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## **COMPARATIVE INVESTIGATION OF PHYSICAL ACTIVITY AND PHYSICAL FITNESS LEVELS OF STUDENTS ACCORDING TO HIGH SCHOOL TYPES**

*Research article*

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## COMPARATIVE INVESTIGATION OF PHYSICAL ACTIVITY AND PHYSICAL FITNESS LEVELS OF STUDENTS ACCORDING TO HIGH SCHOOL TYPES

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### Abstract

The present study aims to compare and examine the physical activity and physical fitness levels of students according to high school types. The sample consisted of 261 volunteer students with a mean age of (age=14.55±0.50year), including 129 female students (age=14.5±0.5year) and 132 male students (age=14.6±0.5year) from schools selected through convenience sampling according to high school types. Physical fitness measurements (cardiorespiratory endurance-1000 m, strength-right hand-left hand grip power, flexibility-sit and reach, body composition-age, height, weight, BMI, body fat percentage) and the International Physical Activity Questionnaire (IPOQ) were used for data collection. The evaluation of the study data was performed using the one-way ANOVA-Tukey test. In conclusion, according to the school types variable, it can be said that the physical fitness and anthropometric characteristics of sports high school students, who are thought to have more physical activity opportunities, are more developed. It was observed that physical activity was particularly effective in the development of cardiorespiratory endurance, one of the parameters of physical fitness.

*Keywords:* Physical fitness, Physical activity, High school students, Physical education

### 1. Introduction

The concepts of physical activity and physical fitness are among the most emphasized issues in the context of children and young individuals both in Turkey and the rest of the world. For this reason, physical activity, health, and physical fitness of children have been given more importance than ever in recent years (Saygın&Dükkancı, 2009). Within the scope of the recommendations in the "National Physical Activity Guidelines" prepared by the Ministry of Health and the Ministry of National Education (MoNE) and in cooperation with the MoNE and the Ministry of Health, the "Health-Related Physical Fitness Report Card" was developed with the decision of the Science Committee in order to increase and promote awareness of healthy nutrition and physical activity in students (Ministry of Health &MoNE, 2017). This report card has been applied to middle- and high-school students affiliated to MoNE since the second semester of 2017.

Physical fitness is defined as the ability to perform daily physical movements without fatigue, which is of great importance for children and young individuals to lead a healthy life (Castillo, 2006). Physical fitness is examined under two headings: health and performance (sport). Health-related physical fitness parameters are measured by body composition, flexibility, muscular endurance, cardiovascular endurance, and muscular strength tests (Gutin et al., 2005;

Castillo, 2006). In the evaluation of sports-related physical fitness, components related to explosive strength, power, speed, agility, coordination, balance, reaction time and other characteristics related to the branch of sport performed are addressed (Heyward, 1998; Ministry of Health &MoNE, 2017). Determination of the physical fitness status of children and adolescents stands out as an important factor in reducing potential future health problems (Bulduk et al., 2000; Tınazcı&Emiroğlu, 2010). Health-related physical fitness (HRPF) is indicated by various factors such as weight, cardiorespiratory fitness, musculoskeletal fitness (muscle strength and endurance) and flexibility and is associated with health outcomes and/or health markers in young individuals (Pillsbury et al., 2013; Ortega et al., 2008). Cardiorespiratory endurance is the ability of the heart, lungs, and circulatory system to supply oxygen and nutrients to working muscles (Rezende et al., 2014; ÇimenPolat&Yarım, 2021).

The better the aerobic capacity, the better the heart, lungs and blood vessels carry oxygen to parts of the body. Low cardiorespiratory endurance causes individuals to experience rapid fatigue and an inability to perform daily activities (Cheng et al., 2019).

In cases where a deficiency occurs in physical fitness components or they remain below the standard or norm values determined for a specific age or gender group, an inadequacy related to the physical fitness level of the individual is considered (Ministry of Health &MoNE, 2017). Low physical fitness levels are associated with problems such as obesity, cardiovascular diseases, anxiety, depression, higher mortality rates, certain forms of cancer, diabetes, hypertension, musculoskeletal problems, and low quality of life (Daniels et al., 2009; Marques-Vidal et al., 2010). In the light of these reasons, it can be said that physical fitness, physical activity, and health are closely related concepts that affect each other (Ministry of Health &MoNE, 2017).

Physical activity, which is the key to a healthy and high-quality life, is defined as "activities performed by individuals to mobilize their musculoskeletal systems by expending various levels of energy", while its absence is defined as physical inactivity (Tavazar et al., 2014). Physical activity results in energy expenditure. Physical activity levels of individuals are closely related to their lifestyles. Factors such as daily working conditions, mode of transportation, the tools and equipment used, the way of spending leisure time, geographical region, climate, and weather conditions affect the level of physical activity (Tunç&İşler, 2007, Orhan, 2015). Regular physical activity is crucial for the healthy growth and development of children and young individuals. Additionally, physical activity contributes to the maturation of social-affective and social behaviors of children and young individuals as well as various contributions to the development of their mental skills (Edwards &Tsouros, 2006, Kara et al., 2020).

It is reported that in developed societies, sedentary lifestyles are adopted due to the advancement of technology and the physical activity levels of adolescents are inadequate (Henry et al., 1999; Takken et al., 2003; WHO, 2003; WHO, 2003; Ministry of Health, 2008). Studies show that significant decreases occur in the physical activity levels of individuals starting from adolescence (Gray et al., 2014). In adolescence, the majority of young individuals face serious health problems such as obesity and excessive weight gain due to unhealthy and unbalanced nutrition (Alper et al., 2017). When different studies accessed through literature review are examined, in a previous study examining the effects of sportive activity levels of sports high school and science high school students on body composition and bone mineral density, it was observed that sportive activity initiated at an early age can positively affect bone mass (Aysan et al., 2015). In another study investigating the effect of physical activity on

academic achievement and depression in young individuals, a positive correlation was found between physical activity level and academic achievement while a negative correlation was found between physical activity level and depression, and it was stated that increasing the level of physical activity may have positive effects on boosting academic achievement and reducing depression in young individuals (Arslan et al., 2018). In a study examining the relationship between high school students' motivation to participate in physical activity and body mass index, it was concluded that students with low motivation to participate in physical activity had a high body mass index (BMI) (Çakır, 2019).

When considered as a transition to adulthood, adolescence is a critical period when lifestyle habits become more pronounced. Therefore, determination of physical activity levels during adolescence is important in terms of increasing the awareness of young individuals, families and educators on this issue and providing guidance in this direction (Arslan et al., 2018).

In recent years, both the Ministry of National Education and the Ministry of Health have been conducting significant studies on physical fitness and its importance for children and young individuals. In the current education system, different programs are implemented at high school level. Since it is known that options and forms of physical activity differ in teaching methods within these programs, the present study aims to compare and examine the physical activity and physical fitness levels of students according to high school types.

## **2. Method**

**Study Model:** The present study is a quantitative study and was designed within the framework of the relational survey model, which is one of the general survey models in which situation assessment is performed. Relational survey models are study models that aim to determine the presence and/or degree of change between two or more variables (Karasar, 2022).

**Population and Sample:** The population of this study consists of first year high-school students (9th grade) in different types of high schools in Kırıkkale in the 2022-2023 academic year. Power analysis was performed for the suitability of the population and sample. The sample consisted of 261 students with a general mean age of  $14.55 \pm 0.50$  year and a general mean height of  $165.89 \pm 8.83$  cm, including 129 female students with a mean age of  $14.5 \pm 0.5$  year and a mean height of  $160.5 \pm 5.8$  cm, and 132 male students with a mean age of  $14.6 \pm 0.5$  year and a mean height of  $171.1 \pm 8.1$  cm.

**Data Collection Tools:**

**Physical Fitness Measurements:**

For body composition, height measurements were made using a stadiometer with a precision of 0.01 m. Body weight, BMI and body fat percentage were measured using a TANITA BC-418 MA Professional body analyzer. School types were also recorded by interviewing the students.

Health-related components of physical fitness were measured. The Eurofit test battery was utilized to determine health-related physical fitness. For cardiovascular endurance, a 1000 m. run-walk test was conducted. The students were instructed to complete the distance by running, walking, or jogging as soon as possible. The completion times of the students were recorded in minutes and seconds.

Right- and left-hand grip tests were performed for strength measurement using a Holtin hand dynamometer. The device was adjusted according to hand sizes and the students were asked to squeeze the dynamometer with their hands without bending the elbow, with the arm straight and at an angle of 10-15 degrees from the shoulders to the side. Two repetitions were performed with each hand separately. The dynamometer was reset after each trial. The best performance was included in the evaluation.

The sit-and-reach test was performed for flexibility measurement. The test was performed with a standard bench. The test bench was 35cm in length, 45cm in width and 32cm in height. The participants were seated barefoot on the floor, without bending their knees, resting the soles of their feet on the bench, leaning their torso forward and extending their hands forward on the bench. 2 repetitions were made, and the best degree was included in the evaluation.

**Physical Activity Questionnaire:** The International Physical Activity Questionnaire (IPAQ) was used in the present study. This questionnaire is available in both a long and a short form. The short form consisting of 7 questions was used in this study. The validity and reliability studies for this questionnaire in Turkey were conducted by Öztürk among university students. The questionnaire provides information on the time spent in sitting, walking, moderately intense activities, and intense activities. All activities are assessed on the basis that each activity is performed for at least 10 minutes at a time. Minutes, days and METs (multiples of resting oxygen consumption) are multiplied to obtain a score as "MET-minutes/week". Physical activity levels were classified as physically inactive (3000 MET-min/week). In the calculation of energy expenditure for physical activities, the weekly duration (minutes) of each activity was multiplied by the MET energy values generated for the International Physical Activity Questionnaire. Thus, energy expenditures for intense, moderate, walking, sitting and total physical activity for each individual were obtained in MET-min/week units. The categorical classification includes 3 categorical classifications of physical activity levels. Physical activity levels are classified as physically inactive (inactive), low physical activity level (minimally active) and adequate physical activity level (highly active). There is no accepted threshold value referred to as the categorical level (Öztürk, 2005).

**Study Publication Ethics:** The present study was approved by the Ethics Committee of the Gazi University Rectorate. It was discussed and approved at the meeting dated 27.12.2022 and numbered 22. Study Code No: 2023-14

#### Data Analysis:

In the present study, power analysis was performed for the suitability of the population and sample. In the analysis of the data obtained, the data were entered into the computer as numerical expressions. The data were statistically analyzed using the statistical package program IBM SPSS 25.0. Percentage calculations of the data were performed. The one-way ANOVA-TUKEY test was applied to determine the relationship between the variables. The level of statistical significance was taken as  $p < 0.001$ .

### 2.3. Data Analysis

When the table is examined, it is observed that the percentage of the 14-year-old female first year high-school students (9th grade) is 55.1% and the percentage of the 15-year-old female students is 44.8%, while the percentage of the female students in the general distribution of the study is 45.2%. The percentage of the 14-year-old male students is 44.9%, while the percentage of the 15-year-old male students is 55.2%, and the percentage of the male students in the general

distribution of the study is 54.8%. According to the school types in the table, the percentage distribution of the vocational high school students is 23.4% while this rate is 8.0% for the sports high school students, 29.1% for the Religious high school students, 22.6% for the Standart high school students and 16.9% for the science high school students. Based on the gender variable, the rate of inactive female students is 7.0%, the rate of students with low levels of activity is 36.4%, and the rate of students with adequate levels of activity is 56.6%. The proportion of inactive male students is 4.5% while this rate is 25.0% for the students with low levels of activity and 70.5% for the students with adequate levels of activity. When the physical activity levels of the students are analyzed in general, the rate of inactive students is 5.7%, the rate of students with low levels of activity is 30.7%, and the rate of students with adequate levels of activity is 63.6% (Table 1).

**Table 1. Demographic Information of the Participants**

<b>Variables</b>		<b>n</b>	<b>%</b>
<b>Total number of participants</b>		<b>261</b>	<b>100</b>
Age	14	118	45.2
	15	143	54.8
Gender	14 (female)	65	55.1
	15(female)	64	44.8
	14 (male)	53	44.9
	15(male)	79	55.2
High Schools	Vocational	61	23.4
	Sports	21	8.0
	Religious	76	29.1

	Standart	59	22.6
	Science	44	16.9
Physical activity levels	Inactive	15	5.7
	Low activity	80	30.7
	Adequate	166	63.6
Physical activity levels by gender (Female)	Inactive	9	7.0
	Low activity	47	36.4
	Adequate	73	56.6
Physical activity levels by gender (Male)	Inactive	6	4.5
	Low activity	33	25.0
	Adequate	93	70.5

When anthropometric data were analyzed according to school types, significant differences were found in terms of age, height, and body fat ratios. In terms of the age variable, it was determined that the mean age of the science high school students was lower than or equal to that of the other school types, while the mean age of the vocational high school students was higher than that of the other school types. No difference was detected between the age status of the sports high school, Religious high school and Standart high school students. When the data between the school types were examined in terms of the height variable, it was determined that the vocational high school students had the lowest scores, the Standart high school and science high school students had equal height scores, the Religious high school students had better scores than the said students, and there was a significant difference in favor of the sports high school students with the highest height score ratios. When the data between the school types were analyzed in terms of the body fat ratio variable, it was determined that the most desirable values belonged to the sports high school students. When the scores were sorted

according to the schools, it was observed that the sports high school had a better mean score compared to the vocational high school, followed by the Standart and Religious high schools, while the vocational high school had a better mean score compared to the science high school. In summary, it was determined that the body fat ratios of the sports high school students were at the most desirable values and the body fat ratios of the science high school students were at the least desirable values. No significant difference was found in body weight and BMI scores.

When the performance tests were analyzed in terms of school types, a significant difference was found in the 1000m, left hand grip, right hand grip, and sit-reach scores. When the scores of the 1000m performance test were ranked from best to worst in terms of school types, the best score was obtained by the sports high school students, followed by the Standart high school students, science high school students and Religious high school students while the least favorable score was obtained by the vocational high school students. When the right-hand grip power data were examined, it was determined that the values of the sports high school, Religious high school and science high school students were equal to each other, while the values of the Standart high school and vocational high school students were equal to each other but inferior to the other three high schools. When the left-hand grip power data were examined, it was determined that the sports high school students had the highest values, followed by the Religious high school and science high school students with values equal to each other and higher than the Standart high school and vocational high school students, while the lowest scores were obtained by the Standart high school and vocational high school students. When the sit-reach test data were examined, it was observed that the best scores were obtained by the sports high school students, followed by the vocational high school and Standart high school students, while the poorest scores were obtained by the Religious and science high school students.

When the physical activity level data were analyzed in terms of school types, a significant difference was found in walking activity, moderately intense activity, intense activity and sitting activity. In walking activity, moderately intense activity and intense activity, the best scores were recorded in the sports high school students, followed by the science high school students, while the lowest scores were obtained by the Standart high school and vocational high school students. In sitting activity, the opposite was the case, with the lowest scores in the sports high school and the highest scores in the Standart high school. It is seen that the statistical data of the study are internally consistent.

**Table 2. Statistical information on the anthropometric features, performance tests and physical activity levels of the students according to school types**

Variables	Vocational (n=61)	Sports (n=21)	Religious (n=76)	Standard (n=59)	Science (n=44)	F	p	Tukey
<b>Anthropometrics</b>								
Age (Y)	14.7±0.5	14.6±0.5	14.5±0.5	14.6±0.5	14.3±0.5	4.125	0.003*	R=ST=S=SC<V
Height (Cm)	161.4 ± 8.2	168.4± 8.9	167.5 ± 9.0	166.9± 7.6	166.7 ± 9.1	5.714	0.001*	V<ST=SC<R<S
Weight (Kg)	59.1± 13.6	60.0± 10.2	64.4± 18.8	62.2± 14.9	62.5± 12.2	1.112	0.351	-
BMI (Kg/m <sup>2</sup> )	22.7 ± 4.8	21.1 ± 2.3	22.7 ± 5.1	22.3 ± 5.0	22.5 ± 3.8	0.538	0.738	-
Body fat ratio (%)	26.4 ± 8.6	20.8 ± 4.7	23.7 ± 7.9	23.9 ± 7.7	27.1 ± 7.7	3.581	0.007*	S<ST=R<V<SC
<b>Performance Tests</b>								
1000 M (min, sec)	8.1± 1.5	6.4± 0.9	7.9± 1.9	7.5± 1.6	7.7± 1.9	4.515	0.002*	S<ST<SC<R<V
Right hand grip power (kg)	23.9 ± 8.6	27.8 ± 6.6	26.2 ± 7.6	22.6 ± 6.5	25.8 ± 6.8	3.168	0.015*	ST=V<SC=R=S
Left hand grip power (kg)	20.8 ± 8.5	26.6 ± 8.3	23.8 ± 6.2	21.7 ± 7.4	24.5 ± 6.7	3.718	0.006*	ST=V<SC=R<S
Sit-and-reach (cm)	25.8 ± 6.6	29.2 ± 3.9	23.9 ± 6.3	24.4 ± 6.1	22.6 ± 7.6	4.503	0.002*	R=SC<ST<V<S
<b>Physical Activity (PA)</b>								

Walking activity	1282 ± 1096	2013 ± 1.1	1487 ± 1.0	1167 ± 1.0	2289 ± 1.9	6.676	0.001 *	ST<V<R<SC=S
Moderately intense activity	489 ± 6.1	1070 ± 9.5	607 ± 5.5	264 ± 4.0	740 ± 1.0	6.616	0.001 *	ST<V<R<SC<S
Intense activity	678 ± 1.0	1967 ± 1.9	1374 ± 1.4	409 ± 6.6	1982 ± 1.8	13.099	0.001 *	ST<V<R<S=S<C
Total	2449 ± 2.4	5051 ± 2.6	3468 ± 2.1	1840 ± 1.6	5010 ± 3.1	16.491	0.001 *	ST<V<R<SC<S
Sitting activity	575 ± 1.4	450 ± 1.2	462 ± 1.4	645 ± 1.5	593 ± 2.4	13.200	0.001 *	S<R<V<SC<S<T

Table 3 shows that when the data on the categorical classification of physical activity levels are examined, no significant difference was found in terms of anthropometric measurements. When the performance tests data were analyzed, a significant difference was found in the 1000 m. and right-hand grip power scores. In the 1000 m. performance test, it was determined that the scores of the highly active participants were higher than the scores of the minimally active and inactive participants. When the right-hand grip power scores were analyzed, it was observed that the inactive participants had the lowest score, and the highly active participants had the highest score. No significant difference was found in terms of the left-hand grip and sit-reach test scores.

According to the categorical classification of physical activity levels, a significant difference was found in walking activity, moderately intense activity, intense activity and sitting activity. In all activities except sitting activity, it was found that the highly active participants had high scores and the lowest scores were obtained by the inactive participants. It was found that the opposite was the case in the sitting activity scores, with the highly active participants having the lowest scores and the inactive participants having the highest scores.

**Table 3. Statistical information on the anthropometric features, physical activity levels and BMI (CDC) values of the students according to the categorical classification of physical activity levels**

Variables	Inactive (n=15)	Minimally active (n=80)	Highly active (n=166)	F	p	Tukey
Age (Y)	14.7±0.5	14.6±0.5	14.5±0.5	1.728	0.180	-

Height (Cm)	165.4 ± 7.6	164.6± 8.5	166.6 ± 9.1	1.374	0.255	-
Weight (Kg)	63.4± 15.9	61.8± 17.3	61.9± 14.1	0.072	0.930	-
BMI (Kg/m <sup>2</sup> )	23.3 ± 6.7	22.6 ± 5.4	22.2 ± 4.0	0.498	0.609	-
Body fat ratio (%)	25.4 ± 9.7	25.9 ± 7.5	24.1 ± 8.0	1.484	0.229	-
<b>Performance Tests</b>						
1000 M (min, sec)	8.1± 1.4	8.0± 1.6	7.5± 1.8	3.871	<b>0.022*</b>	H<M=I
Right hand grip power (kg)	22.5 ± 9.5	23.1 ± 7.7	25.9 ± 7.1	4.806	<b>0.009*</b>	I<M<H
Left hand grip power (kg)	20.8 ± 8.6	21.5 ± 7.6	23.8 ± 7.2	3.254	0.040	-
Sit-and-reach (cm)	24.2 ± 7.9	24.4 ± 6.5	24.9 ± 6.6	0.227	0.797	--
<b>Physical Activity (PA)</b>						
Walking activity	294 ± 136	700.6 ± 306.1	2064 ± 1370	50.900	<b>0.001*</b>	I<M<H
Moderately intense activity	69.3 ± 88.8	209.2 ± 221.6	775.9± 811.9	24.250	<b>0.001*</b>	I<M<H
Intense activity	5.3 ± 20.7	160.5 ± 220.1	1719± 1555	48.637	<b>0.001*</b>	I<M<H
Total	368.4 ± 148.5	1070.3 ± 297.4	4559 ± 2439	102.930	<b>0.001*</b>	I<M<H
Sitting activity	678.0 ± 185.9	623.3 ± 168.1	504.8 ± 170.4	17.432	<b>0.001*</b>	H<M<I

#### 4. Conclusion and Recommendations

In the analyses performed based on school types, which is the main purpose of the study, the scores of the anthropometric characteristic variable of height were examined and it was



observed that the sports high school students had the highest scores, and the vocational high school students had the lowest scores. When the scores of the body fat percentage variable were examined, it was seen that the highest scores were obtained by the science high school, vocational high school, imam hatip high school and Anatolian high school students, respectively, and the lowest score was obtained by the sports high school. This situation creates a significant and positive difference in favor of the sports high school. The reason for this difference in terms of both height and body fat percentage can be explained by the fact that sports high school students are more active, diverse in physical activity, and involved in sports. The fact that physical activity is very effective on the development of adolescents has been evaluated in numerous studies from different aspects. For example, Silva et al. (2022) found a linear trend between physical activity levels and cardiorespiratory fitness of children and adolescents. When the more physically active group was compared with the less active group in both males and females, the active group had higher VO<sub>2</sub> values. Olivera et al. (2017) reported a positive relationship between cardiorespiratory endurance and moderate physical activity. Bonney et al. (2018) reported that overweight and obese South African adolescent females had lower cardiorespiratory fitness, decreased lower body muscle strength, and greater grip power compared to their peers with normal weight. In the study conducted by Cadenas et al. (2021), adolescent males reported higher levels of cardiorespiratory fitness and higher motivation and lower anxiety compared to females. In the present study, when the performance tests were examined according to school types, it was seen that the best scores in the 1000m (run-walk) test, right hand power, left hand power, and sit-reach test data belonged to the sports high school, the lowest score in the 1000m test belonged to the vocational high school, the lowest score in the right hand-left hand power test belonged to the Anatolian high school, and the lowest score in the sit-reach test belonged to the imam hatip and science high schools. In terms of performance, it is observed that the sports high school students have better grades compared to the other high schools. When physical activity level was categorically grouped, it was determined in the findings of the study that the students with long sitting times were inactive and minimally active, while the students engaging in walking and more intense activity were highly active. In the physical fitness parameters obtained as a result of the measurements in connection with the scores determined at the level of physical activity in the study, it can be clearly seen that the sports high school students attained higher scores compared to the other high school types.

When the findings obtained from the study data were evaluated, it was observed that the female students had lower physical activity level scores and were less active than the male students, while the male students had higher physical activity level scores. When the studies including comparisons between genders in the literature are examined, it is noteworthy that there are similar results, particularly for adolescence. In the study conducted by Palacios et al. (2022), it was concluded that physical activity and physical fitness play an important role in adolescence and are considered as indicators of the current and future health status of young adults, and that there is a direct relationship between the physical activity levels of Peruvian adolescents and their self-perceived physical fitness.

When different studies conducted in similar age groups were examined, in the study conducted by Kryst et al. (2022), it was reported that there was a decrease in general motor performance in children and adolescents over the years, which may be related to a decrease in the level of physical activity in the current population, as well as a higher rate of excess weight and high body fat. Although the physical activity and physical fitness parameters of the Sports High School students were higher than the others, there was no significant difference between the school types in terms of body weight and BMI values. To make a general evaluation, although the students at the sports high school were found to be statistically more active in the study, this did not create a significant difference in terms of BMI. In the study, an evaluation was made with the 1000 m. run and walk test, performed to measure maximum oxygen consumption, which is one of the components of physical fitness related to health and is also of great importance in development. In the results obtained, it was seen that the sports high school students achieved the highest mean score. There are previous studies showing that physical activity in children and adolescents contributes positively to maximum oxygen intake (Dobbins et al., 2013; Kriemler et al., 2011; Armstrong et al., 2011; Wassenaar et al., 2021). In the study conducted by Polat et al. (2003) titled "Evaluation Of 14 Years Old Children's Physical Fitness Levels and Anthropometric Characteristics", a significant difference was found in the weight, flexibility, and VO<sub>2</sub> values of athlete and sedentary children, but no significant difference was found in BMI and grip power values. Regular sports training can significantly improve the anthropometric and physical fitness levels of children. This finding is in parallel with the present study as no significant difference was found in the BMI value, but a significant difference was found in the flexibility and VO<sub>2</sub> values. In the study conducted by Talu&Doğan (2016), no statistically significant difference was found between male and female participants in the sit-reach test. In grip power, a significant difference was found between genders for both hands. In the study conducted by Asma&Işık (2020) titled "Comparison of Physical Fitness of the High School Students Participating and Not Participating in School Sports Using the Eurofit Test Battery", a significant difference was found in favor of female students participating in school sports in terms of flexibility values. In the study conducted by Bilim et al. (2016) titled "Investigation of Physical Fitness of 12-17 Years Old Students Who Engage and Do Not Engage in Sports", a significant difference was found between sedentary students and students who engage in sports in terms of flexibility in favor of female participants. In the study conducted by Aslan&Çınar (2012) titled "Comparison of Selected Physical and Physiological Characteristics of Active and Sedentary Individuals of Each Gender", results in favor of participants who engage in sports were found in all parameters except flexibility. In the present study, a significant difference was found in flexibility values in favor of the sports high school students according to school types. However, no difference was found in terms of flexibility in the categorical classification.

The fact that the course programs of sports high school students are more suitable in terms of accessing more activity levels, the Physical Education course hours are abundant, and students are more interested in sports branches can be said to influence these results. In the study conducted by Özbay (2022) titled "Comparison of Physical Fitness Levels of Individuals aged 15-17 Who Engage in Sports and Those Who Do Not in terms of Lateralization", a significant

relationship was found in most of the measurements made, and if not, it was seen that the scores were in favor of the participants who engaged in sports. Therefore, it can be said that engaging in sports improves physical fitness and motor competencies. In the overall study, it was stated that engaging in sports in adolescence as a developmental period contributes to physical development and provides a balanced and healthy development.

In conclusion, based on the findings obtained in the study, it was determined that the physical fitness and anthropometric features of the sports high school students, who are thought to have the opportunity to engage in more physical activity compared to the other school types, are more developed. In the study, it was observed that the increase in physical activity levels was particularly more effective in the development of cardiorespiratory endurance, one of the health-related physical fitness parameters. In general, it is explained in detail in the present study and many other studies that the increase in physical activity level can be effective in the development of physical fitness and anthropometric features of students. Therefore, it can be said that the more physical education and sports activities are included within the framework of school types and curricula, the healthier the development of children and adolescents can be. In order to encourage students to engage in physical activity during adolescence, the content of physical education courses should be planned in a way to increase the participation of students. The utilization of various methods that will contribute to students can be very beneficial for raising a healthier youth, healthy individuals and, therefore, healthy societies.

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