

Efficacy of Deep Breathing Exercise and Aerobic Exercise on Perimenopausal Women

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ABSTRACT

Introduction: Perimenopause means “around the menopause”. The hormonal changes that occur during the perimenopausal transition are the gametogenic failure which is characterized by the reduced inhibin secretion which occurs in the early follicular phase, increased serum FSH and decreased fertility. The aim of this study is to determine the effectiveness of deep breathing exercises and aerobic exercises on perimenopausal Women

Methods: A total of 50 participants will take part in the study. The participants will be chosen based on inclusion criteria by a convenient sampling method. The participants will be divided into two groups: Group A: Control group (n=25) and Group B: Experimental group (n=25). The level of perimenopausal symptoms will be assessed using menopause rating scale before the commencement of the intervention in both the groups. The Control group will receive Jacobson’s relaxation technique and the experimental group will receive deep breathing exercise and aerobic exercise. The treatment will be demonstrated to the participants through video demonstration. After the completion of the treatment protocol the perimenopausal symptoms will be evaluated again using the menopause rating scale in both the groups to assess the reduction of perimenopausal symptoms in both the groups and to find the effectiveness of deep breathing exercise and aerobic exercise in reduction perimenopausal symptoms.

Results: The values were statistically analyzed using the Wilcoxon signed-rank test. There was a statistically significant improvement in the experimental group. The result was significant at $p < .05$.

Conclusion: This study, therefore, displays that deep breathing exercise and aerobic exercise are effective in reducing the somatic, psychological, and urogenital symptoms in perimenopausal women.

KEYWORDS: Deep breathing exercise, Aerobic exercise, and perimenopausal symptoms.

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INTRODUCTION

Women are exposed to wide variety of changes in their lifespan right from the menarche till menopause. The term that is used to refer the entire transition from reproductive to postreproductive interim is known as climacteric [1].

The hormonal changes associated with menopause essentially begin three to five years before the last menstrual period and is called as perimenopause [2]. The perimenopausal period of women’s life last for numerous years. The changes that happen during this stage of women’s life affect them to a variable extent.

For some the changes can be severe and for others it can range from mild to moderate symptoms [3].

According to WHO and AMERICAN MENOPAUSE SOCIETY perimenopause is defined as two to eight years preceding menopause and one year following final menses. During this stage there is a marked increase in follicle stimulating hormone (FSH) (>20mIU/ml) and there is a rapid oocyte depletion resulting in deterioration of ovarian function [4].

According to STRAW (Stages of Reproductive Aging Workshop) perimenopause has been classified into early perimenopause and late perimenopause. Early perimenopause is increased irregularity of menstruation without missing the periods. Late perimenopause is where in the women had menstruation in last 2-12 months but not in the last 2 months [5]. There are about 1 million oocytes in the ovary of a newborn girl. This gradually reduces with age and becomes more rapid by 37 years of age. This depletion of oocyte is referred to as apoptosis [4].

During the perimenopausal period the capacity of the ovaries to produce estrogen begins to decline and there is no further egg production. The period during which women have menstrual cycles without ovulation is called anovulatory cycles; therefore she begins to develop menopausal symptoms [6].

The typical symptoms of menopause are the hot flashes which most of the women experience during the transition period. Some may experience them a year or two before the menopause while the others may have the symptoms from a decade and a very small proportion does not undergo any hot flashes. Poor sleep is also one of the common problems faced during the transition but this can also be a relation with aging. Other symptoms include depressed mood and increased anxiety [7]. About 66.7% of women have moderate symptoms, 20% complain of severe symptoms and 13.3% reports mild symptoms. The prevalence of severe symptoms in menopausal women in transition period were: Sleep (26.66%), Anxiety (23.33%), Irritability (20%) and Dryness of vagina (20%). The moderate level of symptoms were Heart Discomfort (46.66%),

Depressive mood (43.33%), Sexual Problems (40%), Joint and muscular Problems (46.66%) AND Hot flashes (26.66%) [8]. The common symptoms complained during this period are muscle and joint aches/pain, which is not directly related to deficiency of estrogen [9]. A deep breath aids to take more O₂ and extracts CO₂ from the circulation. Deep breathing exercises help to overcome undesirable emotional responses; they help to relieve stress, anxiety, anger and other emotional disturbances and promote relaxation [10]. The regular physical exercise helps to keep the body fit and also has many health benefits, particularly for women during the menopausal transition period; they help to relieve vasomotor symptoms. Aerobic exercise not only decreases the menopausal symptoms but also has positive developments in blood pressure, flexibility, aerobic power, strength and body composition [11]. Many studies have reported that hormone replacement therapy is the treatment of choice for perimenopausal symptoms, so this study will investigate whether deep breathing exercise and aerobic exercise will be a replacement for the hormone replacement therapy.

METHODS

The subjects willing to participate in the study were briefly explained about the intervention after which they will have to fill out an informed consent form. The samples were divided into two groups, 25 in each group. Group A: CONTROL GROUP and Group B: EXPERIMENTAL GROUP. All the subjects will be undergoing a pre-test measurement to assess the level of perimenopausal symptoms and a menopause rating scale questionnaire will be sent to them in the form of Google forms.

The subjects will receive the treatment protocol for 30 days. Every day a Google form will be sent to each of the subjects to document whether they have done the exercise on that particular day. At the end of the 30th day all the subjects will be reassessed to measure the level of perimenopausal symptoms. The treatment protocol will be sent to the subjects in the form of video through mail.

GROUP A

CONTROL GROUP: The samples will receive Jacobson’s Relaxation Technique. In this technique the samples were asked to contract and relax specific group in order.

SHOULDER AND NECK:

The samples were asked to shrug the shoulders and approximate to the neck. They are asked to contract the shoulders feel the tension in the muscles and then relax. Then concentrate on the neck muscles contract the muscles and then relax. Repeat for 10 times.

ABDOMEN: Make a tight fist tuck in the umbilicus and gently contract the abdominal muscles feel the tension in the muscles and then relax. Repeat for 10 times.

FEET: Gently contract the lower limb muscles feel the tension in the muscles and then relax. Repeat for 10 times.

GROUP B:

EXPERIMENTAL GROUP: The samples in the experimental group will receive Deep Breathing and Aerobic Exercise. The exercise protocol is as follows

DEEP BREATHING EXERCISE: The intervention consists of deep breathing exercise for 10 minutes with a rest period of 10 seconds between each breath. The subjects in a comfortable sitting position places on hand on the upper chest and the other hand over the abdomen takes a deep breath through the nose and expires through the mouth.

AEROBIC EXERCISE: The aerobic exercise program is 30 minute session which comprises of jogging in place for 5 minutes ,brisk walk for 15minutes , stair climbing for 5minutes and jumping rope for 5minutes.

The data collected data was evaluated and tabulated using inferential and descriptive statistics. To all parameters mean and standard deviation was applied. Wilcoxon signed rank test was used to find the significant changes between the control group and experimental group.

RESULTS

From the statistical analysis it is evident that there is significant difference between the

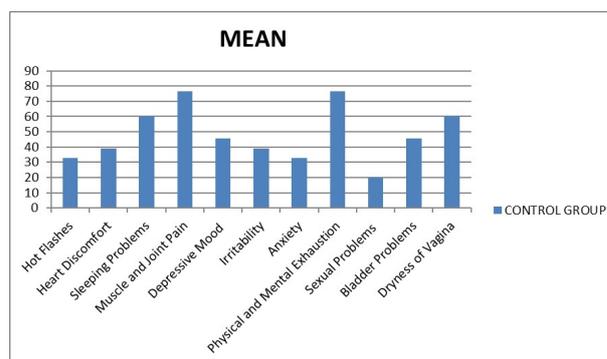
Group A and Group B.

The mean values of Group A is comparatively lesser than the Group B and hence through the statistical analysis it is apparent that there is significant changes in the seen in GroupB. Hence deep breathing exercise and aerobic exercise are affecting in reducing the perimenopausal symptoms.

The result was significant at $p < .05$.

Table 1: Group A: Pre-test and Post-test values.

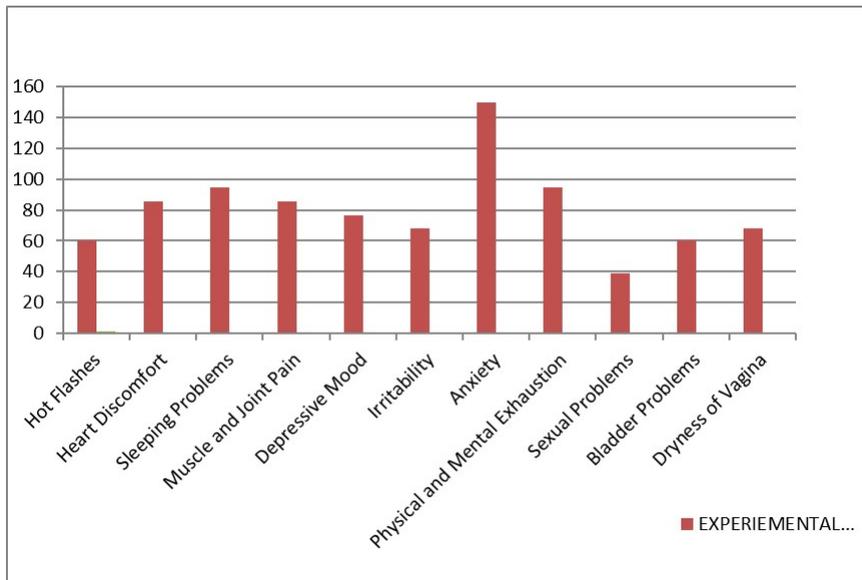
Pre-test and Post test	Mean	Standard deviation	Z- value	p- value
Hot Flashes	33	11.25	-1.0669	0.28462
Heart Discomfort	39	12.75	-0.5099	0.61006
Sleeping Problems	60	17.61	-0.8803	0.37886
Muscle and Joint Pain	76.5	21.12	-1.5622	0.11876
Depressive Mood	45.5	14.31	-0.9784	0.32708
Irritability	39	12.75	-1.3336	0.18352
Anxiety	33	11.25	-1.6449	0.101
Physical and Mental Exhaustion	76.5	21.12	-0.6864	0.4902
Sexual Problems	20	26.79	-0.672	0.50286
Bladder Problems	45.5	14.31	-1.0483	0.29372
Dryness of Vagina	60	17.61	-0.6816	0.4965



GRAPH 1: Pre-test and Post Test of Group A-Menopause Rating Scale.

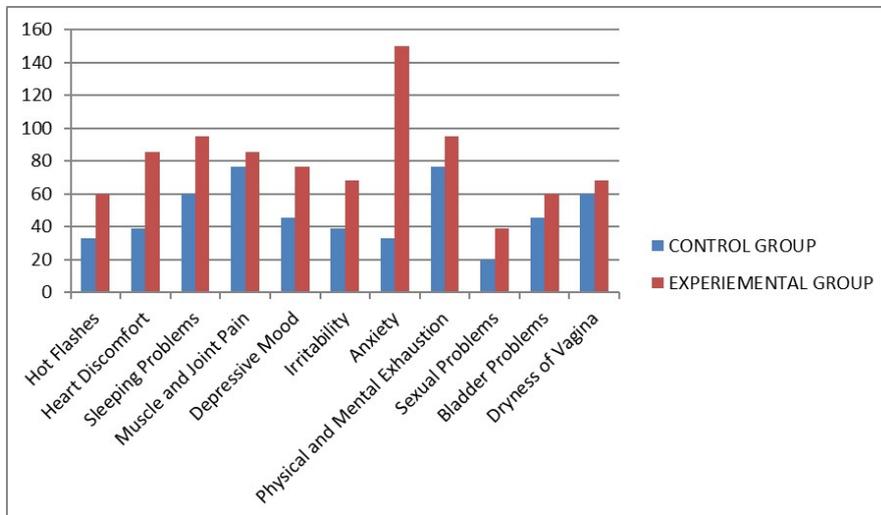
Table 2: Pre-Test –Post Test values of Group B.

Pre-test and Post test	Mean	Standard deviation	Z- value	p- value
Hot Flashes	60	17.61	-2.7262	0.00634
Heart Discomfort	85.5	22.96	-2.8961	0.00374
Sleeping Problems	95	24.85	-3.823	0.00014
Muscle and Joint Pain	85.5	22.96	-2.3735	0.01778
Depressive Mood	76.5	21.12	-3.6214	0.0003
Irritability	68	19.34	-3.3352	0.00084
Anxiety	150	35	-3.0571	0.00222
Physical and Mental Exhaustion	95	24.85	-3.0986	0.00194
Sexual Problems	39	12.75	-2.6672	0.00758
Bladder Problems	60	17.61	-3.0386	0.00236
Dryness of Vagina	68	19.34	-3.2059	0.00132



GRAPH 2: Pre-test –Post test of Group B of Menopause Rating Scale.

MEAN



GRAPH 3: Comparison of mean values between Control and Experimental group.

DISCUSSION

This study investigated the efficacy of deep breathing exercise and Aerobic exercise in reducing the perimenopausal symptoms. The session consists of 30 day protocol at home. As recommended the session was focussed on reducing the perimenopausal symptoms in women.

The most challenging discomfort that maximum women complained of was the hot flashes, sleeping problems, muscle and joint pain, depressive mood, irritability, anxiety, and physical and mental exhaustion. On an average the MRS rate was 2, 3 for the above symptoms. After the 30 day protocol there was significant changes in the above symptoms.

A previous study by Iyyappan et al; had found that deep breathing exercise is effective in reducing the menopausal symptoms [12].

A study by Zhang et al; on the effectiveness of physical exercise on health related quality of life and blood lipids have found that physical exercise is effective in reducing the perimenopausal symptoms [13].

When discussing about the sexual problems faced by women during this period One study by Patricia et al have concluded that physical exercise have a positive influence on sexual function [14]. Similarly our study has also found an improved sexual function in women after the aerobic exercise protocol.

The results of our study are similar to results of many studies that evaluated the effectiveness of deep breathing exercise and the influence of physical exercise on menopausal symptoms. The results of this study confirm that deep breathing exercises and Aerobic exercise are effective in reducing the perimenopausal symptoms.

CONCLUSION

From the results we can conclude that Deep breathing exercise and Aerobic exercise help in reducing the somatic, psychological and urogenital symptoms compared to Jacobson's relaxation technique in the control group. The deep breathing exercise predominantly helps to improve the mood, combat depression and reduce anxiety whereas the Aerobic exercise improves the sexual function in a perimenopausal women.

AUTHORS CONTRIBUTION

A.K. THUWAIBAH RAABIA: Study conception and design, Acquisition of data, Analysis and interpretation of data and drafting of manuscript.

S. JENIFER AUGUSTINA: Analysis and interpretation of data and critical revision.

Conflicts of interest: None

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