



DEEP BREATHING EXERCISE INTERVENTIONS TO REDUCE DYSPNEA IN PATIENTS WITH CARDIOVASCULAR DISEASE: A RAPID REVIEW

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ABSTRAK

Latar Belakang. Upaya dalam mengontrol gejala sesak nafas pada pasien dengan penyakit jantung dapat dilakukan dengan berlatih teknik pernafasan. Latihan pernafasan (*breathing exercise*) merupakan terapi non farmakologi yang bisa meningkatkan kemampuan otot-otot pernafasan untuk meningkatkan compliance paru dalam meningkatkan fungsi ventilasi dan memperbaiki oksigenasi. **Tujuan.** Literatur ini bertujuan untuk merangkum dan mengeksplorasi potensi serta tingkat kemudahan dalam menerapkan latihan pernafasan untuk mengurangi sesak nafas pada pasien dengan kardiovaskular. **Metode:** Metode penelitian menggunakan *study literatur* dengan *design rapid review* menggunakan kerangka PAGER. Identifikasi hasil studi dilakukan berdasarkan protokol PRISMA-ScR. Pencarian artikel dilakukan melalui 5 database, yaitu EBSCO-hosted Academic Science Complete, PubMed, Sage Journals, ScienceDirect, dan Taylor and Francis. **Hasil:** Sebanyak 8 artikel yang ditemukan pada *rapid evidence review* ini. Para penulis menggunakan *Randomized Control Trial (RCT)* (6), *cohort study* (1), dan *quasi experimental study* (1). Hasil penelitian menemukan, bahwa *walking with controlled breathing (WwB)*, latihan pernafasan dalam, *Active cycle Breathing technique*, *Intervensi Bee Humming Breathing (BHB)*, kombinasi latihan pernafasan *PursedLip Breathing (PLB)* dan *Mindfulness Breathing (MB)*, *pursed-lips breathing* yang dikombinasikan dengan *breath counting*, dan terapi yoga dapat mengurangi sesak. **Kesimpulan:** Penerapan intervensi latihan pernafasan teknik *WwB* terbukti meningkatkan toleransi aktivitas pada pasien gagal jantung dengan menunjukkan hubungan positif secara simultan dan terus menerus dengan perbaikan saturasi oksigen dan meningkatkan fungsi paru-paru dan mengaktivasi sistem parasimpatis sehingga berpengaruh juga pada fungsi fisiologis kardiovaskuler.

Kata kunci: Intervensi, Latihan Pernafasan, dispneu, Penyakit Cardio Vaskuler

ABSTRACT

Background: Efforts to control the symptoms of shortness of breath in patients with heart disease can be done by practicing breathing techniques. Breathing exercise is a non-pharmacological therapy that can improve the ability of respiratory muscles to improve lung compliance in improving ventilation function and improving oxygenation. **Purpose.** This literature aims to summarize and explore the potential and level of ease in applying breathing exercises to reduce shortness of breath in patients with cardiovascular disease. **Methods:** The research method uses a literature study with a rapid review design using the PAGER framework. Identification of study results is carried out based on the PRISMA-ScR protocol. Article search is carried out through 5 databases, namely EBSCO-hosted Academic Science Complete, PubMed, Sage Journals, ScienceDirect, and Taylor and Francis. **Results:** A total of 8 articles were found in this rapid evidence review. The authors used a randomized control trial (RCT) (6), a cohort study (1), and a quasi experimental study (1). The results found that walking with controlled breathing (WwB), deep breathing exercises, Active cycle Breathing technique, Bee Humming Breathing (BHB) intervention, a combination of Pursed Lip Breathing (PLB) and Mindfulness Breathing (MB) breathing exercises, pursed-lips breathing combined with breath counting, and yoga therapy can reduce tightness. **Conclusion:** The application of breathing exercise intervention WwB technique is proven to increase activity tolerance in heart failure patients by showing a simultaneous and continuous positive relationship with improved oxygen saturation and improving lung function and activating the parasympathetic system so that it also affects cardiovascular physiological function.

Keywords: Intervention, Breathing Exercises, dyspneu, Cardio Vascular Disease

INTRODUCTION

Cardiovascular disease (CVD) is the number one cause of mortality worldwide. An expected to 20.5 million individuals died from cardiovascular disease in 2021, signifying a significant increase from the 12.1 million fatalities from cardiovascular illness observed in 1990 (Heidenreich et al., 2022). More than 75% of cardiovascular disease fatalities occur in low- and middle-income nations. Shortness of breath (dyspnea) is one of the signs of cardiovascular disease that can lead to mortality. Chronic dyspnea is the

most obvious symptom of cardiovascular illness, and it usually develops before the patient is hospitalized or readmitted with cardiopulmonary disease (Roversi et al., 2016). In heart failure reported 56% had dyspnea, which is the third most common symptom of heart failure after fatigue and dry lips (Wisudawati et al., 2021).

Dyspnea, often known as shortness of breath, is a subjective sense of respiratory difficulty caused by the combination of several physiological, psychological, social, and environmental variables. (Laviolette & Laveneziana, 2014; Shalahuddin et al., 2022). This can cause abnormal physiological and secondary behavioral responses such as the sensation of breathing with varying intensity. Common symptoms of dyspnea affect the manifestations of respiratory, cardiac, neuromuscular, psychogenic, systemic diseases, or a combination of all of them. Dyspnea is frequently one of several symptoms related to acute coronary syndrome or myocardial infarction, as well as cardiogenic shock caused by inadequate cardiac output. Dyspnea in heart failure is caused by pulmonary congestion, which changes sensory input to the respiratory center and directly increases the labor of breathing.

Efforts to control the symptoms of shortness of breath in patients with heart disease can be done by practicing breathing techniques. Research Litrownik et al., (2021), Breathing relaxation strategies that have been demonstrated improve the quality of life of persons with chronic heart failure. Breathing exercise is a non-pharmacological therapy that can enhance the capacity of the respiratory muscles to increase lung compliance, hence increasing ventilation function and oxygenation (Ambrosino & Fracchia, 2019).

This technique is commonly done to relieve dyspnea, reduce breathing rate, help restore the diaphragm, and calm breathing. So that a person can breathe smoothly and calmly. The results showed that controlled breathing exercises such as pursed-lips breathing can help minimize breathing work, prevent airway collapse, reduce alveolar ventilation and reduce anxiety by reducing the amount of adrenaline hormone released in the body system so that the mind becomes more relaxed and open (Avianty et al., 2021). This exercise physiologically stimulates the parasympathetic nervous system which can increase endorphin hormones that can prevent tachycardia, increase lung expansion to the maximum, relax the respiratory and chest muscles making adequate oxygen input (Pollock, 2021).

Breathing exercise technique is a type of nursing care in which the nurse teaches clients how to do deep breaths, slow breaths (holding inspiration to the maximum), and slowly exhale. In addition to reducing pain intensity, breathing exercise techniques can also improve pulmonary ventilation and increase blood oxygenation.

There are multiple breathing exercise strategies that may be used to enhance lung function, including diaphragmatic breathing exercises, pursed lip breathing exercises, Lion's breath breathing exercises, equal breathing exercises, and deeper breathing exercises. Each of these approaches is used in a different manner depending on the patient's demands and conditions.

Given the large variety of respiratory exercise therapies available today, new research are needed to contribute to the expanding body of information on the advantages of breathing exercises in decreasing dyspnea in patients with cardiovascular disease. In addition, this study can also have implications for the nursing care process because in its implementation, nurses have an important role in improving patient services through a health education and training approach so that patients can gain knowledge and skills

related to breathing exercise interventions.

This literature study aims to summarize and explore the potential and level of ease in applying breathing exercises to reduce shortness of breath in patients with cardiovascular disease.

METHOD

Research Design

This literature review used a quick evidence review, supported by the PRISMA Extension for Scoping Reviews (PRISMA-ScR) Protocol, to systematically identify relevant study results strategy for searching (Tricco et al., 2018).

The article search process is carried out through 4 databases, namely EBSCO-hosted Academic Science Complete, PubMed, Sage Journals, and ScienceDirect using certain keywords according to the PICO framework attached to table 1

Table 1.

Article search by PICO framework

Population (P)	Cardiovascular Disease
Intervention (I)	Breathing exercise
Comparison (C)	-
Outcome (O)	Oxygen saturation

Table 2.

Mesh Term assignment for article search

	Concept 1	Concept 2	Concept 3
Key Concept	CardiovascularDisease	Breathing Exercise	Oxygen saturation
Mesh Term	- CVD - Heart - Cardiac Coronary heart disease	- Breathing technique - Respiratory muscle training	- Oxygen - Pulse oximetry saturation

Data Extraction and Analysis

Reviewers conducted a study selection process based on PRISMA's flowchart: (1) identifying duplications; (2) filtering of headings and abstracts; (3) check the availability of full texts; and (4) filter the full text based on inclusion and exclusion criteria. The entire research data was then extracted manually using the tabulation method and analyzed in a thematic descriptive manner.

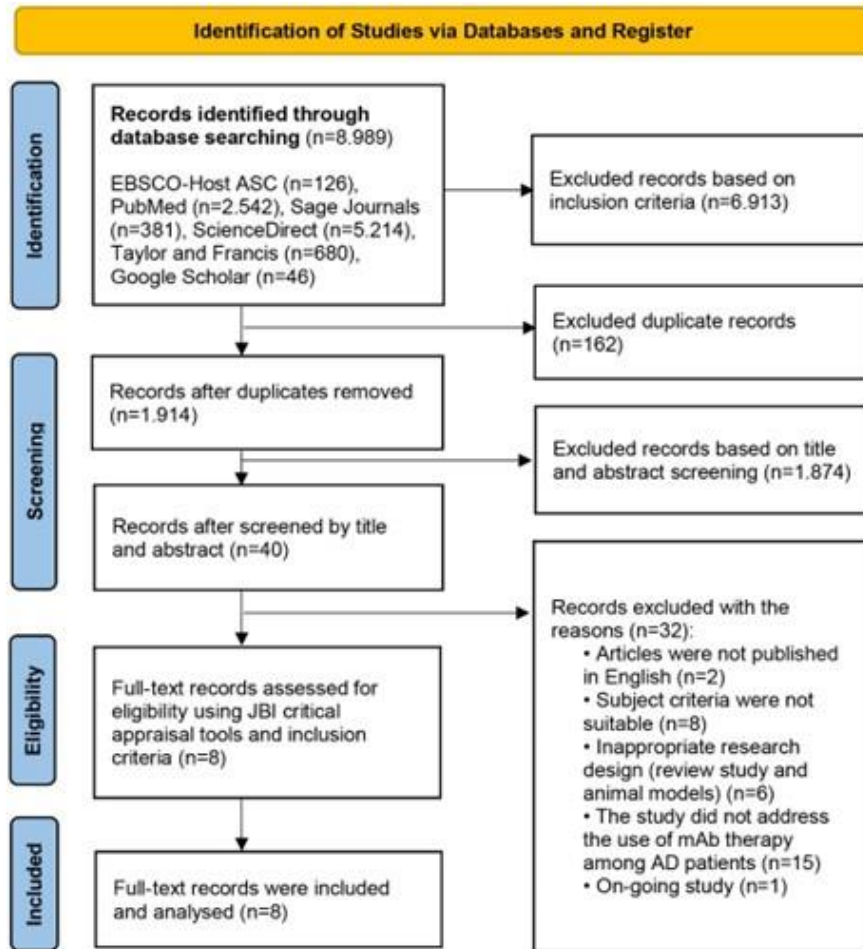


Figure 1. Article Search Process

RESULT

We identified 6913 studies in the initial search, 8 of which were included in this rapid evidence review. The authors used the Randomized Control Trial (RCT) (6), cohort study (1), a quasi-experimental research (1) to investigate the potential of breathing exercises in lowering dyspnea in individuals with cardiovascular disease. This study included individuals diagnosed with cardiac disease as well as patients who had just had PCI in four countries: Taiwan, Thailand, Zambia, and India.

Table. 3 Result Artikel

No	Title, Author and Year	Study Design	Sample	Purpose	Result
1.	<p>Title: Walking with controlled breathing improves exercise tolerance, anxiety, and quality of life in heart failure patients: A randomized controlled trial Author: Teng et al., Year: 2018 Location: Taiwan</p>	Randomized Controlled Trial	<p>Population: 90 heart failure patients</p> <ul style="list-style-type: none"> ▪ K. Control: (n=45) During the same trial time, the control group got standard heart failure treatment. ▪ K. Intervention: (n=45) The walking with controlled breathing (WwB) intervention group received a systematic intervention on walking and breathing for 12 weeks. 	To evaluate the effects of a 12-week walk with a breathing program on physical activity tolerance, taking into consideration time-dependent physiological parameters, time-independent interoceptive awareness, and psychosocial factors.	<ul style="list-style-type: none"> - WWB intervention was shown to effectively improve activity tolerance in heart failure patients by exhibiting a simultaneous and ongoing beneficial relationship with enhanced oxygen saturation. - WwB intervention resulted in enhanced oxygen saturation and improved exercise tolerance in patients, whereas the control group experienced a drop. - Patients with WwB increase walking distance gradually (on average >50 m) and continuously which shows increased tolerance for physical exertion. However, the control group's walking distance did not improve. - WwB interventions also improved patients' QoL and lowered rates of depression but not anxiety
2.	<p>Title: The effect of pursed-lip breathing combined with number counting on blood pressure and heart rate in hypertensive urgency patients: A randomized controlled trial Author: Mitsungrern et al. Year: 2021 Location: Thailand</p>	<i>Randomized Controlled Trial</i>	<p>Population: Patients aged between 18 and 80 years who were diagnosed with HT urgency after presenting at Srinagarind Hospital ER Sample: n= 110</p> <ul style="list-style-type: none"> - K. Control : n = 55 Each patient is given frequent nursing care, which includes bed rest in a supine posture in a quiet area ("Hypertension Corner" in the ER). Patients are also recommended to minimize their activity. - K. Intervention: n = 55, each patient does pursed-lip breathing by counting numbers until the patient can do it correctly. 	To examine the effect of pursed-lip breathing combined with number counting breathing on blood pressure and heart rate effects in patients with urgent HT.	<ul style="list-style-type: none"> - Significantly reduce SBP and DBP - Increase slow breathing - Increase awareness. - Reduce anxiety and stress
3.	<p>Title: <i>Comparison of the effect of incentive spirometry and deep breathing exercises on hemodynamic parameters of patients</i></p>	<i>Randomized Controlled Trial</i>	<p>Population: Patients having cardiac and open heart surgeries in ICU of Razi Birjand/Iran Hospital. Sampe: 40 eligible patients who underwent CABG surgery. Inclusion criteria were no lung disorders (e.g.,</p>	To assess the effect of incentive spirometry (IS) and deep breathing exercises (DBEs) on the hemodynamic and oxygenation parameters of	<ul style="list-style-type: none"> - On the third day, IS patients showed significant improvement in mean arterial SaO2 and RR compared to the DBE group. After intervention - The IS group reported significant improvement in mean SBP and DBP on the first day of intervention compared to the DBE group.

No	Title, Author and Year	Study Design	Sample	Purpose	Result
	<i>undergoing coronary artery bypass graft surgery: A Clinical Trial</i> Author: Zerang et al., Year: 2022 Location: Iran		dyspnea, COPD, emphysema, and asthma), neuromuscular and cognitive impairments, or renal impairment, no emergency surgery, mechanical ventilation for less than 24 hours, and capacity to complete breathing exercises and use incentive spirometry. - K. Control: - K. Intervention: Twenty patients in the DBE training group and another twenty patients in the SI exercise group.	patients having coronary artery bypass graft surgery.	- On the second and third days following the intervention, there was no significant difference between the two groups (TD of IS patients was higher than that of DBE patients). - The IS approach improves the DBE method in boosting arterial respiration and SpO ₂ . Other studies have found that both medications are similarly effective in raising arterial blood gas, although DBE is more effective.
4.	Title: Effect of Active Cycle of Breathing Techniques (ACBT) on Ventilatory Function in Adult Heart Failure Patientat The University Teaching Hospitas Al-Lusaka Zambia Author: Muselema et al., Year: 2015 Location: Zambia	<i>Prospective cohort study</i>	Population: All stable New York Heart Association type II and III heart failure patients were sent to outpatient cardiac clinics. Sample: n=30	To examine the effect of ACBT exercise on ventilation volume function and quality of life in heart failure patients at the University of Zambia, Lusaka.	- There is a reduction in HF symptoms such as dyspnoea, fatigue, and chest congestion. - Participants also reported greater exercise skills and sleep.
5.	Title: <i>A randomized trial of the immediate effectof bee-humming breathing exercise on blood pressure andheart rate variability in patients with essential hypertension</i> Author: Ghati et al., Year: 2021 Location: India	<i>Randomized Controlled Trial</i>	Population: Male and female hypertensive patients aged 30-70 years who met the study criteria. Sample: N = 83 - K. Control: obtained slow deep-breathing intervention (SDB) (N =35) - K. Intervention: obtained bee humming breathing intervention (BHB) (N = 35)	This research was meant to assess the immediate benefits of exercise: The effect of Bee-Humming Breathing (BHB) on blood pressure and heart rate variability (HRV) in individuals with essential hypertension	In the research, there was no significant decrease in systolic effect size (95% CI): [2.22 (-13.20, 17.64); p 0.77], diastolic [4.54 (-17.40, 26.48); p 0.68], or mean blood pressure [1.37 (-8.78, 11.52); p 0.78] following exercise BHB compared to the control group.
6.	Title: <i>The effects of breathing training on</i>	<i>Two-group quasi-</i>	Population: Patients with <i>acute heart failure</i> at the emergency room of Srinagarind Hospital, Faculty of	To investigate the effect of breathing exercises (pursed lip breathing) on dyspnea and	In the trial, dyspnea ratings decreased by 5.22 (SD 1.468) compared to 2.04 (SD 1.590) in the control group (t = 0.101, p < 0.001). Anxiety ratings decreased in the

No	Title, Author and Year	Study Design	Sample	Purpose	Result
	<i>dyspnea and anxiety among patients with acute heart failure at emergency department</i> Author : Mitsungnern et al., Year: 2021 Location: Thailand	<i>experiment al design</i>	Medicine, Khon Kaen University, Thailand aged more than 18 years who met the study criteria Sample: N = 96 - K. Control: obtained standard intervention: semi-fowler position with an elevation angle of >60 degrees, given oxygen with nasal cannula as much as 3-5 L, and given diuretic drugs (N = 48) - K. Intervention: get standard intervention + pursed lip breathing exercises + mindfulness breathing with counting technique (N = 48)	anxiety in patients with acute heart failure in the emergency department (ED).	experimental and control groups by 4.91 (SD 1.219) and 1.33 (SD 1.502), respectively (t = 0.066, p < 0.001). The experimental and control groups showed substantial differences in dyspnea and anxiety levels following the intervention.
7.	Title <i>A Randomized Controlled Trial to Study the Effect of Yoga Therapy on Cardiac Function and N Terminal Pro BNP in Heart Failure</i> Author : Krishna et al., Year: 2014 Location: India	<i>Randomized Parallel Group Controlled Trial</i>	Population: Heart failure in the Cardiology Outpatient Department at Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India. Sample: 92 patients - K. Control: Participants received only standard-compliant medical treatment in individuals with stable heart failure (N = 48). - K. Intervention: Participants got supplemental yoga treatment with regular medical care (N= 44).	The goal of this study was to examine whether yoga practice other than normal medical therapy can enhance heart function and reduce N terminal pro B-type natriuretic peptide (NT pro BNP) in heart failure (HF).	- Adding yoga therapy to routine medical therapy for stable heart failure patients improved cardiac function and lowered myocardial stress (as evaluated by NT pro BNP). - The intervention group had statistically significant improvements in cardiac function. - After 12 weeks, LVEF increased 36.88% in yoga and 16.9% in <i>Cardiac Function</i> , while the Tei index reduced 27.87% in yoga and 2.79% in <i>Cardiac Function</i> . However, inter group comparisons from pre to post 12 weeks were significant in terms of yoga improvement.
8.	Title: <i>Integrated Yoga Practice in Cardiac Rehabilitation Program: A Randomized Control Trial</i> Author : Sharma et al., Year: 2020 Location: India	<i>Randomized Controlled Trial</i>	Population: Heart failure in the Cardiology Outpatient Department of Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India. Sample: 66 patients. - K. Control: The control group received standard care that included pharmacological treatment and instructions from a cardiologist (N=33)	Evaluated the feasibility of an integrated approach of a yoga therapy-based cardiac rehabilitation program (IAYT) at an Indian center as an adjunct to conventional pharmacological management in improving cardiac function, minimizing symptoms of anxiety and depression, and normalizing lipid profiles in	- The difference between the groups is not significant. However, the yoga group showed a significant reduction in depression (Heart Depression Scale [CDS], U=71, p=0.0 value), anxiety (Hamilton Anxiety Assessment Scale), U=128, p-value=0.0), and a significant improvement in quality of life (QOL) score (Duke Activity Status Index [DASI], U=146, p=0.0; and metabolic equivalents (METs), U=136, p value = 0.0) at 3 months compared to controls. Overall, CAD patients who practiced yoga had positive profiles compared to control persons on CDS, HAM-A, DASI, and MET outcomes.

No	Title, Author and Year	Study Design	Sample	Purpose	Result
			<ul style="list-style-type: none"> - K. Intervention: The yoga practice group was instructed to attend three supervised IAYT classes 3 days per week for 12 weeks at the hospital's yoga center (N=33) 	<ul style="list-style-type: none"> acute MI patients with left ventricular dysfunction. 	<ul style="list-style-type: none"> - There was no significant difference in cholesterol levels between the control group and those who practiced yoga.

DISCUSSION

Walking with controlled breathing (WwB) therapies provided to heart failure patients have been demonstrated to successfully raise exercise tolerance in heart failure patients, exhibiting a simultaneous and ongoing beneficial correlation with increased oxygen saturation (Teng et al., 2018). This intervention, which included warm-up, core exercise, and cool-down, was carried out twice a day in the morning and evening for 12 weeks. This WwB technique is carried out without any instruments / gadgets, therefore it may be done by anyone and anywhere, even in the patient's home setting, with the caveat that the patient already knows the procedure. It is also done in a safe atmosphere with the observation of others.

At the start of this investigation, no patient treatment data were gathered. As a result, the real risk of confused results caused by medication variations across groups throughout the intervention period is unknown. The findings are the first to demonstrate the advantages of greater interoceptive awareness during WwB-like physical exercise in heart failure patients. As these patients' exercise tolerance improved, so did their confidence and self-control, and they learnt to trust their bodies, improve their moods, and motivate themselves. Patients with heart failure can improve their daily physical activity by being aware of and learning to control their respiratory status.

Deep breathing exercises may also be performed in patients with heart disease to improve hemodynamics and oxygenation. In accordance with the research conducted Zerang et al., (2022), by examining the motivational impact of spirometry (IS) and deep breathing exercises (DBEs) on hemodynamic and oxygenation parameters in patients having coronary artery bypass graft surgery (CABG). In the IS intervention, inhalation is delivered, which is accompanied by increasingly deeper breathing. This activity is performed every two hours while awake and under supervision, taking ten deep breaths each time. DBEs are performed by holding the breath for three seconds, then expelling via the mouth while the lips and abdominal muscles are tightened.

Breathing exercises can improve lung growth while reducing the utilization of respiratory muscles. DBEs are administered 10 times at two-hour intervals while the patient is aware and supervised. The IS approach is more successful than the DBE method in raising arterial respiration and SaO₂ levels. Other research findings reveal that both medications are similarly effective in raising arterial blood gas, however DBE is more effective.

IS treatments need equipment in the form of incentive spirometer tubes, which not all patients have at home and cost money, while DBEs do not require devices in their application. DBEs were also performed on heart patients by Nirmalasari et al., (2020), He claimed that conducting frequent breathing exercises would improve respiratory function. DBEs exercise is optimum for enhancing alveolar ventilation in terms of improved arterial oxygen saturation as well as the sustainability of respiratory effort (Nirmalasari et al., 2020).

Active cycle breathing technique (ACBT) may also be utilized in heart failure patients to alleviate shortness of breath (dyspneu). ACBT exercises consist of three techniques: breathing control, chest expansion, and forced expiratory. This exercise tries to relax the airways and enlarge the lungs by

using the lungs' collateral airways to evacuate and move secretions into the upper airways (Pahlawi & Sativani, 2021). ACBT combines diaphragmatic breathing, active expiration, and deep and slow breathing for airway clearing in order to relieve dyspnea, tiredness, and to improve quality of life (Ubolnuar et al., 2019). Hussain et al.'s (2022) The study also discovered a statistically and clinically significant improvement in chest expansion and reduced shortness of breath following ACBT in CABG postoperative cardiac patients.

The Bee Humming Breathing (BHB) intervention is a version of the Slow Deep Breathing (SDB) breathing exercise that comprises intake through both nostrils and exhale producing a bee-like sound humming for as long as feasible. Research conducted by Ghatai et al., (2021) On essential hypertension patients at a tertiary care referral hospital in New Delhi, India, a single session of BHB breathing exercises for 10-15 seconds can show a significant increase in parasympathetic nervous system activity, but the performance of one BHB exercise did not produce significant changes in systolic blood pressure, diastolic, and heart rate. Considering this, the BHB breathing exercise intervention group reported a substantial drop in heart rate in the active phase compared to the control group performing Slow Deep Breathing (SDB) breathing exercises.

The BHB breathing exercise method is one of the pranayama techniques that have been used since ancient times (Rahmawati, 2020). The advantages of this breathing exercise technique can be attributed to brief inhalations and extended exhalation phases, which result in lung tissue stretching and smaller ventilation space that dies. This not only leads to increased lung function but also creates inhibitory signals with the delayed action of adapting stretch receptors and hyperpolarizing currents by the action of fibrillation, which results in activation of the parasympathetic system. (Bhimani et al., 2022). The research of Ismail et al., (2022) Also discovered a substantial improvement in cardiovascular/autonomic respiratory physiological function (systolic TD, diastolic TD, RR, and HR) after BHB intervention in individuals suffering tinnitus.

A research conducted a mix of Mindfulness Breathing (MB) and Pursed Lip Breathing (PLB) breathing exercises. Srimookda et al., (2021), Acute Heart Failure (HFA) patients were treated in the emergency room of Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Thailand. The study indicated that adding combined PLB and MB breathing exercises to conventional therapies can improve dyspnea in individuals with HFA. The improvement in dyspnea in this study may also be an influence of anxiety management. As found in research Troeger et al., (2019), Breathing exercises may reduce dyspnea-related anxiety, including PLB and MB breathing exercises, which minimize neurological simulation through breathing control.

Extending breathing time with pursed lip breathing in PLB can help lower respiratory rate and relax respiratory muscles (Nield et al., 2007). Comparable, diaphragmatic breathing, when combined with MB, improves a smooth and leisurely breathing pattern by increasing control and muscular relaxation (M.J. et al., 2009). A comparable research conducted by Mitsunagnern et al., (2021), In hypertensive patients, PLB and MB therapies resulted in a substantial improvement in cardiovascular (systolic TD, diastolic TD, and HR). Thus, the efficacy of lowering dyspnea in patients performing breathing exercises together with diuretics was greater to individuals.

Additionally, pursed-lips breathing paired with breath counting can assist restore breathing patterns through improved deep and slow breathing, lowered systolic and diastolic pressure, and heart rate. The results of the study Mitsunegn et al., (2021), It showed that SBP and DBP were considerably reduced. Also, these combined breathing methods can increase parasympathetic tone, which results from deep and slow breathing, as well as the fact that patients feel reduced anxiety and pressure as a consequence of mindfulness.

Yoga methods may improve heart function and reduce myocardial stress by integrating yoga asanas, breathing exercises, and meditation, which can reduce sympathetic activity and lower ventricular filling pressure. Yoga can help improve oxygen removal in peripheral tissues. As muscles are stretched, oxygen consumption increases (Lukens et al., 2014). According to research (Arrigo et al., 2019), yoga interventions have a good physiological effect on cardiac parameters such as heart rate, lipid profile, blood pressure, respiratory rate, and oxygen consumption. However, Krishna et al., (2014) study did not assess yoga therapy against specific HF events. While the research of Sharma et al., (2020), for example, a small sample size, a lack of information on confounding factors such as food, and a failure to compare with other types of exercise.

There is no way for assessing patient or caregiver adherence to therapies. Additionally, the drug's role in improving LVEF remains undocumented. This yoga treatment was created in conjunction with an experienced cardiologist and collaboration with yoga therapists who specialize in cardiac rehabilitation. This therapy is performed when the client's cardio problems are stable. It is less suitable for clients who have limited movement or activity intolerance, such as unstable heart symptoms such as angina, severe musculoskeletal disorders (which require immobilization or osteoarthritis that prevent the patient from doing yoga), recurrent ischemia, concomitant lung diseases such as chronic obstructive pulmonary disease, uncontrolled arrhythmias, and recurrent myocardial infarction.

CONCLUSIONS AND SUGGESTIONS

Walking with controlled breathing (WwB), deep breathing exercises, Active cycle Breathing technique, Bee Humming Breathing (BHB) intervention, a combination of Pursed Lip Breathing (PLB) and Mindfulness Breathing (MB) breathing exercises, pursed-lips breathing combined with breath counting, and yoga therapy are some of the eight breathing exercise interventions that can be used to reduce symptoms of shortness of breath in heart disease patients. The most effective of the eight breathing exercise therapies is breathing exercises using the WWB approach, which has been proven to promote activity tolerance in heart failure patients by practicing a simultaneous and current positive correlation with increased oxygen saturation..

Breathing exercise therapies have been shown to improve lung function and activate the parasympathetic nervous system, consequently influencing cardiovascular physiological function. So it is predicted that this breathing exercise may be used consistently by patients with heart disease to minimize experiences of tightness and regulate blood pressure as well as the patient's heart rate.

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Reviewer's Advice

The authors delegate entire responsibility for the review of our articles to the maintainers, and the reviewer findings are returned to us if they need to be updated based on the reviewer team's recommendations.

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