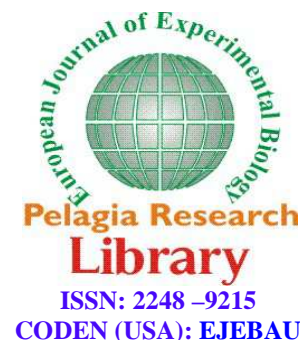




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The effect of eight weeks of aerobic exercise on depression, anxiety and sleep disorders in middle-aged women

Fatemeh Shokri, Ebrahim Khoshnam* and Asghar Nikseresht

Department of Physical Education, Jahrom Branch, Islamic Azad University, Jahrom, Iran

ABSTRACT

The purpose of this study was to investigate the effect of eight weeks of aerobic exercise on depression, anxiety and sleep disorders in middle-aged women. 60 middle-aged women (40-60 years old) volunteerily participated in the study. Subjects walked for eight weeks, three sessions per week, each session lasting 60 minutes with 60% of maximum heart rate. They completed General Health Questionnaire-28 (GHQ-28) before and after the eight weeks. Data Analysis was performed using paired t-test statistical method. Significance level of the test was also considered $P \leq 0.05$. The results showed that depression symptoms decreased significantly after eight weeks ($p=0.0001$) but eight weeks of aerobic training had no significant effects on reducing anxiety symptoms and sleep disorders ($p=0.090$). According to the results it can be concluded that aerobic exercise can improve mental health and enhance life quality in middle-aged women by reducing depression symptoms.

Keywords: Depression, Anxiety, Sleeps Disorders, Aerobic Exercise, Middle-Aged Women.

INTRODUCTION

Mental disorders are common among middle-aged women. Depression, anxiety and sleep disorders are of the most prevalent psychiatric problems associated with mortality, disability and chronic illnesses worldwide [1-3]. Depression often leads to physical disorders in sleep and appetite and is followed by weight loss, social disruption and chronic diseases [4-6]. The first way to treat depression is through medication. However, even after medication some disorder exist [4,7]. Anxiety is another common mental disorder which can decrease social interactions. Research findings have shown that treating anxiety and depression can help cure many psychological disorders [8-10]. Almost one third of life is spent while sleeping. Sleep is absolutely essential for physical and mental health. In some cases, sleep disorders can lead to serious neurological weaknesses. Epidemiological studies have reported that increased physical activity is accompanied by decreased sleep disorders [11,13].

In modern medical science regular exercise and physical activity are of influencing factors. The first step in changing lifestyle and preventing chronic diseases is exercising, which can reduce mortality in men and women up to 30 percent [14,15]. Epidemiological studies have shown that physical activity is associated with decreased mental disorders. In addition, studies about depression and anxiety have shown less depression disorders in healthy women who participate in the exercises [16,17].

Negative body image and body-size dissatisfaction are two recognized depression factors. Body image is related to the person's appreciation of his own body's size, thoughts and feelings and may have profound consequences on various psychiatric disorders such as depression, anxiety, sleep disorders, sexual dysfunction, and anorexia. During recent decades the cultural emphasis on physical attractiveness and fitness by various media has led to many sociologists and psychologists concern and may cause women's more dissatisfaction of their own body image [18,19].

In recent years psychology and psychotherapy has been at the focus of attention because people suffer from mental disorders and problems more than everything else today. Currently about 150 million people suffer from some form of mental disorders in developing countries [20,21]. Given that medication is expensive and time consuming and delays depressive symptoms for just 20 to 10 days, participating in sport activities can have beneficial effects on reducing mental disorders [18]. Therefore in the present study, we intend to investigate the effects of eight weeks of aerobic exercise on depression, anxiety and sleep disorders in middle-aged women.

MATERIALS AND METHODS

This research was of quasi-experimental studies. The population was 60 middle-aged women who voluntarily participated in the study. Subjects' characteristics are presented in Table 1. Aerobic exercises were performed for eight weeks, three sessions per week and 60 minutes in each session. Each session included 10 minutes of warming up, 40 minutes of walking and 10 minutes of cooling down.

Table 1- Participant Characteristics

Parameter	Aerobic group
Age (year)	48.97±3.82
Height (cm)	169.00±7.63
Body weight (kg)	18.62±9.13

Subjects completed a GHQ-28 before and after the eight weeks. GHQ-28 includes four domains of physical symptoms, anxiety and insomnia, social dysfunction and depressive symptoms.

Statistical analysis was performed using SPSS version 18. Data normality was determined by Kolmogorov-Smirnov test. Then, paired t-test was used for subjects within-group comparison. The significance level of the test was also considered $p \leq 0.05$.

RESULTS

Table 2 compares the averages before and after aerobic exercise. The results show that depressive symptoms decreased significantly in pre-test compared to post-test ($p=0.0001$). Symptoms of anxiety and sleep disorders showed no significant differences in pre-test compared to post-test ($p=0.090$).

Table 2- Comparison of Mean before and after aerobic training

Variable \ Phase	Pre-test	Post-test	P-value
Depression	6.23±2.37	4.55±2.24	.00001
Anxiety and Sleep Disorders	5.88±2.61	5.32±2.04	0.090

DISCUSSION

This study was designed to investigate the effects of eight weeks of aerobic exercise on depression, anxiety and sleep disorders in middle-aged women. The results showed that aerobic training had a significant effect on reducing depression in middle-aged women. These results were consistent with Ellard et al (2014) and Smith et al (2012), but did not match Racinais et al (2013). Exercise training reduces stress and depression. One of the most effective mechanisms in reducing depression due to exercise training can be increased levels of serotonin and norepinephrine, which results in endorphins release and cortisol reduced secretion [2,7]. Probably increased levels of endorphin, norepinephrine and serotonin followed by a decrease in cortisol secretion were one of the reasons of reduced depression in middle-aged women participating in this research.

The findings showed that eight weeks of aerobic exercise had no significant impacts on anxiety and sleep disorders. These results were consistent with Anbari et al (2012), but did not match Yavaryan et al (2011). Although the exact mechanism of the effect of aerobic exercise on psychological health is not precisely known, several physiological and psychological mechanisms such as increased feelings of self-efficacy, perceived self-control, reduced stress and physiological responses to stress and useful effects on brain's neurotransmitters are assumed to affect psychological health [10,15]. Some also believe that regular exercise participation keeps the mind away from negative thoughts. Exercise helps people feel better about their appearance and this can be an effective means of psychotherapy and counseling in decreasing anxiety and depression [20,25]. It seems that short term exercising does not have a significant effect on reducing mental anxiety and possibly long-term exercising programs can result in desirable results.

CONCLUSION

It seems that aerobic exercise can be used as an alternative method in reducing depressive symptoms in conjunction with other therapies. So higher levels of physical fitness helps middle-aged women to promote mental health and to prevent mental illnesses.

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