



EFFECT OF MOVEMENT GAMES ON PHYSICAL FITNESS OF CHILDREN WITH INTELLECTUAL DISABILITIES

Larysa Kuznetsova^{1ABCD}, Sergii Trachuk^{1ABCD}, Viacheslav Semenenko^{1ABCD}, Olha Kholodova^{1ABCD}, Liudmyla Podosinova^{1ABCD}, Mariia Brychuk^{1ABCD}, Oleg Varenik^{1ABCD} and Halyna Kedrych^{2ABCD}

¹National University of Ukraine on Physical Education and Sport

²Taras Shevchenko Regional Humanitarian Pedagogical Academy in Kremenets

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Corresponding Author: Sergii Trachuk, e-mail: trachuk_sergey@i.ua

Accepted for Publication: April 7, 2022

Published: June 25, 2022

DOI: 10.17309/tmfv.2022.2.02

Abstract

Research purpose. The study was aimed at investigating the effect of the proposed technology using movement games on the physical and psychomotor fitness of young schoolchildren with intellectual disabilities.

Materials and Methods. Forty children from an orphan asylum in Smila, Cherkasy region (Ukraine) participated in the study. All children were divided into two groups: control and experimental; all of them had been diagnosed with moderate-grade oligophrenia and were 2nd and 3rd graders (age 9–12 years). The control group consisted of 22 pupils, including 11 boys and 11 girls. The experimental group consisted of 18 pupils, including 9 boys and 9 girls. The following research methods were used to solve the problems set in the paper: analysis and generalization of information from special scientific literature, pedagogical research methods, method of comparison and similitude, psychoemotional state and psychomotor development research methods, methods of mathematical statistics.

Results. The study results set forth in the paper will allow stating the fact that lessons with the use of movement games have a positive effect on the physical and psychomotor fitness of young schoolchildren with intellectual disabilities, which ensures their social adaptation in the context of growth.

Conclusions. Increasing the time spent on playing games not only in classes but also in extracurricular activities had a positive effect that found expression in the improvement of the children's health and psychoemotional condition, which is the main component of the behavior of a child with mental disabilities. It can be stated that, after using the proposed movement games, the indicators of the pupils' psychomotor and mental condition, memory, perception of reality and attention improved in the positive dynamics of their physical fitness. It was found that the number of nervous breakdowns, depressive states and symptoms of stress decreased during the selected movement games.

Keywords: movement games, physical fitness, psychomotor development, mental condition.

Introduction

Today, in the society there is a tendency for increasing the number of children born with intellectual disabilities, the determinant of this is quite a lot (Imas, Dutchak, & Trachuk, 2013; Aloshyna, Bychuk, & Aloshyna, 2015; WHO, 2015).

Having studied the influence of physical education on mentally retarded schoolchildren, Hammeken (2000), Kenneth (2007), and world practice (WHO, 2015) note that the

number of children with hearing, visual, musculoskeletal disorders has not changed significantly over the last decade, while the number of children with intellectual disabilities became twice bigger.

The variety of health disorders, impaired coordination abilities, low levels of physical development and physical performance, low levels of emotional life of children with intellectual disabilities need special attention in the setting of tasks of the adaptive physical education, starting from the junior school age (Kuznetsova, 2015; Krutsevich et al., 2020).

In her research, Giagazoglou et al. (2013) notes that the children with disabilities have impaired motor function, intellectual and cognitive development, regulation of emotions

© Kuznetsova, L., Trachuk, S., Semenenko, V., Kholodova, O., Podosinova, L., Brychuk, M., Varenik, O., & Kedrych, H., 2022.



directly related to low levels of physical fitness and decreasing the participation in physical activity at all stages of life.

The experts' studies (Pelyh, 2011; Kuznetsova, 2015; Krutsevich, 2017) have generally recognized that one of the best means of promoting the health and social adaptation of such children is the exercise of the adaptive physical education, because physical exercises promote the acquisition of necessary skills and extension of range activity and forming positive character traits.

The adaptive physical education plays an extremely important role in developing daily patterns of physical activities, as there is evidence that children with disabilities have lack access to physical activities and lower level of physical fitness in structured and unstructured settings (Aharoni, 2005).

It is known that the successful social adaptation of children with intellectual disabilities requires a sufficiently high level of developing physical qualities, which will be a prerequisite for the correcting their movement disorders (Viskova-tova, 2012; Kuznetsova, 2015; Alohyna et al., 2015).

It should be noted that mentally retarded children are not capable for long, monotonous training, which is often necessary to develop certain compensatory skills. Therefore, all work must be done in such a way that the correction is done out not obsessively, during the most attractive activities. The analysis of the scientific and methodological literature and pedagogical practices testified (Hammeken, 2000; William, 2005; Kenneth, 2007; Dedeliuk, 2014; Shapkova, 2009; Osadchenko, Semenov, & Tkachenko, 2014) that there are many programs and methods of the adaptive physical education for working with children with intellectual disabilities. Undoubtedly, their contribution to correcting the deficiencies of mentally retarded children's physical development and physical fitness is great.

According to the UN High Commissioner for Human Rights, the 'Game' has been recognized as an important component in the optimal development of a child and the right of every child to it. Every child deserves the opportunity to develop his (her) unique potential, children's defenders must consider all factors that interfere optimal development, and insist on circumstances allowing each child to fully use the benefits of game (Office of the United Nations High Commissioner for Human Rights, 1989).

It is important to note that while there is an experience in this area, in the process of the adaptive physical education the use of moving games for children with intellectual disabilities and their influence on improving the physical and psycho-emotional condition remain poorly substantiated in the context of social adaptation, which caused the actuality of our research.

The purpose of the research was to learn the influence of the proposed technology using moving games on the physical and psychomotor fitness of young schoolchildren with intellectual disabilities.

Materials and Methods

Study participants

40 pupils of a special educational institution for children with mental retardation, in Smila, Cherkasky region, took part in the research. All children of mental age 9-12 years according to the Diagnostic and Statistical Manual of

Mental Disorders and the International Statistical Classification of Diseases and Related Health Problems were divided into two groups, control and experimental, with a diagnosis of oligophrenia of moderate severity and studied in 2 and 3 grades. The control group consisted of 22 pupils, including 11 boys and 11 girls. The experimental group consisted of 18 students, 9 boys and 9 girls.

Study organization

Research methods: the theoretical analysis and generalization of the scientific literature, the pedagogical, sociological, anthropometric; physiological research methods, the method of copying from medical cards; methods of research of the psycho-emotional condition, the level of physical fitness and psychomotor development, methods of mathematical statistics.

Statistical analysis

The statistical analysis of the obtained data was performed using the Statistica ver. 10.0 (Stat Soft, USA) statistical software. Only licensed software was used to perform the analysis.

Legal representatives and authorized persons gave written informed agree about participating this children in research, which was approved by the local ethics committee and by the Declaration of Helsinki.

Results

Moving games held at physical education lessons, twice in a week, on walks, during excursions, during the adaptive physical education classes and occupied 60 % of students' time. So much attention has been paid to the moving games, because the existing curriculum for the physical education used in educational institutions of this type in our opinion and in the light of current trends, needs modernization for children's good.

To confirm the expediency of the selected moving games and their practical effectiveness, we conducted an expert evaluation of used moving games. Twenty-one staff members of the orphanage were interviewed for this purpose: teachers, educators, medical staff and support staff (Table 1).

The analysis of the answers and the calculation of the coefficient of concordance indicate the agreement of experts ($W = 0.785$): about 98% of employees consider that the children's behaviour has improved, 76% – the children's mood has improved, 86% – children have become less aggressive, 74% – children have improved friendship skills. 57% have noticed a decrease in morbidity, 89% have noticed that children have begun to show interest in physical education, 95% of employees believe that children have improved self-care skills. This demonstrates the effectiveness and correct selection and holding of moving games with a thematic focus on solving the health problems of the adaptive physical education (APE) of children with intellectual disabilities. Table 2 shows a list of moving games used during the experiment.

Table 3 presents the average indicators of developing motor skills of schoolchildren with moderate degree intellectual disabilities of the experimental and control groups before and after the experiment.

Table 1. The expert evaluation regarding moving games with children with intellectual disabilities (point)

№	Content of the issue	Σ	X, point	SD
1	Get acquainted with the list of moving games	210	10	1.0
2	Active games help improve schoolchildren's behavior	206	9.8	1.1
3	Active games help improve schoolchildren's mood	160	7.6	0.8
4	Active games, depending on the orientation, contribute to reducing the state of aggression	180	8.6	0.8
5	Active games improve the formation of friendship	155	7.4	0.8
6	Active games are an undeniably positive influence on improving health	150	7.2	1.1
7	Active games are a means of reducing morbidity	120	5.7	0.7
8	Active games are an increase in attention	120	5.7	0.7
9	Active games and confidence outside the boarding school	160	7.6	0.9
10	Active games and irritation reduction	118	5.6	0.8
11	Interest in the environment	130	6.2	1.1
12	Interest in physical education lessons	186	8.9	1.1
13	The value of games in improving self-care skills	199	9.5	0.9
14	The advisability of using moving games in practice	210	10	1.0

Table 2. Divides games into categories that help increase social adaptation of schoolchildren with intellectual disabilities

No.	Category	Games name	Game content	Pedagogical task
1	"Nature"	"Elephant", "Wolf and goats", "Pigeons", "Funny birds", "Bunnies", "Ravens", "Fox and chickens", "Catch a mosquito", "Teddy bear", "Flowers and wind", "Grasshoppers"	Different types of movements: running, walking, jumping, simulating sounds and movements of animals	Adaptation to natural conditions, development of attention, language, improvement of mental and physical condition
2	"Sport"	"The sea is splashing", "We are fun guys", "Fisherman", "Potatoes", "Run through the hoop", "Owl", "Path", "Tunnel"	Different types of movements	Improving basic motor qualities (strength, speed, endurance, flexibility, agility)
3	"Transport"	"Traffic lights", "Train", "Wheelchair racing", "Tractors", "Steam across the road", "Bus", "Merry scooter".	Various movements, application of transport paraphernalia	Getting acquainted with the basics of traffic rules, education of attention, ability to find a way out of a situation, education of endurance, development of orientation
4	"Hygiene and self-care"	"Wash To Holes," "Who will help us?," "Quick Boots," "Who washes your hands faster?," "Help a friend," "Who will clasp buttons faster? "	Multiple repetitions of the same actions in a certain sequence	Forming ability to independently carry out morning and evening hygienic measures, to put clothes and footwear correctly (not to confuse right and left), to eat
5	"Consistency in actions"	"Owl", "Have time to jump", "Replace hoops", "Hold the item", "Let's walk in a circle", "Pass the flag"	Various games, relay races with and without equipment	Improving coordination abilities, performing complex movements, developing orientation in space.
6	"Good mood"	"Dwarves and giants", "Bells", "Planes", "Catch the ball", "Circle to circle"	Using simple and complex movements, various equipment and fitments, various venues	Improving overall health, mood, positive and friendly attitude among schoolchildren.
7	"Smart game"	"Grandpa Mazai", "Polar bear", "Falling stick", "Quick step, look, don't yell", "The clap hands"	Using a variety of visual aids, pictures, videos, conducting games in different conditions	Forming general ideas about the environment, developing memory, language, attention, education of initiative.

Developing basic motor qualities: the speed of local actions, speed, the speed-force qualities, flexibility, and endurance – positive dynamics is observed in the children of the experimental group.

The local action speed rates were improved on 4.4% compared to those observed before the experiment.

Speed has been improved on 2.9%, which can be considered as a good achievement. Considering that speed is one of

Table 3. Indicates the development of motor skills of children with intellectual disabilities in the control and experimental groups before and after the experiment

Test exercises		group			
		experimental n = 18		control n = 22	
		X	SD	X	SD
Speed of local actions (clap overhead, clap on hips, several times per second)	before	6.28	3.92	5.64	2.34
	after	8.22*	4.15	6.5	2.82
Speed (20 m run, sec.)	before	28.5	13.25	29.82	13.68
	after	27.94	13.68	29.84	9.29
Speed-power qualities (throwing the ball, m)	before	2.01	1.48	1.77	0.9
	after	2.61*	1.92	2.07	1.03
Stamina (squats, number of times)	before	8.94	4.44	6.86	2.93
	after	11.17*	5.09	8.64	4.14
Flexibility (holding the toes with two hands from a sitting position, sec.)	before	2.28	0.89	2.23	0.81
	after	2.76	0.94	2.23	0.81
Speed-power qualities (long jump from place, cm)	before	1.02	0.33	0.72	0.32
	after	1.17	1.01	0.83	0.33
Strength (hanging on the crossbar with bent arms, sec.)	before	2.26	0.91	1.79	0.63
	after	2.39	0.02	1.86	0.71

Note. CG – control group, EG – experimental group, * p < 0.05 significant differences before and after the experiment (Student's t-test)

Table 4. Presents the values of indicators of developing psychomotor qualities for children with intellectual disabilities in the control and experimental groups before and after the experiment

Test exercises		group			
		experimental n = 18		control n = 22	
		X	SD	X	SD
Simultaneous movements (hands clenching and stretching, multiple times)	before	5.39	1.69	4.64	1.89
	after	6	2.1	5.45	1.84
Dynamic coordination (jump on 360° turn)	before	135	88.67	95	57.52
	after	175.00*	109.02	120	71.62
Rhythmic movements (rhythm beats, point)	before	1.43	0.51	1.28	0.46
	after	1.67	0.49	1.56	0.51
Dynamic co-ordination (from the floor to stand without hands, point)	before	1.56	0.86	1.45	0.67
	after	1.98*	0.94	1.82	0.96
Mimic test (Alternate right and left eye closure, point)	before	6.36	1.99	5.89	1.84
	after	7.34	2.26	7.23	2.33
Static coordination (on the right leg, s)	before	2.06	1.06	2.09	0.87
	after	2.28	0.89	1.95	1.95
Static coordination (on the left leg, s)	before	2.28	0.89	2.23	0.81
	after	2.44	0.78	2.27	0.78

Note. CG control group, EG experimental group, * p < 0.05 significant differences before and after the experiment (Student's t-test)

the physical qualities that is less developed in children with mental retardation due to existing disorders of the nervous processes, strength was improved by 1.5%.

It is possible to notice the improvement of flexibility indicators (on 6.2%) and speed-force qualities (on 7.1%), while in schoolchildren of the control group the local actions speed indicators, velocity, speed-force qualities (throwing a ball) have improved slightly, and the indicators of flexibility and speed-power (long jump from place) remained practically unchanged.

As the experiment showed the schoolchildren of the experimental and control groups are not ready to accept time intervals and muscle efforts, incorrectly reproduce the spatial parameters of movements.

Thus, the performed tests allow us to conclude that the dynamics for young schoolchildren with intellectual disabilities of the experimental and control groups corresponds to the involved contingent, the level of developing their motor skills and can be considered positive after the use of the selected moving games.

Table 4 presents the indicators developing the psychomotor qualities of children with intellectual disabilities of moderate degree of the experimental and control groups.

Almost all schoolchildren were showed different coordination disorders, but all the children of the experimental group can be seen the positive dynamics of developing psychomotor qualities after the applied technology of moving games.

The simultaneity of movements improved by 13.3% compared to the beginning of the experiment, dynamic coordination – by 15.1%, rhythmic motion – by 4.7%, dynamic coordination – by 10.1%.

The average mimic test scores (alternate closure of the right and left eyes) were improved by 13.2%. As the static coordination, we can note slight improvements, both in the experimental and control students' groups.

There were improved the simultaneity of movements by 3.6%, the dynamic coordination – by 11.3%, the rhythmic movements – by 1.3%, the dynamic coordination (from the sitting on the floor to stand up without the help of hands) – by 1.6%, the mimic test – by 3.9%.

We noted that the psychomotor development indicators of the experimental students' group, who were more involved in game activities, have much better positive results than the children from the control group have.

This indicates that we have correctly selected such moving games and in such quantities that are appropriate to the mental and physical health of students with intellectual disabilities and have provided a positive effect.

Discussion

Yun and Beamer (2018) they say, promoting engagement in lifelong physical activity for all children with disabilities should be an important goal of the adaptive physical education. This can be accomplished by developing IEPs (individualized education program) with physical activity goals; carefully considering the class content, the location and instruction methods that maximize physical activity engagement; and cooperating with other programs within the school to encourage physical activity participation in and outside of physical education classes.

Before, U.S. Department of Education (USDE) defined physical education within its regulation. Section 121.a.14 (b) (2) defined physical education as the development of physical and motor fitness, fundamental motor skills and patterns and skills in aquatics, dance, and individualized and group games and sports (including intramural and lifetime sports). The term includes the special physical education, the specialized physical education, the movement education, and the motor development (Federal Register, 1977, p. 42480).

There proved the data of native and foreign scientists (Gorskaia, 2000; Evseev, 2007; Vinnik Dzhozef P., 2010; Moskalenko et al., 2014; Krutsevych, 2017) that the adaptive physical education as a system of views and techniques aiming to improve the condition of disabled people and to solve the problem of their integration into the society. This approach is directly related to the philosophy of humanism and is with the society in the relationship of mutual influence with the society, which was confirmed in October 2013 in Ukraine by the All-Ukrainian Conference "Status and

Prospects of Implementation the UN Convention on the Rights of the Disabled in Ukraine".

Chudnaia (2000) believes that the tendencies of the modern adaptive physical education should be oriented to a more thorough the analysis and correction of both motor and cognitive abilities of children with deviations in order to increase the effectiveness of their education. According to the level of their development, formation of motor activity, physical and psychological abilities allowing their adaptation to the environment and society with different activities.

Jin and Yun (2010) presented the evidentiary practice in the adaptive physical education and identified it in integrating individualized learning strategies with the best factual available data to satisfy the special needs of students in physical education.

Kenneth (2007) points out that a game is necessary for development because it promotes the cognitive, physical, social and emotional well-being of children and young people. The game also offers an ideal opportunity for parents to participate with their children.

The results of the Kosmakova's (2018) study, who has integrated the elements of basic aerobics, football aerobics, yoga fit, suggests that it helps increase the level of the physical development, physical fitness, psychomotor development and correction of concomitant diseases of children with intellectual disabilities, but the information of the physical education wellness programs were used for middle school-aged children.

In the Mozgovyi et al. (1996, 2006) and Sermeev's (1990) works there noted that many students with this nosology have potential motor abilities, and to some extent, a number of basic motor qualities indicators after the use of technology tends to improve, in particular strength endurance, speed of local movements, coordination abilities, velocity, speed power qualities, flexibility.

According to Gorskaia (2000), Deriabina and Kalmykov's, (2017) researches, the age-related growth rates of all types of mentally retarded students' coordination abilities have the same dynamics as in healthy schoolchildren, but with a lag of 2-3 years. Most sensitive periods of development of coordination abilities are in the range of 9-12 years.

According to Litosh (2002) the level of developing the coordination abilities are determined by the mobility and balance of the central nervous system, the degree of maturity and individual structure of individual areas of the cerebral cortex, the properties of analyzers (visual, auditory, motor, vestibular), productivity of processes of perception, memory and thinking.

Asonitou's et al. study (2018) found that the adaptive physical activity programs for the physical fitness of adults with intellectual disabilities can improve their physical shape, especially muscular strength and endurance, balance, flexibility, speed and cardio-respiratory endurance, to promote a more active and healthy lifestyle.

The indicators of basic motor qualities improved due to the fact that a large number of moving games of different orientation and intensity were used in the classes, and many new types of motor activity were used for children.

However, Golubović et al. (2011) examining the effect of exercise on physical fitness of children with intellectual disabilities suggests that the results in physical training tests were much lower than in healthy children, a study found an

association between the degree of the intellectual disability (ID) and physical training.

As a result of the experimental work, the theoretical positions of scientists (Shapkova, 2009; Baikina & Viedernikova, 2014; Aloshyna, 2015) have been supplemented on the influence of moving games on the mental and physical condition of young students with intellectual disabilities.

Conclusions

It can be stated that after using the proposed moving games were improved that the indicators of students' psychomotor and mental condition, memory, perception of the surrounding reality, attention are in the positive dynamics according to their physical fitness were improved. It was found that during the chosen moving games the number of nervous breakdowns, depressive states, and symptoms of stress decreased.

The process of social adaptation by using the moving games is quite difficult and time-consuming, so it requires much more investment to achieve the best result than is allowed by the limits of our study.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

- Imas, E., Dutchak, M., & Trachuk, S. (2013). *Stratehyy y rekomendatsyy po zdorovomu obrazu zhyzny y dvyhatelnoi aktyvnosti: sbornyk materyalov Vsemyrnoi orhanyzatsyy zdravookhraneniya*. Kyev: Olympyiskaia lyteratura.
- Aloshyna, A., Bychuk, O., & Aloshyna, A. (2015). Teoretychni aspekty korektsii rukhovyykh funktsii molodshykh shkolyariv iz vidkhyleniamy rozumovoho rozvytku v protsesi fizychnoho vykhovannia. *Fizychno vykhovannia, sport i kultura zdorovia u suchasnomu suspilstvi*, 4, 136-140.
- World Health Organization (2015). *The European Mental Health Action Plan 2013–2020*. Available from: <https://apps.who.int/iris/bitstream/handle/10665/175672/WHO-Europe-Mental-Health-Acion-Plan-2013-2020.pdf?sequence=1&isAllowed=y>
- Hammeken, Peggy (2000). *Inclusion: 450 Strategies for Success: A Practical Guide for All Educators Who Teach Students With Disabilities*. Paperback: Publisher: Corwin; Updated edition, 192 p.
- Kenneth, R. Ginsburg (2007). The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds. *Pediatrics*, 119, 182-191. <https://doi.org/10.1542/peds.2006-2697>
- Kuznetsova, L. (2015). *Rukhlyvi ihry yak osnovnyy zasib adaptivnoho fizychnoho vykhovannia molodshykh shkolyariv z vidkhyleniamy rozumovoho rozvytku*. Avtoreferat kandydatskoi dysertatsii. Kyev : NUFVSU.
- Krutsevich, T., Panhelova, N., Kuznetsova, L., Marchenko, O., Trachuk, S., Panhelova, M., & Panhelov, B. (2020). Effect of motion games on the psychoemotional state of children with intellectual disabilities. *Journal of Physical Education and Sport*, 20(2), 862-869.
- Giagazoglou, P., Arabatzi, F., Kellis, E., Liga, M., Karra, C., & Amiridis, I. (2013). Muscle reaction function of individuals with intellectual disabilities may be improved through therapeutic use of a horse. *Res Dev Disabil*, 34(9), 2442-2448. <https://doi.org/10.1016/j.ridd.2013.04.015>
- Pelyh, E. (2011). *Formirovaniye motivatsii k fizkul'turno-sportivnoy deyatelnosti u shkol'nikov s narusheniymi intellekta na zanyatiyakh adaptivnym fizicheskiye vospitaniyem: Extended abstract of Doctor's thesis*. St. Petersburg: Lesgaft University.
- Krutsevich, T. (2017). *Teoriya ta metodyka fizychnoho vykhovannia: pidruchnyk dlya studentiv vyshshykh navchalnykh zakladiv ta sportyvnykh vuziv: u 2 knyha*. Kyev: Olympyiskaia lyteratura.
- Aharoni, H. (2005). Adapted physical activities for the intellectually challenged adolescent: Psychomotor characteristics and implications for programming and motor intervention. *International Journal of Adolescent Medicine and Health*, 17(1), 33-47. <https://doi.org/10.1515/ijamh.2005.17.1.33>
- Viskovatova, T. (2012). *K probleme vzaimosvyazi negativnogo vliyaniya prirodnykh, antropogennykh faktorov i psikhicheskoy energii individa*. London, Great Britain, Makeevka, 24-27.
- William, L. Heward Hardcover (2005). *Exceptional Children: An Introduction to Special Education* (8th Edition). Publisher: Pearson.
- Dedeliuk, N.A. (2014). *Teoriia i metodyka adaptivnoi fizychnoi kultury: navch.-metod. posibnyk dlia studentiv*. Lutsk: Vezha-Druk.
- Shapkova, L.V. (2009). *Chastnye metody adaptivnoi fizicheskoi kultury*. M: Sovetskii sport.
- Osadchenko, T.M., Semenov, A.A., & Tkachenko, V.T. (2014). *Adaptivne fizychno vykhovannia : navch. Posibnyk*. Uman: VPTs "Vizavi".
- Office of the United Nations High Commissioner for Human Rights. *Convention on the Rights of the Child*. General Assembly Resolution 44/25 of 20 November 1989. Available at: www.unhcr.ch/html/menu3/b/k2crc.htm
- Yun, J., & Beamer, J. (2018). Promoting Physical Activity in Adapted Physical Education. *Journal of Physical Education, Recreation & Dance*, 89(4), 7-13. <https://doi.org/10.1080/07303084.2018.1430628>
- Federal Register (1977). *Education of Handicapped Children: Implementation of Part B of the Education of the Handicapped Act*, Vol. 42. 163, Part II, 42474-42518.
- Gorskaiia, I.Iu. (2000). *Bazovye koordinatsionnye sposobnosti shkol'nikov s razlichnym urovnem zdorovia*. Omsk.
- Evseev, S.P. (2007). *Teoriia i organizatsiia adaptivnoi fizicheskoi kultury*. M.: Sov. Sport.
- Vinnik Dzhozef P. (2010). *Adaptivnoe fizicheskoe vospitanie i sport*. Kiev: Olympic literature.
- Moskalenko, N., Kovtun O., Alfiorov O., Kravchenko O., & Maloivan Ya. (2014). *Zahalni osnovy adaptivnoho fizychnoho vykhovannia*. Dnipro: Innovation.
- Chudnaia R. (2000). *Adaptivnoe fizicheskoe vospitanie: monografiia*. Kiev : Naukova dumka, 2000.

- Jin, J., & Yun, J. (2010). Evidence-based Practice in Adapted Physical Education. *Journal of Physical Education, Recreation & Dance*, 81(4), 50-54. <https://doi.org/10.1080/07303084.2010.10598465>
- Kasmakova, L.E. (2018). Novye tekhnologii v obrazovatel'nom protsesse detei s umstvennoi otstalostiu. *Nauka i sport: sovremennye tendencii*, 2, 19:39-45.
- Mozgovoy, V., Dmitriev, A., & Samylichev, A. (1996). *Metodicheskiye rekomendatsii po organizatsii fizicheskogo vospitaniya vo vspomogatel'noy shkole*. Moscow.
- Mozgovoy, V., Yakovleva, I., & Eremina, A. (2006). *Osnovy oligofrenopedagogiki*. Moscow: Academy.
- Sermeev, B. (1990). *Puti povysheniya effektivnosti fizicheskogo vospitaniya detey s otkloneniyami v razviti*. Defektologiya – Defectology, 4, 24.
- Deriabina, G.I., & Kalmykov, D.A. (2017). Testovyi kontrol razvitiia koordinatsionnykh sposobnostei detei s umstvennoi otstalostiu. *Psikhologo-pedagogicheskii zhurnal Gaudeamus*, 16(3).
- Litosh, N.L. (2002). *Adaptivnaia fizicheskaiia kultura. Psikhologo-pedagogicheskaiia kharakteristika detei s narusheniyami v razviti*. M.
- Asonitou, K., Mpampoulis, T., Irakleous-Paleologou, H., & Koutsouki, D. (2018). Effects of an Adapted Physical Activity Program on Physical Fitness of Adults with Intellectual Disabilities. *Advances in Physical Education*, 08(03), 321-336. <https://doi.org/10.4236/ape.2018.83028>
- 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. <https://doi.org/10.1016/j.ridd.2011.11.003>
- Baikina, N.G., & Vedernikova, L.V. (2014). *Individualnyye metodiki adaptivnoi fizicheskoi kultury detei s umstvennoi otstalostiu s zaderzhkoi psikhicheskogo i rechevogo razvitiia*. Zaporozhe.

ВПЛИВ РУХЛИВИХ ІГОР НА ФІЗИЧНУ ПІДГОТОВЛЕНІСТЬ ДІТЕЙ З ВІДХИЛЕННЯМИ РОЗУМОВОГО РОЗВИТКУ

Лариса Кузнецова^{1ABCD}, Сергій Трачук^{1ABCD}, В'ячеслав Семененко^{1ABCD},
Ольга Холодова^{1ABCD}, Людмила Підосінова^{1ABCD}, Марія Бричук^{1ABCD},
Олег Вареник^{1ABCD}, Галина Кедрич^{2ABCD}

¹Національний університет фізичного виховання та спорту України

²Кременецька обласна гуманітарно-педагогічна академія імені Тараса Шевченка

Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; E – збір коштів

Реферат. Стаття: 8 с., 4 табл., 1 рис., 34 джерела.

Метою дослідження було вивчення впливу запропонованої технології з використанням рухливих ігор на фізичну і психомоторну підготовленість дітей молодшого шкільного віку з відхиленнями розумового розвитку.

Матеріали та методи. У дослідженнях взяли участь 40 вихованців Смілянського дитячого будинку-інтернату Черкаської області. Всі діти були розділені на дві групи – контрольну і експериментальну за наявним діагнозом «олігофренія помірного ступеня» і навчалися у 2 і 3 класах. Контрольна група складалася з 22 учнів, з яких 11 хлопчиків і 11 дівчаток. В експериментальну групу входили 18 учнів, з яких 9 хлопчиків і 9 дівчаток. Для вирішення поставлених завдань використовувалися наступні методи дослідження: аналіз та узагальнення даних спеціальної наукової літератури, педагогічні методи дослідження, метод порівняння та зіставлення, методи дослідження психоемоційного стану; психомоторного розвитку; методи математичної статистики.

Результати. Представлені в статті результати досліджень дозволять констатувати той факт, що заняття

з використанням рухливих ігор позитивно впливають на фізичну і психомоторну підготовленість дітей молодшого шкільного віку з відхиленнями розумового розвитку, що забезпечує їх соціальну адаптацію в контексті становлення.

Висновки. Збільшення часу на проведення рухливих ігор не тільки на уроках, а й у позаурочних формах занять мало позитивний ефект, який проявився в зміцненні здоров'я дітей і поліпшення їх психоемоційного стану, що є головною складовою поведінки дитини з вадами розумового розвитку.

Можна констатувати, що після використання запропонованих рухливих ігор покращилися показники психомоторного і психічного стану дітей, пам'яті, сприйняття навколишньої дійсності, уваги, в позитивній динаміці їх фізичної підготовленості. Виявлено, що під час обраних рухливих ігор зменшувалася кількість нервових зривів, депресивних станів і симптомів стресу.

Ключові слова: рухливі ігри, фізична підготовленість, психомоторний розвиток, психічний стан.

Information about the authors:

Kuznetsova L.: l.kuznetsova@meta.ua; <https://orcid.org/0000-0001-9322-8984>; Department of Theory and Methods of Physical Education, National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Trachuk S.: trachuk_sergey@i.ua; <https://orcid.org/0000-0002-5580-0510>; Department of Theory and Methods of Physical Education, National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Semenenko V.: smart.semenenko@gmail.com; <https://orcid.org/0000-0002-5931-7729>; Department of Theory and Methods of Physical Education, National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Kholodova O.: holodova2007@ukr.net; <https://orcid.org/0000-0002-7939-3542>; Department of Theory and Methods of Physical Education, National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Podosinova L.: podosinova@meta.ua; <https://orcid.org/0000-0002-7579-818X>; Department of Water Sports; National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Brychuk M.: maxa.brychuk@gmail.com; <https://orcid.org/0000-0002-9094-0527>; Department of Theory and Methods of Physical Education, National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Varenyk O.: varvoleg18@gmail.com; <https://orcid.org/0000-0002-5246-8065>; Department of Management and Economics of Sports; National University of Ukraine on Physical Education and Sport, Fizkultury St, 1, Kyiv, 03150, Ukraine.

Kedrych H.: kedruch90@gmail.com; <https://orcid.org/0000-0002-1333-1226>; Department of Sports Games and Tourism, Taras Shevchenko Regional Humanitarian Pedagogical Academy in Kremenets, Litseina St, 1, Kremenets, Ternopil region, 47003, Ukraine.

Cite this article as: Kuznetsova, L., Trachuk, S., Semenenko, V., Kholodova, O., Podosinova, L., Brychuk, M., Varenyk, O., & Kedrych, H. (2022). Effect of Movement Games on Physical Fitness of Children with Intellectual Disabilities. *Teoriâ ta Metodika Fizičnogo Vihovannâ*, 22(2), 158-165. <https://doi.org/10.17309/tmfv.2022.2.02>

Received: 3.02.2022. Accepted: 7.04.2022. Published: 25.06.2022

This work is licensed under a Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0>).