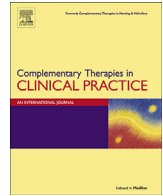




Contents lists available at ScienceDirect

Complementary Therapies in Clinical Practice

journal homepage: www.elsevier.com/locate/ctcp

The hypotensive effect of Yoga's breathing exercises: A systematic review



Jeniffer Z. Brandani*, Julio Mizuno, Emmanuel G. Ciolac, Henrique L. Monteiro

São Paulo State University (Unesp), School of Sciences, Physical Education Department, Bauru, Brazil

ARTICLE INFO

Article history:
Received 19 April 2017
Accepted 8 May 2017

Keywords:
Cardiovascular diseases
Complementary therapies
Hypertension

ABSTRACT

The aim of this review was to evaluate the effect of pranayama (Yoga's breathing exercises) on BP and its applicability in the treatment of hypertension. Thirteen trials, assessing acute (eight studies) and chronic (five studies) BP response to pranayama were included. Significant BP reductions after pranayama were found in both acute (2–10 mmHg mean SBP reduction, N = 5 studies; 1 mmHg mean DBP reduction, N = 1 study) and chronic studies (4–21 mmHg mean SBP reduction, N = 3 studies; 4–7 mmHg mean DBP reduction, N = 2 studies). The pranayama's effect on BP were not robust against selection bias due to the low quality of studies. But, the lowering BP effect of pranayama is encouraging. The pranayama with slower rhythms and manipulation of the nostrils, mainly with breaths by the left, present better results when compared with the other types and should be the main pranayama applied when the goal is to reduce blood pressure especially in hypertensive patients.

© 2017 Elsevier Ltd. All rights reserved.

Contents

1. Introduction	38
2. Methods	39
2.1. Search strategy and study selection	39
2.2. Data extraction and analysis	39
3. Results	39
3.1. Study and subject characteristics	39
3.2. Assessment of BP and secondary outcomes	39
3.3. Pranayamas characteristics	41
3.4. Effects of pranayamas on BP and secondary outcomes	41
4. Discussions	44
4.1. Implications for clinical practice	45
4.2. Limitations	45
5. Conclusion	45
Disclosures	45
Conflicts of interest	45
References	45

1. Introduction

Hypertension is a highly prevalent disease worldwide and an important risk factor for stroke, coronary artery disease and organ failure [1]. In Brazil, nearly 24.4% and 21.6% of adult women and men are hypertensive, respectively [2]. The regular practice of

* Corresponding author. Universidade Estadual Paulista – UNESP, Departamento de Educação Física, Av. Engenheiro Luiz Edmundo Carrijo Coube 14-06, Bauru, São Paulo, 17033-360, Brazil. Tel.: +55 14 3103 6082.

E-mail addresses: jeniffer_brandani@yahoo.com.br (J.Z. Brandani), juliomizuno@gmail.com (J. Mizuno), ciolac@fc.unesp.br (E.G. Ciolac), heu@fc.unesp.br (H.L. Monteiro).

physical exercise is a well-established non-pharmacological treatment for hypertension [3–7]. Among the different types of exercise, there is increasing evidence suggesting a hypotensive effect of regular practice of Yoga [8–12].

In a broader context, Yoga includes theoretical and philosophical concepts (*yamas* and *niyamas*), body techniques (*asanas*), breathing exercises (*pranayamas*), concentration (*dharana*) and meditation [13]. Among these techniques, pranayamas (breathing exercises of varied time and pace that may be performed with or without air retention in the lungs) appears to have a better risk/benefit ratio for lowering blood pressure (BP) [14]. Moreover, pranayamas practice does not have costs with specific equipment and places, which may increase its applicability. The main mechanism for its lowering effect on BP appears to be the improvement in baroreceptor sensitivity, which changes the autonomic balance with an increase in parasympathetic and decrease in sympathetic modulation [15,16].

Although there are systematic reviews and meta-analyses supporting the hypotensive effects of Yoga [14,17,18], the broad variety of techniques performed in each individual study (i.e. some studies use only one technique while others used two or more techniques) difficults the interpretation of pranayamas lowering BP effect. Therefore, the aim of this review was to evaluate the effect of pranayamas on BP and its applicability in the treatment of hypertension.

2. Methods

2.1. Search strategy and study selection

PubMed/Medline, Scopus and Bireme electronic databases were searched for articles about pranayamas effects on BP. Search was performed by crossing the terms 'yoga/Yoga', 'yogue/yogi', 'pranayama' or 'breathing' with 'blood pressure', 'hypertension' or 'systolic/diastolic BP'.

The present systematic review included only clinical trials, published between January 2006 and August 2016, that investigated the effect of pranayamas on BP in adult individuals (age ≥ 18 ys), with or without comorbidities. There were no imposed sex or language restrictions. Because of the variability of existing breathing techniques, only explicitly labeled interventions with the term "Yoga" were included. Methodologic or observational (descriptive only) articles, studies with pranayamas associated with other intervention were not included. Clinical trials that did not have the full text available were also not included. Two independent reviewers (J. Z. B. and J. M.) performed the literature search and study assessment.

2.2. Data extraction and analysis

Data on study source, sample size, participant's characteristics (e.g. age, sex, baseline BP and physical activity levels, comorbidities ...), method used to measure BP, characteristics of breathing exercise (i.e. type, frequency and duration of breath, breath technique) and control interventions (i.e. type, frequency and duration), outcomes and limitations of the included studies were extracted independently by two authors (J. Z. B. and J. M.). When there was discrepancy between reviewers, a third reviewer (H. L. M.) was consulted to solve the discrepancy. Methodological quality of included studies was assessed using the Physiotherapy Evidence Database (PEDro) scale (www.pedro.org.au). The results of the systematic review are presented descriptively (e.g. means, standard deviations, and minimum and maximum values).

3. Results

Electronic databases search identified 347 records. Title and abstract screening discharged 219 duplicates, 49 reviews, 43 with no full-text available, 10 with no BP assessment, five with no-pranayamas intervention, one editorial and one experience report. Full text screening discharged one study with participants with age <18 years and three studies that pranayama was not the only intervention. Finally, thirteen articles assessing the acute (eight studies) [9,10,19–24] and chronic (five studies) [25–29] effects of pranayamas were included in this review (Fig. 1).

3.1. Study and subject characteristics

General description of each study included is shown in Table 1. Twelve studies were conducted in India and one in UK. Subjects with hypertension were included in six of them [9,10,20,23,25,26]. Eight studies assessed the acute effect of pranayamas (BP response to a single exercise session) [9,10,19–24], which had a sample size ranging 20 to 90 participants (totaling 266 participants), and included only men [24,26], or both men and women [9,10,19–21,23]. Five studies assessed the chronic effect of pranayamas (BP response to an exercise program) [25–29], which had a sample size ranging 11 to 90 participants (totaling 239 participants), and included only men [28,29], and both men and women [25,26] however, one study have no information about sex of participants [27].

Only three studies assessing the chronic effect of pranayamas were randomized controlled trial (RCT) [23,27,28], and only one study assessing the pranayamas acute effect had a control intervention [24]. Finally, most studies were of poor quality. The median PEDro score was ≈ 3 , with a range from 1 to 7 (Table 2).

3.2. Assessment of BP and secondary outcomes

In the studies evaluating the acute effects of pranayamas, BP assessment was performed by means of semiautomatic non-invasive [9,10,20], continuous non-invasive [21,24], digital [19] and standard mercury sphygmomanometer [22,23]. In the studies

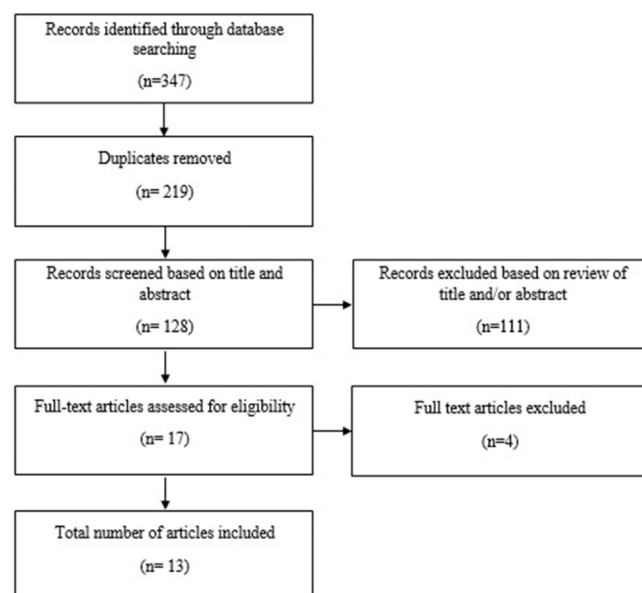


Fig. 1. Flowchart of the results of the literature search.

Download English Version:

<https://daneshyari.com/en/article/5565083>

Download Persian Version:

<https://daneshyari.com/article/5565083>

[Daneshyari.com](https://daneshyari.com)