Effect Aerobic Training in Hypertension and Blood Glucose Meddle Age People Given To Hypertension and Type II Diabetes

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Abstract—Materials & Methods: This quasi-experimental study and clinical application in the oil city of done in Mahamad rasol ala clinic at Shiraz. Forty patients (Male & Female) with up to 140/90 mmHg blood pressure and 120 mg/dl glucose were studied during eight weeks. The subjects were in the age range of 40-66 years.

The subjects were randomly selected and divided into control and experimental groups. The experimental group consisted of 20 patients (10 males and 10 females) taking part in aerobic training at 60-75% HRRmax, three sessions a week and sixty minutes per session. Then blood pressure, fasting blood glucose Test, weight and BMI were measured before and after the training. The control group, however, received no intervention.

Results: The results of this study showed that systolic blood pressure, diastolic blood pressure, blood glucose, weight and BMI decreased in the experimental group (p<0.05) the difference between the two groups in blood glucose, weight and BMI in experimental and the control group was not significant (p>0.05). However, the difference in systolic and diastolic blood pressure in males and females in the experimental group showed no meaningful difference compared to females (p>0.05).

Conclusion: The results on the whole, showed that aerobic training for eight weeks has more effect on systolic and diastolic pressure and they decreased in the experimental group. BMI in males was also reduced more, compared to females.

Keywords—Blood pressure, Blood glucose, aerobic training, weight, BMI.

I. INTRODUCTION

Hypertension is one of the most important modifiable risk factors for cardiovascular disease is controlled. Diverse communities with high prevalence of hypertension. In different countries, the prevalence of 10 to over 60% has been reported. (High blood pressure, heart attack, stroke, congestive heart failure, peripheral vascular diseases are also involved)

The required pressure to move blood around Srkhrgh-hast. The system pressure is less than the public system. Prfsharkhvnya cause dilation of blood vessels and heart, which if left untreated, blood vessels become thicker and harder and strokes are the result.

Blood pressure has two components, with each heartbeat, blood flow through arteries and plunged into the amount, the highest point is called the systolic blood pressure is known. When the ventricular and the arteries are at rest, blood pressure is the lowest point and is called the diastolic blood pressure (1). If equal or greater than 90 mm Hg diastolic and systolic pressure equal to or greater than 140 mmHg, the person has a blood pressure. To be a moderate amount of aerobic high systolic and diastolic reduced (1).

For example Blamnal (2008) blood pressure in hypertensive men and women studied and concluded that physical exercise and weight loss, blood pressure in men and women with mild hypertension, reduced in both treatment groups. Similar Drthqyq Symvs and colleagues (2002) Effect of exercise on blood pressure reduction of 54 in both aerobic and anaerobic exercise were examined. They found that aerobic exercise reduces systolic and diastolic blood pressure.

The effect of exercise on blood pressure but clinically insignificant, and the black elderly, can experience a greater reduction.

Global prevalence of diabetes is one of the most common metabolic disorders that increase the health and economic problems in many leads (5).

Increased prevalence of diabetes and all that is happening in reality and planning for prevention and control of diabetes is essential in any society, especially in developing countries (7).

Diabetes mellitus or Diabetes mellitus, a condition in which the ability of glucose uptake by the tissues is reduced. If this condition is not treated, the blood glucose concentration greatly increases the blood sugar to rise in this situation (Hyprglsymy) say (9).

Type 2 diabetes or non-insulin diabetes (NIDDM), the most common type of diabetes is approximately 90% of diabetic patients is included. Type 2 diabetes is a heterogeneous disorder that can be divided into two major subgroups. In the second group to destroy abnormal tissue sensitivity (muscle or liver) insulin starts.

A person with diabetes (3).

If symptoms occur often mild and include fatigue, irritability, Pradary, Prmvslv, skin wounds that are healing poorly, is (5).

The importance of regular physical activity and exercise in the treatment of diabetes are considered... Has provided (11).

Type 2 was noted. All subjects were given a similar diet and exercise in patients on diet, three miles a day for three to four times a week for 60 weeks and marched. Results showed that exercise combined with diet can lead to weight loss than diet alone is.

Prfsharkhvnya for most patients, the most effective way of combining diet and exercise training in non-drug prevention and
II. THE RESEARCH METHODOLOGY

This quasi-experimental research and is practical. Statistical population of 40 men and women who have diabetes clinic medical records were randomly assigned to experimental groups and volunteers in 20 patients (10 females, 10 males) and 20 controls (10 females, 10 man), for example, were selected. Both pretest and post test was done. Part of its operations in the gym and the biochemical analysis was performed in the laboratory. All subjects before participation in the exercise of medical examination and medical history and previous sporting they were collected. Subjects on the basis of having high blood pressure, fasting blood Vqnd and after 8 weeks of aerobic exercise, weight, BMI, blood pressure and blood sugar measurement and evaluation was. Descriptive profile of individuals is given in Table 1.

III. EXERCISE PROTOCOL

Where everyone has to follow are as follows: 1 - All training was done at certain times of day (h 5 / 7 to 5 / 8 PM). 2 - Ladies and gentlemen, the days a couple days of practice did. 3 - in a gym with exercise and temperature conditions were the same. 4 - In each session, warm up with stretching exercises and flexibility exercises for 15 minutes and 35 minutes of aerobic activities include walking, fast walking, sprints and the rest is soft and light with low intensity (walking) and then 10 minutes to cool the body Simple stretching exercises under the coach and was attended by the researcher. HR subjects after 15 minutes of running on any subject in 15 seconds and one minute was recorded during and after 10 minutes of active recovery (walking) and again at 15 seconds and heart rate were recorded in the .

Control of correlated and independent t-test was used. Actions by the statistically significant level software spss 05 / 0 p done. Excel 2003 software was also used for drawing diagrams.

IV. RESEARCH FINDINGS

In systolic and diastolic blood pressure, blood sugar, weight and BMI in the experimental group and 05 / 0 p, there is a significant difference before and after aerobic training. The 8-week aerobic exercise on systolic and diastolic blood pressure, blood sugar, weight and BMI and the decrease in the experimental group (Table 2).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Statistical indicators</th>
<th>N</th>
<th>Mean difference</th>
<th>Standard deviation (SD)</th>
<th>t</th>
<th>df</th>
<th>Sig(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic blood pressure</td>
<td>20</td>
<td>22/50</td>
<td>11/97</td>
<td>8/402</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Diastolic blood pressure</td>
<td>20</td>
<td>13/50</td>
<td>9/88</td>
<td>6/110</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Blood sugar (FBS)</td>
<td>20</td>
<td>37/50</td>
<td>27/60</td>
<td>6/076</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>20</td>
<td>1/725</td>
<td>1/34</td>
<td>5/747</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>20</td>
<td>0/655</td>
<td>0/501</td>
<td>5/837</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

In contrast, blood pressure, blood sugar, weight and BMI between the experimental and control groups, only 8 weeks of aerobic training on systolic and diastolic blood pressure and reduce its influence in the experimental group than the control group was (05/0p <), but significant difference between blood sugar, weight and BMI were observed in the experimental group than the control group (05 / 0 p>) (Table 3).
Another comparison between blood pressure, blood sugar, weight and BMI for men and women in the experimental group after 8 weeks of aerobic training. Between systolic and diastolic blood pressure, blood sugar and weight of men and women in the experimental group after 8 weeks of aerobic training, there was no significant difference. The effect of aerobic training has on men and women equally (05/0p>). But BMI between men and women in the experimental group after 8 weeks of aerobic training was performed. The results obtained in this study, eight weeks of aerobic exercise on systolic and diastolic blood pressure compared between experimental and control groups after eight weeks of aerobic training, the average of both groups, there are significant differences. The 8-week aerobic exercise on systolic and diastolic blood pressure and reduce the impact of the experimental group than the control group was. There are consistent with the other hand, the results show that these results blood, obesity and glucose tolerance is 5. Another difference could be due to age, sex and race of patients. The prevalence of hypertension in women is related to age. So in women after age 50 will increase substantially. This increase is due to hormonal changes after menopause. 2-fold greater prevalence of hypertension in blacks than whites (14). Other reasons can be the difference in smoking, stress and emotional stress, cultural differences, environmental factors, insulin resistance and other individual differences noted between patients. Salt intake, obesity, occupation, alcohol consumption, family size and population density are among the environmental factors. In the affluent societies of hypertension increases with age, but in low-income groups, with age, blood pressure decreases. Insulin resistance in type II diabetes and obesity is common in people with diabetes and hypertension is common. Increased renal sodium retention in insulin in the blood can increase sympathetic activity. Either or both of these two effects can lead to increased arterial pressure (12).

The results of this study, eight weeks of aerobic exercise on blood sugar and reduce the impact that it has been observed in the experimental group, Rogers and colleagues (2003), Barnard and colleagues (2004) and Esfahani (1385) Impact of aerobic training on the lead to improve blood sugar and body composition in type 2 diabetes is, it is compatible. But the comparison between experimental and control blood sugar levels after eight weeks of aerobic training, the results do not show significant difference Sygal and colleagues (2003) does not match.

Since I can not study due to differences caused by genetic factors, behavioral and environmental. Also significant differences in the incidence of diabetes among ethnic groups within a country can be seen. Other reasons can be cited throughout the duration of diabetes and blood glucose control. Usually a complication of diabetes in people over 20 years with diabetes mellitus has been seen. Complication rate of 25% over 5 years and 15 years is 80% (5).

Controlling blood sugar is not the same in different people. To be aspects of medical, social and lifestyle of the patient.

The results obtained in this study, eight weeks of aerobic exercise on weight loss is that it is in the experimental group.
The observations of Howard and colleagues (2004), Pancreas and colleagues (2005) and Najafi (1386) found that there is a direct correlation between weight and diabetes and physical activity to reduce diabetes and obesity is rising, is consistent. But in comparing the experimental and control groups, showed no significant difference. While the experimental group compared with men, weight of the experimental group, the average of both groups of women more than men, showed that the reduction was not statistically significant. The results of these observations Zvylr and colleagues (2007) have been inconsistent. Due to lack of time since the study results with other studies, diets and medications can not be met. Several studies have shown that long-term weight loss in type II diabetic patients is common. So on average reduced calorie, lower fat intake and increasing physical activity is emphasized. However, environmental factors, genetic, age, race and gender can also have an impact on results (14).

Aerobic exercise also have an impact on BMI and increased in the experimental group and the research results, and Howard (2004), Vynstyn and colleagues (2008) and with colleagues (1379) is consistent. BMI compared between experimental and control groups after eight weeks of aerobic training do not show significant differences in BMI in men, while the experimental group compared with women in the experimental group, the average of both groups, a greater reduction in BMI than men women show that this difference is statistically significant. The results of all studies, positive effects of aerobic exercise on BMI shows. Combined physical activity and BMI, a significant decrease in walking increases the risk of heart disease - cardiovascular and weight in obese individuals is high. Reduced risk of diabetes and increased insulin sensitivity, glycemic control and significant improvements in blood pressure is (10).

Because of the high age in the statistical community and their inability to exercise, there was limited research on selected samples. More evidence is needed to sustain the effects of exercise and can be confirmed in longer term view about the benefits of this study was to judge. Recommended in future research programs, weight loss and favorable effect on lowering blood sugar and blood pressure, aerobic Drtnrynat be used.

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