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Assessment of Lipid Profiles among Athletes and Non-Athletes in Kalar City

Mustafa Yunis Rashid[1], Azad Mohammed Aziz Ahmed[2], Jamal Kareem Shakor[2], Seerwan Assy Raheem[1], Faridoon Ismail Qadir[3], Raheleh Shakeri[4]

[1]Biology Department College of Education Garmian University Sulaymaniyah, Iraq
[2]Nursing Department, Darbandikhan Technical Institute, Sulaimani Polytechnic University, Sulaimani, KGR, Iraq
[3]Kalar Psychiatric Center- General Directorate Health of Garmian-MOH-KRG, Iraq
[4]Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran

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Abstract

Regular and professional physical activity has a significant impact on general health, lipid status, and body composition., Lipid profiles and anthropometric measures are considered the main indicators for understanding body composition and cardiovascular risk factors among both athletes and non-athletes. The aim of this study was to assess the body composition and lipid profile of athletes and non-athlete college students at the University of Garmian. This study used a cross-sectional design and was conducted on 45 endurance athletes and 30 sedentary male and female individuals. It took venous blood samples from the antecubital vein. Total blood cholesterol (TC), triglycerides (TG), high-dense lipoprotein cholesterol (HDL), Low-dense lipoprotein cholesterol (LDL), and very low lipoprotein cholesterol (VLDL) were determined by standard methods. It was found a significant difference in lipid profile and body mass index (BMI) between athletic and non-athletic individuals at different ages. A significant reduction in TC, TG, LDL, and VLDL concentrations was observed in athletes as compared to the control group. However, the HDL cholesterol and BMI of athletes were not significantly different when compared to the control group. Among athletes, BMI had a significant correlation with age, TC, and VLDL, but the same correlation was not significant in non-athletes. TG had a significant correlation with VLDL in athletes but not in non-athletes. According to this study, athletes had a better lipid profile than non-athletes, despite the slight difference in BMI, and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Good Health). The significant correlations of body composition (BMI) and age with body lipid profiles in athletes may be useful for assessing body health.

Keywords **Athletes, BMI, Cholesterol, Lipid Profile, Triglyceride.**

Introduction:

Regular physical activity such as volleyball and soccer has a significant impact on professional athlete's general health, lipid status, and body composition. Among athletes and non-athletes, lipid profiles and anthropometric measurements are considered the main indicators for understanding body composition and cardiovascular risk factors. Existing literature indicates that professional athletes' blood lipid profiles are significantly better than those of sedentary individuals (1). Numerous studies have shown that exercise, regardless of its intensity or duration, improves blood lipid levels by increasing HDL-C levels and reducing TC, LDL-C, and TG levels. However, there are a lot of other factors that must also be taken into account, including genetic predisposition, region of origin, exercise routine, and diet (1), (2). Lipoproteins such as TC, TG, LDL, VLDL, and HDL are not regarded as the main source of energy; rather, they must be ingested in adequate quantities from food and metabolized in a controlled manner to maintain blood homeostasis and prevent dyslipidemia. Athletes consume more energy, which could impact on their body composition and blood lipid levels. (3), (4), (5). However, the actual impact of physical exercise has not been measured on anthropometric parameters and lipid profiles. The effect of physical exercise depends on its intensity and quantity in relation to the physiological status of the individuals. Physical exercise over a two-month period could have a positive impact on the BMI and lipid profile of overweight women (6), (7). Gender, diet, smoking habits, ethnicity, health status, and age may influence the effect of physical activity on body composition and lipid profile (8).

There may be a difference in the correlation between body composition and lipid profile in athletes compared to individuals who lead sedentary lives. However, many studies have shown that anthropometric parameters are positively correlated with lipid profiles in the general population (6), (9). Some research suggests that a low BMI in athletes has beneficial effects on lipid profile variables, such as TC, TG, LDL, and VLDL. A study confirmed that the TG levels of overweight and obese students in the moderate exercise group are significantly higher than those of students with a normal BMI (10). Among students who are non-athletes, research indicates a positive correlation between BMI and blood lipid profile, such as TC, TG, LDL, and a negative correlation with HDL (11). The aim of this study is to assess the body composition and lipid profile of athletes and non-athletes who attend the University of Garmian.

Methods and Materials:

Study design

This cross-sectional study was conducted at the University of Garmian from 1st June 2019 to 1st August 2019. The study population included 45 athletic individuals (31 males and 14 females). Also, the study included 30 non-athletic individuals (20 males and 10 females) as a control group. All athletic students were engaging in nearly 10 hours of regular training in the week. It collected random samples were collected randomly from students in the College of Basic Education/Sport Department at the University of Garmian in Kurdistan, and 30 non-athletic students were from other colleges at the same university.

Data collection

The structured questionnaire included data concerned with demographic, anthropometric measurements, and laboratory tests. the Demographic data included gender, age and smoking behavior, anthropometric data encompassed measurements of height and weight, The laboratory analysis focused of the lipid profiles. Students were first asked about demographics, then they were measured for height and weight. Lastly, blood samples were collected from the student.

Body mass index (BMI) measurement

In order to calculate BMI, it is necessary to measure current weight without bulky clothing, using the same technique for all participants, with kilograms for weight and meters for height. The BMI was calculated by using the formula weight/height^2 (kg/m^2) (13).

Collection of blood samples:

Blood samples were collected from the students after a period of fasting (10-12 hours). Since arm veins are often big, near the skin's surface, and are simple to penetrate, arm veins were selected to collect samples from both athletes and non-athlete groups. A sample of 5 mL of blood was taken and put into sterile test tubes. The collected samples were then centrifuged at 4000

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rpm for 10 minutes. The serum was immediately separated using a gel tube, and the resultant serum was kept below the freezing point at -80 °C for chemical analysis. Serum lipid profiles were determined from the serum (12).

Lipid profile analysis

Serum of TC and TG were determined by the enzymatic method using a commercial laboratory kit purchased from BIOLABO (France) (14). The HDLwas estimated by using the Siemens Diagnostic kit (USA) with a fully automated chemical analyzer.

LDL serum was determined by applying Friedewald (11) formula: LDL (mg/dL) = Total cholesterol – HDL cholesterol – TG/5. VLDL-C level was determined by derivation from the following formula: VLDL-C cholesterol (mg/dL) = Triglycerides/5.

Statistical analysis

The data were analyzed through the application of descriptive statistics. The data were presented in the tables as the frequency with percentage for smoking and gender, and as the mean with standard deviation for BMI and lipid profile indicators. The application of inferential statistical procedures, including the *t*-test, and Pearson correlation coefficient, were used to determine the correlation among BMI, age, and lipid profile. The statistical level of significance was computed based on a *P*-value ≤ 0.05. The SPSS (Version 19) software was used to analyze the data.

Ethical concerns

The Biology Department College of Education, University of Garmian has approved this study. The permission letter was obtained from the college of Basic Education/Sport Department at the University of Garmian. The aim of the study was explained to the students and a consent letter was obtained from all participants.

Results:

Among the 75 participants (30 non-athletes, 45 athleties) shown in Table 1, 51 were male and 24 were female. Twenty-five percent of the study samples were smokers. Both The athlete and non-athlete groups had similar demographic characteristics. However, there was a significant difference in mean ages between the groups, and the non-athletes had higher mean ages (22.57±2.4).

Table 2 illustrates the lipid profiles of the groups. A significant difference was seen between the lipid profiles of the athlete and non-athlete groups, except for HDL (P<0.001). The mean of TC (212.20±25.33 mg/dL), TG (106.85±19.47 mg/dL), LDL (145.67±27.26 mg/dL), and VLDL (42.43±5.03 mg/dL) was significantly lower in the athletic group. Additionally, BMI was associated with exercise, gender, and smoking. BMI was significantly higher in the non-athletic group (23.07±3.68), male group (22.79±3.89) and smokers (25.10±4.08).

Table (1)
Demographic association between athletic and non-athletic groups.

Variable	Athletic N (%)	Non-athletic N (%)	Total N (%)	*P* value
Gender				
Male	**31 (60.8)**	**20(39.2)**	**51(100.0)**	**1**
Female	**14(58.3)**	**10(41.7)**	**24(100.0)**	
Total	**45(60.0)**	**30(40.0)**	**75(100.0)**	
Smoking				
Smoker	**9 (60.0)**	**6(40.0)**	**15(100.0)**	

Non-smoker	**36 (60.0)**	**24(40.0)**	**60(100.0)**	**1**
Age range				
19-23 years	**35(64.8)**	**19(35.2)**	**54(100)**	**0.17**
24-26 years	**10(47.6)**	**11(52.4)**	**21(100)**	
Mean age and SD	**21.38±2.4**	**22.57±2.4**	**21.85±2.5**	**0.04**

P values < 0.05 are in bold.

Table (2)
Effect of athletic, gender, and smoking characteristics on the lipid profile.

Variables	TC (mg/dL)	TG (mg/dL)	HDL (mg/dL)	LDL (mg/dL)	VLDL (mg/dL)	BMI
Athletic						
Yes	**180.00±16.76**	**85.92±15.72**	**45.00±8.23**	**117.64±18.57**	**36.38±3.73**	**21.36±3.70**
No	**212.20±25.33**	**106.85±19.47**	**45.00±7.05**	**145.67±27.26**	**42.43±5.03**	**23.07±3.68**
Total	**192.88±25.90**	**94.29±20.05**	**45.00±7.73**	**128.85±26.21**	**38.80±5.20**	**22.04±3.76**
***P* value**	**.000**	**.000**	**1.000**	**.000**	**.000**	**.054**
Gender						
Male	**190.56±24.88**	**95.16±20.92**	**44.16±8.32**	**130.45±27.30**	**38.78±5.14**	**22.79±3.89**
Female	**197.80±27.83**	**92.45±18.35**	**46.79±6.06**	**125.46±23.93**	**38.83±5.44**	**20.47±2.96**
***P* value**	**.261**	**.589**	**.170**	**.445**	**.970**	**0.012**
Smoking						
Yes	**187.62±29.66**	**97.07±23.53**	**47.87±9.34**	**127.40±30.41**	**37.33±5.59**	**25.10±4.08**
No	**194.19±24.97**	**93.60±19.24**	**44.28±7.19**	**129.22±25.33**	**39.17±5.09**	**21.28±3.29**
***P* value**	**.383**	**.552**	**.109**	**.812**	**.225**	**.000**

P values < 0.05 are in bold.

There was a significant positive correlation between age and BMI in the athletic group (R=0.426, P‹0.001) (Table 3). BMI also had a significant negative correlation with TC (R= - 0.501, P<0.001) and VLDL (R= - 0.324, P‹0.05) as shown in Table 3. In addition, there was a significant positive correlation of VLDL with TC (R= 0.561, P‹0.001), TG (R= 0.370, P‹0.05) and LDL (R= 0.794, P‹0.001). In the non-athletic group, there was a significant positive correlation between age and TG (R=0.477, P‹0.001) as shown in Table 4. In addition, VLDL had a significant correlation with TC (R= 0.483, P‹0.001) and LDL (R= 0.485, P‹0.001).

Table (3)
The Pearson correlation coefficient of age and BMI with lipid profile in the athletic group.

Pearson correlation	BMI	TC (mg/dL)	TG (mg/dL)	HDL (mg/dL)	LDL (mg/dL)	VLDL (mg/dL)
Age (years)	**0.426****	**-0.197**	**-0.067**	**-0.123**	**-0.180**	**-0.270**
BMI		**-0.501****	**0.043**	**-.0186**	**-0.246**	**-0.324***
TC mg/dL			**0.033**	**0.228**	**0.560****	**0.561****
TG mg/dL				**-0.073**	**0.215**	**0.370***
HDL mg/dL					**-0.194**	**0.215**
LDL mg/dL						**0.794****

*: significant correlation
**: high significant correlation

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Table (4)
The Pearson correlation coefficient of age and BMI with lipid profile in the non-athletic group.

Pearson correlation	BMI	TC mg/dL	TG mg/dL	HDL mg/dL	LDL mg/dL	VLDL mg/dL
Age (years)	0.353	0.032	0.477**	0.006	-0.036	0.030
BMI		-0.036	0.295	-0.006	-0.167	0.050
TC mg/dL			-0.077	0.228	0.478**	0.483**
TG mg/dL				-0.050	-0.180	-0.146
HDL mg/dL					-0.032	0.159
LDL mg/dL						0.485**

**: High significant correlation

Discussion:

This study aimed to assess the body composition, such as BMI and lipid profile, in athletic and non-athletic students. Athletes have higher energy expenditure, which may have an effect on decreasing blood lipid concentration and body composition (3) (4) (5). This study recruited 75 college students (45 athletes and 30 non-athletes), from the University of Garmian. Gender, age and smoking behavior may also physiologically affect the lipid profiles.. However, the demographic characteristics of both groups were similar; 51 participants were male and 15 of them were smokers. In a study of 22-year-old students in Slovakia, females had significantly higher TC and HDL-C than males, but males had significantly higher BMI (11). The anthropometrics of different races vary, and these differences may be attributed to genetic factors (15).

Long-term physical activity and exercise are believed to have a positive impact on lipid metabolism and to decrease the risk of cardiovascular disease caused by dyslipidemia (3). However, the effect of training on lipid profiles by considering anthropometric measures, food, gender, smoking, and age differences has not been concluded. Among patients with coronary artery disease who have a high body mass index, low caloric food intake, and physical exercise contributed to a good lipid profile and a good body composition (3). The positive effect of long-term exercise on lipid profiles has been demonstrated in several studies (4)، (5)، (10). Intensity and amount of exercise are key factors in determining the extent of its effects. For example, eight weeks of physical exercise in obese women did not significantly alter their lipid profile and BMI but did significantly affect their fat mass rate (7).In this study,there was a significant increase in BMI among the non-athletic, male and smoker groups. Female non-athletes aged 21 years had a lower body mass index than female athletes (5).

This study showed that athletes' lipid profiles differ significantly from those of non-athletes except for HDL. The means of TC, TG, LDL, and VLDL were significantly lower in the athletic group. The effect of training on lipid profiles has been proven in many studies (2)، (16). However, one study found no significant differences in lipid profiles and anthropometric parameters, except for BMI, between athletes and non-athletes (17). Training may not have any effect on lipid profiles for athletes. It has been reported that four months of training for the athlete's group did not result in any changes in BMI and lipid profile with the exception of fat reduction (18). According to another study, five weeks of training resulted in no change in BMI, but fat mass significantly decreased for both genders (19). Meanwhile, eight weeks of physical exercise for 30 women did not change their lipid profile, but their BMI decreased significantly (20). In the current study, BMI was significantly higher in the non-athletic group. There has been a study that indicates that the lipid profiles of athletes and non-athletes will not differ if their body fat rate is the same (12). Among athletes, detraining also significantly causes dyslipidemia and changes in body composition, all lipid profiles such as TC, LDL, VLDL, and HDL were adversely changed, muscle mass and fat mass rates were changed but BMI remained stable. (4).

As shown in the present study, age had a significantly strong positive correlation with BMI (R=0.426, P‹0.001) in the athletic group, whereas age had a significantly strong positive correlation with TG in the non-athletic group (R=0.477, P‹0.001). According to a study conducted in Ghana, BMI was positively correlated with TG, TC, and age in a group that exercised moderately to vigorously (10). Another study found that the BMI of athletes increased significantly over a ten-year period, with significant differences between ethnic groups. For example, white people had an increase in BMI over this period (15). There is an increase in lipid profiles and BMI with advancing age in the general population (21).

In this study, BMI also had a significantly strong negative correlation with TC (R= - 0.501, P‹0.001) and VLDL (R= - 0.324, P‹0.05), but was not significant for non-athletes. While in another study the significant correlation of BMI with most of the lipid profiles in athletes has been confirmed (22). The correlation of BMI with TG, LDL, and HDL among athletes in the current study, however, was not found to be significant. The present study found no significant relationship between lipid profile and BMI among non-athletes. This finding was inconsistent with other studies. A study in Iran conducted in the age group of 2–18 years showed that there was a significant positive correlation between BMI and (TC), (LDL-c), (non-HDL-c), and (TG), and a negative correlation with HDL-c (23). It was also reported that TG levels are significantly higher in overweight and obese students compared to students with a normal BMI and moderate exercise (10).

VLDL had a positive correlation with TC (R= 0.561, P‹0.001), TG (R= 0.370, P‹0.05), and LDL (R= 0.794, P‹0.001) in athletes. In non-athletes, VLDL had a similar positive correlation with TC (R= 0.483, P‹0.001) and LDL (R= 0.485, P‹0.001), except for TG. In the Ghana study, within the non-athletic group, TC had a positive correlation with LDL and a negative correlation with HDL and TG (10). This study could not find a significant correlation between anthropometric parameters, such as BMI and lipid profile, among non-athletes. A study among a non-athlete student group in Slovakia has confirmed that anthropometric measures, such as BMI have a positive and significant correlation with non-HDL-C, TG, VLDL-C, LDL, and TC, and a negative and significant correlation with HDL (11). The rate of lipid profile and the correlation among them would vary by ethnicity, gender, age, and the rate of physical activity (15). A high BMI in non-athletes may be related to lean mass; however, they did not engage in a course of exercise, and since our sample is still young, they have not accumulated fat mass. Another explanation for the lack of a relationship between BMI and the lipid profile is that fat mass increased during the running period, while the blood lipid profile remained normal.

Limitations that emerged in this study: The study did not measure all anthropometric variables. Measuring the fat mass rate was essential for further understanding the body composition and the relationship between body composition and its relationship with physical exercise and the blood lipid profile. This study recruited college students with a limited age range was smaller, so the effect of age on body composition and lipid profile could not be properly measured.

Conclusions:

The results of this study demonstrated that exercise has a significant relationship with lipid profiles and body composition. Athletes had significantly a lower levels of TC, TG, LDL, and VLDL, and significantly higher levels of HDL. In addition, athletes had a lower BMI; smokers and males had a higher BMI than nonsmokers and females, respectively. In athletes, BMI had a significant correlation with age, TC, and VLDL, while among non-athletes, BMI did not have a significant correlation with lipid profiles.

Author's declaration

- Conflicts of interest: The authors declare that they have no conflicts of interest.
- Ethical clearance: Our work has been approved by the scientific and ethical committee at The University of Garmian.
- In this manuscript, all tables have been authored by us.
- The authors have signed a welfare statement at the biology department at The University of Garmian.
- The authors signed the approval for ethical considerations.

Author's contribution statement:

All authors of this study participated equally in all stages of the writing process; they also reviewed and approved the submission of this work.

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References:

1- Mann S, Beedie C, Jimenez A. (2014). Differential effects of aerobic exercise, resistance training and combined exercise modalities on cholesterol and the lipid profile: review, synthesis and recommendations. Sport Med.;44(2):211–21 .

2- Das P, Chatterjee P. (2015). Assessment of lipid profiles of adult male athletes from two different air pollutant zones of West Bengal, India. Curr Sci.;108(8):1512–6 .

3- Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. (2019). Effects of 1 year of exercise training versus combined exercise training and weight loss on body composition, low-grade inflammation and lipids in overweight patients with coronary artery disease. A randomized trial. Cardiovasc Diabetol [Internet];18(1):1–13. Available from: https://doi.org/10.1186/s12933-019-0934-x

4- Sung YC, Liao YH, Chen CY, Chen YL, Chou CC. (2017). Acute changes in blood lipid profiles and metabolic risk factors in collegiate elite taekwondo athletes after short-term de-training. A prospective insight for athletic health management. Lipids Health Dis;16(1):1–10 .

5- Singhal V, Maffazioli GD, Ackerman KE, Lee H, Elia EF, Woolley R, et al. (2016). Effect of chronic athletic activity on brown fat in young women. PLOS ONE;11(5):1–12 .

6- Tavares AS, A B-F, A V, C S, M C. (2019). Lipid profile and associated factors among an academic community of higher education.pdf. p. Suppl, S1356-8 .

7- Txomin P, Garc D, Martos-berm Á, Nieto S, Campo T, Margarita P, et al. (2021). Effects of an Eight-Week Concurrent Training Program with Different Effort Character over Physical Fitness, Health-Related Quality of Life, and Lipid Profile among Hospital Workers, Preliminary Results;1–13 .

8- Lynch H, Lynch H. (2022). Lipid Profiles of College Female Student-Athletes Participating at Different Competition Levels of Organized Sport. 4(March):1–7 .

9- Abdullah TH, Baqi HR, Karim SH, Ghafor DA. (2020). Association of Lipid Profile with Body Mass Index in Public Employees in Halabja City, Kurdistan. 10(2):71–80 .
10- Ofori EK, Angmorterh SK. (2019). Relationship between physical activity, body mass index (BMI) and lipid profile of students in Ghana. Pan Afr Med J. 33:1–8 .
11- Hertelyova Z, Salaj R, Chmelarova A, Dombrovsky P, Dvorakova MC, Kruzliak P. (2016). The association between lipid parameters and obesity in university students. J Endocrinol Invest. 39(7):769–78 .
12- Petridou A, Lazaridou D, Mougios V. (2005). Lipid emic profile of athletes and non-athletes with similar body fat. Int J Sport Nutr Exerc Metab. 15(4):425–32 .
13- Consultation WHOE. (2008). Waist Circumference and Waist-Hip Ratio Report of a WHO Expert Consultation. (December) P:8–11 .
14- Friedewald WT, Levy RI, Fredrickson DS. (1972). Estimation of the Concentration of Low-Density Lipoprotein Cholesterol in Plasma, Without Use of the Preparative Ultracentrifuge. 18(6):499–502 .
15- Durandt J, Green M, Masimla H, Lambert M. (2018). Changes in body mass, stature and BMI in South African elite U18 Rugby players from different racial groups from 2002–2012. J Sports Sci [Internet]. 36(5):477–84. Available from: http://dx.doi.org/10.1080/02640414.2017.1317103
16- Lippi G, Schena F, Salvagno GL, Montagnana M, Ballestrieri F, Guidi GC. (2006). Comparison of the lipid profile and lipoprotein(a) between sedentary and highly trained subjects. Clin Chem Lab Med. 44(3):322–6 .
17- Enje PMIU. (2012). medicinska revija medical review Original articles PRENATAL MEMORY AND LEARNING. 4(3):259–66 .
18- Grzebisz-Zatońska N, Grzywacz T, Waśkiewicz Z. (2021). The influence of endurance training on the lipid profile, body mass composition and cardiovascular efficiency in middle-aged cross-country skiers. Int J Environ Res Public Health. 18(20).
19- Cichy I, Dudkowski A, Kociuba M, Ignasiak Z, Sebastjan A, Kochan K, et al. (2020). Sex differences in body composition changes after preseason training in elite handball players. Int J Environ Res Public Health. 17(11):1–8 .
20- Yildirim I, Aydin Altinbas M, Demirezen NB, Dener S, Sezgin V. (2020). The effect of different exercise types on sedentary young women's lipid profile. J Back Musculoskeletal Rehabilitation. 33(3). P:469
21- Ei U, Nc O, An N, Ia O. (2020). Overweight and Obesity, Lipid Profile and Atherogenic Indices among Civil Servants in. 3(1). P:1–6 .
22- Garry JP, Mcshane JJ. (2001). Analysis of Lipoproteins and Body Mass Index in Professional Football Players. P:8
23- Hebib A, Molayemat M, Habib A. Association of lipid profile and BMI Z-score in southern Iranian children and adolescents. J Pediatr Endocrinol Metab. 2019;32(8):827–35 .

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تقييم فحص الدهون بين الرياضيين وغير الرياضيين في مدينة كلار/ كردستان العراق

مصطفى يونس رشيد[1] ازاد محمد عزيز[2] جمال كريم شكور[2] سيروان عاصي رحيم[1] فريدون اسماعيل قادر[3] رهيله شاكري[4]

1 قسم علوم الحياة، كلية التربية، جامعة كرميان, السليمانية العراق
2 قسم التمريض، معهد دربنديخان التقني، جامعة السليمانية التقنية، السليمانية العراق
3 مركز الطب النفسي، مديرية الصحة العامة في كرميان, كردستان العراق
4 قسم العلوم الحيوية، كلية العلوم، جامعة كوردستان، سنه، إيران

مستخلص البحث

النشاط البدني المنتظم لدى الرياضيين المحترفين يؤثر بشكل كبير على الصحة العامة وحالة الدهون ومكونات الجسم. يعتبر قياس الدهون والقياسات الانثروبومترية بين الرياضيين وغير الرياضيين من المؤشرات الرئيسية لفهم تكوين الجسم وعوامل الخطر للأمراض القلبية الوعائية. الهدف من هذه الدراسة هو تقييم تكوين الجسم وفحص الدهون لدى الطلاب الجامعيين الرياضيين وغير الرياضيين في جامعة كرميان.ا لطرائق: هذه الدراسة هي دراسة مقطعية وقد تضمنت مشاركة 45 رياضي و 30 من غير الرياضيين ومن كلا الجنسين. تم أخذ عينات الدم من الوريد الأمامي. تم تحديد نسبة الكوليسترول في الدم، والدهون الثلاثية، وكوليسترول البروتين الدهني عالي الكثافة، وكوليسترول البروتين الدهني منخفض الكثافة، ونسبة كوليسترول البروتين الشحمي منخفض الكثافة بالطرق القياسية. النتائج: أظهرت النتائج انخفاضًا كبيرًا في تراكيز ال TCو TG و LDL و VLDL لدى الرياضيين مقارنةً بمجموعة الكونترول، بينما لم يكن هناك اختلاف كبير في نسبة HDL ومؤشر كتلة الجسم عند الرياضيين عند مقارنتها بمجموعة الكونترول بين الرياضيين، كان لمؤشر كتلة الجسم ارتباط كبير مع TC وVLDL، لكن الارتباط نفسه لم يكن مهمًا لدى الاشخاص غير الرياضيين. الخلاصة: تقترح هذه الدراسة أن الرياضيين وغير الرياضيين لديهم اختلاف طفيف في مؤشر كتلة الجسم، وهذا ما يحقق احد اهداف التنمية المستدامة للامم المتحدة في العراق (الصحة الجيدة). كما أن فحص الدهون لدى الرياضيين أفضل من غير الرياضيين.

الكلمات المفتاحية | **الرياضيون، مؤشر كتلة الجسم، الكولسترول، الدهون، الدهون الثلاثية.**