

Study the effect of football sport on lipid profile in footballers in AL-Najaf governorate, Iraq.

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Abstract

The study was conducted on 60 footballers and 30 healthy non-athletes to determine the effect of football on cholesterol, triglycerides, high-density protein lipid, low-density protein lipids, very low-density protein lipids in athletes compared to the non-exercise group. In AL-Najaf province. The results showed a significant decrease in cholesterol, triglycerides, the level of low-density lipoprotein and very low-density lipoprotein (153.93, 119,89.8,23.8)mg/dl compared with control group (162.9,132.23,102.13,26.493) mg/d but increased levels of high-density protein lipid (54) mg/d compared with control group (50) mg/d.

Key Words: *cholesterol, triglyceride, very low density lipoprotein, low density lipoprotein.*

Introduction

Sports are important factors that contribute to longevity. Studies have shown that people who exercise have a longer life also its play a major role in reducing the incidence of certain diseases such as cardiovascular disease, which is one of the leading causes of death worldwide. This is not only the case of developed countries, but even middle- and low-income countries that are close to those of high-income countries. The main risk factors for these diseases are erratic eating habits, sedentary lifestyle, high blood pressure, smoking, etc. These factors can be controlled through some interventions, the most important of which are regular physical activity in primary and secondary prevention of some chronic diseases.[1,2]

found the role-play of Physical activity in improvements in lipid level with or without nutritional intervention in healthy or patients people [3,4,5]. and Studies have shown that aerobic exercise increases HDL cholesterol levels while lowering triglyceride levels and harmful cholesterol levels [6,7].

Also, previous studies by Barron and Rinsky show that professional footballers have a lower overall mortality rate compared to the general population, so the aim of this study was to find out the relationship between the football game and fatty form.

Method

From April 2018 till August 2018, 60 samples were collected from student who study in Faculty of Physical Education in Al-Najaf province, and 30 sample taken from people didn't play any sport for compared the result, six ml of blood sample were taken from person by vein-puncture put in tube, five ml kept for half hour room temperature. then the sample were centrifugation at 3000 rpm for 10 minutes (Back man/counter, Germany) to isolate the serum and put in another sterile tube for known the lipid profile. The remaining one milliliter of blood was used to diagnose the blood group.

ABO Phenotyping

Identified the ABO phenotypes by used the standard test tube hemagglutination and using commercial monoclonal anti-sera anti-A, anti-B and anti-A,B for direct typing and standard red blood cells A1 and B for reverse typing (Fresenius Kabi, Brazil).

Measurement of lipid profile parameters

Measurement of serum cholesterol was carried by dependent on enzymatic method where cholesterol esterat lysis to cholesterol and fatty acid by cholesterol esterase [8]. Also measurement of TG in the serum was carried by enzymatic and colorimetric method, the Tri- glyceride in serum lysis enzymatically to Glycerol Phosphate and fatty acid by Lipase [9]. and measurement of (HDL) in the serum by used sedimentation Lipoproteins are found with HDL, its include (LDL, VLDL) by used phosphotungstic acid solution with found found Mg^{+} [10]. While the very low density lipoprotein concentration was calculated by using the following formula [11].

VLDL. Cholesterol (mg/100 ml) = Tri- glycerides/5

The Low Density Lipoprotein Concentration was calculated by using the following formula[12].

low density lipoprotein =Serum cholesterol - (vLDL+HDL)

Result

The study showed that people with blood type B were the most active, followed by O, A, and AB respectively (Figure 1) where the exercise period ranged from (2 - 6) hours per day (fig. 2)

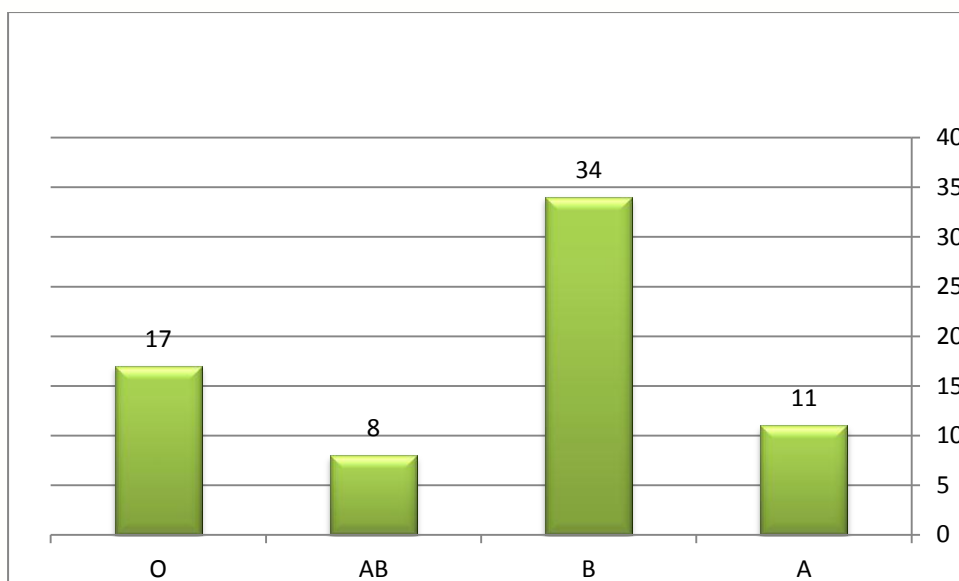


figure (1): Explain the distribution of the study sample by blood groups

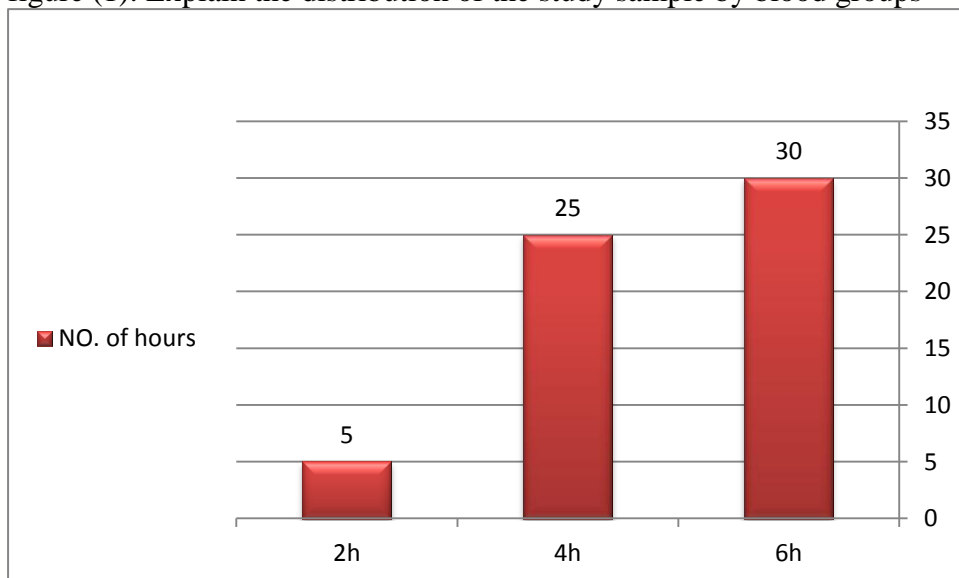


figure (2): Shows the number of hours of exercise per day

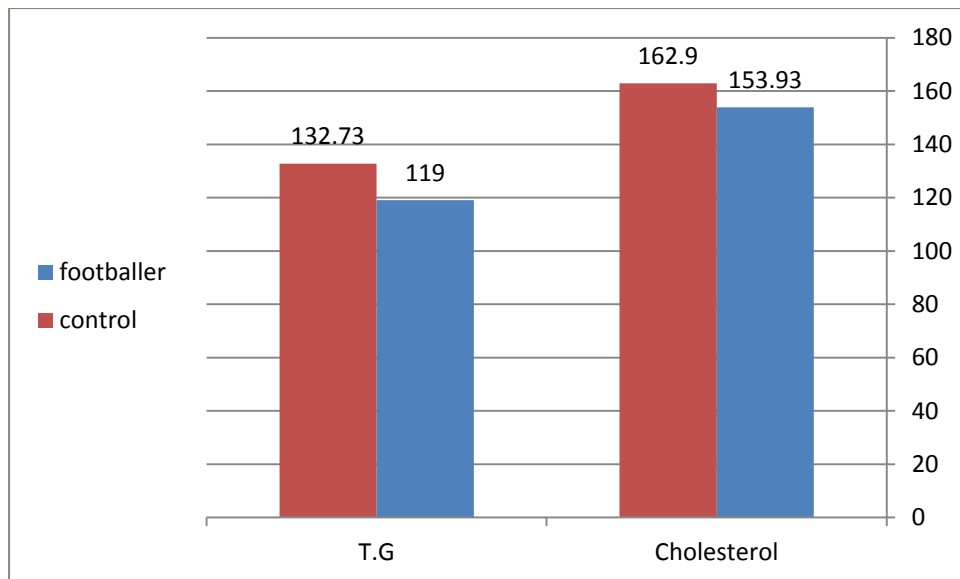


Fig.(3): Explain the relation between cholesterol and triglyceride in footballer and compared with control group

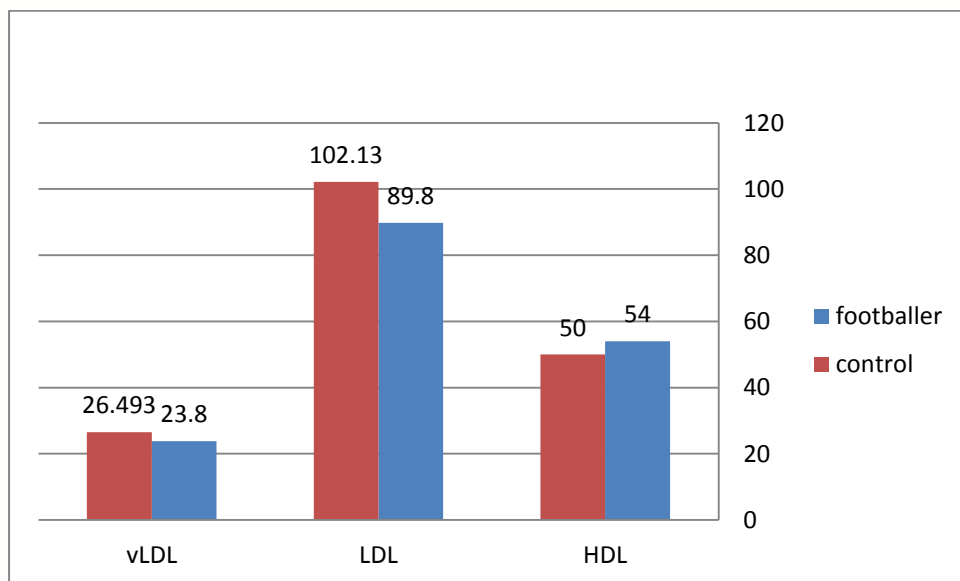


Fig.(4): Explain the relation between HDL, LDL , and vLDL in footballer and compared with control group

Discussion

Antigens of blood types (ABO) are polymorphic , its found on the surface of RBCs (red blood cells) and play role to transfusion medicine and resistance of diseases and cell physiology . ABO may influence the risk of many diseases by different unknown or known mechanism , so the result explain the people have blood type B more active from other blood types (fig. 1)

When analyzing our results, it was found that the level of cholesterol, triglycerides , LDL , and v LDL had a significant decrease in people who played football from (2 - 6) hours a day compared to people who did not practice football (153.93,119,89.8,23.) compared with control group (162.9,132.73,102.13,26.493)

Respectively (Figure 3, 4). these findings are agree with a study by Cardoso and Saurin , which has shown that exercise such as swimming and running have to do with adjusting lipid levels in obese people and thus reducing heart disease. as well as the study of the agent who studied the impact of exercise professional cycling led to change image of lipid also, Evelson, which was his study on rugby players and Verotti on tennis players, which showed that the athletes have a high level of HDL and a decrease in the level of other lipid and this is agree with our study. Therefore, it is necessary to emphasize regular exercise, especially football, in order to help obtain a picture of the ideal lipid and thus help reduce the incidence of many diseases, especially cardiovascular diseases and diabetes.

Conclusion

The study proved that playing football regularly has an effective role in reducing the level of harmful lipids in the blood, therefore it should be encouraged to practice this sport to reduce the risk of diseases resulting from a high level of lipid

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References

- 1-Leon AS, Sanchez OA. Response of blood lipids to exercise training alone or combined with dietary intervention. *Med Sci Sports Exerc.* 2001 Jun;33(6 Suppl):S502-15; discussion S528-9.
2. Monda KL, Ballantyne CM, North KE. Longitudinal impact of physical activity on lipid profiles in middle-aged adults: the Atherosclerosis Risk in Communities Study. *J Lipid Res.* 2009 Aug; 50(8):1685-91.
3. Lippi G, Schena F, Salvagno GL, Montagnana M, Ballestrieri F, Guidi GC. Comparison of the lipid profile and lipoprotein(a) between sedentary and highly trained subjects. *Clin Chem Lab Med.* 2006; 44(3):322-6.
4. Kamarzyk Peter T, Leon Arthur S, Wilmore Jack H, Skinner James S, Rao, D. C, Rankinen Tuomo, Bouchard Claude. Targeting the Metabolic Syndrome with Exercise: Evidence from the HERITAGE Family Study. *Medicine & Science in Sports & Exercise.* 2003 October; 35(10):1703-09.
5. Bailey DM, Davies B, Williams S, Baker J J. Blood lipid and lipoprotein concentrations in active, sedentary, healthy and diseased men. *Cardiovasc Risk.* 1998 Oct-Dec; 5(5-6):309-12.
6. Williams P. Relationship of distance run per week to coronary heart disease risk factors in 8283 male runners: The National Runner's Health Study. *Arch Intern Med* 1997; 157:191-8.
7. Williams PT. Relationship of heart disease risk factors to exercise quantity and intensity. *Arch Intern Med* 1998; 158:237-45
- 8- Avry R , Mossad S , Poggio E. Utility of leflunomide in the treatment of complex cytomegalovirus syndromes. *Transplantation.* 2010; 90 (4) : 419 – 426.
- 9-Allain ,A. Poon,L.S. and Chan, C. ." Enzymatic determination of total serum cholesterol ".*Clin.Cham.*;20- 470. .(1974).

- 10- Fossati ,P. and Prencipe. "Serum TG determination colorimetrically with on enzyme that produces inflammatory reaction" *Amj. pathol.*; 107-397.(1982).
- 11-Kaplan ,L.and Pesce, A. *Clinical chemistry Theory Analysis and Correlation 2nd ed* Mosby Company United State of America. .(1989)
- 12-Friedewald,W.Levy,R.and fredrickson ,D."Estimation of the concentration of low density lipoprotein cholesterol in plasma without use of the preparation Itracentrifuge". *Cline Chem.* 18:499-502. .(1972)
- 13-Cardoso Saldana GC, Hernandez de Leon S, Zamora Gonzalez J, Posadas Romero C. Lipid and lipoprotein levels in athletes in different sports disciplines. *Arch Inst Cardiol Mex.* 1995 May-Jun;65(3):229-35
- 14- .Saurin Sanghavi , Dr.Rachit Joshi, Devanshi Upadhyay(2011P)." A Comparative Study Of Lipid Profile Of Sports Persons And Sedentary Persons".*NJIRM* 2011; Vol. 3(3).
- 15- Evelson P, Gambino G, Travacio M, Jaita G, Verona J, Maroncelli C, Wikinski R, Llesuy S, Brites F. Higher antioxidant defences in plasma and low density lipoproteins from rugby players. : *Eur J Clin Invest.* 2002 Nov; 32(11):818-25