Comparison Effect of a Period of Stair Exercise on Physical and Mental Fitness Factors of Active and Inactive Women

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Abstract

The purpose of this study is Comparing Effect of a Period of Stair Exercise on Physical and Mental Fitness Factors of Active and Inactive Women. In this way 15 active women with average (age of 32.12±6.74, height of 162.07±8.67 and weight of 61.21±5.34) and 15 inactive women with average (age of 33.62±6.93, height of 161.25±7.15 and weight of 64.32±6.86) participated voluntarily. The testes first of all completed questionnaire of registering personal information and then performed POMS, push-ups on hand and power of claw for measuring depression, stress, anger, back muscles and endurance of shoulder muscles in pre-test and the final results were registered at specific papers. Then the testes of each group performed stair practice for 6 weeks and 3 sessions a week lasting 60 to 75min and the aforesaid test was repeatedly performed for post-test. In order to analyze statistical data it was benefit from descriptive statistics within related tables and diagrams and Mann–Whitney U test for comparing 2 groups by using SPSS software (P<0.05). Results showed that the stair practice significantly increases muscular endurance (P=0.003) improving depression (P=0.02) stress (P=0.02) and anger (P=0.02); nevertheless, it does not have significant influence on power (P=0.08). Generally performing aerobic stair practice has suitable influence on most of physical fitness factors and life quality of women. Meanwhile, it seems necessary to repeat practices more and insist on muscular power to obtain more satisfactory results.

Key Words: Stair Practice, Physical Fitness, Mental Fitness

Introduction

One of the main problems of today’s societies is machine based life and attitude toward inactive life, so that today we observe that many diseases are due to lack of physical activity, weight loss, skeleton-muscular abnormality, asymmetrical body organs, bone pains, cardio-aspiration diseases and early inability especially among women (Ghafari and Rajabi 2006). Thus, it is recommended to encourage people of society to continue physical fitness and take fundamental step for weight control, reducing danger of diseases and improving life quality (Johnson 1992). Therefore, medical-health college of America recommended that in order for improving personal health and level of physical fitness, people of society should perform 2 minutes to 60minutes daily aerobic sport or non-continuous sport with intensity of 55% to 90% maximum beats for 3 to 5 days a week or to lose nearly 300kg of additional energy within physical fitness activity (Keraemer et al., 2001). However, the question that is remained is, which type of practice? Which intensity? Which term? Is required to obtain the highest efficiency? Researchers showed that regular physical fitness improves women’s health and prevents from many diseases that lead to main reason of death among women all through the world. Researchers also
found out that active athlete women have lower danger of breast cancer in comparison to inactive women and danger of having breast cancer in obese women is higher (Ghafari and Rajabi 2006).

Movement activity in addition to improving physical power leads to promoting mental, social, economic, spiritual and cultural aspects. Physical fitness diverts upsets thoughts and creates feeling of over-coming problems of life; also it increases valuable feeling and increasing motivation (Alijani and Ahmadi 2002). One of the most important topics for researchers is offering the best practice method for obtaining the highest efficiency. One type of practice is rhythm based sports that is very popular among women: since, it removes the feeling of tiresome within sport activity and involves mind in such activity to forget the daily upset thoughts. Within such sport it is possible to manipulate altitude of bench, rhythm of music, chain of movements and intensity of practice (Kramer et al 2001). Researches also confirm such issue. Koutedakis et al (2008) showed that having 3 months aerobic and stretch sport practice has positive influence on physical fitness and performance of students (Koutedakis et al 2007). Robert (2001) in his researchers found out that aerobic practice with low intensity leads to improving cardiovascular readiness of oldsters. In addition, Ghaderi et al (2006) studied the effect of music on male and concluded that hearing music significantly increases time of running among testees and also understanding stress while hearing music in comparison to mode of absence of music is significantly fewer (Ghaderi, Azarbaijani, Agha Alinejad 2006).

Another research, studied the effect of fast and slow classic music on fatigue time of athlete and non- athlete women while bicycle riding with intensity of 20w and adding 10 w per minutes. It is found out that fast and slow classic music has significant influence on time of fatigue of testes; nevertheless, these 2 types of music have significant difference (Akbarpourbeni, Rajabi and Salami 2005). Meanwhile, persons having less amount of arrangement or have muscular damage may not be able continue kinetics or aerobic jump (Dastgerdi, 1999). In addition, obese persons in compliance with tolerating additional weight may face with muscular damage while performing aerobic practice. Researches show that muscular damage among persons participating at aerobic step practice is foreleg (19%) knee (28%) back (15%) ankle (25%). Researches through studying aerobic practice with long repetition concluded that increasing heart beat while long practices is unsafe for participates have medical problems. In spite of being informed from aforesaid topics, we observe that most of women still are very interested in rhythmic sport. Whereas this field of study is new and there are no exact scientific basics, it is required to carry out more research and study to obtain satisfactory results and improving society’s health. Therefore, according to necessity of performing healthy sport and importance of useful practices for improving physical fitness of people of society, it is recommended to find a type of practice that in addition to increasing feeling of happiness among people to benefit from its useful effects. This research intends to answer this question that whether there is difference between effect of 6 weeks stair practice on physical and mental fitness of active and inactive women or not. It is hoped that based on results of this research, it is possible to answer some questions and ambiguities in the field of improving aerobic stair practice and promoting level of physical and mental heath of women in society by assistance of scientific principles.

Materials and Methods

The present research is causative-comparative and its statistical universe middle aged active and inactive women between 30 to 35 years old residing in Karaj. Among such women 15 active women for minimum 6 months experience of performing regular sport for 3 days a week and 15 inactive women not having any regular physical activity within recent 6 years were participated voluntarily. The terms and conditions of participating at research is: Not having record of surgery during recent 3 years, not having mental disorders, absence of malignant diseases, systematic and metabolic diseases and any other effective diseases on variables of this research. The work procedure is that first of all purpose, execution method and performing tests were described for testes and then testes completed questionnaire of registering personal information (athlete mood questionnaire) POMS, push-ups on hand and claw power for measuring level of depression, stress, anger, power of back muscles and endurance of shoulder muscles) in pre-test and the related results were registered at specific papers. Then the testes performed stair practice for 6 weeks, 3 sessions for 60minutes to 75minutes and repeatedly performed aforesaid tests on post-test. For statistical analysis of data it was benefit from descriptive statistics within related tables and diagrams, Mann–Whitney U for comparing 2 groups by using SPSS software at sig level of p<0/05. All of the testes performed their practice with 40% heartbeat and within 6th week the intensity of practice was increased to 65% to 75% heartbeat. The stair practice began with 10minutes to 15minutes warm-up and easy stretch movements and then continues for 30minutes to 40minutes simple aerobic movements arranged with music (low impact). In this exercise, one foot is remained on earth continuously and finally the testes perform cool down including: slow walking, stretch movements. Stair movements are including: jump, easy walk, 7 and 8 steps, step forward, step backward, 4 rhythmic steps, left and right step, step and knee (for each sessions it is recommended to perform 4 movements).
Results

Table 1: Average and standard deviation for physical and mental fitness of active and inactive women

<table>
<thead>
<tr>
<th>Indices/Testes</th>
<th>Active Women (N=15)</th>
<th>Inactive Women (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>31.33±7.69</td>
<td>25.90±7.79</td>
</tr>
<tr>
<td>Muscular endurance</td>
<td>65.13±18.18</td>
<td>49.53±16.06</td>
</tr>
<tr>
<td>Depression</td>
<td>0.67±1.86</td>
<td>1.93±3.06</td>
</tr>
<tr>
<td>Stress</td>
<td>40.73±7.43</td>
<td>37.53±6.33</td>
</tr>
<tr>
<td>Anger</td>
<td>3.20±2.75</td>
<td>4.53±2.66</td>
</tr>
</tbody>
</table>

Results showed that stair practice leads to significant increase at muscular endurance (p=0.003) improving depression (p=0.02) stress (p=0.02) and anger (p=0.02); nevertheless, it does not have significant influence on power (p=0.08).

Table 2: Date of Mann–Whitney U test for physical and mental fitness of active and inactive women

<table>
<thead>
<tr>
<th>Variable</th>
<th>Testes</th>
<th>Sum of squares</th>
<th>Average of squares</th>
<th>Z</th>
<th>Mann–Whitney U</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscular power</td>
<td>Active women</td>
<td>238.50</td>
<td>15.90</td>
<td>-0.02</td>
<td>106.50</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>Inactive women</td>
<td>226.50</td>
<td>15.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endurance</td>
<td>Active women</td>
<td>282.50</td>
<td>18.83</td>
<td>0.07</td>
<td>0.50</td>
<td>0.003</td>
</tr>
<tr>
<td>Muscular</td>
<td>Inactive women</td>
<td>182.50</td>
<td>12.17</td>
<td>-2</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Active women</td>
<td>204</td>
<td>13.60</td>
<td>-1.18</td>
<td>84</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Inactive women</td>
<td>261</td>
<td>17.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>Active women</td>
<td>205.50</td>
<td>13.70</td>
<td>-1.12</td>
<td>85</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Inactive women</td>
<td>259.50</td>
<td>17.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>Active women</td>
<td>209</td>
<td>13.93</td>
<td>-0.98</td>
<td>89</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Inactive women</td>
<td>256</td>
<td>17.07</td>
<td></td>
<td></td>
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</tbody>
</table>

Difference is significant at less than 0.05 for both groups of n=15

Discussion and Conclusion

Results showed that 6 weeks stair practice does not have significant influence on power of shoulder muscles. Although according to the findings of Hopkins et al (2007) and Shila (2008) the effect of aerobic practices even on older women is increased; nevertheless, this research shows contradictory results. The power of an important index of physical fitness depends on health; nevertheless, it is one of the necessary readiness factors for having healthy and normal life; since, maintaining independence especially during older time and performing daily activities without fatigue requires good level of muscular readiness. Strength practice leads to reducing speed of power. Not only muscular readiness removes health problems, but also increases self-confidence and body of person. Maybe absence of significant increase at power of muscles opening shoulder is due to this reason that most of muscles at lower organs are involved within stair practice and practice with Dumbbell are performed with stair practices; nevertheless, women attending at this research are practicing stair practice at sport clubs of Karaj generally do not apply from Dumbbell; in which, this issue should be considered for practice program. Results of statistical analysis of findings show that stair practice significantly increases
muscular endurance for shoulder of women; in which, this finding is in compliance with results of research by Lane et al (2011), Shila (2008) and Rahmaninia (2005).

As we already know, while stair practice the music is playing and from neural-muscular point of view it is stated that any outer motive leads to increasing motivation. While performing physical activity the activity of neuron at elementary movement center is increased and consequently the load is increased through more strong muscular contractions under fatigue condition. Karageorghis et al 2009 believes that positive effects of music on physiologic performances (heartbeat, blood pressure and body temperature) mental and even physical factors is undeniable on level of endurance. On the other hand, within stair practice the hand should be arranged with movement of feet to create harmony and this process should be performed with maximum repetition; therefore, endurance at muscles of hand and feet is increased and finally the endurance of testes is logical. According to findings of this research, the stair practice leads to significant reducing of depression in women. In this relation different researches including: Berger and Metal (2000), Guszkoweska (2007) Matin and Homaei (2007) reported reducing depression following up aerobic sport and practice in water; nevertheless, Vaez Mousavi and Samandar (2002) reported profile norm of mood for genius athletes and high degree of depression among wrestlers than athletes of other fields that is in contradiction with results of this research; in which, the reason is different type of testes of 2 groups or type of related tests. In stair practices due to simultaneous playing music creates highly motivated mood (Lane et al, 2011). In addition, results of research showed that there is close relationship between sport and mental health, so that it reduces level of anxiety and depression and increases self-confidence and self-esteem. Also sport especially during oldster age is regarded as healthy recreation and very enjoying and relax experience for person; therefore, healing level of depression of testes seems logical.

Findings of another research show reducing at stress of testes. Results of research by Falon (2004) Rahmaninia et al (2006) confirm this finding; nevertheless, the research of Mirzaei et al (2006) shows contradictory result on profile of mood among wrestlers of national teams of juveniles and adults that the difference is due to type and age of testes. Emotions are inseparable part of human; nevertheless, it is very important to adjust emotions; since, today’s world is full of stress and challenges including: long queue, traffic, stress that only increase to anxiety of human.

Using music during stair practice leaves mind from daily stressful thoughts and affairs and also plays mediator sympathetic role in response to aerobic practices which both of them reduce mental stress during and after stair practice. Findings of another research shows that stair practice leads to significant reduction of anger in women; in which, this finding is in compliance with results of research by Berger and Gazokavoska (2007) and it is in contradiction with results of research by Rahmaninia (2006) and Vaez Mousavi (2002). In any research the type of testes, level of physical and mental fitness, conditions and type of practice program are effective on results of research. Therefore, difference in each of the aforesaid items is the reason of obtaining different results. On the other hand, sport environment is a place for discharging physical stress appropriately and an attempt for making your body relaxed and releasing from job and social challenges. Failure and injustice in today’s world increases anger for human and aerobic practices including: stair sport assists person to release from stress and going up and down from stair and taking step is a type of discharging energy that suppress the anger of person.

Findings of this research show that the mental factors and endurance are very effective on stair practice which refers to useful practices on aforesaid factors; nevertheless, it does not effective on power. Thus, it seems that for increasing power of upper hand muscles and shoulder, it is required for athletes to use more from strength movements and dumbbells. Generally, it is concluded that stair practice is very useful for improving physical and mental health of oldster women; nevertheless, by using movement pattern and practice it is possible to involve the entire joints and muscles of human body.

Conflict of interest

The authors declare no conflict of interest

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