Investıgatıon of Respiatory Parameters, Hand-Eye Coordinations And Body Mass Indexes of Superior Intelligence Students Between 8 and 9 Years

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Abstract

Abstract: The aim of this study was to investigate respiratory parameters, hand-eye coordination and body mass indexes of gifted students aged 8-9 years. The population of the research consists of 124 students from 23,228 students in the second year in Malatya. The research group consists of 73 students (37 girls and 36 boys). To determine students' intelligence levels as data collection tools Wechsler Intelligence Scale for Children (Savaşır and Şahin, 1995) was applied, Mir Spirolab III brand spirometer is used for measurement of the functions, dart was performed for hand-eye coordination and weight and height measurements were taken for Body Mass Index (BMI). One - way ANOVA was used for comparisons. Significance level was tested with $\alpha = 0.05$. The findings of the study showed that children with normal intelligence (n = 4) Wisc-r had a total of 105.75 ± 2.36; children with bright intelligence (n = 10) 114.30 ± 2.40; children with superior intelligence (n = 26) 124.30 ± 2.71; children with very high intelligence (n = 22) 134.18 ± 2.48; genius group (n = 11) children were found to score 145.73 ± 3.95. There was no statistically significant difference (p> 0.05) between FVC, FEV1, PEF, Dart mean and BMI according to intelligence groups of children. As a result, there was no significant difference between respiratory parameters, hand-eye coordination and BMI according to intelligence levels of 8-9 years old children. Therefore, it can be said that gifted children do not have any physical difference compared to the children in the other intelligence group.

Key Words: Gifted Children, Physical Characteristics, Wechsler Intelligence Scale.

INTRODUCTION

A gifted child is a person who is superior to his / her peers in most of his / her mental abilities or intelligence, who has a high level of creativity and has a high sense of duty in completing the work he / she started (1) . It was seen that gifted children gained personal awareness starting at an early age compared to their peers, and that the level of moral judgment and sensitivity to social and ethical values were realized at a higher level (13).

These children are children who are superior to 98% of a randomly selected cluster from their peer groups (1,12). In other words, they have been and will always be present in the society at a rate of approximately 2% (2).

According to the 1997 general census in our country, the ratio of gifted people to the general population is approximately 2.00%. According to the data of 1997, 80.400 in the 0-2 age group, 78.000 in the 3-5 age group, 131.400 in the 6-10 age group, 80.800 in the 11-13 age group, 81.400 in the 14-16 age group, a total of 452,000, 0-16 age group was superior. talented individuals (7).

In order for a child to be identified as gifted, he / she has to obtain a certain Intelligence Department (ZB) score from the scientific validity and reliability of the Wechsler Intelligence Scale (21) or Stanford-Binet Intelligence Scale (5). According to the Department of Intelligence score classification, 90-109 "normal intelligence", 110-119 "brilliant intelligence", 120-129 "superior intelligence", 130-

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139 "very superior intelligence" and 140 and above are defined as "Genius (20,4,19.18).

It is accepted that gifted children are different from children with normal intelligence and the basic hypothesis when evaluating these children is that they have superior features in terms of physical, mental and social aspects (8,6,3). According to Çağlar (2004), the physical characteristics of gifted children are as follows:

"According to Ataman (1998), as a cluster, body structures are larger and healthier than their peers. Birth weights and lengths are above average. They are earlier than their peers in learning walking, speaking and other movement skills. Sensory organ disorders are less common. They are resistant to diseases. Their average lifespan is longer. They are strong and their response is faster in activities requiring coordination (12)."

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According to Ataman's study on Turkish children aged 6-7 years in 1974, the height, weight, head anterio-posterio diameter and lung capacity measurements of the Gifted Cluster were found to be higher than those of the Under-Gifted Cluster and the difference was significant at p <0.05 level. (10).

The aim of this study is to examine the physical characteristics of gifted students at primary level between the ages of 8-9 such as respiratory parameters, hand-eye coordination and body mass indexes according to the students in different intelligence groups.

MATERIAL & METHOD

The descriptive method was adopted in the research. As a result of observations and screenings by classroom teachers from 23,228 students studying in the 2nd year of primary school in Malatya, the research universe was carried out by 4 expert staff within the Malatya Guidance Research Center (RAM). The Wechsler Intelligence Scale for Children

(WISC-R) was administered to 124 students. The sample of the study consists of 73 students (37 girls and 36 boys). Wechsler Intelligence Scale for Children (16) was applied to determine students' intelligence levels as data collection tools, Mir Spirolab III brand spirometer was used for lung function measurement, dart shot was used for hand-eye coordination and weight and height measurement for Body Mass Index (BMI). It was obtained. The Wechsler Intelligence Scale for Children (WISC-R) was developed by Wechsler in 1949 and revised in 1974. Wisc-R; It consists of two parts: Verbal and Performance. Standardization of WISC-R on Turkish children was performed by Savaşır and Şahin on a sample of 1639 people in the 6-16 age group. Two half test reliability was 0.97 for the Verbal Intelligence Division, 0.93 for the Performance Intelligence Division and 0.97 for the Total Intelligence Division (16). According to the IQ score taken from intelligence measurements, 90-109 "normal intelligence", 110-119 "brilliant intelligence", 120-129 "superior intelligence", 130-139 "very superior intelligence" and 140 and above "Genius tanımlan are defined according to intelligence classification. (20,4,19,18). In this study, this intelligence classification was used. Prior to spirometric measurements, the students were screened about the content and application of the test. In the measurements, the students were seated on a chair, pegs were attached to their noses and the exercise was given by giving information about maximum breathing. During the measurements, students were verbally motivated. All measurements were performed after sitting in the sitting position with the nose closed by a pincer, allowing the patient to become accustomed to this type of respiration by breathing a few breaths in a pale volume connected to the spirometer with a mouthpiece.

Then, two measurements were taken from the student and the best measurement was evaluated. In the FVC measurement, subjects were asked to breathe normally several times and then perform the strongest expression possible after a very deep inspration. In spirometry measurements, FVC (forced vital capacity), FEV1% (forced air expiration in 1 second) and PEF measurements were evaluated. For the hand-eye coordination of the students, a demonstration was made about how to shoot darts hanging on the wall at a height of 1m from the

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ground at a distance of 2 m , a demonstration was made about how to shoot darts hanging on the wall, and then the students were given 6 test shots. Six shots were made to the students. In order to determine the hand-eye coordination of the student, it was fixed to a metal table at a height of 1.40 m and 2 m away. And at a distance to a metal table determined by measuring 6 darts in the specified size of hits and hit points were collected by the average of the total score. Prior to this, all students were given 3 trial rights. The ages of the students were determined and recorded by looking at their identity information. To determine the BMI, a portable digital weight measuring device with a sensitivity of 0.1kg was used for weight measurements. Body weight of subjects; In the anatomical posture, appropriate sports clothes were measured as "kg, provided that the feet were naked or thin clothes. Portable height measuring device was used for height measurement. The measurements were recorded as "cm. In addition, BMI was taken by Body Composition Analyzer with Bioempedance method to determine BMI.

Bioelectrical impedance analysis was performed by allowing the participants to climb up to the device with bare feet without suitable clothes and metal parts on them. In statistical comparisons, the variables were given as descriptive statistics, and one-way analysis of variance (Annova) was used in multiple tests. A = 0.05 was chosen as the level of significance.

RESULT

The aim of this study was to investigate the respiratory parameters, hand-eye coordination and body mass indexes of gifted students aged 8-9 years. In this study, a total of 73 students (37 females and 36 males) were identified with the wiscar intelligence scale. levels, age, height, weight, BMI, hand-eye coordination and respiratory functions are presented in the tables below.

Table 1. Intelligence scores, weight and height distribution of students according to their intelligence status

Variables	Intelligence States	N	X	SS
WISC-R Verbal ZB score	Normal İntelligence	4	109.75	4.78
	Bright İntelligence	10	116.20	9.40
	Superior İntelligence	26	125.12	7.79
	Outstanding İntelligence	22	133.59	6.13
	Genius	11	147.36	5.88
	Total	73	128.96	12.47
WISC-R Performance ZB score	Normal İntelligence	4	100.75	9.09
	Bright İntelligence	10	109.80	9.00
	Superior İntelligence	26	120.19	7.37
	Outstanding İntelligence	22	127.73	6.33
	Genius	11	135.09	7.51
	Total	73	122.22	11.62
WISC-R Verbal ZB score	Normal İntelligence	4	105.75	2.36
	Bright İntelligence	10	114.30	2.40
	Superior İntelligence	26	124.30	2.71
	Outstanding İntelligence	22	134.18	2.48
	Genius	11	145.73	3.95
	Total	73	128.08	11.22
Weight (kg)	Normal İntelligence	4	27.00	1.41
	Bright İntelligence	10	26.40	3.68
	Superior İntelligence	26	31.50	6.36
	Outstanding İntelligence	22	30.45	5.70
	Genius	11	30.54	7.58
	Total	73	30.09	6.04
Height (m)	Normal İntelligence	4	1.29	0.06
	Bright İntelligence	10	1.28	0.04
	Superior İntelligence	26	1.30	0.04
	Outstanding İntelligence	22	1.29	0.04
	Genius	11	1.29	0.04
	Total	73	1.29	0.04

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In Table 1, the average score of WISC-R verbal IQ from Wechsler Intelligence Scale for Children was 128.96 ± 12.47; average performance , performance score 122.22 ± 11.62; in total, the average score of IQ was 128.08 ± 11.22.

According to the WISC-R test results of the children participating in the study, the average WTC-R total score of children with normal intelligence (n = 4) was 105.75 ± 2.36; children with bright intelligence (n = 10) 114.30 ± 2.40; gifted children (n = 26) were 124.30 ± 2.71; children with very high intelligence (n = 22) were 134.18 ± 2.48; genius group (n = 11) children were found to score 145.73 ± 3.95.

In Table 1, the average weight of the children participating in the study was determined as 30.09 ± 6.04 and their height was 1.29 ± 0.04 (meters).

Table 2. Comparison of the parameters of respiration. dart and bki according to students' intelligence

Variables	Gender	N	X	SS	F	p
FVC	Normal İntelligence	4	2.15	0.19	1.848	0.130
	Bright İntelligence	10	1.91	0.34		
	Superior İntelligence	26	2.01	0.23		
	Outstanding İntelligence	22	1.86	0.28		
	Genius	11	1.85	0.26		
	Total	73	1.94	0.27		
FEV1	Normal İntelligence	4	1.87	0.45	1.039	0.394
	Bright İntelligence	10	1.64	0.30		
	Superior İntelligence	26	1.76	0.22		
	Outstanding İntelligence	22	1.70	0.26		
	Genius	11	1.63	0.28		
	Total	73	1.71	0.27		
PEF	Normal İntelligence	4	3.02	0.52	0.198	0.939
	Bright İntelligence	10	3.11	0.99		
	Superior İntelligence	26	3.23	0.72		
	Outstanding İntelligence	22	3.09	0.76		
	Genius	11	3.05	0.62		
	Total	73	3.13	0.74		
Dart Average	Normal İntelligence	4	3.33	1.73	1.000	0.414
	Bright İntelligence	10	3.20	1.68		
	Superior İntelligence	26	4.14	2.91		
	Outstanding İntelligence	22	3.35	1.36		
	Genius	11	2.72	1.75		
	Total	73	3.51	2.16		
BMİ	Normal İntelligence	4	16.12	1.67	1.691	0.162
	Bright İntelligence	10	15.98	1.21		
	Superior İntelligence	26	18.38	3.09		
	Outstanding İntelligence	22	18.18	3.14		
	Genius	11	18.09	3.28		
	Toplam	73	17.82	2.96		

Table 2 shows the mean FVC of the children participating in the study was 1.94 ± 0.27; The average FEV1 was 1.71 ± 0.27; The mean PEF was 3.13 ± 0.74; The mean darts were 3.51 ± 2.16 and the mean BMI was 17.82 ± 2.96. There was no statistically significant difference (p> 0.05) between FVC, FEV1, PEF, Darts and BKI according to students' intelligence.

DISCUSSION & CONCLUSION

In our study, the average score of WISC-R verbal IQ was 128.96 ± 12.47; average performance performance score 122.22 ± 11.62; In total, the average IQ score was 128.08 ± 11.22. Tan and colleagues in their study in the province of Ankara

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between the ages of 6-12 Science and 59 gifted children who were selected to Art Center had the average verbal IQ score of 133,71 ± 7,45; The mean score of performance IQ was 134.46 ± 8.25; found that the total IQ average score was 139.63 ± 6.37 (17). The intelligence scores of the children in our study Tan and his colleagues. their intelligence score was lower than the children. It is thought that this situation may have been due to the fact that among the more students in Ankara province, Malatya is selected among the Science and Arts Center students. Table 2 shows the mean FVC of children was 1.94 ± 0.27; The average FEV1 was 1.71 ± 0.27; The mean PEF was 3.13 ± 0.74; The average darts were 3.51 ± 2.16 and the average BMI was 17.82 ± 2.96. There was no statistically significant difference (F> 0.05) between FVC, FEV1, PEF, Darts and BKI according to students' intelligence.

According to the study conducted by Ataman on 6-7 years old Turkish children, the height, weight, and lung capacity measurements of the Gifted Cluster were found to be higher than those in the sub-normal cluster, and the difference was found to be significant at p <0.05 (10). These results do not match the results of our study. In a study conducted by Esmaili and his colleagues. In children aged 7-11, the average BMI was 18.08 (9).

In the study conducted by Kalkavan and his colleagues. In basketball players in the 9-13 age group, FVC was found to be 1.63 ± 3.38 and FEV1 was 1.55 ± 3.23 (11). Although there is a parallel between FVC and FEV1 values in this study and the results of our study, it is thought that the reason for the increase in the values of the athletes measured in the above-mentioned study is that they actively participate in a branch. In their study conducted by Özgül and her colleagues. On children aged 10-14 years in swimming, the mean scores of pulmonary function tests were found to be 1.85 ± 0.42, 1.88 ± 0.41, FEV1, 1.88 ± 0.41 78 ± 0.38, they found that after training 1.80 ± 0.40 (14).

The results of our study showed a parallel between the FVC and FEV1 values between the swimmer group in this study.

In a study conducted by Robben and colleagues. On 27 children (12 boys, 15 girls) who were active in different sports branches in the 7-12 age group, FVC2.3 ± 0.3lt, FEV1 1.9 ± 0.2lt, PEF 3.6 ± 0.6 lt in girls and FVC in girls 1.9 ± 0.43lt, FEV11.6 ± 0.3lt, they found that the PEF 3.0 ± 0.5l (15).

The aim of this study was to compare respiratory parameters, hand-eye coordination and body mass indexes of gifted students aged 8-9 years. As a result, there was no significant difference between respiratory parameters, hand-eye coordination and BMI according to intelligence levels of 8-9 years old children. Therefore, the prominent physical characteristics of gifted children mentioned in the screening of studies on the field review were not found in gifted children in our study.

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