



EFFECT OF COHERENT BREATHING ON CARDIORESPIRATORY FITNESS IN ASTHMATIC PATIENT

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ABSTRACT

Among chronic respiratory diseases asthma is the most common disease with number of different recurring symptoms which include reversible airflow obstruction, coughing, bronchospasm, wheezing, chest tightness and shortness of breath. Clinically Asthma is classified on basis of frequency of symptoms. complex heterogeneity with number of phenotype whose different expressions mainly dependent on numerous environmental factors and genes. The aim of conducting this research is to find out the effectiveness of coherent breathing on cardio-respiratory fitness in asthmatic patients. We selected 30 patients of asthma. Patients received treatment for 4 weeks, coherent breathing Technique with treatment protocol as 5 repetitions of exercise with 4 seconds duration. the treatment given 3 times a week for consecutive 4 weeks and 2 times a week for subsequent weeks. final evaluative measures taken at 6th week. By using paired t test analysis that there is a statistically significant improvement $p < 0.05$ in blood pressure, heart rate, oxygen saturation rate. it is concluded that coherent breathing shown to be effective in asthmatic patients.

KEYWORDS: Asthma, Cardiorespiratory fitness, Coherent breathing

1 INTRODUCTION

Asthma is a heterogeneous respiratory having characteristics like airway inflammation, chest tightness, cough, wheezing and shortness of breath. disease characterized by chronic airway inflammation. Signs and symptoms can change over time and intensity. Commonly observed phenotypes include non-allergic, allergic, late-onset, fixed airflow limitation, and obesity asthma [1]. The main symptoms of asthma are cough, shortness of breath, wheezing, chest pain and pressure. Symptoms are always the cause, and causes such as allergies or viral infections must be identified and treated if possible [2]. Asthma is characterized by reversible and episodic inflammation and narrowing of the airways caused by pollution, natural allergens and irritants. It is a multifactorial, complex and immune-mediated process that manifests itself in various clinical symptoms. [3]. It is a very widespread chronic disease of the lower respiratory tract worldwide, the incidence of which is gradually increasing. Since the 1970s, asthma has become unavoidable, affecting a total of nearly 300 million individuals and approximately 250,000 individuals losing their lives. Asthma seriously affects the physical and psychological well-being of individuals, resulting in low learning efficiency, limited physical activity and reduced quality of life. In this way, increasing information about asthma and how to successfully treat asthma have become important areas of asthma prevention and treatment. For patients with asthma, physical education is a widely

accepted adjunct to drug and non-pharmacological treatment. Abroad, it has been suggested that physical training is an important part of asthma treatment [4]. Cardiorespiratory fitness is defined as the ability of the respiratory system as well as circulatory system to deliver adequate amount of oxygen to the musculoskeletal system to continue sustained physical work. The cardiorespiratory endurance test verifies how well the heart, lungs and muscles work during moderate to high intensity exercise. Cardiorespiratory fitness is the body's ability to perform exercises that challenge the cardiorespiratory system, which includes the heart, lungs, and blood vessels, over a long period of time. [5]. Cardiorespiratory fitness (CRF) is an important factor in predicting outcomes across the spectrum of health and disease. It predicts the risk profile of many different health outcomes. Cardiorespiratory fitness is the strongest predictor of cardiovascular disease risk than other conventional risk factors. It is considered a very important clinical vital sign. Cardiorespiratory fitness can be measured directly as (VO_{2peak}) maximal oxygen uptake from cardiopulmonary exercises. It is defined as exercise capacity or functional capacity also known as peak exercise test work speed [6]. 6-Minute walk test (6MWT) is the most consistently overseen walk test and measures the distance shrouded shortly. The 6MWT is easy to immediate and overall rules have been laid out, alongside test-explicit reference principles. Regardless, the utilization of the 6MWT is less important in youth to assess cardiorespiratory wellness. The 6-minute walk test shows a generally unfortunate relationship with VO_{2max} , other than in peoples with moderate-to-outrageous limits in cardiorespiratory wellness or diminished strolling breaking point of fewer than 300 meters. As such, this test is utilized just when there is motivation to think low cardiorespiratory wellness [7].

2 METHOD AND SUBJECTS

In present study we aimed to find the Effect of diaphragmatic stimulation on cardiorespiratory Fitness in Asthmatic Patient to accomplish this outcome 30 participants from physiotherapy OPD pulmonology department from different hospitals participated in this study. All candidates were informed with written consent before the participation.

Researcher used convenient sampling technique for data collection. A deep study of history and physical examination were carried out

Inclusion criteria: was the subjects from both gender in the sage group of 40-60 years' diagnosed asthmatic patients, low saturation below the 90 and dyspnea scale above 2. **Exclusion criteria:** The subjects having Diabetes Mellitus, Arthritis, Cardiovascular diseases, hypertension and substance user of Alcohol and smoking were excluded out. 6 Minute Walk Test and Modified Borg Scale (Dyspnea Scale) were the tools used to collect data.

Data analysis: all data regarding study were tested for normal distribution by using T pair test. SPSS (Statistical package for social sciences) were used to analyze the data. the association between pre and post values of blood pressure heart rate and oxygen saturation was assessed by pearson's correlation co efficient. P value of < 0.05 was considered to be statistically significant

RESULTS

Effect of coherent breathing on cardiorespiratory Fitness in Asthmatic Patient was determined in this study. By using paired t test analysis that there is a statistically significant improvement $p < 0.05$ in blood pressure, heart rate, oxygen saturation rate. and physiological characteristics of the study members are described in Tables. All values are expressed as mean and standard deviation Sig. (2-tailed)

Table:1: Frequency distribution table of Gender

		Frequency	Percent	Valid Percent	Cumulative percent
Valid	female	21	70.0	70.0	70.0
	male	9	30.0	30.0	100.0
	total	30	100.0	100.0	

Bar chart age frequency distribution

**Table 2: Pre post analysis of blood pressure in patients**

Paired samples statistics

		Mean	N	Std Deviation	Sig.(2-tailed)
Pair 1	pretreatment blood pressure	1.60	30	.563	
	Post treatment blood pressure	1.23	30	.430	.0001

This chart shows the pre and post treatment comparison of blood pressure. There is difference of mean blood pressure between two intervals. there is significant difference in means of pre and post blood pressure values in paired t-test results p-value <0.05.

Table 3: pre-post heart rate analysis in asthmatic patients**Paired sample statistics**

	Mean	N	Std.Deviation	Sig.(2-tailed)
Pair 1	pretreatment heart rate	91.30	30	6.964
	Post treatment heart rate	80.90	30	5.821

This table shows the pre and post treatment comparison of heart rate. there is difference of mean heart rate between these two intervals. there is significant difference in means of pre and post blood pressure values in paired t test results p value < 0.05

Table 4: pre and post treatment analysis of oxygen saturation in asthmatic patients**Paired samples statistics**

	Mean	N	Std. Deviation	Sig. (2-tailed)
Pair 1	pretreatment oxygen saturation	87.57	30	1.251
	post treatment oxygen saturation	93.83	30	2.135

This table shows the pre and post treatment comparison of heart rate. there is difference of mean heart rate between these two intervals. there is significant difference in means of pre and post blood pressure values in paired t test results p value < 0.05

Table 5: Pre-post treatment analysis of distance covered in asthmatic patients

Paired samples statistics

	Mean	N	Std.Deviation	Sig.(2-tailed)
Pair 1 Pretreatment distanced walked	2.63	30	.490	.000
Post treatment distance walked	4.63	30	.490	

This table shows the pre and post treatment comparison of distance covered. there is difference of mean distance covered between these two intervals. there is significant difference in means of pre and post blood pressure values in paired t test results p value < 0.05

Table 6: Pre and Post treatment analysis of dyspnea scale in asthmatic patients

Paired sample statistics

	Mean	N	Std.Deviation	Sig.(2-tailed)
Pair 1 Pretreatment dyspnea scale reading	2.53	30	.507	.000
Post treatment dyspnea scale reading	1.20	30	.805	

This is the comparison of the dyspnea scale rating in asthmatic patient pre and post treatment. there is significant difference in the mean values of dyspnea scale between two intervals. above table shows the significant results in pre and post dyspnea values p value < 0.05.

3 DISCUSSION

According to data interpretation it is concluded that There is effect of diaphragm stimulation on cardio-respiratory fitness in asthmatic patients as p- value is less than 0.05 Majority of asthmatic patient experienced physical changes including blood pressure rate, oxygen saturation rate and dyspnea scale. Females are more prone to asthma as compared to males. Comparison between pre and post treatment values of oxygen saturation rate, by patient 0.000 which indicates highly significant results. Out of 30 members 21 were female patients and 9 were Male patients. This implies that asthma is more pervasive in female orientation when contrasted with the guys. 70% patients are females and just 30 patients are guys. Age of patient's shifts between 40 years to 60 years. The results showed significant difference in blood pressure of selected population before and after the treatment that the blood pressure decreases after the treatment session p-value < 0.05. The results of this study showed difference in the mean of heart rate between two intervals before and after the treatment. There is a significant difference in means of pre and post heart rate score p-value < 0.05. Pre-post analysis of oxygen saturation rate in asthmatic patients also showed significant results as the p-value < 0.05 as it improved after treatment in asthmatic patients. There is the difference in the mean of distance between pre and post treatment covered by the asthmatic patients. Distance covered by asthmatic patients after total sessions of treatment improved or increased as compared to before treatment. Comparison of the dyspnea scale rating in asthmatic patient before the treatment and after the treatment also showed improved score on dyspnea scale after the treatment showed significant difference as p-value < 0.05. An exploration was led to track down the impact of diaphragmatic stimulation to improve or weaken the cardiorespiratory wellness showed the vary results as diaphragm being major inspiratory muscle significantly effect the patients cardiorespiratory fitness as well as significant improvement noted in dypnea scale. These outcomes indicate diaphragmatic stimulation directly affect the lungs function in asthmatic patients. Many studies have findings that cardiovascular wellness and fitness was bargain in asthma patients [9]. some studies also show the reduced sirometrical values and lungs function

test in these kinds of patients [10] Now a day it is know that work on respiratory muscles recovers the respiratory symptoms in asthmatic patients and also improves the physical fitness [12,13] It is also shown by many studies that there are also improvements in lung functions due to aerobic exercise [14] Few studies shows diaphragm breathing exercise and feedback breathing exercise can affect respiratory function [15]

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