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Original Article

Physical fitness and body composition profile of young people with mild intellectual impairment: a cross-sectional study among Iranian population

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Abstract: The current study aimed to investigate that whether young people with mild intellectual impairments (II) having various levels of IQ have different physical fitness and body composition. Moreover, this study aims to answer this question that is there any association among IQ level, Body Mass Index, and physical fitness factors? A number of 1200 students from all Tehran's special high schools were screened, and finally, 355 of them with mean age 24.6 ± 3.0 years, height 173.5 ± 6.8 cm, weight 78.6 ± 8.5 kg, and body mass index (BMI) 23.3 ± 2.8 kg/m2 were chosen to be included in the study based on including criteria. All participants had a mild II with the IQ range of 50 to 75 based on the Wechsler Intelligence Test. Participants' physical fitness was assessed by Eurofit special battery test. Body composition evaluation measured by Body Composition Scale. The results showed that there were significant differences in most physical fitness factors between males and females, except in dynamic balance and flexibility ($P \leq 0.05$). There was a significant association between IQ levels with all physical fitness factors ($P \leq 0.05$) except for flexibility. Different IQ levels were associated with physical fitness factors, so that II students with low IQ had lower physical fitness than those who had higher IQ. Practitioners should consider these differences when working with II people of different gender and different level of IQ.

Keywords: Eurofit, BMI, Intelligence Test, intellectual disability, IQ level;

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1. Introduction

People with intellectual imparments (II) are mentally different from their peers and have less physical activity and lower physical ability levels (G. C. Frey, Stanish, & Temple, 2008; Looper & Ulrich, 2010). The II may affect learning and physical activity; In particular, cognitive delays are likely to affect reaction time, basic motor learning patterns, physical fitness, and the development of complex motor skills(Mayda, Karakoc, & Ozdal, 2016). Therefore, children with II have more deficient basic motor skills than normal children(G. Frey & Chow, 2006). Since physical abilities are the prerequisite of many daily activities such as eating, dressing, getting up from a chair, and walking, the individual's physical fitness with II and improving each of its factors have attracted many researchers' attention (Cowley et al., 2010). These factors are essential for a person's physical independence and are crucial in the functional appraisal of an individual's abilities, especially with II (Graham & Reid, 2000). The results of many studies also indicated that the physical fitness factors, including cardiorespiratory endurance and body composition(G. Frey & Chow, 2006; Golubović, Maksimović, Golubović, & Glumbić, 2012), muscle strength and endurance(Cowley et al., 2010), balance(Hale, Bray, & Littmann, 2007), and motor coordination (Skowroński, Horvat, Nocera, Roswal, & Croce, 2009) in people with II are lower than healthy people. The low level of physical fitness in these people seems to be related to limitations to motor development(G. Frey & Chow, 2006; Hartman, Houwen, Scherder, & Visscher, 2010; Vuijk, Hartman, Scherder, & Visscher, 2010), inactive lifestyle and less chance of participating in recreational and social activities(Guidetti, Franciosi, Gallotta, Emerenziani, & Baldari, 2010), lack of motivation to try hard during the test and tendency to stop the test in times of distress(Graham & Reid, 2000).

Therefore, the physical fitness and body composition profile of different groups of people with disabilities, significantly individuals with II, such as their non-disabled counterparts, has been developed for future planning(Skowroński et al., 2009; Van de Vliet et al., 2006). Vliet et al. investigated elite athletes' physical fitness profiles with II who competed in the World Championships in Sweden through the Eurofit special battery test(Van de Vliet et al., 2006). Another study looked at how the Eurofit special battery test can differentiate functional differences between people with II (Skowroński et al., 2009). However, despite researchers' interest in studying the profile of physical fitness and body composition in different groups with II and clarifying its relationship with influential variables, this issue still needs further study.

On the other hand, the II people are usually categorized into different levels (borderline, mild, moderate, severe, and profound) based on their IQ scores and, therefore, some studies have investigated the association between physical fitness and body composition with different II levels(Hartman et al., 2010; Lahtinen, Rintala, & Malin, 2007; Zhang, Zhu, Haegele, Wang, & Wu, 2020). A longitudinal study investigated the physical performance of people with II and their performance alterations over 30 years and concluded that intelligence has a significant effect on static balance control and manual skills; The higher intelligence, the better physical performance(Lahtinen et al., 2007). Another study found a significant relationship between the severity of II and body mass index (BMI), so that people with mild II were in a better position in terms of BMI than people with more severe II. Guidetti et al. (2010) aimed to compare the physical fitness of mentally disabled athletes with non-athletes and investigated the relationship between IQ and physical fitness factors (Guidetti et al., 2010). As a result of the literature, people with different severity of intelligence may have different physical fitness, i.e., the mild II's physical fitness is better than moderate they are better than severe ones. However, it is unclear whether there is a difference between the physical fitness factors within each level. For example, persons with mild II may display a range of problems that cannot be identified based on the IQ criterion alone(Nouwens, Lucas, Smulders, Embregts, & van Nieuwenhuizen, 2017). Therefore, physical fitness and body composition may vary between different levels of mild II.

The current study aimed to investigate young II people's physical fitness and body composition profile and answer whether mild IIs with different IQ levels have different physical fitness and body composition? Moreover, is their difference in IQ, gender, and BMI related to physical fitness factors?

2. Materials and Methods

2-1. Study design and setting

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The current study was cross-sectional, describing young people's physical fitness and body composition profile with II and comparing the physical fitness factors with IQ. The ethical approval was obtained by the Ethics Committee on the Physical Education Research Institute, Tehran, Iran. The study was reported under the rigor of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline (Vandenbroucke et al., 2009).

2-2. Participants

The participants were recruited by verbal invitation and advertisements in bulletin boards from the special education schools, associations, and foundations for people with II in Tehran, Iran. One thousand and twenty hundred young II people were screened, and finally, 355 subjects with age 24.6 ± 3.0 years, height 173.5 ± 6.8 cm, weight 78.6 ± 8.5 kg, and body mass index (BMI) 23.3 ± 2.8 kg/m2 were recruited based on the inclusion criteria. The inclusion criteria included having a mild II with the IQ range of 50 to 75 based on the Wechsler Intelligence Test. Exclusion criteria included having Autism and learning disabilities, speech disorders, Down syndrome, or any other mental and physical disabilities, have a history of surgery, illness, or injury that results in an inability to perform physical activities, and have obesity (BMI≥ 30).

2-3. Procedures

Participants' required medical and psychosocial information (e.g., additional disabilities, physical characteristics, drugs used, educational status, and IQ certificate) were extracted from documented profiles in their educational schools, associations, and foundations. Moreover, the psychologists and behavioral therapists of the Health Management, Diagnosis, and Prevention Department of the Exceptional Education Organization classified the participants as high, medium, and low mild II levels according to their IQ scores and the additional personal and environmental characteristics which impact their support needs.

2-4. Outcome variables

2-4-1. Physical fitness tests

Participants' physical fitness was assessed by Eurofit special battery test (Figure 1). These tests assess physical fitness factors related to the health and movement specific for the II people and include strength, speed, cardiorespiratory endurance, muscular endurance, flexibility, and balance(Skowroński et al., 2009; Van de Vliet et al., 2006). According to the research findings, the Eurofit special battery test can detect functional differences in physical fitness among people with different II levels (Van de Vliet et al., 2006).

In the Eurofit special battery test, there were two different walking tests on the balance board to assess balance; the movement hand-speed and running tests for evaluating speed; sit and reach test to assess flexibility; long jump and vertical jump for determining the explosive leg power; throwing medicine ball test to assess the strength of hands; sit-up test for muscular endurance; and 20-meter shuttle for assessment of cardiorespiratory endurance (Skowroński et al., 2009). All tests were measured according to the methods described in previous studies (Giagazoglou et al., 2013; Salaun & Berthouze-Aranda, 2012; Skowroński et al., 2009; Van de Vliet et al., 2006). The test battery requires 35-40 minutes to administer, and it uses very simple equipment.

Figure 1. Eurofit Special Battery Test

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2-4-2. Body composition

Body composition evaluation included height, weight, BMI, body fat percentage, body fat mass, and skeletal mass measured by Body Composition Scale (Manufacturer: Biospace; Model: InBody 230; USA).

2-5. Statistical analysis

Data analysis was performed using Statistical Package for Social Sciences (SPSS) software (version 21, SPSS, Inc, Chicago, IL USA). Descriptive statistics, including measures of central tendency and dispersion, were calculated for all outcome measures. Normal distribution was evaluated with the Kolmogorov–Smirnov's test. To compare the research variables according to gender and IQ level, a one-way analysis of variance (ANOVA) test was used. The Spearman correlation test was used to determine the association between physical fitness and IQ levels, considering that the IQ level was three levels (high, medium, and low). Data analysis was performed at a significance level of 95%. Of internal consistency and its stability, Cronbach's alpha index was used in a preliminary study (including 30 people) (Asadollahi, Gholami Bidkhani, Mahian Jaghargh & Yazdanian, 2019: 493) that the alpha value for the whole questionnaire was 0.972 (Direct effects $\alpha = 0.983$ and indirect effects $\alpha = 0.960$) which this coefficient was confirmed again after complete collection of questionnaires. Sample adequacy was also evaluated as desirable one according to the index (KMO = 0.9). In order to analyze the research data, demographic data and a questionnaire were first examined using descriptive statistical methods (mean, standard deviation, percentages, etc.). Then, in the inferential statistics section, via the exploratory factor analysis test and the Varimax rotation method, the structure of the general factors of the sports industry was determined. Two factor analysis were conducted, one for direct and one for indirect effects. According to the results of exploratory factor analysis, the sports industry affected by COVID-19 disease includes eight factors in direct effects and four ones in indirect effects. Then, by using of one-sample t-test, of the effect of the outbreak of COVID-19 disease on each of the extracted factors was determined, and finally, path analysis was modeled by structural equation modeling and according to the results of the exploratory model. It must be noted that all statistical analyzes were performed through SPSS 24 and Amos statistical software.

3. Results

Tables 1 and 2 describe the subjects' demographic and body composition characteristics by gender and IQ level, respectively. Tables 3 and 4 demonstrate physical fitness profiles in II young people per gender and IQ level, respectively. As shown in Table 3, there was no significant difference in dynamic balance and flexibility between females and males with II ($P \leq 0.05$). Moreover, there were significant differences in the other physical fitness factors, including endurance abdominal muscles, long and vertical jump, hand movement speed, hand strength, speed in 25 meters, and Vo2max between females and males with II ($P \leq 0.05$).

Table 4 shows no significant difference in flexibility between different levels of IQ in young people with II ($P \leq 0.05$). However, regarding the other factors, including dynamic balance, endurance abdominal muscles, long and vertical jump, hand movement speed, hand strength, speed in 25 meters, and Vo2max, there were significant differences between different IQ levels in young people with II (Table 4). Post hoc tests demonstrated significant differences between low and high IQ groups in the dynamic balance between moderate and high groups in endurance abdominal muscles. The significant differences were between low and moderate, with the high group in the long jump, vertical jump, hand movement speed, speed in 25 meters, and Vo2max. The significant difference was between all three groups with low, moderate, and high IQ groups regarding hand strength.

Table 5 shows the Spearman correlation coefficient test results between physical fitness and IQ levels in the II people, per gender, and total. There was a significant association between IQ levels with all physical fitness factors in young people with II ($P \leq 0.05$) except for flexibility. However, there was no significant association between IQ levels with endurance abdominal muscles in females ($P \leq 0.05$). Moreover, there was no significant association between IQ levels with endurance balance in males ($P \leq 0.05$).

Table 1. Physical fitness profiles in young II people per gender (ANOVA)

Variables	Group	N	Mean ± SD	F	P-value

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Flexibility (cm)	Female	195	19.32±9.52	0.182	0.670
	Male	159	19.76±9.68		
Dynamic Balance (Score)	Female	195	5.76±0.48	0.408	0.523
	Male	159	5.79±0.53		
Endurance abdominal muscles (Number)	Female	195	9.93±5.04	34.128	0.001*
	Male	149	12.75±3.47		
Long jump (cm)	Female	189	97.93±33.52	14.236	0.001*
	Male	157	114.39±47.37		
Vertical jump (cm)	Female	194	16.06±7.90	50.538	0.001*
	Male	160	23.08±10.64		
Hand Movement Speed (s)	Female	195	28.37±9.01	8.793	0.003*
	Male	160	25.45±9.51		
Hand strength (cm)	Female	193	253.23±70.85	119.196	0.001*
	Male	159	371.13±128.13		
Speed- 25m running (s)	Female	176	6.93±1.41	114.338	0.001*
	Male	155	5.41±1.13		
Vo2 max	Female	173	19.97±2.72	94.854	0.001*
	Male	155	25.23±6.49		

Table 2. Physical fitness profiles in young II people per level of IQ (ANOVA)

Variables	Group	N	Mean ± SD	F	P-value	Post hoc
Flexibility (cm)	Low	70	18.17±10.02	1.478	0.230	------
	Moderate	157	19.28±9.09			
	High	127	20.95±5.89			
Dynamic Balance (Score)	Low	70	5.62±0.66	6.245	0.002*	Low<High
	Moderate	159	5.76±0.49			
	High	125	5.88±0.38			
Endurance abdominal muscles (Number)	Low	70	10.84±3.79	5.101	0.007*	Moderate<High
	Moderate	159	10.50±5			
	High	115	12.26±4.42			
Long jump (cm)	Low	69	91.73±47.73	11.482	0.001*	Low<High Moderate<High
	Moderate	154	101.10±37.13			
	High	123	118.45±38.61			
Vertical jump (cm)	Low	68	16.33±9.01	11.986	0.001*	Low<High Moderate<High
	Moderate	159	17.88±9.06			
	High	127	22.48±10.45			
Hand Movement Speed (s)	Low	71	30.60±10.77	12.970	0.001*	Low>High Moderate>High
	Moderate	161	27.81±9.05			
	High	123	24.01±7.85			
Hand strength (cm)	Low	69	259.92±97.40	10.400	0.001*	Low< Moderate<High
	Moderate	156	302.46±108.13			
	High	127	336.73±127.35			
Speed- 25m running (s)	Low	65	6.67±1.68	7.837	0.001*	Low>High Moderate>High
	Moderate	150	6.33±1.53			
	High	116	5.82±1.22			
Vo2 max	Low	63	21.33±5	9.093	0.001*	Low<High Moderate<High
	Moderate	149	21.60±4.71			
	High	116	24.18±6.36			

Table 1. Correlation between physical fitness factors and IQ levels, per gender and in total (Spearman Correlation Coefficient Test)

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Variables	Female			Male			Total		
	N	CC	P-value	N	CC	P-value	N	CC	P-value
Flexibility	195	0.001	0.997	159	0.171	0.031*	354	0.082	0.124
Dynamic Balance	195	0.228	0.001*	159	0.140	0.079	354	0.188	0.001*
Endurance abdominal muscles	195	0.110	0.125	149	0.186	0.023*	344	0.145	0.007*
Long jump	189	0.218	0.003*	157	0.270	0.001*	346	0.250	0.001*
Vertical jump	194	0.152	0.035*	160	0.324	0.001*	354	0.242	0.001*
Hand Movement Speed	195	-0.245	0.001*	160	-0.273	0.001*	355	-0.259	0.001*
Hand strength	193	0.180	0.012*	159	0.297	0.001*	352	0.209	0.001*
Speed- 25m running	176	-0.183	0.015*	155	-0.239	0.003*	331	-0.205	0.001*
Vo2 max	155	0.243	0.002*	173	0.273	0.002*	328	0.233	0.001*

4. Discussion

In the present study, the physical fitness profile of young people with II was described and compared based on gender and IQ level. Comparison of the profile described for the current study participants with those in Skowronski et al. study showed that the physical fitness profile of Iranian II people was lower than Polish ones in all factors(Skowroński et al., 2009). Surprisingly, the average scores of abdominal muscle endurance, hand strength, explosive power, flexibility, and speed of Iranian male people with II were lower than those of Polish females with II. Researchers believe that limitations and barriers to motor development, sedentary lifestyle, low chance of participating in recreational and social activities, lack of motivation to maximize effort during the test are important causes of low physical fitness profile in people with II (G. C. Frey et al., 2008; Graham & Reid, 2000; Guidetti et al., 2010; Hartman et al., 2010; Vuijk et al., 2010). These factors seem to be more potent among Iranian young people with II because, according to the recorded data of our participants, about 70% of them live in families with low cultural and economic levels.

As expected, we found significant differences in most physical fitness factors, including endurance abdominal muscles, long and vertical jump, hand movement speed, hand strength, speed in 25 meters, and Vo2max between females and males with II. However, differences in dynamic balance and flexibility were not found. These findings are consistent with previous studies. They found that there were significant differences between muscular endurance, hand strength, long and vertical jump, hand movement speed, speed of 25 meters, and cardiovascular endurance in males and females with II, so that In all of these factors, males were better than females (Chow & Frey, 2005; G. C. Frey et al., 2008; Lahtinen et al., 2007; Skowroński et al., 2009; Van de Vliet et al., 2006). Therefore, it seems that at equal levels of IQ, male physical fitness would be higher than females with II.

Although we did not find any differences, women have more balance and flexibility than men, according to the literature. Our findings are inconsistent with those of Skowronski et al.(Skowroński et al., 2009) and Chow et al. (Chow & Frey, 2005), which might be related to the difference between the age range of the subjects and the type of tests used to evaluate balance flexibility in II people. Also, this contradiction may be attributed to the deficient activity of Iranian females compared to males.

The physical fitness profile was difference significantly between different IQ levels in young people with II. However, the flexibility was not different. One of the main reasons may be related to increased muscle tone and the inability to relax the muscles during the sit and reach test(Salaun & Berthouze-Aranda, 2012). On the other hand, some factors like differentiation in sensorimotor ability, motivation, sedentary lifestyle, and cardiovascular problems can affect the physical fitness of II people with different levels of IQ (Cowley et al., 2010; Hale et al., 2007; Pitetti, Yarmer, & Fernhall, 2001;

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Salaun & Berthouze-Aranda, 2012). During the testing process, the examiner encouraged and excited the participants as much as possible to perform better. This can be one of the reasons for the better performance of II people with a high level of IQ than those with a low level of IQ in some physical fitness tests. Previous studies have shown that more educable II people with a high level of IQ than those with a low level of IQ were affected by verbal stimuli and encouragement (Salaun & Berthouze-Aranda, 2012). Also, it showed more cardiovascular problems in II people with low IQ than those with moderate and high IQ, which can be a factor for their poor performance in some tests such as 25m running. Moreover, II people with low IQ have deficits in processing and response to postural disturbances, so their balance ability might be less than II people with high IQ (Hale et al., 2007).

As the results of this study showed, there was a significant difference in hand muscle strength, abdominal muscle endurance, and lower limb explosive power between all three groups of high, medium, and low IQ of educable II people. This finding was following the results of previous studies that mentioned decreased strength in II people with low IQ compared to those with moderate and high levels of IQ (Guidetti et al., 2010; Hove, 2004; Lahtinen et al., 2007; Skowroński et al., 2009). This decrease in strength can be related to decreased muscle tone, dysfunction in the quality of their muscle tissues, inactive life and low chance of participating in exercise, insufficient motivation, inadequate attention, and inability to respond to specific motor needs.

Also, the results of this study showed that except for flexibility, there was a significant association between IQ levels with all factors of physical fitness in the II young people ($P \leq 0.05$) so that II people with high IQ had better muscular endurance, explosive power, speed, and cardiorespiratory endurance. These findings were consistent with the previous studies (Guidetti et al., 2010; Hove, 2004). To justify this finding, it can be noted that low intelligence disrupts normal brain development by causing physiological changes in brain structure, so many activities with complex movement patterns are affected. In a study regarding the physical function of II people, the author concluded that intelligence has a significant effect on static balance control and manual skills and that the higher the level of intelligence, the better the results(Lahtinen et al., 2007). In confirmation of this, the findings of Guidetti et al. (2010) also showed that IQ had a significant positive association with motor coordination, and as a result, athletes with lower IQ were weaker in motor coordination tests (Guidetti et al., 2010).

5. Conclusions

The physical fitness profile of young people with II was described and compared based on gender, demonstrated some differences between females and males in most physical fitness factors. Also, different IQ levels were associated with physical fitness factors so that II people with low IQ had lower physical fitness than those who had high IQ. Practitioners should consider these differentiations when working with II people of different gender and different level of IQ. This study's outcome can lead to the description of new physical fitness norms for individuals with II. The present data may also contribute to the discussion of trainability and talent identification of individuals with II..

Author Contributions: The authors participated in Conception of the work, Acquisition of data, Analysis and interpretation of data for the work, Writing, and revising the work, Final approval of the version to be published and agreement to be accountable for all aspects of the work.

Data Availability Statement: The measured data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest: Authors indicate no conflict of interest.

References

Chow, B., & Frey, G. C. (2005). An examination of health-related physical fitness levels in Hong Kong youth with intellectual disability . [Google Scholar]

Cowley, P. M., Ploutz-Snyder, L. L., Baynard, T., Heffernan, K., Jae, S. Y., Hsu, S., . . . Fernhall, B. (2010). Physical fitness predicts functional tasks in individuals with Down syndrome. *Med Sci Sports Exerc*, *42*(2), 388-393 . [Google Scholar]

Frey, G., & Chow, B. (2006). Relationship between BMI, physical fitness, and motor skills in youth with mild intellectual disabilities. *International journal of obesity*, *30*(5), 861-867 . [Google Scholar]

Frey, G. C., Stanish, H. I., & Temple, V. A. (2008). Physical activity of youth with intellectual disability: review and research agenda. *Adapted Physical Activity Quarterly*, *25*(2), 95-117 . [Google Scholar]

[DOI: 10.52547/hases.1.1.40]

Giagazoglou, P., Kokaridas, D., Sidiropoulou, M., Patsiaouras, A., Karra, C., & Neofotistou, K. (2013). Effects of a trampoline exercise intervention on motor performance and balance ability of children with intellectual disabilities. *Research in developmental disabilities. 34(9), 2701-2707.* [Google Scholar]

Golubović, Š., Maksimović, J., Golubović, B., & Glumbić, N. (2012). Effects of exercise on physical fitness in children with intellectual disability. *Research in developmental disabilities*, *33*(2), 608-614 . [Google Scholar]

Graham, A., & Reid, G. (2000). Physical fitness of adults with an intellectual disability: A 13-year follow-up study. *Research quarterly for exercise and sport*, *71*(2), 152-161 . [Google Scholar]

Guidetti, L., Franciosi, E., Gallotta, M. C., Emerenziani, G. P., & Baldari, C. (2010). Could sport specialization influence fitness and health of adults with mental retardation? *Research in developmental disabilities*, *31*(5), 1070-1075 . [Google Scholar]

Hale, L., Bray, A., & Littmann, A. (2007). Assessing the balance capabilities of people with profound intellectual disabilities who have experienced a fall. *Journal of Intellectual Disability Research*, *51*(4), 260-268 . [Google Scholar]

Hartman, E., Houwen, S., Scherder, E., & Visscher, C. (2010). On the relationship between motor performance and executive functioning in children with intellectual disabilities. *Journal of Intellectual Disability Research*, *54*(5), 468-477 . [Google Scholar]

Hove, O. (2004). Weight survey on adult persons with mental retardation living in the community. *Research in developmental disabilities*, *25*(1), 9-17 . [Google Scholar]

Lahtinen, U., Rintala ,P., & Malin, A. (2007). Physical performance of individuals with intellectual disability: A 30-year follow-up. *Adapted Physical Activity Quarterly*, *24*(2), 125-143 . [Google Scholar]

Looper, J., & Ulrich, D. A. (2010). Effect of treadmill training and supramalleolar orthosis use on motor skill development in infants with Down syndrome: a randomized clinical trial. *Physical therapy*, *90*(3), 382-390 . [Google Scholar]

Mayda, M. H., Karakoc, O., & Ozdal, M. (2016). The investigation of some physical, physiological and anthropometric parameters of visually impaired and non-impaired a national male judoka. *Journal of Education and Training Studies*, *4*(6), 192-198 . [Google Scholar]

Nouwens, P. J. G., Lucas, R., Smulders, N. B. M., Embregts, P. J. C. M., & van Nieuwenhuizen, C. (2017). Identifying classes of persons with mild intellectual disability or borderline intellectual functioning: a latent class analysis. *BMC Psychiatry*, *17*(1), 257. doi:10.1186/s12888-017-1426-8. [Google Scholar]

Pitetti, K. H., Yarmer, D. A., & Fernhall, B. (2001). Cardiovascular fitness and body composition of youth with and without mental retardation. *Adapted Physical Activity Quarterly*, *18*(2), 127-141 . [Google Scholar]

Salaun, L., & Berthouze-Aranda, S. E. (2012). Physical fitness and fatness in adolescents with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, *25*(3), 231-239 . [Google Scholar]

Skowroński, W., Horvat, M., Nocera, J., Roswal, G., & Croce, R. (2009). Eurofit special: European fitness battery score variation among individuals with intellectual disabilities. *Adapted Physical Activity Quarterly*, *26*(1), 54-67. [Google Scholar]

Van de Vliet, P., Rintala, P., Fröjd, K., Verellen, J., Van Houtte, S., Daly, D., & Vanlandewijck, Y. (2006). Physical fitness profile of elite athletes with intellectual disability. *Scandinavian journal of medicine & science in sports*, *16*(6), 417-425. [Google Scholar]

Vandenbroucke, J. P., Von Elm, E., Altman, D. G., Gøtzsche, P. C., Mulrow, C. D., Pocock, S. J., . . . Egger, M. (2009). Strengthening the reporting of observational studies in epidemiology (STROBE): explanation and elaboration. *Gaceta sanitaria*, *23*(2), 158e151-158e128 .[Google Scholar]

Vuijk, P. J., Hartman, E., Scherder, E., & Visscher, C. (2010). Motor performance of children with mild intellectual disability and borderline intellectual functioning. *Journal of Intellectual Disability Research*, *45(11). 955-965.* [Google Scholar]

Zhang, L., Zhu, X., Haegele, J. A., Wang, D., & Wu, X. (2020). Health and fitness indicators of individuals with intellectual disabilities in China: Performance differences among disability levels. *Journal of Intellectual & Developmental Disability*, *45*(2), 155-158. [Google Scholar]

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دوره ۱ - شماره ۱ - پاییز ۱۴۰۰ (۴۸-۴۰)

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آمادگی جسمانی و ترکیب بدنی افراد جوان با اختلال ذهنی خفیف: مطالعه مقطعی در جمعیت ایرانی

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چکیده: مطالعه حاضر با هدف بررسی این موضوع انجام شد که آیا جوانان با اختلالات ذهنی خفیف با سطوح مختلف بهره هوشی، آمادگی جسمانی و ترکیب بدنی متفاوتی دارند یا خیر. علاوه بر این، این مطالعه با هدف پاسخ به این سوال انجام شد که آیا ارتباطی بین سطح بهرهٔ هوشی، شاخص توده بدنی، و عوامل آمادگی جسمانی وجود دارد؟ تعداد ۱۲۰۰ دانش آموز از کلیه دبیرستان های استثنایی شهر تهران غربالگری شدند و در نهایت ۳۵۵ نفر با میانگین سنی ۳/۰ ± ۲۴/۶ سال، قد ۶/۸ ± ۱۷۳/۵ سانتی متر، وزن ۸/۵ ± ۷۸/۶ کیلوگرم و نمایه تودهٔ بدنی ۳/۲۳± ۲۸ کیلوگرم بر متر مربع بر اساس معیارهای ورود به مطالعه انتخاب شدند. همه شرکت‌کنندگان بر اساس آزمون هوش وکسلر ویرایش سوم دارای کم‌توانی خفیف ذهنی با ضریب هوشی بین ۵۰ تا ۷۵ بودند. آمادگی جسمانی شرکت کنندگان با مجموعهٔ آزمونی ویژه یوروفیت ارزیابی شد. ارزیابی ترکیب بدن با مقیاس ترکیب بدن انجام شد. نتایج نشان داد که در اکثر عوامل آمادگی جسمانی بین زن و مرد به جز در تعادل پویا و انعطاف پذیری تفاوت معنی داری وجود داشت (P<۰/۰۵). بین سطوح بهرهٔ هوشی با همه عوامل آمادگی جسمانی به جز انعطاف پذیری ارتباط معنی داری وجود داشت (P<۰/۰۵) سطوح ضریب هوشی متفاوت با فاکتورهای آمادگی جسمانی مرتبط بود، به طوری که شرکت کنندگان با بهره هوشی پایین‌تر، آمادگی جسمانی پایین تری نسبت به دیگران داشتند. معلمان تربیت بدنی و مربیان باید این تفاوت‌ها را هنگام کار با افراد دارای کم توانی ذهنی با جنسیت‌های مختلف و سطح هوشی متفاوت در نظر بگیرند.

واژه‌های کلیدی: یوروفیت، شاخص توده بدنی، تست هوش، ناتوانی ذهنی، بهرهٔ هوشی؛

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