Effects of Short-term Intensive Yoga Program on Yoga Instructors or Therapist

Article · August 2022

DOI: 10.21276/apjhs.2022.9.4S.41

4 authors, including:

RAMESWAR PAL
Morarji Desai National Institute of Yoga
40 PUBLICATIONS **148** CITATIONS

SEE PROFILE

ORIGINAL ARTICLE e-ISSN: 2349-0659 p-ISSN; 2350-0964

Effects of Short-term Intensive Yoga Program on Yoga Instructors or Therapist

Rameswar Pal[1], Priyanka Rai[2], Sobika Rao[3], Ishwar V. Basavaraddi[4]*

Abstract

Impacts of Yoga are recognizing day by day. Accordingly, the job has been created for Yoga Instructors and Therapist. Although many studies have already been published and elaborate the effects of Yogic practice on normal healthy population as well as disease population, effects of short-term intensive Yogic practice on Yoga Instructors or Therapist are rare. Yoga Instructors were randomly chosen from a 06 days intensive training course to find out the impacts of short-term intensive Yoga training on blood pressure (BP), muscle strength, flexibility body composition, and psychological parameters. BP decreased significantly. Body composition, muscle strength, and flexibility did not show any significant change. Exercise-induced efficiency increased significantly. This particular 06 day intensive Yoga program may relax mind and body, participants goes toward parasympathodominance as a result BP component reduced significantly. Short-term Yoga program may increase exercise induced efficiency in Yoga Instructors or Therapist. Short-term Yoga practices is beneficial for Yoga Instructors and Therapist in terms to reduce BP and enhance exercise-induced efficiency.

Keywords: Blood pressure, Muscle strength, Psychological parameters, Yoga

Asian Pac. J. Health Sci., (2022); DOI: 10.21276/apjhs.2022.9.4S.41

Introduction

The term Yoga has been derived from the word unity. The Indus Valley civilization in South Asia is an old system of both physical and mental exercise. In Yogasutra of Patanjali, 200 BC, the earliest written records of these methodologies emerged. The system was an ×8 track or Asthanga Yoga. Yoga has been described in many ways in modern literature. Yoga is described in a more contemporary context as a "systemic exercise of mind and body in the process of human life, to maintain harmony within oneself, society, and nature."[1] Asthanga Yoga is comprised of eight traditional steps: Yama (the rules for living in society), Niyama (the rules for self-restraining), Asana (the postures with modest physical effect), the Pranayama (breathing methods), Pratyahara (withdrawl of sense), Dharana (concentration), Dhyan (Meditation), and Samadhi (union of the self with object). First five limbs are known as Bahirang Yoga and Left three are known as Antarang Yoga.

Researcher said that Yoga binds together all the various parts of ourselves, often thought of as body, mind, and spirit.[2] Scientist described that Yoga creates pathways in an individual's consciousness through which creative and healing forces can operate.[3] Yoga practice enhances blood flow and levels of hemoglobin and red blood cells which allows for more oxygen to reach the body cells, enhancing their function. Yoga often reduces the chance of cardiac disease or stroke, since it is mostly triggered by coagulation of the blood. Many findings suggest that Yoga reduces the heart rate (HR) and raises stamina, thus maximizing the absorption and use of oxygen during workouts.[4] Consistent aerobic cardiac rates reduce the likelihood of a cardiac attack. While all Yoga is not aerobic, the cardiovascular function can be improved even by Yoga exercises that do not raise the cardiovascular intensity. Yoga is better for body disease, knee discomfort, lower back pain, and Yoga is great for chronic pain, strength, and functional improvement. Many findings suggest that regular short-term Yogic practice also improves cardiovascular system, respiratory system, and musculoskeletal system.[4,5] Many researchers also noted a significant improvement in hypertensive patient immediately after pranayama.[6] Studies also described the impacts of Yogic practice on blood pressure (BP), HR, respiration, and other system of the body.[7-9]

Although many long-term and short-term studies have been conducted to find out the impacts of Yogic practice on healthy individual as well as diseased population, a study to find out the impacts of short-term intensive Yogic practice on Yoga Instructors or Therapist are rare. In view of the above context, this study was designed to test the hypothesis that short-term intensive Yogic practice has a beneficial role in Yoga Instructors or Therapist.

[1]Deparment of Human Physiology, Morarji Desai National Institute of Yoga, New Delhi, India.

[2]Deparment of Human Consciousness, Morarji Desai National Institute of Yoga, New Delhi, India.

[3]Deparment of Human Anatomy, Morarji Desai National Institute of Yoga, New Delhi, India.

[4]Director, Morarji Desai National Institute of Yoga, New Delhi, India.

Corresponding Author: Dr. Ishwar V. Basavaraddi, Director, Morarji Desai National Institte of Yoga, Ministry of Ayush, Government of India, New Delhi, India. E-mail: directormdniy@yahoo.com

How to cite this article: Pal R, Rai P, Rao S, Basavaraddi IV. Effects of Short-term Intensive Yoga Program on Yoga Instructors or Therapist. Asian Pac. J. Health Sci., 2022;9(4S):216-219.

Source of support: Nil

Conflicts of interest: None.

Received: 12/04/2022 **Revised:** 17/05/2022 **Accepted:** 16/06/2022

Materials and Methods

Participants

Participants were selected from all over India. All of them came to Delhi to attend a training program as per inclusion criteria (i) subject was physically or mentally healthy, (ii) age 25–40 years, (iii) both

males and females were included in the study, and (iv) should be a practicing Yoga Instructor/Therapist and exclusion criteria (i) subjects was clinically tested for any physical and mental disorders to exclude from the study, the persons with any chronic disease and/disorders such as hypertension, obesity, diabetes, depression, and prolapsed intervertebral disc (ii) subject was excluded, if he is taking any drugs or steroid in chronic manner, (iii) subject was excluded from the study, if he has smoking and drinking habits, and (iv) subjects was exclude if he/she engaged in any form of fineness training, Pilates, strength training, or any other fitness program.

A random number of 20 participants were selected for this study on the first come first serve basis from the training program. Data were collected on 1st day and last day of the study/CME training program.

Training Program

The training program was composed of 12 theory lecture and 12 Practical Demonstration, hands-on training and practice session. Yoga was practiced in the controlled room temperature of 24–28°C. There was regular 15 min of Prayer session 03 h of practical session and 03 h of theory session. Practical class comprised of Shatkarma, Sukshma Vyama, Sthula Vyama, Asana, Pranayama, Meditation, Yoga nidra session, etc.

Parameters

Age

Date of birth (DoB) was recorded from Adhar card or other government card mentioning the date DoB. Age was calculated from DoB.

Height and body weight (BW)

Volunteers were asked to remove heavy garments and shoes for height and weight measurements. The volunteer was asked to stand on the floor board of the stadiometer (model number BYH01, made Beryl, Guangdong, China). The heels of the feet were placed together with both heels touching the floor of stadiometer. Volunteers were asked to hang arm freely by the sides of the trunk with palms facing the thighs. The standing height was measured using stadiometer from the sole of the feet to the vertex in erect body position. Data expressed in centimeter. BW in kilograms was measured using an electronic stadiometer.

Body mass index (BMI)

BMI in kg/m^2 was calculated as the ratio of weight to height in meter squared standard formula.

Resting HR and BP

Sphygmomanometer and stethoscope were used for manual measurement of BP. Systolic (SBP) and diastolic (DBP) were recorded. Pulse pressure (PP) was calculated as difference between SBP and DBP. Mean BP (MBP) was calculated as DP + 1/3 PP.

HR

HR was measured using fingertip pulse oximeter (BPL Medical Technologies, Pvt. Ltd. Kerala, India).

Rate pressure product (RPP) and Double product (DoP)

RPP calculated as ([SP × HR]/100). DoP calculated as MP × HR. Value of DoP was expressed as mmHg. bpm and value of RPP were expressed as mmHg and Bpm.[10]

Hand grip strength (HGS)

HGS was measured using HGS dynamometer (Hydraulic Hand dynamometer, SH5001 made SAEHAN, South Korea).

Flexibility

Flexibility of hip and trunk of participants were measured by sit-and-reach test. The participants were asked to sit on the floor with the back and head against a wall; legs fully extended with the bottom of the feet against the sit-and-reach box. They were asked to place the hands on top of each other, stretching the arms forward while keeping the head and back against the wall and knees as straight as possible. The distance from the fingertips to the box edge was measured with a measuring scale. That was zero or starting distance. After that to perform the sit-and-reach test, participants were requested to bend and reach forward as far as possible (head and back moved away from the wall), sliding the fingers along with measuring scale. Minimum three trials were performed. The difference between best of three and final distance from starting distance in sit-and-reach position was recorded as the final score. Average was taken.

Body composition

Body composition was measured using direct segmental multifrequency bioelectric impedance analysis method, data collected through Bodivis, BCA-1C, Fat mass, muscle mass, bone, total body, water, protein content body type, and basal metabolic rate were analyzed through this instrument.

Exercise induced feelings

It comprises four items (e.g., "I feel disconnected from the world around me" [reverse-scored]) with instructions to refer to the past hour. Forty items were rated from 1 (strongly agree) to 6 (strongly disagree), all of which were modified to be statelike. The SCS has demonstrated satisfactory psychometric properties in the past research.

Social connectedness

It consists of 12 feelings which participants rate currently experiencing from 0 (do not feel) to 4 (feel very strongly). This instrument has four subscales (Positive Engagement, Revitalization, Tranquility, and Physical Exhaustion), has good psychometrics, and has been used successfully in yoga research.

Mindfulness attention awareness scale (MAAS)

MAAS is a 15-item self-reported single-factor scale that is exclusively focused on attention/awareness component of mindfulness construct. This instrument has been independently used to assess individuals either with or without meditation experience. This scale has been widely used for various studies and has reported positive overall quality ratings for most of

the psychometric properties reviewed. MAAS is a brief, easy to administer scale, and has, therefore, been used in wide range of studies related to assessing mindfulness trait. MAAS is known to have good reliability ratings and a history of clinical and research use that was developed to assess the core attention aspect of mindfulness and the capacity for moment-to-moment attention in particular. The MAAS consists of 15 items that measure the level of mindfulness (example items are "I could be experiencing some emotion and not be conscious of it until sometime later", or "I find it difficult to stay focused on what is happening in the present"). The items are answered on a 6-point scale (1 = Almost always and 6 = Almost never) on which higher scores are an indication of higher trait mindfulness.

Self transcendence scale

STS is a one-dimensional scale, consisting of 15 items that together identify characteristics of a matured view of life that expand boundaries of the self. The STS is administered as an interview to elicit perceptions of the degree to which the participants experience each item in their current life. It may also be administered as a questionnaire. Responses are based on a 4-point scale ranging from 1 for "not at all" to 4 for "very much." The final score reflects overall level of self-transcendence and takes into account intra individual differences in self-transcendence experiences; a low score on one item may be offset by a high score on another item.

Statistical Analysis

Data presented as Mean ± SD. Statistical analysis was done using GraphPadInstat windows based statistical software. Pre- and post-comparison was made using *t*-test.

Results

Table 1 represents the impacts of 6 days intensive Yogic practices on anthropological and physiological parameters. No significant change was recorded in weight and BMI. Significant reduction was noticed following intensive Yoga training on HR ($P < 0.01$), SBP ($P < 0.001$), DBP ($P < 0.05$), PP ($P < 0.01$), MBP ($P < 0.01$), DoP ($P < 0.01$), and RPP ($P < 0.01$).

Researcher did not find any significant change in muscle mass, body fat %, total body fat, bone mass, waist to hip ratio, and Basal metabolic rate; however, a minimal (slight) reduction was noticed in these parameters following Yogic practice. Muscle strength and flexibility did not change significantly following Yogic practice but a minimum enhancement was noticed in these parameters following Yogic practice. Result of body composition, muscle strength, and flexibility is depicted in Table 2.

Table 3 represents the data of impacts of 6 days intensive Yogic practice on psychological parameters. Exercise-induced feeling increases significantly following Yogic practice ($P < 0.001$). We did not found any significant change in social connectedness, mindfulness attention awareness, and self-transcendence following 6 days intensive Yogic practice.

Table 1: Effects Yogic practice on body weight, BMI, and blood pressure and related cardiovascular parameters. *n*=18

Parameters	*PRE*	*POST*	*Level of Significance*
Height	166.3±7.44		
Weight	62.8±8.67	62.7±8.58	*P*>0.05 NS
BMI	22.8±3.85	22.8±3.86	*P*>0.05 NS
Heart rate	85.1±13.23	77.9±10.4	*P*<0.01 S
SBP	119.4±8.02	112.7±8.73	*P*<0.001 S
DBP	70.4±6.42	67.8±6.47	*P*<0.05 S
PP	49±4.51	44.9±5.05	*P*<0.01 S
MBP	86.8±6.66	82.7±6.9	*P*<0.01 S
DoP	7399.1±1344.8	6474.2±1153.8	*P*<0.01 S
RPP	10187±1852.9	8801.7±1458.3	*P*<0.01 S

Values are expressed as Mean±SD. "NS" indicates not significant. "S" indicates significant. Value of significant is also expressed. HR: Heart rate, BMI: Body mass index, SBP: Systolic blood pressure, DBP: Diastolic blood Pressure, PP: Pulse pressure, MBP: Mean blood pressure, RPP: Rate pressure product

Discussion

Significant reduction was noted following intensive 6 days Yoga training on HR, SBP, DBP, PP, MBP, DoP, and RPP. In this study, body composition, muscle strength, and flexibility did not change significantly. Exercise-induced feeling increases significantly following Yogic practice. No significant change was found in social connectedness, mindfulness attention awareness, and self-transcendence following 6 days intensive Yogic practice.

SBP, DBP, PP, and MBP were reduced significantly following Yogic practice. It could be stated that this Yogic training could control the BP. A reduction of BP may be due to decrease in levels of stress, following Yogic practice in the volunteers. Earlier studies suggested that Yogic practices are able to decrease stress and increase relaxation and the fact is proven by psychological questionnaire and biochemical parameters such as cortisol, adrenocortico tropic hormone, and physiological parameters such as electroencephalogram.[4] Earlier studies suggested that Yogic practices have the ability to decrease sodium and potassium concentration and also decrease rennin activity in the blood to decrease BP toward normal in the hypertensive patient.[11] By

Table 2: Effects Yogic practice on body composition and physical parameters. *n*=18

Parameters	*PRE*	*POST*	*Level of Significance*
Muscle mass	45.6±5.36	45.5±4.40	*P*>0.05 NS
Body fat%	21.4±8.03	21.7±7.9	*P*>0.05 NS
Total body fat	14±6.62	14±6.21	*P*>0.05 NS
Bone Mass	3.19±0.30	3.15±0.24	*P*>0.05 NS
WHR	0.87±0.05	0.87±0.05	*P*>0.05 NS
BMR	1702.5±173.9	1699.4±139.8	*P*>0.05 NS
Back Muscle Strength	64±20.21	67.7±18.6	*P*>0.05 NS
Right hand grip strength	33.9±7.61	34.6±6.78	*P*>0.05 NS
Left hand grip strength	34.4±7.55	35.1±9.26	*P*>0.05 NS
Flexibility	30.1±7.75	32.4±11.8	*P*>0.05 NS

Values are expressed as Mean±SD. "NS" indicates not significant. "S" indicates significant. Value of significant is also expressed

Table 3: Effects Yogic practice on body composition and physical parameters. *n*=18

Parameters	*Pre*	*Post*	*Level of Significance*
Exercise-induced Feelings	31.5±4.26	36.0±4.39	*P*<0.001 S
Social Connectedness	38.5±9.84	40.7±7.55	*P*>0.05 NS
Mindfulness Attention Awareness	67.2±13.51	70.2±11.99	*P*>0.05 NS
Self-transcendence	52.4±4.09	53.1±68.89	*P*>0.05 NS

Values are expressed as Mean±SD. "NS" indicates not significant. "S" indicates significant. Value of significant is also expressed

decreasing rennin activity, Yogic practice may alter the function of of rennin – angiotensin system and retain less amount water through altering aldosterone activity as well as decrease BP. Moreover, decreased BW and BMI may improve lipid profile, which would have the beneficial role for decreasing BP by reducing total cholesterol and low density lipoprotein cholesterol.[4] DoP an index of load on the heart and RPP an index of myocardial oxygen consumption were decreased, following Yogic practice may be due the improvements in BP.[4,9]

This 6-day intensive Yogic practice is unable to improve body composition. It may be due to the fact that all the participants are Yoga Instructors or Therapist. Such short-term practice schedule is unable to reduce body composition significantly in these practitioner because they are already in a good shape and body composition. Furthermore, by profession, all the participants are practicing Yoga in their daily routine. Hence, this particular 6-day intensive Yoga is unable to improve body composition significantly further.

Muscle strength and flexibility did not alter significantly. This may be due the daily activity pattern of these practitioner where the joints are moved through the full range of motion and daily practice of Yoagasanas helps to maintain the flexibility. Furthermore, as the duration of the training was of 6 days only so, such short duration may have not lead to significant gains in terms of muscle strength parameter. Further as the volunteers were all Yoga Instructors and Therapist so, such short-term training module is unable to increase muscle strength and flexibility.

As we proposed that the emotions improved among Yoga professionals from pre-to post-Yoga sessions. EFI revealed that the yoga participants "felt strongly" that their experiences in Yoga were peaceful, happy, upbeat, and enthusiastic and that they felt revived following the Yoga classes. Same finding has been supported by other researches too.[12,13]

Conclusion

It may be concluded that 6-day intensive Yogic practice could reduce the BP in Yoga Instructors or Therapist. It is also concluded that this 6-day intensive Yogic practice is unable to improve body composition, mindfulness, spirituality, and social connectedness flexibility, and strength.

Limitations

Although this is a very good study and showing physiological and psychological impacts of short-term Yoga practice on Yoga professional, there are some limitations of the study that need to be acknowledged and addressed that it is a single-arm study without any control group and subject number is very less only 20.

Acknowledgments

The authors are thankful to Sh Tanuj Yadav, Yoga Instructor and also coordinate to organize the training program and help to collect data from participants. The authors are thankful to Sh. Ravi Kant Tyagi, Medical Laboratory Technologist and Mrs. Parul Chaudhury, Medical Laboratory Assistant for their continuous support during data collection and data tabulation. Above all the cooperation and support of the volunteers are acknowledged.

References

1. Sharma Y, Sharma S. Scientific benefits of Yoga: A review. Int J Multidiscip Res Rev 2013;3:144-8.
2. Khalsa SP. Kundalini Yoga: The Flow of Eternal Power. United States: Perigee, Penguin; 1998.
3. Cameron MP. The gestalt model of evolutionary creative process. Gestalt Rev 2015;19:144-61.
4. Pal R, Singh SN, Chatterjee A, Saha M. Age related changes on cardiovascular system, autonomic function and levels of BDNF of healthy active males: Role of yogic practice. Age 2014;36:9683.
5. Pal R, Saha M, Chatterjee A. Halder K, Tomer OS, Pathak A, *et al*. Anaerobic power, muscle strength and physiological changes in physically active men following yogic practice. Biomed Hum Kinet 2014;5:113-20.
6. Bhavanani AB, Sanjay Z. Immediate effect of Sukha pranayama on cardiovascular variables in patients of hypertension. Int J Yoga Ther 2011;21:73-6.
7. Ghati N, Killa AK, Sharma G, Karunakaran B, Agarwal A, Mohanty S, *et al*. A randomized trial of the immediate effect of bee-humming breathing exercise on blood pressure and heart rate variability in patients with essential hypertension. Explore (NY) 2021;17:312-9.
8. Halder K, Chatterjee A, Kain TC, Pal R, Tomer OS, Saha M. Improvement in ventilatory function through yogic practices. Al Ameen J Med Sci 2012;5:197-202.
9. Madanmohan, Kaviraja U, Bhavanani AB, Vijayalakshmi P, Surendiran A. Effect of slow and fast pranayamas on reaction time and cardiorespiratory variables. Indian J Physiol Phrarmacol 2005;49:313-8.
10. Gobel FL, Nordstrom LA, Nelson RR, Jorgenson CR, Wang Y. The rate pressure product as an index of myocardial oxygen consumption during exercise in patient with angina pectoris. Circulation 1978;57:549-56.
11. Selvamurthy W, Sridharan K, Ray US, Tiwary RS, Hegde KS, Radhakrishan U, *et al*. A new physiological approach to control essential hypertension. Indian J Physiol Pharmacol 1998;42:205-13.
12. Bryan S, Pinto ZG, Raju P. The effects of yoga on psychosocial variables and exercise adherence: A randomized, controlled pilot study. Altern Ther Health Med 2012;18:50-9.
13. Park CL, Finkelstein-Fox L, Groessl EJ, Elwy AR, Lee SY. Exploring how different types of yoga change psychological resources and emotional well-being across a single session. Complement Ther Med 2020;49:102354.