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**Dr. Iqbal Khan Goury**

Ph.D. Research Scholar,  
Department of Yoga and Science  
of Living, Jain Vishwa Bharati  
Institute, Ladnun, Rajasthan,  
India

**Dr. Yuvraj Singh Khangarot**

Assistant Professor, Department  
of Yoga and Science of Living,  
Jain Vishwa Bharati Institute,  
Ladnun, Rajasthan, India

## Impact of Preksha meditation and yogic lifestyle on BMI in hypertensive patients

**Dr. Iqbal Khan Goury and Dr. Yuvraj Singh Khangarot**

### Abstract

**Background:** Now a day, overweight is a big problem of human being. Excess body weight affects health, skills and performances at work palace. Excess body fat also increases the risk of heart disease, diabetes, liver disease, arthritis, hypertension and allied problems. *Preksha Meditation (PM)* and *Yogic lifestyle* both are ancient Indian system of physical, mental and spiritual practices and therapy is an art of good living or an integrated system for the benefit of the body, mind and inner spirit. *PM* is a path of self awakening and self realization. It helps to connect with your soul at its most profound level, achieving a state of super consciousness and increased concentration. The process of meditation puts you in touch with enlightenment, peace of mind and simple clarity. *Kayotsarga* (relaxation), abandonment of the body, also “relaxation (*Sithilikarana*) with self-awareness,” allows vital force (*Praṇa*) to flow. Regular practice of *yogasan* can help to accrue blood flow to the body, reduce stress, have a calming effect on the nervous system and help in reducing weight, lipid, diabetes symptoms and hypertension etc. One of the markers of physical well-being in adults is Body Mass Index (BMI). Overweight (BMI 25.0–29.9 Kg/m<sup>2</sup>) and obesity (BMI ≥ 30.0 kg/m<sup>2</sup>) are associated with hypertension and increased mortality.

**Aim:** Aim of the present study is to evaluate the effect of four months *PM* and *Yogic lifestyle* practice on Body Mass Index (BMI) in hypertensive patients.

**Materials and Methods:** The present study was conducted to determine the effect of *PM* and *Yogic lifestyle* practice on 30 participants (age 49.77±7.17) (Experimental Group/EG) whereas the results were compared with 30 subject of Control Group (CG). We examined the effects of *PM* and *yogic lifestyle* on BMI in a four month randomized study. Participants of Experimental Group were practiced intervention module for one hour daily (six days in the week) for four month in the morning. BMI were studied before practice, two month and after four month of intervention.

**Results:** *PM* and *Yogic lifestyle* causes decreased in BMI Mean ± SD (from 28.27 ± 2.49 to 26.08 ± 2.24) in participants of Experimental Group. On the other hand, no significant changes were observed in BMI of Control Group.

**Conclusion:** This study concludes that *PM* and *Yogic lifestyle* has potential to control BMI without taking any medication in hypertensive patients.

**Keywords:** Body Mass Index, *Pranayama*, BMI, *Yogic lifestyle*, *Preksha Meditation*, *PM*, BMI in Hypertensive patients, *Kayotsarga*

### Introduction

*Preksha Meditation (PM)* is a technique of meditation. *Preksha* means to perceive and *Dhyan* means meditation. The word *Preksha* is derived from the root *iksha*, which means to see. When the prefix *Pra* is added, it becomes *Pra-iksha*, which now means to perceive carefully and profoundly being free from attachment and aversion. In this technique, one has to observe the internal phenomenon of the body. In the beginning a person observes the states of the gross body, then the phases of the *taijas sharir*, (the electrical body), followed by the vibrations in *sukshma sharir* (the micro body). At a more advanced stage of the meditation process, the practitioner may succeed even in witnessing his past life. Thus while progressing through the gross to the subtle bodies. The art of visualizing one's own self may be acquired. *PM* was founded in 1975 by *H.H. Acharya Mahapragya*. It is not only for achieving physical, mental, and emotional well-being but also a key to spiritual treasure trove. Now a days, eminent doctors, specialists and general practitioners have agreed that mediation is a powerful complementary therapy. *PM* can help us in healing and sustenance of good health. It can cure

### Correspondence

**Dr. Iqbal Khan Goury**

Ph.D. Research Scholar,  
Department of Yoga and Science  
of Living, Jain Vishwa Bharati  
Institute, Ladnun, Rajasthan,  
India

and even protect us from several psychosomatic disorders that result from mental stress and tension. *Kayotsarga* (relaxation), abandonment of the body, also “relaxation (*Sithilikarana*) with self-awareness,” allows vital force (*Prana*) to flow. *PM* and *Yogic* lifestyle are not a system of beliefs. It takes into account the influence on each other of body and mind and brings them into mutual harmony. *Yoga* is also beneficial for musculoskeletal functioning, cardiovascular health, diabetes, respiratory disorders, hypertension, hypotension, depression and many other disorders. In essence, *yoga* is a process of creating a body and mind that are stepping stone not hurdles, to an exuberant and fulfilling life. A typical *yoga* program, usually consisting of *Sukshma Kriyas*, *Asana*, *Kayotsarga*, *Anuloma-Viloma*, deep relaxation and meditation, has a combined effect of relaxation of body, slowing of breath, and calming of mind. *Yoga* works primarily with the energy in the body, through the science of *pranayam* or energy control. Researchers and practitioners have observed other benefits of *yoga* on the health [1]. After attention to posture, deep breathing and chanting, *yoga* practice often begins with a slow movement sequence to increase blood flow and warm muscles. This is followed by poses that include flexion, extension, adduction, abduction and rotation [2, 3, 4]. Holding poses build strength by engaging muscles in isometric contraction [5, 6]. Moving joints through their full range of motion increases flexibility [7, 8], whereas standing poses promote balance by strengthening stabilizing muscles and improving proprioception or balance to reduce falls [9, 10]. Thus, *yoga* incorporates several elements of exercise that is beneficial for human health. *Yoga* leads to reduce the oxygen consumption and metabolism, there by balancing the homeostasis [11, 12]. Various other researches confirmed the role of *yoga* and meditation against diabetes, hyperthyroidism, obesity, respiratory problems, mental stress, anxiety, depression, asthma, cardiac disease, hypertension and oxidative stress [13]. One of the markers of physical well-being in adults is body mass index (BMI) [14]. Excess calories are stored as fat in the body, and with long-term caloric excess, an individual eventually becomes obese. Overweight (BMI 25.0 to 29.9 Kg/m<sup>2</sup>) and obesity (BMI ≥30.0 Kg/m<sup>2</sup>) are associated with hypertension and increased mortality. Hypertension is one of the most common disorders, affecting about 26.4% of the adult population worldwide. It ranks as the leading chronic risk factor for mortality, accounting for 13.5% of all deaths. Moreover, it is now projected to grow to affect more than 1.5 billion people by 2025 [15, 16]. Few studies were conducted to observe the effect of *yoga* on body weight and body composition in normal and obese people. Sanchettee Pratap *et al.* (2017) demonstrated small to moderate improvement following four months practice of *Preksha Meditation* in all domains of quality of life scale as assessed on WHO Quality of Life-BREF (WHOQOL-BREF) ranging from 3 point to 5.7 i.e. psychological health (29.3%), physical health (24.1%), social health (12.1%) and environmental health (29.3%) and in stress level (17.2%). There was small improvements in anxiety and depression and thus can be recommended as an adjuvant measure [17]. *Yoga* activity decreases stress and improves mobility and general health [18]. In normal healthy controls, it was found that there was a decrease in weight and increase in lean body mass (LBM) after *yoga* training [19]. In a recent study, found that, with *yoga* and controlled diet, there was a significant reduction in fat-fold thickness and increase in LBM [20]. *PM* has been reported to modulate the stimulatory effects of autonomic nervous

system and thereby bringing significant changes in metabolic rate [21]. The influence of diet restriction alone had reported a reduction in body weight similar to a group, which practiced exercise with low calorie diet [22]. Similarly the influence of endurance exercise in obese person to be less effective when compared exercise with diet restriction. A study carried out in a combination of moderate energy restriction and aerobic exercise had reported substantial decrease in subcutaneous and visceral adipose tissue and a moderate loss in weight and BMI [23]. Although the efficacy of *Yoga Preksha Meditation* combination on health and fitness has been well proved on various populations [24]. Yet its role on the management of body weight of is not well understood.

### Aim and Objectives

The objective of the present study was to assess the efficacy of *Preksha Meditation* and *Yogic* lifestyle combination on Body Mass Index (BMI) in hypertensive patients. In reference to *PM*, the physical and clinical problem seems unchecked, and still, there is a possibility to prevent them through *PM* and *Yogic* lifestyle.

### Material and Method

Sixty participants suffering from hypertension were included in this study for four months. By using randomized method total participants, were divided in two groups i.e. Control Group (n=30, 17 Male and 13 Female) and Experimental Group (n=30, 12 Male and 18 Female). Subjects of E.G. took part in every day's one hour intervention module for six days in a week whereas subjects of control group were instructed to follow normal rational life. The total duration of the study after randomization was 120 days. The age of participants were ranged from 30 to 60 years. Subjects of both groups were followed up after two month and four month. The practice session includes *Sukshma Yogic Kriyas* for 10 Minutes, *Yogasana*; Standing Posture: *Tadasana*, *Konasana*, *Vrikshasana*, *Garudasana*. Sitting Posture: *Janusirsasana*, *Paschimottanasana*, *Ustrasana*, *Sasankasana*, *Yoga Mudra*, *Vakrasana*, *Gomukhasana*. Prone Posture: *Salabhasana* and *Bhujangasana*. Supine Posture: *Uttanpadasana* and *Pavanmuktasana*. All *asana* for 20 minutes, *Kayotsarga* for 20 Minutes and *Anuloma-Viloma Pranayam* for 10 Minutes. Participants having other serious illness and recently underwent surgery were not included for study.

### Assessment of body mass index

Anthropometry standard procedures were followed to conduct anthropometric measurements by well-trained examiners. Weight was measured to the nearest 0.1 Kg in light clothing using a digital weight scale (Model No.WS 2019; Narang Medical Ltd., New Delhi, India). Height was measured to the nearest 0.1 cm without shoes using a wall mounted height rod [25]. BMI was calculated weight (Kg) divided by height squared (m<sup>2</sup>) [26].

### Statistical Analysis

All data was collected in tabulated form and statistical formulas were applied to obtain result. Intra group comparison was done by paired “t” test. The inter group comparison between different groups was done using the independent “t” test. Data were expressed as mean ± and standard deviation. *P* < 0.05 was considered statistically significant level. Data were analyzed using SPSS 14.0 software (SPSS Inc., Chicago, USA).

**Table 1:** BMI (Kg/M<sup>2</sup>) in Control Group

Observation of BMI	Mean	SD	r	S.E.D.	t-Value	p-value	significance
PRE	28.43	3.30	0.99	0.09	1.05	0.15	NS
POST 1	28.33	3.27					
PRE	28.43	3.30	0.98	0.12	0.32	0.38	NS
POST 2	28.47	3.24					
POST 1	28.33	3.27	0.97	0.14	1.00	0.16	NS
POST 2	28.47	3.24					

df=29

**Table 2:** BMI (Kg/M<sup>2</sup>) in Experimental Group

Observation of BMI	Mean	SD	r	S.E.D.	t-Value	P-value	Significance
PRE	28.27	2.49	0.98	0.10	13.45	<0.001	ES
POST 1	26.92	2.27					
PRE	28.27	2.49	0.97	0.12	18.71	<0.001	ES
POST 2	26.08	2.24					
POST 1	26.92	2.27	1.00	0.07	12.13	<0.001	ES
POST 2	26.08	2.24					

df=29

**Table 3:** Comparison of BMI (Kg/M<sup>2</sup>) in Experimental and Control Group

Group	Mean	SD	S.E.D.	t-Value	p-value	Significance
Ex_Post1	26.92	2.27	4.91	1.94	0.06	NS
Con_Post1	28.33	3.27	5.17			
Ex_Post2	26.08	2.24	4.91	3.32	<0.001	ES
Con_Post2	28.47	3.24	5.20			

df= 58

(S-Significant; ES-Extremely Significant; NS-Non Significant)

## Result

The intergroup comparison of the BMI of all participants was found to reduce significantly Mean  $\pm$  SD (from 28.27  $\pm$  2.49 to 26.08  $\pm$  2.24) ( $P = 0.001$ ), whereas in control group, there were no significant changes observed. BMI significantly reduced in experimental group only. When comparison of BMI of participants of both groups at day 0 was made, no significant differences were observed which showed that participants of both groups were in the state of homogeneity. The significant reduction in experimental group exhibits the impact of experimental intervention. Our results support the findings which stated that the *PM* and *Yogic* lifestyle reduces BMI. In addition, EG participants were found to achieve good health, positivity and vitality without stress.

## Discussion

In present study *Preksha Meditation* and *Yogic* lifestyle were included for management of obesity in hypertensive patients. Reduction in BMI is due to the synergic effect of yogic practices and *Preksha Meditation*. The findings of Joseph, Nicolas, Dennis, Stephanie, & John (1991) has reported that combination of moderate energy restriction and aerobic exercise has been found useful in substantial reduction in subcutaneous and visceral adipose tissue and also moderate body weight loss along with BMI. In *Hatha Yoga* practice consume as 2.4 kcal/min. Mishra & Shekhawat (2007) [24] have also reported that short-term (4 months) practice of *Preksha Meditation* *yogasana* combination has resulted in significant decrease in body weight and BMI. Decrease in BMI and body weight may be attributed to the inhibition of sympathetic activity which resulted in reduced caloric requirement and reduced metabolic rate in muscular tissue. The study conducted by Jimenez *et al.* (2009) also supported our finding. Another study carried out by Bala R, Candra R and Mishra JPN (2017) showed that *Yoga Preksha Meditation*

combination practice module was a successful and effective tool for reducing body weight and maintaining BMI in sportspersons. *Preksha Meditation* has been found to reduce the state of stress through parasympathetic dominance. Its practice in association with *Yogic Asana* might have further altered the metabolic rate and fat requirement of sports persons, thereby reducing the excess body weight and modulating the BMI [27].

In our study, we found that BMI of experimental group was significantly decreased within four month, that is mainly because of *asana* which might be reduced the deposited fat on adipose tissue. Our findings clearly suggested that the complications of obesity can be reduced by *PM* and *Yogic lifestyle* intervention. The *Kayotsarga* regularize and balance the neuromuscular system and calms the center that controls stress. Further sympathetic and parasympathetic nervous system stabilized in the practice of *Kayotsarga*. The *Asanas* belong to the lateral bends, supine, sitting, and inversions group regulate the BMI. The lateral position of the spine in these *Asanas* allows the reduce abdomen and fat on hip area. *Sukshma Yogic Kriyas*, *Konasana*, *Janusirsasana*, *Paschimottanasana*, *Ustrasana*, *Vakrasana*, *Uttanpadasana*, *Pavanmuktasana* etc. tone and Massage the entire abdomen, relax from flatulence, constipation and remove fat especially from pelvic and abdomen areas. *Anuloma-Viloma* increase respiratory efficiency, it improves respiratory and circulatory function. *Kayotsarga* balances the body hormones and work at cellular level. *Kayotsarga* practices purify the *Nadis*, stimulate the function of *Kendra*, open obstructed micro channels and correct Metabolized the fat. *Sukshma Yogic Kriyas*, *Asanas* and *Kayotsarga* involve stretching and relaxation of various muscles of different organs without jerky movement. Steady movement activate slow twitch (type 1) skeletal muscle fibers for their enable long endurance and metabolize fatty acid efficiently without forming lactic acid, this help to reduce fat (Guyton). Epinephrine and nor epinephrine secreted from adrenal medulla increase utilization of fat and work as result of sympathetic stimulation. Both hormones activate triglyceride lipase enzyme that is present in abundance in the fat cells and mobilization of fatty acid [28]. Yoga practices increase adrenocortical efficiency and competence, endocrine and metabolic competence [29]. They are established a harmony in the orchestra of body organs associated with bringing about control over mind by vitalizing and purifying them and connecting with internal self [30]. The

large increase in urbanization lifestyle over the past two decades may be partially responsible for the period effects on BMI and overweight, and represents a missed opportunity for improving health outcomes in the post-economic reform era<sup>[31]</sup>. Thus Regular practice of *PM* and *Yogic* lifestyle can help to accrue blood flow to the body, reduce stress, have a calming effect on the nervous system, help in reducing weight, lipid, diabetes symptoms and hypertension.

### Conclusion

The tendency of increasing obesity is being prevalent day by day in all modernize person. Studies have shown that BMI and high blood pressure at low and high level indicate morbidity and mortality. *Yogic* lifestyle is beneficial in maintaining health by regulating BMI. We may conclude that the *Yogic* lifestyle efficacy on body mass index may have direct impact on safe therapeutic modality in regulating obesity and consequent diseases. *PM* has been found to reduce the state of stress through parasympathetic dominance. *PM* practice in association with *yogic* lifestyle might have further altered the metabolic rate and fat requirement. This studies can aware people to adopt *PM* and *Yogic* Lifestyle in their daily routine for better physic (instead of gym) and calm mind. In conclusion the *PM* and *Yogic* lifestyle combination practice module is a successful and effective tool for reducing body weight and BMI in hypertensive patients.

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