



Hatha Yoga practice decreases menopause symptoms and improves quality of life: A randomized controlled trial

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ABSTRACT

Objectives: Yoga practice includes a group of specific psychophysical techniques. Although previous studies showed beneficial effects of yoga for health and rehabilitation, improving quality of life, there are few studies on the possible therapeutic application of yoga during the climacteric period. The purpose of this study was to investigate the psychophysiological effects of Hatha Yoga regular practice in post-menopausal women.

Methods: Eighty-eight post-menopausal women volunteered for this 12-week trial. They were randomly assigned to one of three groups: control (no intervention), exercise, and yoga. Questionnaires were applied in order to evaluate climacteric syndrome (Menopause Rating Scale), stress (Lipp Stress Symptom Inventory), quality of life (Brief World Health Organization Quality of Life), depression (Beck Depression Inventory) and anxiety (State/Trait Anxiety Inventories). Physiological changes were evaluated through hormone levels (cortisol, FSH, LH, progesterone and estradiol).

Results: At 12 weeks, yoga practitioners showed statistically lower scores for menopausal symptoms, stress levels and depression symptoms, as well as significantly higher scores in quality of life when compared to control and exercise groups. Only control group presented a significant increase in cortisol levels. The yoga and exercise groups showed decreased levels of FSH and LH when compared to control group.

Conclusions: These results suggest that yoga promotes positive psychophysiological changes in post-menopausal women and may be applied as a complementary therapy towards this population.

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1. Introduction

The women aging process is characterized by the climacteric period, which is a gradual transition from the reproductive to the non-reproductive life period. It usually starts around the age of 40 years onwards. It is characterized by the decline of both quality and quantity of ovarian follicles, decreasing estradiol levels, and

consequent increase in follicle-stimulating hormone (FSH) levels and menstrual cycle unbalance.¹ This period finishes when the organism adapts to the absence of gonadal and gonadotrophic hormones, normally at the age of 60–65 years old.² Menopause occurs within the climacteric period and constitutes the final suspension of ovarian follicles activity, verified by menstrual flux interruption for a minimum period of 12 months. It may occur naturally around 50 years of age, or it may also be a consequence of premature ovarian decrepitude or even to eventual hysterectomy and ovariectomy.³

These changes on aging during menopause are accompanied by a wide range of physiological (cardiovascular, vasomotor control unbalance, urogenital atrophy, musculoskeletal/joints dysfunction and osteoporosis), as well as psychological disturbing symptoms (depression, cognitive alterations, and decrease in sleep quality).⁴ Furthermore, these symptoms may be directly or indirectly correlated to libido and self-esteem decrease, and increased

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irritability.^{5,6} Moreover, the neurologic senescence symptoms characterize menopause by a decline in cognitive function and of quality of life.^{7,8}

The traditional therapeutic approach towards menopause management is hormone replacement therapy. However, this approach increases the risk of breast cancer, stroke, coronary heart disease, and venous thromboembolism.⁹ Since the range of menopause symptoms is extensive, and encloses physical and psychological variables, a therapeutic approach which includes both psychological and physical interventions may be valuable. Studies have shown many benefits of physical exercise for women after menopause, such as decreases in vasomotor symptoms,¹⁰ depression,¹¹ muscular mass loss,¹² and sexual dysfunctions¹³ as well as increased quality of life.¹⁴ However, the efficacy of complementary therapies, which include yoga practice, on menopause management still needs further investigation.^{15–17}

Yoga is an ancient Indian philosophy system that aims to establish health to the physical, mental and emotional dimensions of the human being. Its practices include a set of physical postures (*asanas*) to be maintained for a certain time with comfort; voluntary and comfortable breath control (*pranayama*), and concentration of thoughts (meditation). *Asanas* are exercises characterized by the maintenance of specific postures involving bending, standing, twisting and balancing the body, with the objective of improving flexibility and strength. *Pranayamas* consist of controlled breathing exercises focusing on body awareness and on mental relaxation during their execution.¹⁸ Meditation is a mental process involving voluntary concentration of thoughts, aiming an altered state of awareness, believed to produce changes in perception, attention and cognition.¹⁹

Since its introduction into the Western culture, yoga has become popular as a complementary way to achieve healthy living.²⁰ In fact, some studies have demonstrated positive effects of Yoga practice on menopause symptoms such as decrease in insomnia,²¹ increase in quality of sleep,²² decrease in vasomotor symptoms²³ and reduction of osteoporosis symptoms.²⁴ Although there may be researches addressing the effects of yoga on menopause symptoms, the variety of practices focused is wide, and sometimes practices with the same name describe different exercises. Moreover, some of the studies lack a more rigorous scientific control,²⁵ which is relevant because, as mentioned, exercise may, per se, have positive effects in this condition. Thus, randomized controlled trials, empowered by a traditional approach towards yoga practice are necessary to enlighten this subject. The aim of the present study was to investigate if traditional *Hatha Yoga* practice may decrease menopause psychophysiological symptoms and improve quality of life of yoga naive women.

2. Material and methods

2.1. Participants

Volunteers were recruited by means of 3 lectures for research dissemination in a Popular Cultural Center (Natal-RN, Brazil), in which research objectives and methods were explained in details.

Inclusion criteria were: healthy yoga-naïve women between 45 and 65 years; no physical limitations for physical exercise; amenorrhea for 12 months or longer; follicle-stimulating hormone levels ≥ 30 mIU/ml; free of hormonal replacement therapy for at least six months; and not being under psychoactive drug treatment.

2.2. Experimental design

At admission, women who met initial eligibility criteria were scheduled for a baseline visit and were required to answer

Table 1

Sociodemographic characteristics of the study groups.

	Control (n = 19)	Exercise (n = 29)	Yoga (n = 40)
Anthropometric data			
Age (years)	55 ± 4	56 ± 5	54 ± 6
Body mass index (kg/m ²)	29 ± 4	29 ± 5	28 ± 4
Income			
Up to 1 minimum wage	36.80%	44.8%	20.0%
1–3 wages	57.8%	55.2%	52.5%
3–5 wages	5.2%	0	2.5%
Professional activity			
Yes	42.1%	55.2%	42.5%
No	57.9%	44.8%	57.5%
Scholarity			
Graduation	0	6.9%	5.0%
Complete high school	47.4%	44.8%	45%
Incomplete high school	10.5%	3.4%	10.0%
Complete primary education	10.5%	13.8%	10.0%
Incomplete primary education	31.6%	31.1%	30.0%
Civil status			
Married	63.2%	62.1%	70.0%
Divorced	10.5%	10.3%	15.0%
Widow	26.3%	17.2%	5.0%
Maiden	0	10.3%	10.0%

sociodemographic and psychological questionnaires. Then, participants were selected based on the inclusion criteria and randomly assigned into one of three groups: control (C), exercise (E) or yoga (Y). Randomization plan was generated by *randomization.com*. Randomization list was secured and access was restricted to the responsible researcher. Afterwards, the researcher prepared sealed sequentially numbered envelopes containing the treatment assignments. Participants were informed on their group assignment after the completion of their initial visit. All participants agreed to engage exclusively in the activity condition assigned for the duration of the study, while daily activities were encouraged to remain unchanged. On the following day, saliva and blood samples were collected by a qualified biomedical team. After 12 weeks, the same routine for questionnaires, saliva and blood samples were followed once more, except for the sociodemographic questionnaire (Table 1). Both questionnaires application and blood collection were single-blinded. Thus, outcome assessments of cortisol levels, biochemical analysis and sexual hormone levels were performed at baseline and at the end of the 12-week period. In order to avoid introduction of laboratory error into measurements of change in analyses over time, all samples of weeks 0 and 12th were processed and evaluated at the same time of the day. Both collection and analysis of data were conducted in a blind manner. Subjects were specifically instructed to avoid telling their experimental group to the assessor during sessions. All participants were encouraged to report any adverse events related to the protocol immediately upon occurrence, which the researcher would register in a log book. The instructor asked participants individually on any adverse events after each class.

2.3. Training program

Training program consisted of 75 min of supervised practices (yoga or exercises) twice a week, for 12 weeks. Both yoga and exercise classes were guided by a single, certified Hatha Yoga instructor with longstanding experience in yoga teaching (Yoga Instructor Course – Maheshvara Institute, Guarulhos, Brazil; Yoga Immersion Course – Lonavla Yoga Institute, Lonavla, India; Hatha Yoga Capacitation Course – Department of Physical Education of the University of Rio Grande do Norte, Natal, Brazil). The instructor and the subjects were aware of the type of class (yoga or exercise).

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