

Comparison the Effects of Maximal Aerobic and Anaerobic Training on the Level of Plasma LDL, HDL and CRP

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ABSTRACT

The purpose of this study was to compare the impact of maximum aerobic and anaerobic activity of a meeting on the level of LDL-C, HDL-C reactive protein and C (CRP). Therefore, 26 students of Tabriz University randomly two groups of 13 persons were aerobic and anaerobic. Methods to form aerobic group was subjects during a test session under the standard Bruce (aerobic group) and Group subjects under anaerobic Wingate test standard (group anaerobic) groups. Blood samples before and immediately after running test was performed to analyze and compare statistical data from the independent t was used. Results showed a significant difference in HDL-C levels between groups are aerobic and anaerobic Web increase in aerobic than anaerobic group was however a significant difference between aerobic and anaerobic groups in the amount of LDL- C was observed but the decrease LDL-C in aerobic compared to anaerobic More was also compared between two groups of aerobic and anaerobic significant difference in the amount of CRP was observed, the results show aspects of the effect of activity maximum aerobic on the rate of increase in CRP Note more will attract.

Key words: CRP, HDL-C, LDL-C, maximum activity, aerobic and anaerobic.

INTRODUCTION

Coronary heart disease (CHD) is the leading cause of death and disability in both men and women (Dbydy clear, and Allah, et al., 2005). The incidence of cardiovascular disease is low in premenopausal women, but increases in postmenopausal women, to a level similar to that in men (Davise, E, and., 2002).The association of high serum cholesterol levels with the incidence and severity of coronary heart disease (CHD) is so pronounced in epidemiological studies that the National Heart, Lung, and Blood Institute recognizes this association as causal (Okita, K , 2004).Today, countries that have in terms of technology development, as residents living, nactivity and passive enough to become prevalent that the prevalence of direct or indirect cause of many problems and issues such as health and wellness heart disease - CVD, obesity and coronary artery disease is so that as a major problem in these communities are known. One of the problems today, especially in developed countries are atherosclerosis is one. Atherosclerosis due to fat deposition and formation of cell sponge wall vessels, especially by low density lipoprotein (LDL-C) influenced by several factors that can be of lifestyle and heredity, or both impact accepts (Asztalos B.F, 2003; Anderson, K.M , 1978) . Wake disease is a progressive pathologic changes and it starts from childhood and during several stages occurs in older children. Most studies have shown how metabolic rate and type of lipids, particularly lipoprotein blood in the incidence and exacerbation of heart disease - cardiovascular role play (Fallon KE ,et al.,2001;Davise, E, et al., 2002) the other hand studies of the prevalence of Biology heart disease - cardiovascular, especially death caused by arteriosclerosis and diseases, coronary artery suggests that increasing cholesterol levels lipoprotein high-density 3 (HDL-C) One of the important factors in reducing the risk of the disease host as per each mg LDL levels of HDL-C, 3 to 5 percent reduction of coronary artery disease exists.(Kravitz, L. Heyward, V. 2009; Okita K , 2004; Goldhammer E.2005). Considering the direct relationship with heart fat, blood fat levels is an important factor in health is considered so long, lipid profiles as standard tools to identify individuals at risk for subsequent cardiovascular events - coronary was used. With this There is believed that most known causes of mortality of cardiovascular diseases such as age, sex, LDL-C high, smoking, Power blood 50 years ago by the Framingham Heart Institute were introduced, can not cause disease risk all are cardiovascular (Jessica L. Clarke ,et al. 2005; Davise, E, 2002; Deiwise,2004). Since the results of some recent research suggests the occurrence of cardiovascular events in people who have cholesterol and blood lipids in normal range and even in some cases less than normal (3.4 m mol or 130 mg dl) is (Jessica L. Clarke , 2005; Rawson ES , 2003, Rifai N, Bachorik P. S. Alber J.J.1999).an index measuring newer can detect susceptible individuals to help Premature atherosclerosis. Reactive protein with Article C (CRP) is one of the major acute phase proteins that during bacterial infection and surgical trauma, myocardial infarction (MI), tissue injury and severe and prolonged

exercise liver release be as The most sensitive indicator of inflammation and independent prognostic factors for risk of heart events - has been introduced vascular (Davise, E, 2002; J Scharhag , 2005). Which increases with increasing 2 to 5 times the risk of cardiac events has been associated with (Richard V , et al.2004;Rifai ,N, Bachorik P. S. Albert J.J.1999, Thomas, O,2004)? Article Main Index C-reactive protein process called "acute phase response" in the blood that the body against any type of reaction is considered inflammatory. Blood levels of CRP in healthy individuals is very low, but any type of inflammation in any part of the body, its rate increases in the blood, CRP is produced in the liver and produce your way toward the blood of arteriosclerosis plaque will open does the risk of atherosclerosis more to this protein could cholesterol connection found and picked it by macrophages facilitate, can also be inflammation and stimulates the possibility of clotting may increase (King, DE, 2003; Mosher, PE, 2005; Lee IM , 2001). Since the increase in CRP with each type of inflammation in any part of the body occurs, but increased over the size and LDL-C the risk of atherosclerosis increases (Jean-Pierre, D, 2004; Christos ,K, 2005). If you participate in sports activities regularly decreased 40 percent, deaths related coronary artery disease by (Goldhammer, E, 2005; Geffken ,DF , 2001;Carle M.Allen.2005) and exercise aerobically risk factors causing heart - cardiovascular, especially LDL-C and CRP reduced (LaMonte MJ , 2002; Scharhag J, 2005; Jean-Pierre D, 2004). Many studies confirming this are so Khosro Ebrahim and colleagues (2001) to compare the impact of one session of aerobic activity (both periodic and active with circular weights with 60 to 80 percent of maximum heart rate) on the rate of change LDL-C, HDL-C and non-athletes fat under the skin were studied and observed a session of aerobic activity with a circular counterweight to a two-periodic sessions of aerobic activity on plasma lipid levels is more effective (Fallon, KE, et al.2001;Deiwise , 2004) with the effect of intensity training on lipids and lipoproteins Plasma Runner Gun athletes ready concluded that exercise at short less than 90 minutes, regardless of their severity any significant difference on cholesterol Tom, TG, HDL and LDL in men has not been active and ready. also, Hill (2005) metabolism among young men after resistance training severe in intensity study were six healthy male non-athletes Tuesday protocols executed: control group, exercise did, group exercise, high intensity (HI) and low-intensity exercise group (LI) in the seven days were done separately. Findings indicate that it was the only significant increase in HDL-C immediately after exercise in the HI group compared with the control group and LI groups compared to controls significant effects on blood lipids were observed overall results this study showed that the intensity of an effect alone in determining HDL-C response to resistance training is intense (Asztalos BF, 2003). The other hand, some research results regarding the effect exercise on CRP concentrations confirms that CRP concentrations following exercise decreases (Church, E, 2002; Anne Marie W, 2005; Plaisance ,EP ,2006). Akyta (2004) showed two months of aerobic exercise decreased CRP levels were significantly (Okita K, et al.2004). Gvldhamr (2005) 28 patients with cardio - vascular) to 12 weeks with the intensity of 80-70 maximum heart rate affected by aerobic exercise placed the results of training a significant decrease in levels of CRP showed (Goldhammer, E , 2005). Also Ascharj (2005) after 4 hours of exercise bikes intensity constant 70 percent threshold, anaerobic people looked and all knowing level of CRP (from mg 0.5 to 1.8) increased (Scharhag , J , 2005; Carmen, 2003) showed an inverse relationship between physical fitness and CRP levels among children there and the relationship between boys more than girls were feeling (Deiwise , 2004). According to previous research results that seem to influence the activity without aerobic and high intensity exercise on lipoproteins and CRP levels, there is no general agreement about a contradiction. In this study, has tried to maximize the impact both aerobic and anaerobic activity on lipoprotein levels and CRP be considered.

MATERIALS AND METHODS

Method of quasi-experimental study design and research with pre-test and post test two experimental groups were used aerobic and anaerobic. The study population consisted of all male students in Tabriz University disable not participate in the exercises were non-athletes. A declaration during the first sample of students to participate in the study were invited to select the subjects based on voluntary responses to questionnaires Personal health and satisfaction, and subjects were randomly assigned two groups of 13 persons were aerobic and anaerobic. Test intended for the aerobic group, Bruce was a standardized test as a laboratory on a treadmill was performed, this protocol speed at the beginning of 1.7 mile per hour (approximately 2.7 Km) and 10 percent slope began and then every alternate 3 minute, treadmill speed and slope - both - increase or Fat, and participants to achieve too tired to work and did exhaustion.desired test for anaerobic groups, standardized Wingate test subjects was 30 seconds with a maximum resistance against 0.075 per kg of body weight on the bike pedal Karsnj went. Blood samples before and immediately after the tests were run and the blood sampling site temperature in pre-and post-test during test run and anaerobic, respectively 22 and 23 degrees Celsius was. In order to analyze desired information and for comparing groups of independent t test was used and the amount of error 0.05 was considered.

RESULTS

The present research findings on two descriptive and inferential findings will be presented in Table 1 and values related to demographic information including age, height and weight subjects. What is important in this table, average age, height and proximity and weight.

Table 1 - Profile of subjects

| Subjects | Height | weight | Age | Number |
|-----------------|--------------|--------------|-------------|--------|
| Group | (cm) | | | |
| Aerobic Group | 5.49±174 | 5.36 ±64.65 | 29.2 ±21.8 | 13 |
| Anaerobic group | 5.39 ± 172.8 | 6.29 ± 66.74 | 1.32 ± 23.2 | 13 |

Table 2 Comparison of results based on averages and LDL in aerobic and anaerobic groups shows that the calculated t value is significant.

Table 2 - Comparison of changes in LDL levels between two groups of aerobic and anaerobic Groups.

| LDL | group | mean | S.D | t | value significance |
|-----------|-------|--------|------|------|--------------------|
| Aerobic | | -14.38 | 21.5 | 1.6- | 0.1 |
| Anaerobic | | 2.69- | 14.3 | | |

Table 3 Comparison of results based on averages and HDL in both aerobic and anaerobic groups shows that the calculated t value is significant.

Table (3) - compare HDL variation between groups of aerobic and anaerobic Groups.

| LDL | group | mean | S.D | t | value significance |
|-----------|-------|------|------|-----|--------------------|
| Aerobic | | 2.07 | 0.86 | 2.1 | 0.04 |
| Anaerobic | | 1.38 | 0.76 | | |

Table 4 Comparison of results based on averages and CRP in both aerobic and anaerobic groups shows that the calculated t value is significant.

Table (4) - Comparison of changes in CRP levels between the two groups of aerobic and anaerobic.

| LDL | group | mean | S.D | t | value significance |
|-----------|-------|------|------|-------|--------------------|
| Aerobic | | 1.77 | 0.26 | 12.27 | 0 |
| Anaerobic | | 0.53 | 0.24 | | |

Conclusion

The results of this study show that LDL levels between two groups of aerobic and anaerobic No significant differences however, the impact of aerobic activity session to session anaerobic activities to attract more attention to. Results of current research findings of researchers such as Hill (2005) and Movshr (2005) is inconsistent. Davis and colleagues (2004) with the effect of intensity training on lipids and lipoproteins Plasma Runner Gun athletes ready concluded that exercise at short less than 90 minutes, regardless of their severity any significant difference on cholesterol Tom, TG, HDL and LDL in men has not been active and ready. Results of this study is consistent with research findings. The logical question is raised here is that the reasons for such conflicting results is what factors could be. An important factor in connection with the study can be pointed out, is that possibly as much as Bruce test exhaustion Aksyatyvkafy a pressure oxidation to increase the capability of LDL-C may induce this form of LDL into the liver by the action Ndvstyz Moved up in the liver Lyzvzm hydrolysis and with some practice Azklstrvl by bile salts are excreted. Another reason this area can be cited to it, possibly taking LDL by peripheral tissue. But in the above mentioned discussion of this point it is necessary to actively increase blood volume and perform a session of physical activity can reduce the size be. Do so in the early stages of exercise with increased blood pressure, some water into the water between plasma and tissue is some 20 per cent increase in capillary blood concentration during the first ten minutes of physical activity is also observed. Since the lipids in the blood as a concentration mg deciliter of blood are expressed, so it is possible with changes in plasma volume, changes in blood lipids occurs. Between HDL levels in two groups of aerobic and anaerobic difference there are significant. Findings in this regard Astradr (1997), Allen (1993), Khosro ebrahym (2001), Nagl (1989), Park (2003), Lakvnn (2000) are consistent with research findings. In the

meantime Armstrong (2000) showed exercise training with 75-85 percent of maximum heart rate three times a week among 13-14 year old girls, a significant effect on levels of blood lipids and lipoproteins did not result. Davis (2004) concluded that a short training of less than 90 minutes regardless of their severity, no significant differences in HDL levels occurred. The results of this research are consistent with the results of this study. In this case, because a number of expression that can be possibly one of the causes of increased HDL-C increased activity enzyme lipoprotein lipase, hepatic lipase activity decrease, because increasing the lipase activity of a key enzyme in the conversion of VLDL to HDL, the causes, particularly the level of HDL-C HDL2-C increased. In this context probably other mechanisms such as reduced sensitivity insulin that changes in lipid lipoproteins existence provide, can be cited. Between the level of CRP in two groups of aerobic and anaerobic significant difference exists. Results show that the impact of activity maximum aerobic response to the activity maximum B Aerobic to attract more attention to. This difference probably caused by mechanical stress level with the leg kicks Navargrdan maximum aerobic activity (Bruce's test) compared with anaerobic activity peak that was done on the bike Karsnj (Wingate test) related that causes activation endothelial cells and acute response CRP be their reply acute phase due to the release of cytokines, particularly interleukin a (IL-1) is. The results of the research findings Akyta (2004) and gvlldhamr (2005) inconsistent with the findings Ascharj (2005) is consistent and not consistent probably due to a meeting of the study to other research is.

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