

**ANALYZING SHORT (100 METERS) AND MIDDLE DISTANCE
(800-1200 METERS) RUNNING AND COORDINATION VALUES
ACCORDING TO SPORTS BRANCHES OF STUDENTS WHO TAKE
ENTRANCE EXAMS TO SPORTS HIGH SCHOOL**

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Abstract

In this study, the purpose was to determine the changes in accordance with running and coordination values of children who took the entrance examinations of sports high school in the 5 year period and assess them according to the branches as 100 and 800 meters running for female, 100 and 1200 meters running for men. In accordance with this aim, test values of total 1306 students (m = 1061, f = 245, average age = 14) who participated in entrance examinations in a 5 years duration including 2008, 2009, 2010, 2011, 2012 years in the region of Antalya for sports high school were analyzed. As an statistical analyze, One way ANOVA and multiple comparison tests (which are LSD, Least Significant Difference tests) were used. As a result of statistical analyses, although the candidates who took the tests in the region of Antalya, change along 5 years duration, while obtaining a statistically significant difference in the running values of male children ($p < 0,05$), there were no significant differences in their 1200 meters running and coordination values ($p > 0,05$). Likewise, while obtaining a statistically significant difference in 100 meters running values of female children ($p < 0,05$), there were no significant changes in their 800 meters running and coordination values ($p > 0,05$). In addition there was no any statistically significant difference in 100, 800 meters running values and coordination values of female children according to branches ($p > 0,05$). Consequently, it can be suggested that there were no changes in speed times of both male and female children in along 5 years duration in region of Antalya. It can be inferred that while there is a significant change in values of running and coordination of males, the reason why female children were not able to show changes in their values should be because they show less improvement in sports branches. In addition, male students in track and field branch gained the highest degrees both in 100 m and coordination tracks. Thus, it can be said that someone having good speed has good coordination too.

Key Words: Sports high school, running, speed, coordination

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1. Introduction

Sport can be defined as activities made for the purpose of developing psychological and physical health of the human who is the basic element of economic, social and cultural development; enabling his personal development; facilitating his adaptation to the environment by providing knowledge, skills and abilities; forming solidarity, friendship and peace among individuals, communities and nations; increasing fighting power of the person as well as competing within some certain competition standards, contesting and outrivaling, and getting excited (Yetim, 2006).

Sport is a competitive activity with strict rules which is embodied in different branches as a result of the privatization of physical education activities, and it requires some physiological, psychological, aesthetic and technical qualifications when performed in a high level (Aracı, 2004). Being an integral part of education, physical education and sports is a significant factor which provides the youth with being good individuals in the society, revealing their abilities and being improved and trained as successful sportsmen by contributing to their physical and mental development (<http://www.trabzonatletizm.org>, 2014). In this respect, establishing “sports high schools” within secondary education institutions is an important step.

Based on Ministry of National Education Sports High School Regulations published in 2005, sports high schools were opened in Turkey (Milli Eğitim Bakanlığı, 2005). As a result of the studies conducted by the Ministry of National Education to pass to a structure based on program diversity instead of school diversity in secondary schools considering development plans and government programs, a circular was issued in 2009 and these high schools continued education under the name of Fine Arts and Sports High School (Milli Eğitim Bakanlığı, 2009). In the 18th National Education Council, recommendation was accepted suggesting that fine arts and sports high schools have different understanding of discipline and they shall continue their activities under two separate names. As a result, a circular was issued in 2013 to separate the schools (Milli Eğitim Bakanlığı, 2013). Sports high schools were established to; raise successful sportsmen in line with their abilities by gaining them related basic knowledge and skills in their field, provide them with internalizing sports discipline and sportsmanship, gain them the habit of working in cooperation and solidarity, lead them to get prepared for higher education programs on physical education and sports, encourage them to do research about sports, and help them to be raised with necessary capability to be able to do applications in accordance with their abilities in the field (Milli Eğitim Bakanlığı, 2007).

Coordination is the ability to learn difficult movements in a short time and react quickly and expediently in different situations (Sevim, 2002, Günay and Yüce, 2008). Coordination skill is one of the main criteria to determine the winners in sports high school entrance exams. Even if the candidates are raced under the same conditions, coordination degrees may vary depending on the physical conditions (number of stations and the distance difference between stations) when the test is done. Therefore, branch and gender discrimination is a necessary practice during the evaluation process (Çebi, İmamoğlu, Sarıoğlu and Öztürk, 2013).

Sprints are the races based on short-distance athletes’ running with all the power and they determine the fastest. Another name of it is short-distance race. Speed is the most valuable sports qualification. Perhaps there is no other component directly affecting sports performance and success as much as speed. Speed is a motor skill that can be learned and it can be improved by practice as other motor skills. Athlete's acceleration ability, maximum speed level and the ability to maintain speed within a given period of time or distance plays an

important role in determining the speed (Gambetta and Winckler, 2001). Located between sprints and long distance running, middle distance running is a race which necessitates both speed and power elements (<http://www.trabzonatletizm.org>, 2014). As it mostly provides equality aerobically and anaerobically, it is evaluated as aerobic-anaerobic sport as well (Fox, Browers and Foss, 1988). Unlike other secondary education institutions, sports high schools are the institutions where skilled young people are directed to sports. According to the research, the number of studies found in the literature regarding these high schools which were started to be established in 2005 in Turkey are limited. In the study, short and middle distance running and coordination degrees of male and female students are examined in terms of change in years and branches in the light of data obtained.

2. Material and Methods

In a 5-year period comprising the years 2009, 2010, 2011 and 2012 in Muratpaşa Fine Arts and Sports High School in Antalya, test values of 1306 students involving 1061 male and 245 female students taking sports high school entrance exam at the age of 14 on average were analyzed.

The running time of the student was measured through a photocell timer which begins working with the starting signal and ends when she reaches 100 m line by setting it between 0-100 m in the standard running track. 800 and 1200 m tests were run in groups. Time evaluation was made through photocell. Each student stopped the time for themselves while crossing the ending photocell. Coordination test consists of; passing the hurdles from the top and bottom, flat rolling, running between slalom bars, hitting the wall with a handball, leaping over the hurdles double foot switch, and sprint. The candidate starts the test with the start command by passing through the photocell range, and finishes by passing through the finishing photocell. Every candidate has only 1 (one) right for each test.

In the study, (SPSS 17.0) package program was used. For statistical analysis, one-way analysis of variance (One-Way ANOVA) and LSD (Least Significant Difference) being one of the multiple comparison tests were made.

3. Findings

Table 1. Comparison of male candidates who took 5 year examinations

| Running | Years | N | Mean | SD | Min. | Maks. | F/LSD |
|-----------------------|----------|------|--------|------|--------|--------|--------------------|
| 100 meter (sec) | 2008 (1) | 214 | 14.59 | 0.07 | 12.65 | 16.85 | 2,45* 5>1,2,3,4 |
| | 2009 (2) | 214 | 14.59 | 0.07 | 12.65 | 16.85 | |
| | 2010 (3) | 222 | 14.56 | 0.07 | 12.65 | 16.85 | |
| | 2011 (4) | 200 | 14.59 | 0.07 | 12.65 | 16.85 | |
| | 2012 (5) | 211 | 14.84 | 0.09 | 12.65 | 21.76 | |
| | Total | 1061 | 14.63 | 0.03 | 12.65 | 21.76 | |
| 1200 meter (sec) | 2008 (1) | 214 | 284.73 | 2.40 | 220.78 | 372.85 | 0,69 |
| | 2009 (2) | 214 | 284.73 | 2.40 | 220.78 | 372.85 | |
| | 2010 (3) | 222 | 284.89 | 2.38 | 220.78 | 372.85 | |
| | 2011 (4) | 200 | 283.78 | 2.38 | 220.78 | 372.85 | |
| | 2012 (5) | 211 | 289.04 | 2.77 | 220.78 | 431.86 | |
| | Total | 1061 | 285.44 | 1.10 | 220.78 | 431.86 | |
| Coordination (sec) | 2008 (1) | 214 | 59.27 | 0.41 | 46.73 | 73.35 | 1,34 |
| | 2009 (2) | 214 | 59.27 | 0.41 | 46.73 | 73.35 | |
| | 2010 (3) | 222 | 59.11 | 0.40 | 46.73 | 73.35 | |
| | 2011 (4) | 200 | 59.53 | 0.43 | 46.73 | 73.35 | |
| | 2012 (5) | 211 | 60.34 | 0.48 | 46.73 | 84.61 | |
| | Total | 1061 | 59.50 | 0.19 | 46.73 | 84.61 | |

While obtaining a statistically significant difference in the running values of male children, the candidates who took the tests in the region of Antalya, change along 5 years duration, ($p < 0,05$) there were no significant differences in their 1200 meters running and coordination values ($p > 0,05$).

Table 2. Comparison of change in male candidates according to branches

| Running | Branches | N | Mean | SD | Min. | Maks. | F/LSD |
|-----------------------|----------------|------|--------|------|--------|--------|--|
| 100 meter (sec) | Athletics (1) | 69 | 14.39 | 0.11 | 12.76 | 16.50 | 1,15 |
| | Basketball (2) | 103 | 14.47 | 0.10 | 12.84 | 16.78 | |
| | Volleyball (3) | 139 | 14.74 | 0.10 | 12.65 | 21.76 | |
| | Handball (4) | 109 | 14.62 | 0.10 | 12.65 | 16.80 | |
| | Soccer (5) | 473 | 14.65 | 0.05 | 12.65 | 19.20 | |
| | Judo (6) | 111 | 14.66 | 0.11 | 12.76 | 18.68 | |
| | Gymnastics (7) | 28 | 14.82 | 0.21 | 13.10 | 16.70 | |
| | Wrestling (8) | 29 | 14.69 | 0.18 | 12.95 | 16.80 | |
| | Total | 1061 | 14.63 | 0.03 | 12.65 | 21.76 | |
| 1200 meter (sec) | Athletics (1) | 69 | 274.17 | 4.66 | 220.78 | 368.19 | 3,65** 1<3,4,5,7 2<5,7 3,4,5,7>8 6<7 |
| | Basketball (2) | 103 | 279.06 | 3.02 | 220.78 | 368.35 | |
| | Volleyball (3) | 139 | 284.96 | 3.13 | 234.46 | 419.11 | |
| | Handball (4) | 109 | 286.70 | 3.28 | 220.78 | 372.85 | |
| | Soccer (5) | 473 | 289.33 | 1.68 | 220.78 | 393.32 | |
| | Judo (6) | 111 | 282.29 | 3.32 | 220.78 | 431.86 | |
| | Gymnastics (7) | 28 | 297.18 | 7.72 | 232.67 | 368.19 | |
| | Wrestling (8) | 29 | 269.75 | 4.67 | 238.57 | 322.88 | |
| | Total | 1061 | 285.44 | 1.10 | 220.78 | 431.86 | |
| Coordination (sec) | Athletics (1) | 69 | 57.67 | 0.77 | 46.73 | 72.27 | 3,47** 1<6 5>1,2,3,4,8 8<5,6 |
| | Basketball (2) | 103 | 58.93 | 0.55 | 47.80 | 71.94 | |
| | Volleyball (3) | 139 | 58.86 | 0.53 | 46.73 | 78.98 | |
| | Handball (4) | 109 | 58.77 | 0.55 | 47.27 | 72.59 | |
| | Soccer (5) | 473 | 60.28 | 0.29 | 46.73 | 76.71 | |
| | Judo (6) | 111 | 59.94 | 0.60 | 48.49 | 84.61 | |
| | Gymnastics (7) | 28 | 59.95 | 1.15 | 50.49 | 71.94 | |
| | Wrestling (8) | 29 | 56.79 | 0.92 | 47.80 | 67.66 | |
| | Total | 1061 | 59.50 | 0.19 | 46.73 | 84.61 | |

While there was no significant difference in 100 metre running values of 14 year male children, there was a significant difference in 1200 meter coordination running values ($p < 0,001$).

Table 3. Comparison of female candidates who took 5 year examinations

| Running | Years | N | Mean | SD | Min. | Maks. | F/LSD |
|-----------------------|----------|-----|----------|---------|--------|--------|--------------------|
| 100 meter (sec) | 2008 (1) | 51 | 16.4692 | .11698 | 15.05 | 18.03 | 2,67* 5>1,2,3,4 |
| | 2009 (2) | 51 | 16.4692 | .11698 | 15.05 | 18.03 | |
| | 2010 (3) | 55 | 16.4900 | .10983 | 15.05 | 18.03 | |
| | 2011 (4) | 40 | 16.5475 | .12734 | 15.05 | 18.03 | |
| | 2012 (5) | 48 | 16.9706 | .17908 | 15.05 | 19.95 | |
| | Total | 245 | 16.5849 | .05960 | 15.05 | 19.95 | |
| 800 meter (sec) | 2008 (1) | 51 | 206.6224 | 2.77037 | 175.11 | 255.98 | 1,20 |
| | 2009 (2) | 51 | 206.6224 | 2.77037 | 175.11 | 255.98 | |
| | 2010 (3) | 55 | 206.8395 | 2.63407 | 175.11 | 255.98 | |
| | 2011 (4) | 40 | 209.3165 | 3.09555 | 175.11 | 255.98 | |
| | 2012 (5) | 48 | 213.9210 | 3.17081 | 175.11 | 272.46 | |
| | Total | 245 | 208.5409 | 1.28901 | 175.11 | 272.46 | |
| Coordination (sec) | 2008 (1) | 51 | 69.7467 | 1.05666 | 55.14 | 83.24 | 0,21 |
| | 2009 (2) | 51 | 69.7467 | 1.05666 | 55.14 | 83.24 | |
| | 2010 (3) | 55 | 69.3387 | 1.01078 | 55.14 | 83.24 | |
| | 2011 (4) | 40 | 69.3213 | 1.18454 | 55.14 | 83.24 | |
| | 2012 (5) | 48 | 70.6258 | 1.34231 | 55.14 | 90.59 | |
| | Total | 245 | 69.7579 | .50152 | 55.14 | 90.59 | |

While obtaining a statistically significant difference in 100 meters running values of 14 year female children ($p < 0,05$), there were no significant changes in their 800 meters running and coordination values ($p > 0,05$).

Table 4. Comparison of change in female candidates according to branches

| Running | Branches | N | Mean | SD | Min. | Maks. | F |
|---------------------------|----------------|-----|--------|------|--------|--------|------|
| 100 meter (sec) | Athletics (1) | 42 | 16.37 | 0.14 | 15.05 | 18.03 | 0,70 |
| | Basketball (2) | 28 | 16.57 | 0.17 | 15.05 | 18.80 | |
| | Volleyball (3) | 52 | 16.59 | 0.14 | 15.05 | 19.95 | |
| | Handball (4) | 36 | 16.75 | 0.15 | 15.10 | 19.60 | |
| | Soccer (5) | 25 | 16.61 | 0.19 | 15.10 | 18.03 | |
| | Gymnastics (6) | 62 | 16.63 | 0.12 | 15.39 | 19.90 | |
| | Total | 245 | 16.58 | 0.06 | 15.05 | 19.95 | |
| 800 meter (sec) | Athletics (1) | 42 | 208.95 | 3.17 | 175.11 | 255.98 | 0,27 |
| | Basketball (2) | 28 | 205.66 | 3.30 | 175.11 | 255.98 | |
| | Volleyball (3) | 52 | 207.56 | 2.93 | 175.11 | 255.98 | |
| | Handball (4) | 36 | 210.94 | 3.58 | 178.38 | 261.83 | |
| | Soccer (5) | 25 | 207.67 | 4.03 | 175.11 | 255.98 | |
| | Gymnastics (6) | 62 | 209.35 | 2.55 | 178.38 | 272.46 | |
| | Total | 245 | 208.54 | 1.29 | 175.11 | 272.46 | |
| Coordinat ion (sec) | Athletics (1) | 42 | 70.26 | 1.22 | 55.14 | 83.09 | 0,51 |
| | Basketball (2) | 28 | 70.69 | 1.53 | 56.53 | 90.41 | |
| | Volleyball (3) | 52 | 68.93 | 0.99 | 55.14 | 83.24 | |
| | Handball (4) | 36 | 70.75 | 1.47 | 55.14 | 90.59 | |
| | Soccer (5) | 25 | 70.28 | 1.51 | 56.53 | 83.24 | |
| | Gymnastics (6) | 62 | 68.91 | 1.01 | 55.14 | 88.05 | |
| | Total | 245 | 69.76 | 0.50 | 55.14 | 90.59 | |

There was not any statistically significant difference in 100, 800 meters running values and coordination values of 14 year female children according to branches ($p>0,05$).

4. Results and Discussion

In the study in Gülizar Hasan Yılmaz Fine Arts and Sports High School in Samsun by Çebi et al. (2013), the average was found as 14.07 sec for male students and 16.68 sec for female students in the 100 m running values. These data are in line with the degrees of 14.63 16.58 sec for male students and 16.58 sec for female students found in our study. When the data of German Sports Union for the year 2007 is examined, average 100 m running values for 13-14 year-old male and female students are 15.5 sec and 16.4 sec, respectively. When compared to the students in our study, it is seen that the values for male students are different in favor of sports high schools despite close degrees to each other for female students. This result may be caused by the individual differences or the state of importance of the competition in which the degrees were taken. The best time results for both male and female students of sports high school were obtained from track and field students in 100 m and it can be said that branch directed working was effective in these results.

In his study, Karabulut (2004) took 800 m running degrees of female students aged 13-14 who take physical education course after getting them to do physical activity for 14 weeks. In

the study, 800 m degree average for female students was found 271.76 sec which is similar to the running average of 208.54 sec belonging to the students who took sports high school entrance exam. This difference may be because the students being prepared for sports high school entrance exam were more trained than the ones in Karabulut's (2004) study. The reason why no significant difference occurred when female students were evaluated according to the branches could be because of inability to have enough branch directed improvement.

As 1200 m running is not performed in international competitions, enough data was not found in the literature. In a study conducted by Zsidegh et al. (2007), running values for 1200 m in a male student group aged 14 on average was obtained as 316.59 sec. Better degrees of male students who took aptitude tests compared to the running values in the study mentioned may originate from individual differences or the positive motivation of the student group based on succeeding in the exam. In the current study, the lowest degrees in 1200 m running were obtained from the candidates who entered the exam in gymnastics branch. According to the result, it can be stated that gymnastics is not a branch of sports which is directed to the discipline being necessary for middle distance running

Coordination is a complicated motor skill. It has a determinant role in technical and tactical applications (Aşçı, Gökmen and Karagül, 1995). In aptitude tests, coordination test consisting of different tracks is one of the most important candidate selection criteria. In the study by Çebi et al. (2013), coordination degree of male candidates who took sports high school entrance exam was found 70.85 sec and that of female students was found 82,51 sec on average. The degrees found in the current study as 59.50 sec for male candidates and 69.76 sec for female candidates on average are different from the degrees in the mentioned study. As a result of the differentiation of coordination test tracks, the results in the literature and the ones obtained in this study disagree with each other. In the study, it is seen that male students taking the test in track and field branch obtained the best degrees both in 100 m and coordination tracks. Therefore, it can be concluded that the one with better speed has better coordination as well.

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