



Effect of Short-Term Intensive Residential Yoga Practice On Quality of Life: A Randomised Controlled Trial

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Abstract:

In the last few decades, contemporary living with technological advances has resulted in psychiatric disorders, deteriorating work-life balance and a decreased quality of life (QoL). *Yoga*, a lifestyle practice that focuses on the unification of mind-body processes, has shown positive impacts on increasing the quality of life. The primary objective of present study was to examine whether the short-term intensive residential *yoga* practise of one week can improve QoL among participants. 80 subjects of the study were divided into *yoga* group (40) with mean age of 46.12 (15-male/25-female) and control group (40) with mean age of 33.07 (24-male/16-female). The *yoga* group were trained at a residential program on various *asanas*, *pranayama*, relaxation technique, *Om* chanting and *kriya*. The control group did not receive any intervention during the study period. Numerous scholars consider the QoL questionnaire to be a valid instrument for evaluating the effectiveness of interventions. All the participants were given a self-administered quality of life questionnaire (WHOQOL-BREF) both pre and post the study period. The findings of this study suggest the potential benefits of *yoga* practise for improving QoL among participants.

Keywords: *Yoga*, Quality of life (QoL), Stress, Mind-body intervention, WHOQOL-BREF

INTRODUCTION

Quality of life (QoL) is now viewed as an essential notion in the healthcare sector, wherein both therapy and standard of attention are prioritized. Given the perspective of global wellness, the idea of QoL is determined by one's corporal and intellectual well-being, extent of independence, growth in personalities, social connections and interactions with admirable environmental entities. A good QoL results in a favourable sensation for people since it encompasses a variety of psychological and objective characteristics that come into contact with each other.

According to WHO, QoL is “understanding of a person in regard to his living status in terms of society and framework of values along with the relationship to his objectives, requirements, standards and issues” (The WHOQOL group, 1996; Wong, Yang, Yuen, Chang, & Wong, 2018). It comprises a variety of factors including societal welfare, physical, cognitive, mental and performance aspects (Chopra, & Kamal, 2012). It is evident that the exploration of QoL as well as its enhancement through possible efforts have a significant impact on the welfare of individuals in addition to their social and personal life (Wu et al., 2011).

Factors Influencing QoL

The QoL could be influenced in both beneficial and adverse ways by an array of variables namely age, ailments and social circumstances. Stress — which can be brought on by work, familial obligations, medical complaints or others, is certainly one of the most prevalent variables. (Marshall, Allison, Nykamp, & Lanke, 2008). All humanity faces the issue of stress, which affects overall psycho-somatic health of people and increases their chance of developing a wide range of disorders (Rizzolo, Zipp, Stiskal, & Simpkins, 2009; Huth et al., 2014).

There seem to be several methods for managing the stress aspects such as focusing on emotions, problems and inefficiency that primarily seeks to enhance the QoL (Pahlavian, Gharakhani, & Mahjub, 2010; Moos, 2012; Matsumoto et al., 2009). In emotional focusing approach, an individual strives to relax oneself while getting free off tension rather than making attempts to reduce and regulate distress. In problem-focusing approach, the person makes an effort to lessen or manage his level of strain. However, a wide range of mankind employ poor methods which do not reduce nor resolve issues and they frequently utilize hazardous ineffective tactics that worsen the situation (Alaf, Parandeh, Ebadi, & Haji, 2010).

In the last few decades, there has been a remarkable rise in distress, operating abnormalities, discontent and psychic disruptions, all of which are having a negative impact on QoL. As a result, assessing QoL is now acknowledged as a crucial complement to investigations that objectively evaluate therapeutic efficacy (Kaplan, 2003; Eiser, & Jenney, 2007). There are growing uncertainties about how the environment and being greener may affect QoL and overall wellness. Particularly for young populations as well as elders, the physical and developed environments' quality might have an impact on the way individuals perceive their

overall health and QoL (Zhang, & Zhang, 2017). The QoL of a person, across physical and mental realms, is negatively impacted by sound, contaminants and polluted air (Wong et al., 2018). In addition to ecological concerns, behavioural health issues may additionally have an impact on QoL.

Yoga For Improving QoL

It is being demonstrated that integrated psychosocial therapy improves QoL more effectively over standard treatment. One of the key methods that plays a vital part in managing stress is *yoga* (Chong, Tsunaka, & Chan, 2011). It entails a series of practices which unifies the body and soul by enhancing resistance against strain from the outside world and enhancing tolerance for stressful situations (Froeliger, Garland, Modlin, & McClernon, 2012). *Yoga* reduces physical strain in both short-term and long-term thereby improving QoL (Bernstein et al., 2015).

Yoga includes plenty of strategies for self-regulation which endeavour to address the mental health conditions that are contributing towards poor QoL. Numerous chronic diseases like fibromyalgia, rheumatism and carcinoma have been found to benefit from a multidisciplinary method of *yoga* therapies which incorporates the practices across psycho-physiological, cognitive and emotional dimensions (da Silva GD, Lorenzi-Filho G, & Lage, 2007; Haslock et al., 1994; Raghavendra et al., 2008).

SCOPE

Although numerous investigations have been conducted to study the impact of *yoga* therapy, not many researchers have attempted to examine the impact of short-term *yoga* intervention on QoL. In light of this, the primary objective for the present study is to examine whether short-term intensive residential *yoga* practise, of one week duration, can improve QoL of the participants.

RELATED WORKS

Saxena et al. (2017) conducted a study to evaluate the impact of *yoga* practice on pelvic pain ratings and discovered that 8 weeks of intervention resulted in a decreased severity of pain and an improvement in QoL of patients.

In patients with chronic renal disease, Pandey et al. (2017) evaluated the efficacy of 6-month *yoga* program. In post-intervention findings, the researchers discovered a statistically significant outcome in the domains of psychological and physical factors of QoL in *yoga* group than of control group.

An investigation by Kang, & Jang (2021) examined the QoL by employing mindfulness *yoga* practices in middle-aged males and revealed a substantial increase in psychological, social and global QoL.

Recent research by Kumari et al. (2022) revealed that after three months of *yoga* practice, QoL showed a statistical effective discrepancy between the *yoga* and control groups with regard to the domains of physical and psychological well-being. *Yoga* group showed an extremely significant distinction in the domains of physical and psychological wellness of QoL following one month of intervention while after three months, there had been notable enhancements in the social connections as well as environmental realm.

METHODOLOGY & PROCEDURE

Subjects

A total of 120 participants were enrolled for the short-term residential *yoga* program in the Kaivalyadhama Yoga Institute, Lonavala. Of these, 80 (39 male/41 female) who satisfied the inclusion criteria were recruited.

The inclusion criteria were:

- a) willingness to participate in the study
- b) healthy
- c) no background of *yoga* practice
- d) who can read and understand English
- e) age range between 20 to 68 years

The exclusion criteria included:

- a) those diagnosed with physical or mental ailments
- b) who cannot read and understand English
- c) underwent surgery / hospitalization in the previous three months.

The study was approved by Institutional Ethics Committee (IEC) and was initiated with written consent of all subjects duly taken. The researchers also ensured the security and privacy of data.

The approach that was applied for selecting and studying the subjects is shown in Fig. 1.

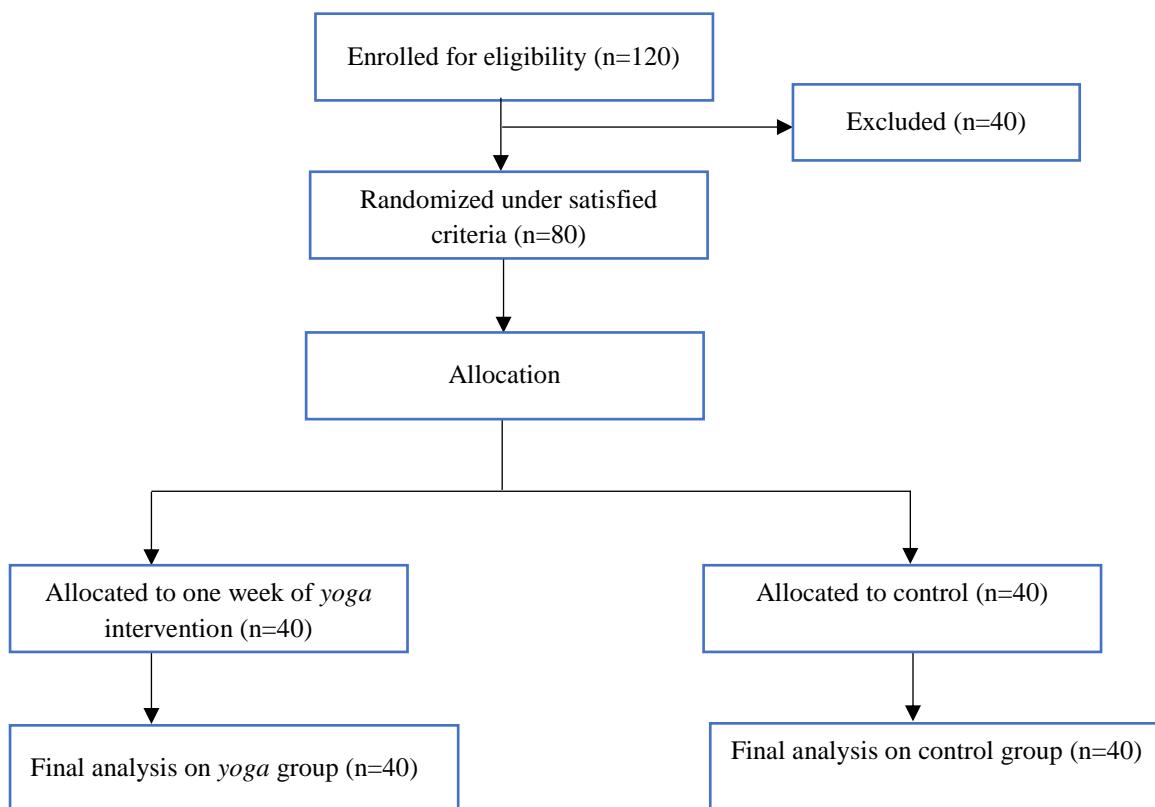


Fig. 1. The selection of subjects

Design

In this randomized control study, 80 subjects who satisfied the inclusion criteria were allotted to two groups: *Yoga* group and Control group.

Subjects in the *yoga* group received *yoga* training that included one hour of asana twice per day (7:00am to 8:00am & 5:00pm to 6:00pm) and one hour of pranayama (6:15pm to 7:15pm) for a duration of one week. Subjects in the control group did not receive any intervention during the study period.

Demographic details, personal and family history were documented before starting the intervention. Outcome variables were recorded on the first and seventh day. All participants were given a self-administered quality of life questionnaire (WHOQOL-BREF) in both pre-test and post-test of the study.

Yoga Intervention

The *yoga* training module was prepared as per the tradition of institution and the sessions were conducted by an appointed *yoga* expert. The underlying module concepts are adapted from classic *yoga* texts, such as the *Patanjali Yoga Sutra* and the *Hatha Yoga Pradipika*, which

emphasize a comprehensive strategy for managing one's overall physical and mental well-being (Nagarathna, & Nagendra, 2000). The *yoga* training included *kriya*, *asanas*, *pranayama*, relaxation techniques and *Om* chanting in which, main emphasis was given on the regulation of breathing, gradual movement of body and mental stability (Rostami, & Ghodsbin, 2019). The *yoga* training module is described in Table 1.

Table 1: *Yoga* training module

Sl.no.	Practice	Duration
<i>Asana</i>		
1	<i>Makarasana</i>	2 min
2	<i>Bhujangasana</i>	20-25 sec.
3	<i>Niralambasana</i>	20-30 sec.
4	<i>Shalabhasana</i>	10-15 sec.
5	<i>Marjarasana</i>	30-40 sec.
6	<i>Crocodile variations</i>	30-40 sec.
7	<i>Ardhahalasana</i>	10-15 sec.
8	<i>Pawanmuktasana</i>	30-40 sec.
9	<i>Setubandhasana</i>	20-30 sec.
10	<i>Ekpaduttanasana</i>	10-12 sec.
11	<i>Parvatasana</i>	30-40 sec.
12	<i>Simhasana</i>	5-10 sec.
13	<i>Kati chakrasana</i>	20-25 sec.
14	<i>Tadasana</i>	10-15 sec.
<i>Pranayama</i>		
15	<i>Anuloom vilom pranayama</i>	10 rounds once a day (only <i>purak</i> and <i>rechak</i>)
16	<i>Bharamri pranayama</i>	15 rounds once a day
<i>Chanting</i>		
17	<i>Om</i> chanting	15 rounds twice a day
<i>Cleansing (Kriya)</i>		
18	<i>Trataka</i>	Once in a week
<i>Relaxation Technique</i>		
19	<i>Shavasana</i>	2 min

Instrument

QoL was measured using the valid World Health Organization Quality of Life-BREF (WHOQOL-BREF) tool. It consists of 26 self-reportable questions wherein, 24 items were split into 4 QoL domains: the environment (8 questions), social (3 questions), psychological (6 questions) and physical (7 questions). The final two questions consist of assessment of Overall

quality of life (Q1) and General health (Q2). The questions 3, 4, and 26 have reverse score items with negative implications. Ilić et al.'s study demonstrated convincing evidence of the WHOQOL-BREF questionnaire's internal consistency, with a Cronbach's alpha coefficient of 0.89 (Ilić et al., 2019). Each domain's questions are constructed using a five-point Likert scale with five-level rating for Intensity (nothing to excessively), Capacity (nothing to entire), Frequency (never to consistently) and Assessment (very unsatisfied to very satisfied; very terrible to very excellent). According to the grading rules, each domain's score ranges from 0 to 100. Every point gets multiplied by four so as to obtain the primary grade for this questionnaire, which is in accordance with the WHO 100-question full questionnaire (Rostami, & Ghodsbin, 2019). A greater QoL was determined by a higher score.

Data Analysis

The statistical software SPSS (Statistical Package for the Social Sciences), version 20.0 was used to perform the data analysis. Paired t-tests was used to analyse the data and the descriptive statistical method was utilized to quantify the mean \pm standard deviation or proportion, as applicable. At baseline, an independent t-test was employed to compare between group data.

RESULTS

The demographic details of subjects are shown in Table 2. Among 80 subjects enrolled for the study, 40 were randomly categorized as *Yoga* group and other 40 as Control group. In *Yoga* group, 62.5% were female and 37.5% were male with mean age of 46.12 years. While the Control group has 40% of female and 60% of male with mean age of 33.07 years. All the participants, were literate, and majority of them are graduated, married and employed.

Table 2: Demographic details of the subjects

Variables	<i>Yoga</i> group	Control group
Sample size	40	40
Male	15 (37.5%)	24 (60%)
Female	25 (62.5%)	16 (40%)
Mean age in years	46.12	33.07
Height, cm (Mean \pm SD)	164.89 \pm 5.3	164.28 \pm 4.2
Weight, kg (Mean \pm SD)	56.39 \pm 6.89	66.2 \pm 8.78
Education	Illiterate: Nil Primary school: 6 (15%) Secondary school: 10 (25%) Graduation/Others: 24 (60%)	Illiterate: Nil Primary school: 4 (10%) Secondary school: 13 (32.5%) Graduation/Others: 23 (57.5%)
Marital status	Single: 5 (12.5%) Married: 35 (87.5%)	Single: 7 (17.5%) Married: 33 (82.5%)
Occupation	Labor: 26 (65%) Housemaker: 14 (35%)	Labor: 23 (57.5%) Housemaker: 17 (42.5%)

Table 3 shows the Pre-Post WHOQOL-BREF scores for the different domains of both *Yoga* and Control groups. While Fig. 2 and Fig. 3 shows the Pre-Post WHOQOL-BREF scores of *Yoga* and Control groups respectively. The comparison of Post WHOQOL-BREF scores between *Yoga* and Control group is shown in Fig. 4.

Table 3: Pre-Post WHOQOL-BREF scores of Yoga and Control groups.

Domains	Yoga group		t value	Control group		t value	Between group t value
	Pre (Mean \pm SD)	Post (Mean \pm SD)		Pre (Mean \pm SD)	Post (Mean \pm SD)		
Physical	23.6 \pm 3.58	26.85 \pm 3.13	5.91***	24.62 \pm 3.87	25.2 \pm 3.58	0.61	2.19*
Psychological	19.27 \pm 3.21	22.7 \pm 2.98	6.77***	21.20 \pm 4.07	20.8 \pm 3.68	1.14	2.19*
Social	9.95 \pm 2.53	10.8 \pm 2.58	4.42***	10.5 \pm 3.33	10.22 \pm 3.20	0.74	0.8
Environmental	28.7 \pm 3.48	31.07 \pm 3.98	2.79**	29.75 \pm 4.52	28.95 \pm 5.34	1.36	2.07*
Overall QOL +General health	6.6 \pm 1.53	7.8 \pm 1.22	3.87***	7.52 \pm 1.21	7.62 \pm 1.05	0.72	2.63**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

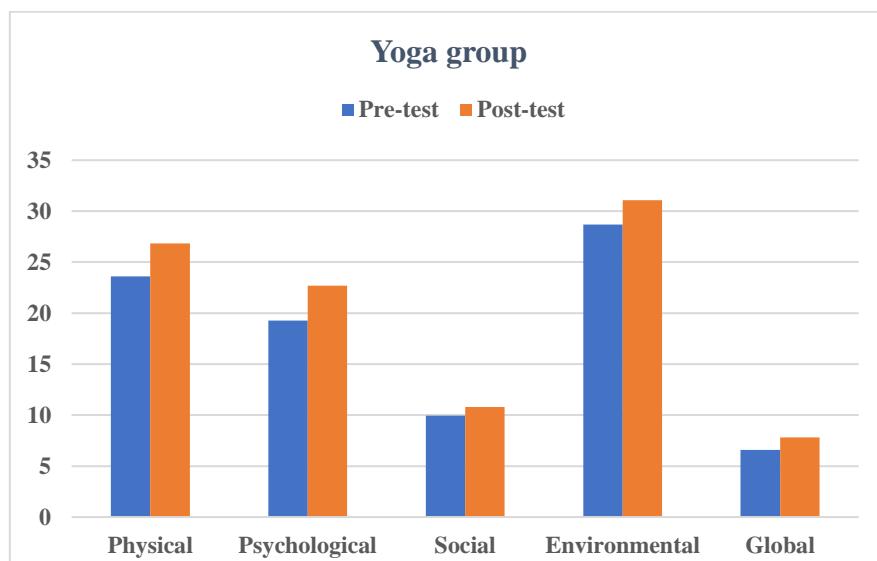


Fig. 2. Pre and Post WHOQOL-BREF scores in Yoga group

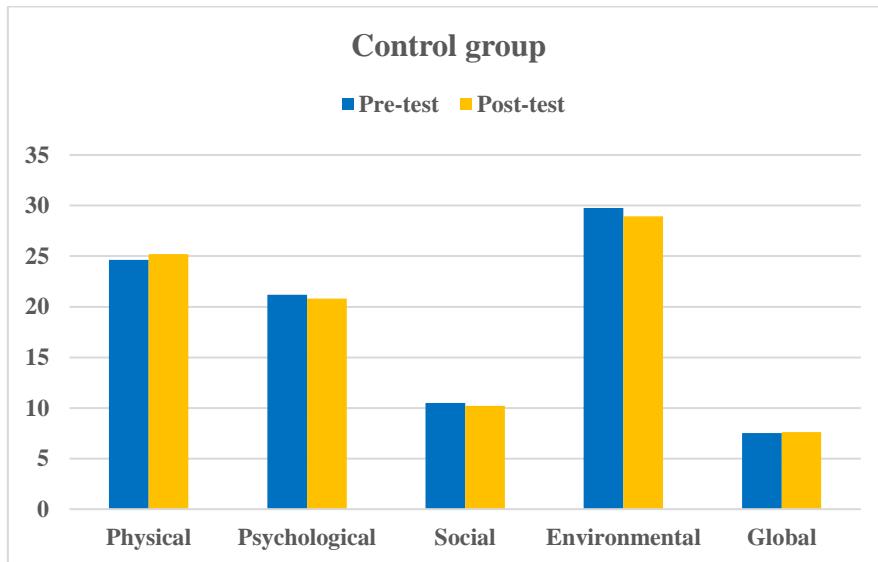


Fig. 3. Pre and Post WHOQOL-BREF scores in Control group

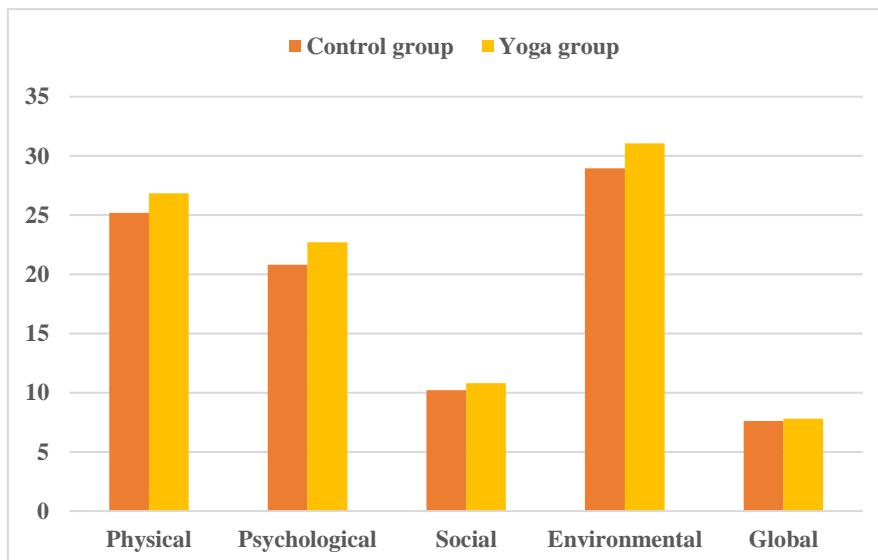


Fig. 4. Post WHOQOL-BREF scores comparison between Yoga and Control group

DISCUSSION

The results of current randomized control trial which involved 80 participants with one-week of intense residential *yoga* training program showed that the quality of life (QoL) in *yoga* group significantly improved ($p<0.05$) as compared to the control group. All WHOQOL tool domains showed no positive relationships among groups at baseline. In terms of the physical, psychological, social, environmental and global dimensions, there was a significant statistical difference between the *yoga* and control groups.

Over 80% of the study participants were married and literate, indicating a high prevalence of stresses brought on by major commitments like family care or financial challenges (Nicholas, & Sharp, 1997) which generally cause a compromised psychological balance driven by uncertainties and uneasiness about the future, thereby leading to an endless loop of low life quality (Tekur, Chametcha, Hongasandra, & Raghuram, 2010). This is evident when people are unable to regulate or manage work-life troubles.

Numerous studies clearly demonstrate the positive impact of *yoga*, meditation and mindfulness on lowering stress along with an array of other health issues (Pascoe, Thompson, & Ski, 2017; Hunt, Al-Braiki, Dailey, Russell, & Simon, 2018; Fischer et al., 2022). Integrating mind-body processes, some breathing strategies used in *pranayama*, Meditation (consciously relaxing), *Bhramari pranayama* (bee breathing) and *Nadishodhana pranayama* (alternate nostril breathing), have had a significant impact in lowering stress rates. In addition, *yoga* has demonstrated to enhance women's quality of life by addressing a number of medical conditions like mental illnesses, CKD, pelvic discomfort and others (Ebnezar, Nagarathna, Bali, & Nagendra, 2011; Ramanathan, Bhavanani, & Trakroo, 2017; Pandey, Arya, Kumar, & Yadav, 2017; Verma, Langade, Jain, Rao, & Rao, 2017). These findings corroborate those of present study wherein, majority of participants in *Yoga* group were female (62.5%) as compared to male (37.5%).

Our study found that a short-term, intense *yoga* intervention with one-week residential program improved all WHOQOL-BREF domains effectively. For sustained advantages of *yoga* on improving quality of life, the individuals were advised to continue their *yoga* practices at home for an hour each day.

LIMITATIONS AND FUTURE SCOPE

In the present study, only 80 participants (40-*yoga* and 40-control) were included. Another point to be considered is that relatively limited studies have been done to show how effective a brief *yoga* session is in enhancing the quality of life. Hence, more such studies with a larger sample size or participant count is necessary to re-confirm the effectiveness of short-term *yoga* training on quality of life. Furthermore, additional research is needed to evaluate the quality of life across a range of demographics, genders, occupations and cultural backgrounds.

CONCLUSION

The results of this study point to the prospective benefits of *yoga* practice towards an improved QoL among participants. To validate these advantages, more research with substantial samples and an appropriate time frame is required.

Brief Profile of the Authors:

Dr. Suchitra Doddoli, an Ayurvedic physician with over a decade of experience, has been practicing and researching in Ayurveda and Yoga. She has done her B.A.M.S. degree from Ayurveda Mahavidyalaya, Hubli, Karnataka and has an experience of clinical practice of more than 10 years. She worked more than three years as a Research Assistant in Kaivalyadhama Institute and has published several fundamental, experimental as well as review research papers in leading academic journals and indexed peer reviewed journals, with significant contribution in her respective field. Her dedication and expertise inspired her to write book, conduct numerous lectures and workshops. She works as a free-lance researcher, online consultant and conducts retreat workshop by integrating the holistic approaches of Yoga and Ayurveda.

Saraswati Srividya is an experienced Hatha Yoga teacher with expertise in pre- and post-natal (pregnancy) Yoga, Vinyasa, and children's yoga. She is skilled in aligning, adjusting and modifying asanas to ensure a safe and effective practice. Her mission is to inspire individuals to set long-term health and fitness goals, enhancing their overall well-being through Yoga. Her Yoga journey began at the age of 10 at a traditional Gurukul. She holds a one-year Diploma in Yoga from Kaivalyadhama Institute and a Master of Yogic Science (M.Sc.) from S-VYASA in Bangalore. She spent three years at the Kaivalyadhama Health Centre, where she worked with participants to address common health concerns through Yoga. She conducts many workshops with focus on holistic wellness and designs Yoga sequences, lesson plans for the students of all levels.

Dr. Gururaj Doddoli, working as medical officer at healthcare centre/Ayurveda department of Kaivalyadhama Yoga Institute, Lonavala, has an expertise of clinical practice of more than 15 years. Apart from this, he is also an author, counsellor, therapist, teacher and a healer. He has done B.A.M.S. degree from L.K.R.S.S. college, Gadchinglaj, Maharashtra and MBA in Hospital Administration from JNU. His contribution in the field of Ayurveda and Yoga is immense and appreciable. He has published numerous research articles, case studies and review papers in highly reputed indexed peer review journals. Further, to explore the healing benefits of Ayurveda, he conducts lectures and workshop to spread the knowledge of ancient science.

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