

Examination of Volleyball game versus aerobic exercises in the mitigating of the stress

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Abstract

This study investigated the influence of eight-week volleyball game versus aerobic exercise interventions in mitigating of stress in the young people. The first 51 persons from 100 participants who had more stress score than others were determined. Participants (M age = 20.43, N = 51) were randomly assigned to one of three groups: volleyball program, aerobic and control group. Classes met 1 hour, 3 days per week, for 8 weeks. LC Stress inventory was used to the individuals. Pre and post-test were used to the experimental and control groups. Results were analysis with ANOVA and it revealed decreases in stress scores over the intervention. Both groups benefited from the physical exercise intervention and there was no difference between two experimental groups. These findings indicate that both type of the exercise can mitigate stress and that these result are not depend on the one of the two exercises.

Keywords: Stress; Volleyball game; Aerobic exercise; Young people.

Abbreviations: ANOVA - Analysis of variance; SD - Standard deviation.

Introduction

The basic question is: what is stress? Stress is a constant factor in modern life and a frequent topic of conversation. Yet in spite of its frequent use, the word “stress” is at best an ambiguous term. For some, it means excitement and challenge (“good stress”) for many others, it reflects an undesirable state of chronic fatigue, worry, frustration and inability to cope (“bad stress”). For the purposes of this study, stress was used in the common way, in that the stress usually measured is actually “distress,” or the negative components of stress. The question often addressed in the literature is whether exercise alters mood, specifically stress, as well as or better than other cognitively based psychological modalities (e.g., meditation, relaxation, and quiet rest). Now we know that it is likely that all of the various forms of physical exercise offer some benefit, different forms of

physical exercise provide varying benefits. Exercises of numerous are currently popular, and the group exercise format has expanded in recent years to include new offerings and to formulate regulated versions of traditional forms of exercise. The Aerobics and Fitness Association of America now certifies group fitness instructors in yoga and kickboxing, in addition to standard industry offerings such as aerobics and step aerobics. The International Fitness Professionals Association certifies instructors in Tai Chi and Qi Gong. Many gyms and fitness centers now offer a wide variety of classes to meet individual preferences and ability levels. Still, in spite of the rapid expansion of the fitness industry, more than 60% of American adults are not regularly active, and a full 25% of American adults are completely sedentary (U.S. Department of Health and Human Services, 1996).

The use of habitual exercise as a stress management technique has the benefits of mood enhancement, increased self-esteem and reduced psychological and physical stress reactions. It has been shown the well-documented physical health benefits of regular exercise, physical activity to be associated with a variety of psychological variables, including mood, stress reactivity, and cognitive functioning. Adults who begin exercising improve cardiovascular functioning, increase maximum consumption of oxygen and stroke volume, decrease blood pressure, lower resting and sub maximal heart rates, decrease body weight, improve lean body mass, and increase bone density (Mazzeo *et al.*, 1998). One psychological effect of exercise which may be particularly relevant to the modern era is its potential for reducing and/or moderating stress levels. Additionally, exercise has been found to be as effective in managing stress levels as other, more traditional stress management techniques, such as meditation and progressive relaxation (Bahrke & Morgan, 1978). Emery and MacIntyre 1991 reported that the combination of exercise, education, and stress management was found to be more significant in reducing stress and improving cognitive functioning among adults with chronic obstructive pulmonary disease than were stress management and education interventions implemented without an exercise component. This indicates that exercise has powerful stress mitigating effects beyond its simple application as a stress management tool. The present investigation was designed whether physical exercise reduces the stress rates of the young people and if there is significant differences between volleyball game and aerobic in the mitigating of young people stress score.

Instructions and methods

With regard to this investigation, young students from 5 different departments in Allameh Tabatabaee University, different faculty were used and teaching students primary (1, 2 years) base with no previous training, which were accidental

and evenly assigned to engage in one of two treatments for 8 weeks. LIONEL COUDRON Stress inventory and a demographic questioner were used to 100 young people. The first 51 participates that had the high score of stress were assigned. Students participated in two group's test and the one group was chose as the control group. Initial test and final test was performed to two the test groups and control group. Results analyzed by ANOVA and Test groups examined in organized physical exercises such as volleyball, and aerobic.

Table 1. Participants' (N = 51) Demographics Statistics

N: 51		Age		Factor		Category		F %		
Mean	20.43	Gender	Female	30	58.8	Marital Status	Male	21	41.2	
Median	20		Single	35	68.6					
Mode	19	Occupation status	Married	11	21.6	Collage	Divorced	5	9.8	
Std. Deviation	1.98		Part-time Work	18	35.3					
Minimum	17.8	Maximum	None job	33	64.7	Psychology	Psychology	14	27.5	
			Literature	12	23.5		Management	Management	11	21.6
			Political	6	11.8			Council	Political	6
			Council	8	15.7		Council		8	15.7

The findings indicated for the use of exercises as a strategy for improved coping with stress. Statistical of descriptive was determined for each group. For testing of the variance analysis, 0.05significance rate was chose.

Participants were young individuals (ages 17.80 to 24; M = 20.43, SD = 1.98) from 5 collages Allameh Tabatabaee University. Participants at end were 51 young people (intervention group, n_33; control group, n_18). Gender distribution was, Male students constituted 41.2% (n_21) and 58.8% (n_30) for female. Marital status was 68.6% (n_35) for singles and 21.6% (n_11) for married and a minority of the youth reported that they were divorced 9.8% and (n_5). Occupation distribution was, part-time work students constituted 35.3% (n_18) and 67.7% (n_33) for no job students. Participants were from 5 collages: Psychology 27.5% (n_14), Literature 23.5% (n_12), Management 21.6% (n_11) and for Political 11.8% (n_6) and the end was Council 15.7% (n_8). Participants were 51 young individuals and divided

in 3group: Control Group 18 persons, volleyball 16 persons and for aerobic program 17 persons. According to the test result, 51 student of 100 persons who got highest LC stress scores were chosen as research group. Some of research group (33) accepted as exercise group (Table 1 & Table 2).

Table 2. shows these dispersion 3 groups

Groups	F	%
Control group	18	35.3
volleyball	16	31.4
Aerobic	17	33.3
Total	51	100.0

Instrumentations

A demographic questionnaire and the LC stress inventory were used. The demographic questionnaire includes age, gender, marital status, occupational status, and their collage. Volleyball playing group (volleyball game), The Volleyball program was selected because it is a team exercise which is frequently used for colleague's individuals. The Volleyball playing is inexpensive and convenient, and therefore is both accessible and beneficial for almost all colleagues' individuals. The Volleyball playing was a team exercise program, with instructor guidance and support. Individuals assigned to the Volleyball playing intervention were provided with a specific route. Both indoor and outdoor Volleyball playing were available. Participants were encouraged to play for as much of each 1hour session as possible, for working with everyone, it began with a 10minute warm-up and ended with a 10minute cool-down but to rest as 5 minutes as needed at the halftime. The instructor also provided guidance about proper playing shoes and other equipment, playing volleyball form, and offered motivation and encouragement to the playing participants. Interaction among the volleyball group members as a whole was fostered. However, interaction between players did occur. Aerobic exercise is physical exercise of relatively low intensity that depends primarily on the aerobic energy-generating process. Generally, light-to-moderate intensity

activities that are sufficiently supported by aerobic metabolism can be performed for extended periods of time (Sharon *et al.*, 2007). A control group (non-exercise control) for the intervention was selected as a control without physical activity.

Procedure, measurements were conducted pre-intervention, with the participants filling out the entire tests, LC stress inventory. Demographic data (including age, gender, occupational status, marital status, and current collage) were collected. Eventually after eight weeks of intervention, measurement was conducted, with individuals completing the entire of measures (LC stress inventory).

Data Analysis

Data were analyzed with SPSS software. Descriptive statistics were diagnosed for the demographic information. The first hypothesis was examined that there is a significant difference between mean of experimental and control groups at the beginning of experimental research, with using analysis of variance. The second hypothesis, through analysis of variance test for independent variables were studied. This result was achieved, in the eight weeks the level of stress decreased due to physical exercise intervention in the experimental groups. The third hypothesis showed, using analysis of variance of the dependent variable, there is no significant difference between the mean of experimental groups.

Results of the assessment for the pre-test and post-test control group, showed no significant difference in first and final average. SD for control group was 2.92 and 2.09 in 1st, 2nd measurements. In reviewing the status of students, did not make any difference for the control group, in the first test and second test. Then, stress rate dispersion was found normal. The minimum score obtained for the control group, for the first measurement 7 and the second measurement is 7. The rates obtained, this means there is no change in stress after 8 weeks. Initial analysis of findings of the experimental group (volleyball), showed reduced stress in experimental group during (in pre-test and post-

test) the intervention period. Differences were obtained, the mean score of 11.00 for the first evaluation and the average score of 7.81 for the second evaluation, in group exercise (volley ball). With reducing the average rate of the first evaluation and second evaluation, stress was reduced. There was a significant difference in stress of students in the experimental group volleyball, and this difference was significant between the first assessment and second assessment, $F(2, 48) = 7.25, (P < 0.05)$. It is meaningless to assume that it has emerged reduction in stress itself. Initial analysis of findings of the experimental group (aerobic program), showed reduced stress in experimental group during (in pre-test and post-test) the intervention period. Differences were obtained, the mean score of 11.00 for the first evaluation and the average score of 8.50 for the second evaluation, in group exercise (aerobic program). With reducing the average score of the first evaluation and second evaluation, stress was reduced. There was a significant difference in stress levels of students in the experimental group (aerobic program), and this difference was significant between the first assessment and second assessment $F(2, 48) = 7.25, (P < 0.05)$. It is meaningless to assume that it has emerged reduction in stress itself. The first hypothesis detected that non-significant differences would appear among mean scores for the two exercise interventions and the control group in the beginning, as a consequence of randomized assignment to the three groups. The hypothesis was tested using a multivariate analysis of variance for, stress measures at beginning. Kurtosis of the pre-test groups for female was -0.737 kurtosis of the pre- test groups for males was -0.017 Boxes. Test of Equality of Covariance Matrices indicated that the observed covariance matrices of the dependent variables were equal across groups. Levene's test of equality of variances showed non-significant $F(2, 48) = 7.25 (p < 0.05)$ differences among the three groups' variances on each of the three pretest scores, showing that variances were same. Therefore, the information appears to meet the assumptions for multivariate analysis. Thus,

randomization resulted in equality of means across groups in beginning. However, because inspection of the comparisons across groups for each dependent did not reveal some differences, for stress, two the group's differences resulted in a significant affect $F(2, 48) = 7.25, (P < 0.05)$. The LSD post-hoc contrast didn't indicate significant ($p < .05$) differences between the volleyball with aerobic program group means (Table 2, 3 & 4).

Table 3. The dispersion of Investigation gender group

Investigation group	Female		Male		Total	
	No	%	No	%	No	%
Control Group	10	55.6	8	44.4	18	100.0
Exercise Group	20	60.6	13	39.4	33	100.0
Total					51	100.0

Table 4. The statistical indicators of control group stress

Statistical Indicators	1.LC stress	2.LC stress
Mathematical Mean	11.00	7.81
Standard Error	0.80	0.86
Standard Deviation	3.22	3.46
variance	10.40	12.02
Minimum rate	6	4
Maximum rate	16	19
ANOVA2.Measurements.	$F(2,48)=7.25$	$P < 0.05$

Discussion

This study focused on those exercises benefits which are psychological in nature. The exercises are straightforward and require a minimal amount of body movement. Physical exercise performs an important role in enhancing health, happiness and productivity during life. Some findings imply that a minimal exercise (i.e., exercising once per week) may have positive health benefits even though fitness may not be measurably improved. Some have suggested that a threshold of physical exercise may be necessary for maintaining optimal health and that future investigation of this should use controls subjects who participate in at least minimal exercise levels rather than comparing

exercise treatment groups to the control subjects. At one research regular physical exercise is linked with reduced symptoms of anxiety and stress (Camacho, *et al.*, 1991). Physical exercise is positively correlated with cognitive functioning in adults (Emery & Blumenthal, 1991). The literature review will address issues directly or indirectly concerned with the alleged benefits of exercise among the youth. Some exercise has been shown to be vital for individuals of all ages; the primary focus of this research was on those benefits of exercise that apply to youth. The research literature clearly indicates that regular exercise has many beneficial effects on health and well-being, both in the general adult population, and in the specific population of youth. Today we know the specific psychological effects of exercise are numerous and varied. These include decreased depression and anxiety, reduced stress levels, enhanced self-concept and body image, protection of cognitive performance, and improved life satisfaction and general well-being. It is important know that subjects that participated in this study had none clinical illness so it could a problem for our research. Maybe choosing of young people from university whereas it creates this matter and we know majority of individual in university are not clinical illness. Another of the potential criticisms of our study is that the duration of 8 weeks might be too short for the evaluation of exercise effects but this time is recognized as more minimum time that is possible and another research did this time too. In a study in 4 severely depressed women, (Doyme, *et al* 1983) showed improvements in depressive symptoms and cognitive function after 6 weeks' training on a cycle ergo meter for 30 minutes 4 times a week. (Sexton *et al.*, 1989) Dishman says for people who live in prosperous societies, physical exercise is no longer considered a necessity but may represent a lifestyle choice (Dishman, 2001). In this investigation, three hypotheses were tested. The first hypothesis detected no significant differences between groups at first. It was proposed in the second hypothesis that the two exercise interventions would be significantly more effective in reducing stress than

would the control group. And the third hypotheses didn't detect different mean between aerobic program and volleyball. It was hypothesized that each variable would demonstrate significant by group interaction effects. It was proposed that all two exercise interventions would show a stronger effect over the course of the eight weeks than the control (non-active control) group. This hypothesis was confirmed for stress. In one research NICE concluded that there was insufficient evidence to recommend Exercise Referral Schemes other than as part of research studies to evaluate their effectiveness (NICE, 2006). Although it has been suggested by others that frequent aerobic exercise may be an effective treatment for depression in clinical settings, there appears to be no adequately controlled experimental demonstration of this effect on a patient sample. These findings indicate that the aerobic program intervention was not in its way inherently different than the other exercise group (Table 5 & 6). We now the body of knowledge on exercise is large, but data on exercise and its effects on the stress mitigating are still limited. The responsibility for conducting research lies with government agencies, private health organizations, the insurance industry, employers, universities, and medical schools.

Table 5. Findings of exercise group (volley ball) 1. 2. Assessment:

Statistical Indicators	1.LC stress	2.LC stress
Mathematical Mean	11.00	7.81
Standard Error	0.80	0.86
Standard Deviation	3.22	3.46
variance	10.40	12.02
Minimum rate	6	4
Maximum rate	16	19
ANOVA2.Measurements.	F(2,48)=7.25	P <0.05

Conclusions of course, if this study will be conducted with larger groups, it will explore more robust statistical results. Post-hoc analysis did not show some differences between exercises groups, and it may not be that the aerobic and volleyball intervention was different from the other. Research in other age groups, can reveal more angles. In addition, the research can help the tendency of all people to exercise and physical training. Second,

Table 6. Findings of exercise group (Aerobic) 1. 2 assessments.

Statistical Indicators	1. LC stress	2.LC stress
Mathematical Mean	11.00	8. 50
Standard Error	0.89	.88
Standard Deviation	3.67	3.64
variance	13.50	13.26
Minimum rate	7	2
Maximum rate	18	14
ANOVA 2.Measurements.	F (2, 48) =7.25	P <0.05

the demographic information concerning the participants of this study indicated that the sample included in the population. We have to notify to sport psychology and exercises activities then it needs to publish more articles about that matter. We must increase our information and know about young people and exercises activity that youth can become benefit from it.

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