.

As no modern treatment is known to cure essential hypertension, it can be easily treated through Ayurveda by understanding dosha dushya awastha and guna vikalpa samprapti. It should be taken into consideration that Mansik etiology plays a greater role in pathogenesis of essential hypertension and as per the verse dhi dharya a atma divigyanam manoaushdham param, it cannot be treated with out balancing the mansik bhavas.

Yoga is known to have evidence based excellent effect in balancing manasik doshas and known to have the efficacy to treat cardiovascular problems, this study was planned to assess the efficacy of yoga intervention in essential hypertension. As it has also been said non pharmacological treatment is always preferred over pharmacological treatment, this study could provide us new vision in the management of essential hypertension.

Keeping in view the above concepts, the research work entitled, "Clinical study in the management of essential hypertension with Pranayam, Suryanamaskar and Shavasana" was under taken with following.

Objectives of the study

1. To study Essential hypertension in detail according to modern science and correlation

with Ayurveda classics.

2. To evaluate the efficacy of the *Pranayam, Suryanamaskar & Shavasana* in the management of essential hypertension.

Previous Work Done

Yoga as a treatment for hypertension in primary care. A quantitative and qualitative analysis conducted in Sweden[9]

This study described several benefits to patients with yoga asanas but they also faced and described difficulties in implementing yoga as a regular and permanent lifestyle change. This RCT didn't show that the yoga intervention (Medi Yoga) lowers BP compared to control.

- ***Effect of yoga intervention in the management of hypertension.[10]***

Yoga proves to be an effective, safe, and less expensive adjunct therapy for hypertension management. Yoga was also found to be effective in reducing the level of stress.

- ***Effectiveness of Yoga for Hypertension: Systematic Review and Meta-Analysis.[11]***

Yoga can be preliminarily recommended as an effective intervention for reducing blood pressure. Additional rigorous controlled trials are warranted to further investigate the potential benefits of yoga.

- ***Effect of yoga on Hypertension[12]***

100 diagnosed patients of HTN were enrolledand yoga session was conducted for a period of 12 weeks. The same number of age/sex matched control group with same diagnosis were also enrolled and kept without yoga techniques. All were asked to continue their regular medications.

There was significant difference observed in SBP and DBP levels between first and last visit in yoga and control group. But, DBP shows complete normal in yoga group than compare with control group.

- ***Effect of Yoga on Mild to Moderate Hypertension[13]***

Study was conducted on 80 HTN patients trained in yoga and 80 HTN patients as control group. Yoga sessions were conducted for 12 weeks and SBP, DBP and pulse pressure were recorded before and after interventions.

Statistically significant reduction was observed in Pulse Rate, Systolic Blood Pressure, Diastolic Blood Pressure and Pulse Pressure among yoga practitioners.

- ***Effect of Short-Term Pranayam and Meditation on Cardiovascular Functions in Healthy Individuals[14]***

Fifty healthy subjects (24 males and 26 females) of 20–60 years age group, fulfilling the inclusion and exclusion criteria underwent two hours daily yoga program for 15 days taught by a certified yoga teacher. Pre and post yoga cardiovascular functions were assessed by recording pulse rate, systolic blood pressure, diastolic blood pressure, and mean blood pressure.

There was significant reduction in resting pulse rate, systolic blood pressure, diastolic blood pressure, and mean arterial blood pressure after practicing pranayam and meditation for 15 days. The response was similar in both the genders, both the age groups, <40 yrs and >40 yrs and both the groups with BMI, <25 kg/m2 and >25 kg/m2.

- ***Effect of yoga intervention in the management of hypertension: A preventive trial[15]***

An open label, two armed, non-randomized controlled trial was conducted at a tertiary care center on 145 patients with hypertension in two groups. The intervention group was advised yoga intervention for a period of 4 months on a weekly basis along with advice on physical activity, diet, and routine medicines. The control group did not receive yoga intervention. After statistical analysis it was proved Yoga is an effective, safe, and less expensive adjunct therapy for hypertension management.

MATERIALS & METHODS

Source of data

A. Patients

Pre-diagnosed patients of Essential hypertension were selected from the organized camps and OPD, Department of Swasthvritta of Institutional Hospital.

B. Literary

Literary aspect of study were collected from classical Ayurved, Yoga and Modern texts.

C. Plan of Study

1. Sarpagandha GhanVati as mentioned in Sidh Yogasangrah[4] was selected for study.
2. Yoga interventions: Were advised in the morning (empty stomach) for at least thirty minutes.

Pranayam (Sheetali Kumbhak) 16–15 cycles Approx 10 min.

Shavasana 17-25 mins

Suryanamaskar 18-6 cycles: Approx 10 mins

Shavasana: 5 mins

D. Sample size: A minimum of 100 patients

E. Exclusion criteria:

i. Patients below 20 yrs and 60 yrs & above.
ii. Patients suffering from any major systemic disorder.
iii. Patients who are not able to do yoga exercises or non co-operative.

Table 1: Treatment plan

Group	No. of Patients	Drug	Duration/Dose	Duration
Control	50	Sarpagandha Ghanvati with luke warm water	750mg/day in divided doses	30 days
Trial	50	Yoga exercises	Approx. 30 minutes daily empty stomach	30days

F. Inclusion Criteria.

i. Pre-diagnosed cases of essential hypertension.
ii. Patients between the age group of 20 to 60 years.
iii. Patients with Stage-I hypertension.
iv. Patients of both sexes were selected indiscriminately.

G. Criteria of Diagnosis.

Only Stage 1st Hypertensive patients according 2017 ACC/AHA/AAPA/ABC/ACPM/ AGS/ APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults.

Stage 1 Systolic BP 130-139 mm Hg or Diastolic BP 80-89 mmHg.

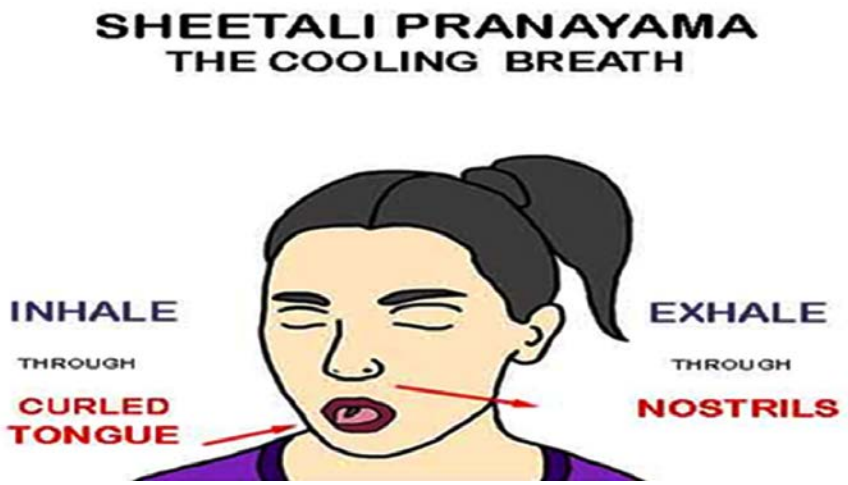
Diagnosis is made on the basis of measurements of sphygmomanometer.

Steps for SheetaliPranayama[16]

- Sit in a comfortable posture and close your eyes.
- Keep your hands on your knees through out the practice.
- Protrude your tongue from your mouth and extend it to a comfortable distance.
- Roll its sides up so that it forms a tube.
- Breathe slowly and deeply through the tube like tongue.
- Close your mouth at the end of inhalation and slowly exhale through your nose.
- Repeat the same process for 10 minutes daily.

Steps for Shavasana[17]

- Close your toes and tight them make sure another part of the body should be relaxed.
- Keep your toes tight and move your concertation



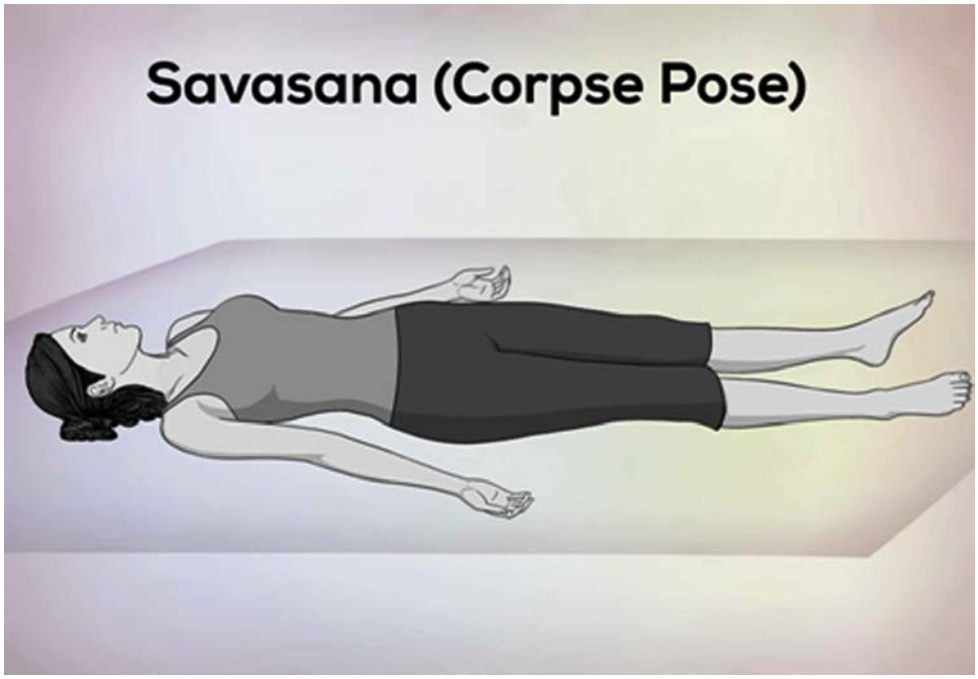
to knees. Breathe in and breathe out and do tight your knees. Rest body part should be relaxing except your toes and knees.

- Move your conversation to your waist and tight your waist same as toes and knees. your upper body is relaxing and lower body is tight.
- Move to your shoulder and tight your should as well.
- Now Tight your both hand and touch your palm to your body with tightness.

- Close your eyes and keep in this state for a few minutes your entire body is tight.
- Now we again move to process tight to relax.
- Relax your toes and make sure your entire body is tight except toes.
- Now Relax Knees along with toes another part of the body will be tight.
- Relax your waist with Knees and Toes.
- Now we will move to shoulder You will feel Relax. Start deep breathing and think that you are like a corpse.
- Come out from your body in relaxing mode. you will see that your body is lying on the floor and move to outside your thought and think about hills, or the best day of your life those will give Relaxation.
- Your Reminder will ring and you will come again to your corpse body, Feel Relax.

Steps for Suryanamaskar[18]

- Pranamasana (Prayer pose)
- Hastauttanasana (Raised arms pose)





- Hastapadasana (Standing forward bend)
- Ashwa Sanchalanasana (Equestrian pose)
- Dandasana (Stick pose)
- Ashtanga Namaskara (Salute with eight parts)

- Bhujangasana (Cobra pose)
- Adho Mukha Svanasana (Downward facing dog pose)
- Ashwa Sanchalanasana (Equestrian pose)
- Hastapadasana (Standing forward bend)
- Hastauttanasana (Raised arms pose)

Table 2: Observations For Group A Before Treatment & After Treatment

S. no.	SBP	AT	Diff	Deviation	(Dev)2	DBP	AT	Diff	Deviation	(Dev)2
1	150	142	8	0.28	0.08	98	92	6	-0.62	0.38
2	156	148	8	0.28	0.08	99	90	9	-3.62	13.1
3	146	150	-4	12.28	150.8	90	90	0	5.38	28.94
4	148	140	8	0.28	0.08	98	92	6	-0.62	0.38
5	150	138	12	-3.72	13.84	100	94	6	-0.62	0.38
6	152	146	6	2.28	5.2	98	98	0	5.38	28.94
7	140	134	6	2.28	5.2	94	90	4	1.38	1.9
8	148	140	8	0.28	0.08	96	88	8	-2.62	6.86
9	144	136	8	0.28	0.08	96	92	4	1.38	1.9
10	158	146	12	-3.72	13.84	102	98	4	1.38	1.9
11	156	148	8	0.28	0.08	100	94	6	-0.62	0.38
12	146	138	8	0.28	0.08	94	90	4	1.38	1.9
13	158	148	10	-1.72	2.96	104	92	12	-6.62	43.82
14	160	152	8	0.28	0.08	106	94	12	-6.62	43.82
15	140	134	6	2.28	5.2	94	90	4	1.38	1.9
16	138	130	8	0.28	0.08	94	90	4	1.38	1.9
17	150	148	2	6.28	39.44	98	92	6	-0.62	0.38
18	158	150	8	0.28	0.08	100	94	6	-0.62	0.38
19	160	148	12	-3.72	13.84	104	96	8	-2.62	6.86
20	154	144	10	-1.72	2.96	98	94	4	1.38	1.9
21	148	148	0	8.28	68.56	96	90	6	-0.62	0.38
22	158	148	10	-1.72	2.96	100	92	8	-2.62	6.86
23	142	138	4	4.28	18.32	94	90	4	1.38	1.9
24	148	140	8	0.28	0.08	98	90	8	-2.62	6.86
25	156	144	12	-3.72	13.84	98	88	10	-4.62	21.34
26	152	144	8	0.28	0.08	96	92	4	1.38	1.9
27	146	138	8	0.28	0.08	94	90	4	1.38	1.9
28	158	148	10	-1.72	2.96	100	94	6	-0.62	0.38
29	154	148	6	2.28	5.2	98	92	6	-0.62	0.38
30	150	140	10	-1.72	2.96	94	90	4	1.38	1.9
31	156	150	6	2.28	5.2	98	90	8	-2.62	6.86
32	148	140	8	0.28	0.08	96	92	4	1.38	1.9
33	140	140	0	8.28	68.56	94	88	6	-0.62	0.38
34	150	138	12	-3.72	13.84	96	90	6	-0.62	0.38
35	156	142	14	-5.72	32.72	100	94	6	-0.62	0.38
36	148	138	10	-1.72	2.96	96	90	6	-0.62	0.38
37	140	132	8	0.28	0.08	94	90	4	1.38	1.9

table cont.....

38	138	130	8	0.28	0.08	94	90	4	1.38	1.9
39	148	146	2	6.28	39.44	98	92	6	-0.62	0.38
40	150	142	8	0.28	0.08	92	90	2	3.38	11.42
41	158	144	14	-5.72	32.72	102	94	8	-2.62	6.86
42	152	140	12	-3.72	13.84	98	90	8	-2.62	6.86
43	158	152	6	2.28	5.2	104	98	6	-0.62	0.38
44	138	130	8	0.28	0.08	92	90	2	3.38	11.42
45	146	134	12	-3.72	13.84	94	90	4	1.38	1.9
46	150	138	12	-3.72	13.84	96	92	4	1.38	1.9
47	152	138	14	-5.72	32.72	100	94	6	-0.62	0.38
48	140	130	10	-1.72	2.96	92	88	4	1.38	1.9
49	154	142	12	-3.72	13.84	98	98	0	5.38	28.94
50	150	140	10	-1.72	2.96	96	94	2	3.38	11.42
			M=-8.28		664.16			M=-5.38		329.78

- Prayer pose (Mountain Pose)

Observations & Results

Group A: Systolic Blood Pressure

Difference Scores Calculations

Mean: -8.28

μ = 0

S2 = SS⁄df = 664.08/(50-1) = 13.55

S2M = S2/N = 13.55/50 = 0.27

SM = √S2M = √0.27 = 0.52

T-value Calculation

t = (M - μ)/SM = (-8.28 - 0)/0.52 = -15.9

The value of t is -15.903883. The value of p is < .00001. The result is significant at p < .05.

Group A: Diastolic Blood Pressure

Observation & Results

Difference Scores Calculations

Mean: -5.38

μ = 0

S2 = SS⁄df = 329.78/(50-1) = 6.73

S2M = S2/N = 6.73/50 = 0.13

SM = √S2M = √0.13 = 0.37

Table 3: Observations For Group B - Before Treatment & After Treatment

S.No.	SBP	SBP(AT)	Diff	Deviation	Dev2	DBP	DBP(AT)	Diff	Deviation	Dev2
1	146	140	-6	3.04	9.24	100	94	-6	0.84	0.71
2	150	144	-6	3.04	9.24	96	90	-6	0.84	0.71
3	138	130	-8	1.04	1.08	94	88	-6	0.84	0.71
4	148	140	-8	1.04	1.08	98	90	-8	-1.16	1.35
5	140	132	-8	1.04	1.08	96	88	-8	-1.16	1.35

6	136	128	-8	1.04	1.08	94	90	-4	2.84	8.07
7	146	134	-12	-2.96	8.76	98	90	-8	-1.16	1.35
8	152	144	-8	1.04	1.08	100	92	-8	-1.16	1.35
9	158	146	-12	-2.96	8.76	102	94	-8	-1.16	1.35
10	144	138	-6	3.04	9.24	98	94	-4	2.84	8.07
11	150	144	-6	3.04	9.24	96	96	0	6.84	46.79
12	138	128	-10	-0.96	0.92	90	84	-6	0.84	0.71
13	140	132	-8	1.04	1.08	94	90	-4	2.84	8.07
14	148	140	-8	1.04	1.08	98	92	-6	0.84	0.71
15	140	132	-8	1.04	1.08	90	90	0	6.84	46.79
16	160	146	-14	-4.96	24.6	104	92	-12	-5.16	26.63
17	152	146	-6	3.04	9.24	98	92	-6	0.84	0.71
18	148	140	-8	1.04	1.08	96	90	-6	0.84	0.71
19	146	138	-8	1.04	1.08	100	94	-6	0.84	0.71
20	150	138	-12	-2.96	8.76	98	90	-8	-1.16	1.35
21	154	150	-4	5.04	25.4	96	90	-6	0.84	0.71
22	138	140	2	11.04	121.88	90	88	-2	4.84	23.43
23	158	146	-12	-2.96	8.76	96	84	-12	-5.16	26.63
24	142	140	-2	7.04	49.56	100	94	-6	0.84	0.71
25	160	152	-8	1.04	1.08	102	96	-6	0.84	0.71
26	148	134	-14	-4.96	24.6	96	90	-6	0.84	0.71
27	150	138	-12	-2.96	8.76	94	90	-4	2.84	8.07
28	156	140	-16	-6.96	48.44	98	92	-6	0.84	0.71
29	148	132	-16	-6.96	48.44	92	90	-2	4.84	23.43
30	138	128	-10	-0.96	0.92	88	82	-6	0.84	0.71
31	146	140	-6	3.04	9.24	90	82	-8	-1.16	1.35
32	156	146	-10	-0.96	0.92	102	90	-12	-5.16	26.63
33	158	150	-8	1.04	1.08	100	92	-8	-1.16	1.35
34	152	146	-6	3.04	9.24	98	80	-18	-11.16	124.55
35	154	142	-12	-2.96	8.76	96	88	-8	-1.16	1.35
36	156	140	-16	-6.96	48.44	102	92	-10	-3.16	9.99
37	154	138	-16	-6.96	48.44	104	94	-10	-3.16	9.99
38	148	138	-10	-0.96	0.92	100	94	-6	0.84	0.71
39	140	132	-8	1.04	1.08	98	90	-8	-1.16	1.35
40	140	134	-6	3.04	9.24	90	84	-6	0.84	0.71
41	156	146	-10	-0.96	0.92	98	84	-14	-7.16	51.27
42	138	130	-8	1.04	1.08	90	80	-10	-3.16	9.99
43	158	144	-14	-4.96	24.6	100	94	-6	0.84	0.71
44	148	140	-8	1.04	1.08	96	92	-4	2.84	8.07
45	136	132	-4	5.04	25.4	90	90	0	6.84	46.79
46	160	148	-12	-2.96	8.76	100	92	-8	-1.16	1.35
47	150	136	-14	-4.96	24.6	102	90	-12	-5.16	26.63
48	148	142	-6	3.04	9.24	98	94	-4	2.84	8.07
49	158	148	-10	-0.96	0.92	102	94	-8	-1.16	1.35
50	142	136	-6	3.04	9.24	90	84	-6	0.84	0.71
			M: -9.04		S: 689.92			M: -6.84		S: 576.72

T-value Calculation

t = (M - μ)/SM = (-5.38 - 0)/0.37 = -14.66

The value of t is -14.664024. The value of p is < .00001. The result is significant at p < .05.

Group B: Systolic Blood Pressure

Difference Scores Calculations

Mean: -9.04

μ = 0

S2 = SS/df = 689.92/(50-1) = 14.08

S2M = S2/N = 14.08/50 = 0.28

SM = √S2M = √0.28 = 0.53

T-value Calculation

t = (M - μ)/SM = (-9.04 - 0)/0.53 = -17.04

The value of t is -17.035391. The value of p is < .00001. The result is significant at p < .05.

Group B: Diastolic Blood Pressure

Difference Scores Calculations

Mean: -6.84

μ = 0

S2 = SS/df = 576.72/(50-1) = 11.77

S2M = S2/N = 11.77/50 = 0.24

SM = √S2M = √0.24 = 0.49

T-value Calculation

t = (M - μ)/SM = (-6.84 - 0)/0.49 = -14.1

The value of t is -14.097972. The value of p is < .00001. The result is significant at p < .05.

DISCUSSION

Yoga is known to have evidence based excellent effect in balancing manasik doshas and known to have the efficacy to treat cardiovascular problems, this study was planned to assess the efficacy of yoga intervention in essential hypertension. As it has also been said non pharmacological treatment is always preferred over pharmacological treatment, this study could provide us new vision in the management of essential hypertension.

Probable pathogenesis of essential hypertension:

Essential Hypertension is stated as multifactor characteristic in which there is a complex interplay between environmental and genetic factors.

The factors involved in pathogenesis of EHT are:

- Sympathetic nervous system.
- Renal mechanism
- Rennin angiotensin system
- Structural cardiovascular adaptation
- Endothelial dysfunction

RESULTS

The results of a study demonstrated that yoga practice with pranayama has numerous beneficial effects on the body but especially on balance between the sympathetic and parasympathetic nervous systems (i.e., it gives a calming effect by reducing stress). According to another study pranayama increases both alpha and beta brain wave activity at the beginning of the practice, suggesting increased awareness and increased relaxation at the time.[19]

Swami Swatmarama claimed that Sheetali and Sheetkari pranayamas bring about a cooling effect mediated through increased parasympathetic activity, with decreased RR and BP being attributed to the predominant vagal tone following slow breathing techniques.[20]

The current research demonstrates a significant

decrease in HR, SBP & DBP which suggests improved psycho physiological relaxation following the combination of 3 pranayam techniques. The results may be due to a normalization of the autonomic cardiovascular rhythms, with increased vagal modulation and/or decreased sympathetic activity, together with improvement in baroreflex sensitivity. However, that hypothesis is based on preliminary findings in the intervention group.

The current results demonstrated that Sheetali and Sheetkari pranayama may be beneficial for hypertensive participants, by reducing BP also shifting autonomic balance in favor of para-sympathetic dominance. Additional clinical research is required to replicate the current findings and establish a deeper understanding of the mechanisms involved. On the basis of above findings it can be said that Sheetali and Sheetkari pranayamas may be a useful self care practice to recommend for people with HTN. Future research will determine if this simple and low cost technique can reduce BP in generalizable samples of people with HTN.

Probable action of Shavasana

- Help reduce muscle tension extensively as you have to leave your body as relaxed as possible while performing this posture or asana.
- Helpful in decreasing anxiety levels by stimulating the root chakra, Muladhara and helping us in being more calm and grounded.
- Increases productivity and energy levels by helping us attain a good state of mind.
- It Improves focus, concentration, and memory.

Probable action of Surya Namaskar

- Helps in losing weight.
- Helps to keep you disease free and healthy.
- Balances the body & mind.
- Improves blood circulation.
- Improves digestion system.
- Strengthens the heart.
- Stimulates abdominal muscles, respiratory system, lymphatic system, spinal nerves, and other internal organs.
- Tones the spine, neck, shoulder, arms, hands, wrist, back, and leg muscles, there by promoting overall flexibility.
- Psychologically, it regulates the inter connected -ness of body, breath, and mind.
- Makes one calmer and boosts energy levels with sharpened awareness.
- Helps cure insomnia naturally.
- Helps in skincare & hair care.
- Reduces stress level.

Probable action of Sheetali panayam

Sheetali bring about a cooling effect mediated through increased para-sympathetic activity, with decreased respiration rate and blood pressure being attributed to the predominant vagal tone following slow breathing techniques.[21]

As the name indicates Sheetali meaning cooling enhanced by mouth breathing technique, its cooling effects may also enhance the cerebral blood flow, oxygen delivery and overall enhancement of parasympathetic by modifying sympatho-vagal tone contribution to relaxation feeling.

Sheetali Pranayama provides many benefits due to its cooling & soothing effect. Its cooling mechanism is effective in balancing the imbalanced Kapha dosha of the body.[22]

CONCLUSION

Sheetali Pranayam, Suryanamaskar and Shava Asana with the live style changes according to ayurved principles, proved to be effective in the management of essential hypertension and can be used as a non pharmacological treatment in the management of essential hypertension with a routine practice for long term.

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