Research on the Effects of Some Health Parameters of Regular Football Training

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Abstract With this study, it is aimed to investigate whether there is an effect on having regular football training, body weight, height and BMI values as well as cholesterol, HDL, LDL, Iron, Calcium, Sodium, Mean Cell Volume (MCV), Hemoglobin (HGB), Mean Hemoglobin Volume (MCV) Mean Cell Hemoglobin Concentration (MCHC), Platelet (PLT), Leukocyte-white blood cell (WBC) and Hematocrit (HCT). A total of 20 volunteer men, aged 25.31 ± 5.28 years, 10 of them playing football and ten Sedentary subjects, were included in the study. The average age of sports players playing football is 7.11 ± 72 years. Participants were taken to a health institution in the morning on an empty stomach and blood samples were taken. In addition, the subjects' height, body weight, and BMI were calculated. In the analysis of the obtained data, t test was used in SPSS 21 package program. At the end of the study, it was seen that there was a difference between body composition and body weight at p < 0.05 and body length and BMI at p < 0.01 level. In blood parameters, sodium and HTC values were found to be different in p < 0.05 and p < 0.01 levels in both groups. Other blood parameters were found to be significantly different between the groups (p < 0.05).

Keywords Football, Sedanter, Blood Parameters

1. Introduction

Football is a high-end sporting discipline in which both aerobic and anaerobic effort are used interchangeably with motor performance, such as strength, speed, flexibility, agility, cardiovascular and muscular endurance and coordination abilities[1]. In sports branches, body composition is regulated while increasing strength, strength, speed and flexibility with regular and load-bearing training based on scientific basis. While an optimal speed cannot be created with a muscular system lacking strength, the importance of durability in sports disciplines cannot be denied [2].

Regular training also affects lipid metabolism and causes changes in plasma lipid and lipoprotein levels. However, it is also stated that these positive effects of regular training are at different levels according to the type of gymnastics and sportsmen [3]. It has been widely suggested that regular exercise is effective in protecting against coronary risk factors with positive effects on lipid profiles [4,5]. In relation to the type and duration of exercise, however, researchers have reported conflicting results about the fact that in recent years they have led to beneficial changes in lipid metabolism [6,7].

In this study, it is aimed to compare some selected blood parameters with football players and Sedentary subjects with height, body weight, BMI.

2. Method

A total of 20 people was included in the study, including ten Sedentary with a mean age of 21.67 ± 3.90 years and 10 footballer whose mean age of 28.60 ± 4.11 years. It has been determined how many years football has been played by football players. It was seen that the average age of these sports was 7.11 ± 72 years. The group playing football as an amateur is doing training on weekends for 1.5-2 hours a day. The height and body weight values of all subjects were determined. Later, blood samples were taken from the subjects to a pre-arranged health facility. It was asked that subjects should be hungry. Blood samples were taken approximately one month after the end of the competition. After examining on the blood samples, the obtained data was transferred to the digital environment. In the analysis of these data, t test was used in SPSS 21 package program.

3. Results

When Table 1 was examined, it was determined that the average body weight of football players was 72.67 ± 10.48 kg and that of sedentary subjects were 81.90 ± 7.59 kg. It
was also seen that the average height length was 80.11 ± 5.62 cm for football players and 173.10 ± 4.25 cm for sedentary subjects. The mean values of the participants' BMI were 22.30 ± 2.22 kg / m² in football players and 27.32 ± 2.10 kg / m² in sedentary subjects. The mean value of cholesterol in football players is 152.67 ± 23.168 mg / dl whereas the mean in sedentary subjects is 173.10 ± 32.52 mg / dl. The average of HDL players playing football is 40.44 ± 9.50 mg / dl whereas it is 36.00 ± 10.73 mg / dl in sedentary subjects. The mean value of LDL in football players and sedentary subjects are 82.67 ± 14.44 mg / dl and 99.14 ± 36.54 mg / dl, respectively. The mean levels of serum iron levels in participants were 89.78 ± 21.49 mg / dl in football players and 99.14 ± 36.54 mg / dl in sedentary subjects. The average value of serum sodium values is 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects. Again, when the averages of the HGB groups were examined, it was seen that this value was 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects. Again, when the averages of the HGB groups were examined, it was seen that this value was 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects. Again, when the averages of the HGB groups were examined, it was seen that this value was 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects. Again, when the averages of the HGB groups were examined, it was seen that this value was 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects. Again, when the averages of the HGB groups were examined, it was seen that this value was 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects. Again, when the averages of the HGB groups were examined, it was seen that this value was 87.77 ± 1.62 mmol / l in football players and 85.86 ± 7.72 mmol / l in sedentary subjects.

### Table 1. Mean Values and Significance Levels of Some Variables in Football Sessions and Sedentary subjects

| Variables       | Groups         | N  | Mean  | Standard Deviation | t     | P     |
|-----------------|----------------|----|-------|--------------------|-------|-------|
| Weight (kg)     | Footballer     | 10 | 72.67 | 10.48              | 2.217 | .041  |
|                 | Sedentary      | 10 | 81.90 | 7.59               |       |       |
| Height (cm)     | Footballer     | 10 | 180.11| 5.62               | -3.085| .007  |
|                 | Sedentary      | 10 | 173.10| 4.25               |       |       |
| BMI (kg/m²)     | Footballer     | 10 | 22.30 | 2.22               | 5.053 | .000  |
|                 | Sedentary      | 10 | 27.32 | 2.10               |       |       |
| Cholesterol (mg/dl)| Footballer  | 10 | 173.10| 32.52              | 1.560 | .137  |
|                 | Sedentary      | 10 | 173.10| 32.52              | 1.560 | .137  |
| HDL (mg/dl)     | Footballer     | 10 | 36.00 | 10.73              | -.951 | .355  |
|                 | Sedentary      | 10 | 36.00 | 10.73              |       |       |
| LDL (mg/dl)     | Footballer     | 10 | 82.67 | 14.44              | 1.264 | .223  |
|                 | Sedentary      | 10 | 99.14 | 36.54              |       |       |
| Iron(mg/dl)     | Footballer     | 10 | 89.78 | 21.49              | 1.508 | .150  |
|                 | Sedentary      | 10 | 102.70| 15.69              |       |       |
| Calcium(mg/dl)  | Footballer     | 10 | 9.76  | .44                | -1.955| .067  |
|                 | Sedentary      | 10 | 9.35  | .46                |       |       |
| Sodium(mmol/l)  | Footballer     | 10 | 140.67| 1.22               | -2.542| .021  |
|                 | Sedentary      | 10 | 138.90| 1.73               |       |       |
| MCV (µm³)       | Footballer     | 10 | 87.77 | 1.62               | -.726 | .478  |
|                 | Sedentary      | 10 | 85.86 | 7.72               |       |       |
| HGB (g/dl)      | Footballer     | 10 | 15.35 | .43                | 1.734 | .101  |
|                 | Sedentary      | 10 | 16.01 | 1.06               |       |       |
| MCH (pg.)       | Footballer     | 10 | 29.25 | 1.93               | -1.067| .301  |
|                 | Sedentary      | 10 | 28.12 | 2.62               |       |       |
| MCHC (g/dl)     | Footballer     | 10 | 33.44 | 2.27               | -.654 | .522  |
|                 | Sedentary      | 10 | 32.85 | 1.64               |       |       |
| PLT (mm³)       | Footballer     | 10 | 163.00| 24.90              | 3.705 | .002  |
|                 | Sedentary      | 10 | 222.15| 41.59              |       |       |
| WBC (mm³)       | Footballer     | 10 | 4.98  | 1.25               | .792  | .439  |
|                 | Sedentary      | 10 | 5.66  | 2.28               |       |       |
| HCT (%)         | Footballer     | 10 | 45.95 | 2.39               | 2.441 | .026  |
|                 | Sedentary      | 10 | 49.03 | 3.02               |       |       |
4. Conclusion and Discussion

When the subjects participating in the study, body weight average, football players and sedentary subjects were examined, it was seen that the players who played football had a body weight of 72.67 ± 10.48 kg and the sedentary subjects had body weight of 81.90 ± 7.59 kg. The difference between these mean values was statistically significant (p < 0.05). In his study, Okan[8] found that a significant reduction in athletes' body weights occurred after the training program. Temur et al.[9] reported significant reductions in body weights after exercise program in women's work.

When the average height lengths of the football players and the sedentary subjects were examined, it was determined that the average height lengths of footballers were 180.11 ± 5.62 cm and those values in sedentary subjects were 173.10 ± 4.25 cm. When there was a statistically significant difference between these values, it was seen that there was a difference at the level of p < 0.01. Danaci[10] reported that there was no significant difference between the averages of sportsmen and sedentary subjects. The result of the study can be explained by the favorable effect of genetic factors on length, nutrition, exercise on bone and skeletal system, as well as the preference of taller in football player selection.

When the averages of BMI values in the groups were examined, it was determined that football players had an average of 22.30 ± 2.22 kg / m² and sedentary subjects had an average of 27.32 ± 2.10 kg / m². When these two mean values were statistically compared, a significant difference was found at p < 0.01 level. Yahin et al.[11] and Wong et al.[12] reported that while the BMI values did not change, the studies conducted by Büyükyazı et al.[13] reported that they were diminishing their work.

When the average cholesterol values of both groups were examined, it was found that football players had an average of 231.68 mg / dl and sedentary subjects had an average of 273.52 mg / dl. It was found that the difference between these mean values was not statistically significant (p < 0.05). Exercise has been reported to affect lipid metabolism positively. It has been reported to cause a decrease in total cholesterol and serum triglycerides[14]. The findings of the study are consistent with the literature. Although the findings are less statistically significant, it is thought that the average age of the control group may be effective. In addition, a reduction in body weight and fat ratio resulting from exercise may be effective in reducing serum cholesterol.

The average HDL values of football players were 40.44 ± 9.50 mg / dl, while those of sedentary subjects were 36.00 ± 10.73 mg / dl. There was no statistical difference between these mean values. The median value of LDL in football players is 82.67 ± 14.44 mg / dl, and in sedentary subjects is 99.14 ± 36.54 mg / dl. It was found that these values were not statistically significant (p < 0.05). Büyükyazı[13] and Lakka et al.[14] reported that changes in the HDL values of exercise were associated with an increase in HDL values after exercise, while Enger et al.[7] and Tran et al.[15] they did not cause it. Nicklas et al.[16] reported that the effect of exercise on HDL was related to weight, body fat distribution, duration and severity of exercise, and weight loss with exercise. Gaesser and Rich,[17] reported that low and high intensity exercises did not significantly affect HDL values in young men with low blood lipid levels. It is thought that the average age of both study groups may be effective for such a result.

When the serum iron levels of the subjects were examined according to the groups, it was determined that the average value of football players was 89.78 ± 21.49 mg / dl, and that of sedentary subjects was 102.70 ± 15.69 mg / dl. The difference between these mean values was not statistically significant (p < 0.05). Clement and Asmundson[18] found that 82% of female athletes had ferritin levels below 25 mg / L. In another study, 40% of the runners and 47% of the swimmers were found to have iron deficiency, which was 27% in the control group[19]. The literature supports the findings of the study. The reason for this lack of iron may be due to inadequate feeding despite the effort.

Mean values of serum calcium were found to be 9.76 ±, 44 mg / dl in the football-playing group and 9.35 ± 46 mg / dl in the sedentary subjects. It was found that these values were not significantly different (p < 0.05). Calcium may become infiltrated into the tissue to produce muscle contractions during exercise, and blood levels may decrease during exercise[20]. Mashiko, et al.[21] reported that pre-and post-camp calcium levels were 9.2 ± 0.2 mg / dl and 90 ± 0.4 mg / dl, respectively. The findings of the study are similar to the literature.

Another finding is that Football players have average sodium values of 140.67 ± 1.22 mmol / l and sodium average of sedentary subjects of 138.90 ± 1.73 mmol / l. It was observed that the difference between these two values was not statistically significant (p < 0.05). Mashiko, et al.[21] reported that pre and post-camp sodium values on rugby players did not differ significantly in striker players, but in defensive players. Under normal conditions, a daily average of 500 ml of body fluid, 400 ml of lungs, 1500 ml of urine and 200 ml of fluid is lost through the human body[22]. During the intense exercise in hot environments, the primary pathway of heat loss is the evaporation of the sweat layer, which accumulates on the skin[23]. Exercise performance and health of the individual can be adversely affected[24]. Mean MCV values were 87.77 ± 1.62 μm³ in football players and 85.86 ± 7.72 μm³ in non-sportsmen. This was not statistically significant (p < 0.05), although the average was higher in football players. Two different studies on women[25] and men[26] previously encountered different results. When these results affect the blood values of the exercise, the duration of the exercise, the severity and how long the blood samples are taken after exercise are important.

When the serum is at hemoglobin level, it is 15.35 ± 43 g / dl in football players and 16.01 ± 1.06 g / dl in sedentary subjects. There was no statistically significant difference (p < 0.05) between them. In their study, Berne and Matthew
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