Comparison of Physical Fitness of Turkish and Iraqi Sedentary Boys

Harun GENÇ[1], Karaem Ali GHAZWAN [2], Gökmen KILINÇARSLAN[3]

[1*3]Bingöl Üniversitesi Beden Eğitimi ve Spor Yüksekokulu, Bingöl, TÜRKİYE
[2]17Fibrayir Libya Okulu/ Ankara, TÜRKİYE
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Address correspondence to Harun GENÇ, e-mail:hgenc@bingol.edu.tr

Abstract

In this study, it is aimed to compare the anthropometric and physical fitness values of Turkish and Iraqi sedentary boys who were educated in 2017-2018 education year. A total of 68 boys, aged 13,60 + 0,60 with 35 Turkish and 13,81 + 0,84 with 33 Iraqi, who had no health problems and no disadvantages in entering the physical education course, participated voluntarily. Anthropometric measurements (age, height, weight, body mass index) of the boys participating in the study were taken. Eurofit Test Battery tests (flamingo balance test, sit-in flexibility test, standing long jump test, paw force test, shuttle test, twisted arm hanging test, disk touch test, 10 × 5 meter agility running test, and vo2 max shuttle running test). The arithmetic mean and standard deviation of all measurements are calculated. Statistical analyzes of the measurements were made in the SPSS 22 program. Regular measurement of physical fitness values, including the physical and anthropometric characteristics of secondary school children, can be used to monitor the physical fitness levels and to set national norms by arranging criteria related to the physical characteristics of students. In addition to this, it can also contribute to the healthy growth of children, to the efficient human power and to the selection of qualified athletes.

Key words: Anthropometry, Physical Fitness, Sedanter.

INTRODUCTION

Physical fitness refers to the physical condition of the body in relation to the proper functioning of movements and physical endurance. Physical fitness depends on person's strength, endurance, coordination, quickness, and co-operation of these features (1).

Physical fitness associated with health is measured by body composition, flexibility, muscular endurance, cardiovascular endurance, and muscular strength tests. In addition to the physical fitness, the parameters associated with health, performance-related physical fitness is measured with agility, speed, muscle strength, coordination and balance tests (2). These tests are used to assess the effects of regular physical activity on physical development and health in children and adolescents (3).

Children's physical and motor fitness skills should be of great importance not only for sports educators and health workers but also for everyone. It is seen that the children of today are more immobile and overweight and have more subcutaneous fat tissues. Considering these, the main causes are the apartment lifestyle, the lack of playground, ease of transport, ensuring children to play at home by parents for more comfortable control, spending of majority of their time out of school with Atari and computer games. It should be noted that the basis of the habits required for active life is shaped during childhood, as in other habits (4).

Assessment of the level of personal physical fitness in children and adolescents allows healthy life began at an early age, so a person's lifelong habit of exercise along with physical activity and physical fitness is gaining importance (5).

The aim of this study was to determine and compare the physical fitness levels of 35 Turkish male sedentary students (13,60±0,60 years) and 33 Iraqi male sedentary students (13,81±0,84 years).

MATERIALS & METHOD

35 Turkish and 33 Iraqi male students were selected on voluntary basis from students who had no health and other problems to attend physical education course.

Data collection tools

1. Anthropometric Measurements

Height: The height measurements of the subjects were measured by standard wall scale. Height measurements were carried out without shoes, and feet adjacent, knees stretched, while head, back, and heels were leaning against the wall and standing upright. While in this position, the height was measured with the help of a small ruler with a 90° angle to the wall. Measurements were made with 0.1 cm accuracy.

Weight: The body weight of the subjects was measured using AR550 Sottile brand medium-precision digital glass bathroom scale.
Body weight measurement was made with minimal dress and without shoes.
Body Mass Index: The weight is divided by the square of the height to obtain Body Mass Index (6).

2. Eurofit Test Battery

Flamingo balance test: In this test, which aims to measure general body balance, 50 cm long, 4 cm high, 3 cm wide, with a non-slip metal beam (thickness of up to 5 mm) was used. To protect the height of the beam from the ground, 15 cm long and 2 cm wide legs were placed on both ends. The participant placed his anyone foot on the beam for one minute to stay in balance. He bent his other leg back and held his foot in the same direction. The participant tried to maintain balance in this position, when he lost his balance (when he left his leg) or when his body touched anywhere, the test and time stopped. After each fall, the participant tried to stay in balance during one minute. Any attempt to maintain the balance on the beam within one minute (except fall) was recorded as point (7).

Plate Tapping Test: On two plastic discs on the cardboard surface, and a flat surface with a rectangular plate in the middle of these two discs, the participant held one hand fixed on the rectangular plate and touched each disc 25 times with the other hand. The test was repeated twice. Best result was recorded in second (6).

Sit and Reach Test: The participant in the sitting position with both hands yawning forward and remained at the far end for 1-2 seconds. The test was repeated twice and the best grade was recorded as a result of the test (6).

Standing Long Jump Test: It is the test where they jumps forward with double foot from the starting point. For best results, the test was applied twice. The longest distance for jumping was recorded as a test result (6).

Hand Gripping Test: In this test used for measuring the force of muscle, Takei Physical Fitness Test Grip-D (Grip Strength Dynamometer, Japan) dynamometer was used. The force of both hands was measured. Best results recorded in kilograms (kg) (6).

Sit-Up Test: Abdominal muscle strength was assessed in this test, the highest number of sit-up counts was recorded in 30 seconds for each participant (6).

10x5 Shuttle Run Test: Running speed, coordination and agility characteristics were evaluated in this test, which shows running and turning at maximum speed. The running area was

determined by creating a rectangle of 1.2 x 5 meters. The total time was recorded in seconds (6).

Data Analysis

SPSS 22 software was used in statistical analysis of the data. The mean of the measured and tested values and the standard deviations (SD) were calculated. Statistical significance level was accepted to be $p<0.05$.

FINDINGS

Table 1. A comparison of anthropometric measurements of Turkish and Iraqi boys

Anthropometric Tests	Turkish boys		Iraqi Boys		Statistical Sign. (p)
	n	Mean ± S.D.	n	Mean ± S.D.	
Age (year)	35	13,60±0,60	33	13,81±0,84	0,223
Length (cm)	35	166,22±11,34	33	129,96±11,95	,000
Weight (kg)	35	57,77±10,71	33	38,03±5,90	,000
Body Mass Index	35	20,68±2,83	33	23,01±5,43	,029

p<0,05

According to Table 1, the height and body weight from the body composition measurements were found to be significantly higher in Turkish male children than in Iraqi male children; it was determined that body mass index values were significantly higher in Iraqi boys.

Table 2. Comparison of Eurofit test results of Turkish and Iraqi boys

The tests	Turkish boys		Iraqi boys		Statistical Sign. (p)
	N	Mean ± S.D.	N	Mean ± S.D.	
Flamingo Balance Test	35	10,45±3,72	33	7,42±3,81	,001
Sit And Reach Test	35	23,77±7,16	33	17,10±7,36	,000
Sit-Up Test	35	24,88±4,22	33	23,09±5,07	,117
Standing Long Jump Test	35	170,97±25,19	33	152,09±23,01	,002
Hand Gripping Test	35	24,57±4,87	33	24,63±5,53	,959
10x5 Shuttle Run Test	35	34,97±3,49	33	33,46±3,32	,073
Plate Tapping Test	35	14,94±2,11	33	15,74±2,74	,182
Bent Arm Hang Test	35	12,71±13,70	33	24,69±15,41	,001
Shuttle Run Test	35	32,84±6,15	33	34,08±5,05	,366

P<0,05

According to the Eurofit test results in Table 2, Iraqi boys were significantly more successful in Flamingo balance test and bent arm hang test than Turkish boys, and Turkish boys were more successful in sit-up test and standing long jump test than Iraqi boys. There was no statistically significant difference between the two groups in the other tests.

DISCUSSION & CONCLUSION

In the present study, anthropometric and physical fitness values of 68 sedentary male students, including 35 Turkish and 33 Iraqi male students in 2017-2018 academic year, with an average age of 13.60 years and 13.81 years, respectively, who does not have any sportive activity other than routine physical classes, were measured and the data obtained were compared.

The anthropometric values of Turkish male students are as follows; age: 13,60±0,60 years, body mass index: 20,68±2,83, height: 166,22±11,34 cm, weight: 57,77±10,71 kg,; while for Iraqi boys, the age:13,81±0,84 years, Body Mass Index: 23,01±5,43, height: 129,96±11,95

cm, weight: 38,03±5,90 kg. There was no significant difference between the Turkish and Iraqi age values ($p>0.05$). However, height and body weight were significantly higher in Turkish boys than in Iraqi boys; the body mass index was found to be significantly higher in Iraqi boys than in Turkish boys ($p<0,05$).

In a study conducted by Bilim et al. (5), the mean height of male students with an average age of 14,55±0.50 years was 163.47±10.65 cm, and the mean body weight was 55.83±15.28 kg., BMI was 20,67±3,91 kg/m^2. In a similar study by Polat et al. (8), the mean height of the male students with an average age of 14 years was 164.09±8.99 cm, the average body weight was 51.65±9.13 kg, while the mean of BMI was 19,11±2,51 kg/m^2. Lovecchio et al. (9) reported that the average BMI value of 14-year-old boys was 19.7±3.4 kg/m^2.

While the values reported in the literature and the values of Turkish male students in our study were in parallel, it was determined that there were differences between the literature and Iraqi boys. Also, according to FitnessGram norms, it is seen that Turkish male students are in a healthy fitness zone and Iraqi boys to be close to the high-risk fitness area. Therefore, it is thought that the differences between the two groups can be caused by population, socio-economic, nutrition and environmental differences.

The number of errors for Turkish students in the Flamingo Test was 10,45±3,72, while the number of errors of Iraqi students was 7,42 ± 3,81.

Çelebi (10) reported that the flamingo test results of 12-14 years-old boys who do not play sports were 10.98±4.00. Mazlumoğlu (11) revealed it as 12,56±4,36 for 11.64±0.49 years-old boys. While these values are in line with the results of the Turkish students, it is seen that the values of Iraqi students are lower than these values. The studies in literature reported that the factors such as height, weight, gender, and sport activity affect balance performance (12). Consequently, the results of the Iraqi subjects may be due to the shorter heights from the Turkish boys.

In the present study, the values of sit and reach test of Turkish students were determined as 23,77±7,16 cm and the values of Iraqi students were determined as 17,10±7,36 cm. According to this, a significant difference was found between the two groups in favor of Turkish students ($p <0.05$).

Pekel et al. (13) reported the sit and reach flexibility values of 13-year-old male students as 22.9±7.2 cm. In another study, the sit and reach test flexibility values of male students were reported to be 19.9±7.7 cm (14). In the study by Serbes et al. (15), the sit and reach flexibility values of 13-year-old boys were determined as 15,80±6,235 cm. According to this, it is seen that there are different values in the literature supporting the two group results of our study. Furthermore, it is stated that the sit-up test performance is constant between the ages of 5-8 in males and then decreases with age to the lowest in 12-13 years of age and then increases up to 18 years of age. The low-performance period in men generally are parallel with the elongation of the legs in the adolescence period, the increase in the adolescence period was observed to be in parallel with the increase in height and upper extremity length. It is stated that anatomic and functional changes in joints during adolescence may affect flexibility in this period (16). According to this information, it is thought that the difference in our study may be caused by anatomical differences.

In our study, the mean standing long jump test of Turkish students was 170,97±25,19 cm and the mean value of Iraqi students was 152,09±23,01 cm in long jump test. There was a significant difference between the two groups in favor of Turkish students ($p<0.05$). Koç (17) reported that mean long jump test values of male sedentary students between the ages of 14-16 was 172,00±20.00 cm. This study supports the results of Turkish students. We thought that the difference between the two groups in our study for the long jump test may have occurred because Iraqi students are shorter than Turkish students.

In the present study, the mean Hand Gripping Test of Turkish students was 24,57±4,87 kg and the mean values of Iraqi students was 24,63±5,53 kg. There was no significant difference

between the two groups (p>0.05). Kızılakşam (18), reported that the mean hand gripping of male sedentary children with an average age of 13,36±0,76 years was 23,95±8,10 kg. Saygın et al. (19) stated that this number was 25.60±414 kg for non-sporting male students aged 14. Accordingly, the present results of our study and the information in the literature are similar

In the present study, for the sit and reach test, the mean value of Turkish students was 24,88±4,22 and the value of Iraqi students was 23,09±5,07. There was no significant difference between the two groups (p>0.05). Zorba et al. (20) reported that the mean shuttle values of the male sedentary group aged 12-15 years was 24.81±1.80. Loğoğlu (21) reported the results of the shuttle test of 12-year-old male students as 24,26±6,68. Studies in the literature support our work. Based on the fact that sports have an impact on muscular endurance, the difference between the two groups in our study can be thought to be due to the lack of exercise in both groups.

In the present study, the bent arm hang test average of Turkish students (bw: 57,77±10,71 kg) was found to be 12.71±13.70s and the average of the Iraqi students (bw: 38,03±5,90 kg) was 24.69±15.41s. A significant difference was found between the two groups in favor of Iraqi students (p <0.05). In a study conducted by Bilim et al. (5), the average age was 14,55±0.50 years and mean body weight was 55.83±15.28kg, and the bent arm hang test average was 14.63±8.94 s, for the students who do not play sports. In another study, Çelebi (10) reported that the test result of bent arm hang test of non-sporting children with body weight of 41.45±9.00 kg in 12-14 age group was 19.98±8.00. According to this information, the reason why Iraqi students have higher values in the arm hanging test maybe the decrease in bent arm hang test values as the body weight increases.

In our study, the mean 10x5 shuttle run was found to be 34,97±3,49s for Turkish students and 33,46±3,32s for Iraqi students. No significant difference was found between the two groups (p>0,05).

The mean plate tapping test was found to be 14,94±2,11s for Turkish students and 15,74±2,74 s for Iraqi students. No significant difference was found between the two groups (p>0,05).

Although speed may appear to be an innate trait, the organism has the potential to improve movement speed with the correct training. Therefore, lack of difference between the groups in the speed feature tested in our study can be explained by the fact that both groups consist of sedentary students.

The mean shuttle run test was found to be 32,84±6,15 ml/kg/min for Turkish students and 34,08±5,05 ml/kg/min for Iraqi students. No significant difference was found between the two groups (p>0,05). In the study conducted by Bilim et al. (5), the VO_2 max values of non-sporting boys with a mean age of 14, 55 ± 0.50 years were reported as 33.89 ± 5.23. Dağdelen (22) reported that the average of VO_2 max values was found to be 31,88 ± 4,12 in boys aged 12-14 years. Studies in the literature are parallel with our study. As indicated in the literature, aerobic endurance is only optimally developed over a long period of time (6-8 weeks) when operated with the appropriate method and content (23). It can be thought that the difference between the groups in our study is related to the lack of training of the subjects.

For children in the age of growth, Sports are useful and necessary both in terms of physical healthy physical development and in terms of mental health.

For solving social problems, schools perform an important task. Physical education course is an integral part of general education because it is the only course in which students can be physically active, it offers important opportunities to solve the health problems caused by lack of physical activity (24). Scientific studies have shown that students in this age group need physical activity at least one hour a day to protect their health (25). Şenel (26) found that physical and physiological values of students attending physical fitness activities for 10 minutes in addition to physical education classes were higher than those attending physical education classes only, based on this, he emphasized the need to increase such programs more frequently

and comprehensively. Anthropometric measurements and Eurofit, AAHPERD and YFT tests are carried out to determine the physical capacity of children. In our country, studies related to these measurements have been done but, have not yet reached a sufficient number to form a norm yet (27).

The regular realization of these measurements on school-age children allows them to monitor their physical fitness levels so that the criteria for the physical characteristics of the students and the country norms can be established. In addition, these data can make a significant contribution to healthy child rearing, efficient manpower, and selection of qualified sportsmen.

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