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Correction of the motor sphere of adolescents with mild mental retardation based on the development of coordination abilities

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Importance. The solution to the problem of correcting the motor sphere of children with intellectual disabilities lies in the development of coordination abilities. The purpose of the work is to develop and experimentally substantiate a set of exercises aimed at correcting the development of coordination abilities of adolescents with a mild degree of mental retardation.
Materials and Methods. The study has been conducted among students of the Shuya Correctional Boarding School. The participants have been 13–14 year old teenagers (24 people). A set of 40 exercises has been developed, which is aimed at correcting motor actions caused by a low degree of development of coordination abilities. The exercises are divided into three blocks: forbalance development (15 exercises); exercises for developing precision of movements (15 exercises) and for developing the ability to differentiate muscle efforts (10 exercises). They are performed from various initial positions of the body in space: standing, sitting, lying on the stomach and back, standing on one leg, knee, toes and heels, with open and closed eyes. The set of exercises was implemented during the 2023/2024 academic year. The degree of development of coordination abilities has been assessed using the following tests: “shuttle run 3×10”, “jumping rope in 1 minute”, “throwing a ball at a target”, “Romberg test”.
Results and Discussion. It is established that the use of a set of special exercises allows to increase the degree of development of coordination abilities in adolescents aged 13–14. The results of adolescent boys and girls who attended physical education lessons using a special set became significantly higher than those of adolescents whose classes were conducted without an accentuated development of coordination abilities.
Conclusion. According to the final test results, a positive effect of the exercise complex on the development of coordination abilities in adolescents with mild mental retardation has been revealed.

Keywords: adolescents with mild mental retardation, motor sphere, coordination abilities, set of exercises, motor actions, correction, body position in space

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ОЗДОРОВИТЕЛЬНАЯ И АДАПТИВНАЯ ФИЗИЧЕСКАЯ КУЛЬТУРА

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Коррекция двигательной сферы подростков с легкой степенью умственной отсталости на основе развития координационных способностей

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Актуальность. Решение проблемы коррекции двигательной сферы детей с интеллектуальными нарушениями лежит в плоскости развития координационных способностей. Цель исследования – разработка и экспериментальное обоснование комплекса упражнений, направленных на коррекцию в развитии координационных способностей подростков с легкой степенью умственной отсталости.
Материалы и методы. Исследование проводилось с учащимися Шуйской коррекционной школы-интерната. Участвовали подростки 13–14 лет (24 человека). Разработан комплекс из 40 упражнений, который направлен на коррекцию двигательных действий, обусловленных низкой степенью развития координационных способностей. Упражнения разделены на три блока: на развитие равновесия (15 упражнений); упражнения на развитие точности движений (15 упражнений) и на развитие способности к дифференцированию мышечных усилий (10 упражнений). Выполнялись из различных исходных положений тела в пространстве: стоя, сидя, лежа на животе и спине, стоя на одной ноге, колене, носках и пятках, с открытыми и закрытыми глазами. Комплекс упражнений был реализован в течение 2023/2024 учебного года. Оценку степени развития координационных способностей осуществляли с

помощью тестов: «челночный бег 3×10», «прыжки через скакалку за 1 минуту», «метание мяча в цель», «проба Ромберга».

Результаты исследования. Установлено, что применение комплекса специальных упражнений позволило повысить степень развития координационных способностей у подростков 13–14 лет. Результаты подростков мальчиков и девочек, занимавшихся на уроках по физической культуре с применением специального комплекса, стали достоверно выше, чем у подростков, занятия с которыми проводились без акцентированного развития координационных способностей.

Выводы. По итоговым результатам тестирования выявлено положительное влияние комплекса упражнений на развитие координационных способностей у подростков с легкой степенью умственной отсталости.

Ключевые слова: подростки с легкой степенью умственной отсталости, двигательная сфера, координационные способности, комплекс упражнений, двигательные действия, коррекция, положение тела в пространстве

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IMPORTANCE

In scientific literature, the structure of the human motor sphere is represented by: arbitrary and non-arbitrary motor responses to various stimuli from the internal and external environment, psychomotor activity, as well as purposeful motor behavior in interaction with the environment [1]. The problem of correcting the motor sphere of adolescents with various deviations in mental development is closely related to motor underdevelopment [2; 3].

The analysis of studies devoted to the study of the motor sphere of adolescents with mild mental retardation allows us to state that, compared with healthy children, they have significantly reduced speed of motor responses to various stimuli, their movements are characterized by retardation and confused tempo-rhythm in cyclic motor actions [4; 5].

Against the background of reduced control over their actions, children with mild mental retardation are not able to quickly make corrections in their movement system. They do not achieve the results of solving a motor task immediately [6; 7]. According to researchers, this is confirmed by the results of the performance of motor actions performed by adolescents with mild mental retardation, which require precision and differentiation of muscular effort [8; 9].

Coordination abilities are poorly developed in the motor sphere of adolescents with mild mental retardation. The level of development of coordination abilities is conditioned not only by the lesion of individual

brain structures, but also by the conditions of life and education of such children. This directly applies to the system of adaptive physical education, organization and conduct of physical exercises.

In this regard, the requirements for the education system to create adapted and adequate conditions, in accordance with the nosology and development of students, for education and upbringing are significantly increasing. In particular, increased attention is required to the creation of conditions for the maximum possible correction of violations in the development of the motor sphere of adolescents with mental retardation. This is primarily due to the active growth and development of body systems during this period of life.

In modern studies, authors have highlighted the positive influence of the correction of motor abilities of schoolchildren with mental retardation on their social adaptation [10–15]. The main factor causing motor disorders observed in adolescents with mental retardation is deficiencies in the development of coordination abilities [16–18].

In turn, defects in the development of coordination abilities arise not only due to residual cortical neurological symptoms but also because of the lack of special methods for their correction [19; 20]. The physical exercises used by teachers in the system of adaptive classes are designed in many respects without taking into account the influence of the body position in space, the degree of mobility of the support, and its rigidity and elasticity on the correction and development of coordination abilities.

Analysis of scientific data, available experience of adaptive physical education of children and adolescents with mild mental retardation, and requests for practice actualize the research problem related to the search and development of new means of effective development of coordination abilities in adolescents with mental retardation. Creation of appropriate conditions for physical exercises with such adolescents will make it possible to make adjustments in the development of their coordination abilities and contribute to the expansion of their motor sphere.

The purpose of this study was to develop and substantiate a set of exercises aimed at the correction and development of coordination abilities of adolescents with mild mental retardation.

MATERIALS AND METHODS

The study was conducted at Shuysk Correctional boarding school. Adolescents 13–14 years old (24 people) from two parallel classes (12 people each) were involved in the experimental work. At the beginning of the school year, before the beginning of the pedagogical experiment, the data of the initial testing to determine the degree of development of coordination abilities were analyzed, where it was found that there were no reliably significant differences in the average values between the groups, both between the results of boys and girls ($p > 0.05$).

The following tests were used for testing: shuttle run 3×10 m, jumping rope in 1 minute, throwing a ball into a target (10 throws into a 90 cm hoop suspended at a height of 2 m from the floor from a distance of 6 m), and the Romberg test. To assess the impact of the development of coordination abilities among adolescents with mild mental retardation on the motor sphere, the quality of motor actions in games was monitored.

On the basis of expert assessment, an indirect analysis of the motor sphere was carried out on the example of adolescents' mastering of motor actions in the game of basketball. The experts were physical education teachers from general education schools of the city – 5 people with an average peda-

gogical experience of 14.6 years. Mathematical processing of the test data was performed based on the basis of application of the Student's T-criterion.

During the pedagogical experiment, special exercises for the development of coordination abilities and correction of motor actions were used in physical education lessons with pupils of one of the 5th grades (experimental group – 12 people). In another class (control group – 12 people), the lessons were conducted in accordance with the content of the adaptive physical education program.

The exercises of the developed complex were performed at each lesson for 14–15 minutes in the preparatory and at the beginning of the main part of the lesson. The complex was included in the content of all sections of the physical education program (102 hours per academic year, in 5th grades) with adolescents of the correctional boarding school during the 2023/2024 academic year.

Depending on the goals and objectives of the lesson, coordination exercises were selected in such a way that they reflected the program activities being studied. Beginning with the first lesson of each school week, the adolescents performed balance exercises; in the second lesson, exercises for the development of movement accuracy; and in every third lesson, exercises for the development of the ability to differentiate muscle forces.

The exercises of the complex were performed from different initial positions of the body in space: standing, sitting, lying on the stomach and back, standing on one leg, knee, toes and heels, with open and closed eyes, including in front of a mirror under a metronome. Sports equipment of different sizes and weights were used. As the degree of mastery of coordination and complex motor actions increased, the conditions for performing the exercises changed. The conditions for performing the exercises became more complicated. The lessons used exercises in motion, with rotation from various starting positions, with objects, on an unstable support (inflatable hemisphere), as well as in a swinging position - sitting on swings with catching and throwing the ball to a partner (teacher). At the beginning of the school year, when performing a set of special exercises aimed at the development of coordination abilities, the frontal method of organizing students was used. At the same time, the teacher paid special attention to the individual approach in work with teenagers, pointing out to children the details of performed actions, correcting errors in the structure of exercises. In the middle and at the end of the school year, physical education lessons were conducted in a flow method and in the form of circuit training.

RESULTS AND DISCUSSION

To determine the effect of the complex of exercises aimed at the correction and development of coordination abilities in adolescents 13–14 years old, a final test was conducted in May 2024. The results are presented in Table 1.

It was found that at the end of the pedagogical experiment, adolescents, both girls and boys, from the experimental group demonstrated results in all control tests that were superior to the similar average group data of adolescents from the control group at $p < 0.05$.

The positive impact of the classes on the development of coordination abilities of adolescents with mild mental retardation, based on the application of a special set of exercises, had a positive impact on the expansion of their motor sphere. This is

Table 1

Final testing results of the stage of development of coordination abilities in adolescents aged 13–14 years with mild mental retardation

Tests	Experimental group, $X_{aver.}$		Control group, $X_{aver.}$		p(M)	p(D)
	M (n = 5)	D (n = 7)	M (n = 6)	D (n = 6)		
Shuttle run 3×10 m, s	7.7 ± 0.2	8.3 ± 0.2	8.2 ± 0.2	8.8 ± 0.2	<0.05	<0.05
Jumping rope for 1 minute , number of times	121.4 ± 4.1	128.5 ± 3.2	98.5 ± 4.2	109.7 ± 4.2	<0.05	<0.05
Throwing the ball into the target, the number of hits out of 10 throws into the hoop	8.5 ± 1.4	6.7 ± 1.3	4.2 ± 1.4	3.3 ± 1.5	<0.05	<0.05
Rombergtest, s	29.4 ± 3.3	33.7 ± 3.4	22.3 ± 3.3	26.5 ± 3.3	<0.05	<0.05

Note: $X_{aver.}$ – Arithmetic mean; p(M) – degree of reliability between mean values of boys' results; p(M) – degree of reliability between mean values of girls' results.

Source: calculated and compiled by the authors.

Table 2

Analysis of the number of motor actions during basketball play and the quality of free throws by 13–14 year old adolescents with mild mental retardation

Technical and tactical actions in the game (2 halves of 8 min.)	Experimental group, $X_{aver.}$		Control group, $X_{aver.}$		p(M)	p(D)
	M (n = 5)	D (n = 7)	M (n = 6)	D (n = 6)		
Number of shots at the basket	6.8 ± 1.1	5.4± 1.1	3.4 ± 1.0	3.1 ± 0.9	<0.05	<0.05
Number of rebounds	4.1 ± 1.1	2.8 ± 0.6	1.6 ± 0.5	1.1 ± 0.5	<0.05	<0.05
Number of accurate passes of the ball to a partner during the game	8.5 ± 1.4	6.7 ± 1.3	4.2 ± 1.4	3.3 ± 1.5	<0.05	<0.05
Expert evaluation of the quality of free throws execution (5 throws), (max. score = 10)	5.9 ± 0.6	4.5 ± 0	3.2 ± 1.4	2.3 ± 1.1	<0.05	<0.05

Note: $X_{aver.}$ – arithmetic mean; p(M) – degree of reliability between mean values of boys' results; p(M) – degree of reliability between mean values of girls' results.

Source: calculated and compiled by the authors.

proved by the results of expert assessment of motor actions of adolescents in game sports, presented in the content of the program material on the subject of adaptive physical culture in a correctional boarding school.

It was found that when playing basketball (two halves of 8 min.) between boys of the experimental and control groups, teenagers of the experimental group made more throws from close and middle distances. The accuracy of their shots was higher than in the control group. A similar picture is typical when analyzing the actions of adolescent girls from these groups (Table 2).

Analysis of the number of technical and tactical actions during a two-sided basketball game revealed that both boys and girls of the experimental group performed more of them (43.7 ± 7.8 and 34.4 ± 9.8, respec-

tively) than their opponents from the control group (21 ± 4.8 and 18.9 ± 4.2, respectively). This fact confirms the earlier assumption that the development of coordination abilities will have a positive effect on the expansion of the motor sphere of adolescents with mild mental retardation. Along with this, it was noted that positive changes in the correction and development of coordination abilities in the adolescents in the experimental group were also reflected in the quality of motor performance. According to the expert assessment, after the pedagogical experiment, the adolescents of the experimental group began to perform free throws more qualitatively, with fewer errors in technique.

CONCLUSION

The results of the pedagogical experiment testify to the positive influence of the complex of exercises for the correction and development of coordination abilities in adolescents with mild mental retardation and confirm its effectiveness. Indicators of the final testing of adolescents in the experimental group for all types of coordination abilities are significantly higher than in the control group ($p < 0.05$). The sphere of motor activity in adolescents, in the classes with whom the means of development of coordination abilities were introduced, expanded. This was reflected in the greater number of children in the experimental group (66.7 %) who mastered better game techniques and actions in basketball and soccer than in the control group (25 %).

The practical significance of the study lies in the fact that the developed set of exercises aimed at the correction and development of different aspects of coordination abilities in adolescents with mild mental retardation can be used by specialists of adaptive physical culture in adaptive physical education classes in educational, medical and correctional institutions.

References

1. Lanskaya O.V., Sazonova L.A., Korol'kova E.I. (2022). The efficiency of the method of developing the motor qualities of schoolchildren with mental defectiveness using outdoor games. *Adaptivnaya fizicheskaya kul'tura = Adaptive Physical Education*, vol. 90, no. 2, pp. 7-10. (In Russ.) https://elibrary.ru/tlsnaj
2. Nikiforova T.Yu. (2019). Method of correction of coordination abilities in adolescents c intellectual disabilities. *Izvestiya Tul'skogo gosudarstvennogo universiteta*. *Fizicheskaya kul'tura. Sport = News of the Tula State University. Physical Culture. Sport*, no. 10, pp. 45-52. (In Russ.) https://elibrary.ru/gfayrp
3. Rudneva L.V., Shelispanskaya E.V. (2019). Pedagogical conditions of correction of the basic kinds of movements among junior high school students with mental retardation. *Izvestiya Tul'skogo gosudarstvennogo universiteta*. *Fizicheskaya kul'tura. Sport = News of the Tula State University. Physical Culture. Sport*, no. 7, pp. 29-38. (In Russ.) https://elibrary.ru/rdbhzq
4. Kalmykov D.A. (2019). Methodology implementation features for the development of coordination abilities on the basis of an integrated approach among children with mental retardation. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 24, no. 183, pp. 118-127. (In Russ.) https://doi.org/10.20310/1810-0201-2019-24-183-118-127, https://elibrary.ru/oudtxw
5. Korotkov K.G., Baryabina V.Yu. (2022). Research of the psycho physiological state of persons with intellectual disabilities (literature review). *Adaptivnaya fizicheskaya kul'tura = Adaptive Physical Education*, vol. 90, no. 2, pp. 16-17. (In Russ.) https://elibrary.ru/weyhpw
6. Fedulova D.V. (2023). Diagnostics of coordination abilities in children with intellectual impairment. *Izvestiya Tul'skogo gosudarstvennogo universiteta*. *Fizicheskaya kul'tura. Sport = News of the Tula State University. Physical Culture. Sport*, no. 2, pp. 56-62. (In Russ.) https://doi.org/10.24412/2305-8404-2023-2-56-62, https://elibrary.ru/jhzplj

7. Deryabina G.I., Lerner V.L., Terent'eva O.S. (2017). Model parameters of level of coordination abilities of athletes with spinal cord injury. *Psikhologo-pedagogicheskii zhurnal Gaudeamus = Psychology-Pedagogical Journal Gaudeamus*, vol. 16, no. 3, pp. 63-69. (In Russ.) https://doi.org/10.20310/1810-231X-2017-16-3-63-69, https://elibrary.ru/znombj
8. Pravdov M.A. (2024). Development of balance in children with mild mental retardation. *Izvestiya Tul'skogo gosudarstvennogo universiteta. Fizicheskaya kul'tura. Sport = News of the Tula State University. Physical Culture. Sport*, no. 4, pp. 20-26. (In Russ.) https://doi.org/10.24412/2305-8404-2024-4-20-26, https://elibrary.ru/plukny
9. Chebeneva O.E., Bazarov R.T. (2022). Methods of conducting classes with mentally retarded children on adaptive physical culture. *Izvestiya Tul'skogo gosudarstvennogo universiteta. Fizicheskaya kul'tura. Sport = News of the Tula State University. Physical Culture. Sport*, no. 12, pp. 55-63. (In Russ.) https://doi.org/10.24412/2305-8404-2022-12-55-63, https://elibrary.ru/xvyjek
10. Kondrashkina E.V., Sharshov I.A. (2024). Features of creative self-development of adolescents with intellectual disabilities by means of theatrical art. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 29, no. 3, pp. 699-707. (In Russ.) https://doi.org/10.20310/1810-0201-2024-29-3-699-707, https://elibrary.ru/lovnfs
11. Kotova M.S., Golub' O.V. (2021). Peculiarities of social adaptation in adolescents with mild mental retardation. *Rossiiskaya nauka i obrazovanie segodnya: problemy i perspektivy*, no. 3 (40), pp. 68-71. (In Russ.) https://elibrary.ru/upgmgg
12. Krechun P.A., Kashina A.Yu., Abramova M.A. (2023). The effect of physical exercises on the emotional state of children with mild mental retardation. *Mezhdunarodnyi studencheskii nauchnyi vestnik = European Student Scientific Journal*, no. 6, Art. 36. (In Russ.) https://doi.org/10.17513/msnv.21355, https://elibrary.ru/cjspim
13. Kuropatkina N.A., Bakhnova T.V., Kotrunova T.S. (2024). Physical recreation of children and adolescents with disabilities in residential educational institutions. *Voprosy kurortologii, fizioterapii i lechebnoi fizicheskoi kul'tury = Problems of Balneology, Physiotherapy, and Exercise Therapy*, vol. 101, no. 3-2, pp. 112-113. (In Russ.) https://elibrary.ru/vqddtw
14. Begidova T.P., Ageeva N.V., Petrova I.V. (2023). Adaptive physical culture in psychohymnastics for persons with intellectual disabilities. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 28, no. 1, pp. 143-153. (In Russ.) https://doi.org/10.20310/1810-0201-2023-28-1-143-153, https://elibrary.ru/ftqicr
15. Mel'nikova T.A., Mikheeva O.S., Milovanov S.N. (2024). Correction of basic coordination abilities of primary schoolchildren with mental retardation studying in an inclusive educational organization. *Adaptivnaya fizicheskaya kul'tura = Adaptive Physical Education*, no. 1 (97), pp. 51-53. (In Russ.) https://elibrary.ru/cbpekx
16. Ramanovich D.V., Kalyuzhin V.G. (2022). Testing the development of coordination abilities of students with mild mental retardation. *Scientific News of Academy of Physical Culture and Sport*, vol. 4, no. 3, pp. 61-64. (In Russ.) https://doi.org/ 10.28942/ssj.v4i3.553, https://elibrary.ru/nrpnfv
17. Odintsova M.A., Yachmenev N.V. (2024). Effect of differentiated approach to physical activity dosing on mental performance of adolescents. *Vestnik pedagogicheskikh innovatsii = Journal of Pedagogical Innovations*, no. 3 (75), pp. 113-121. (In Russ.) https://doi.org/10.15293/1812-9463.2403.10, https://elibrary.ru/ijpazo
18. Prokhorenko E.S., Makarov I.V. (2022). Behavioral disorders in children and adolescents with intellectual disability. *Zhurnal nevrologii i psikhiatrii im. S.S. Korsakova = S.S. Korsakov Journal of Neurology and Psychiatry*, vol. 122, no. 4, pp. 36-43. (In Russ.) https://doi.org/10.17116/jnevro202212204136, https://elibrary.ru/mbywth
19. Obivalina M.S. (2022). Peculiarities of development of motor sphere and physical qualities in persons with mental retardation. *Ehnigma = Enigma*, no. 42, pp. 173-183. (In Russ.) https://elibrary.ru/nwwojb
20. Nedurueva T.V. (2019). Peculiarities of motor units of fine motor functions in younger adolescents with mental retardation. *Regional'nyi vestnik*, no. 12 (27), pp. 5-7. (In Russ.) https://elibrary.ru/enepoj

Список источников

1. *Ланская О.В., Сазонова Л.А., Королькова Е.И.* Эффективность методики развития двигательных качеств школьников с умственной отсталостью с использованием подвижных игр // Адаптивная физическая культура. 2022. Т. 90. № 2. С. 7-10. https://elibrary.ru/tlsnaj

2. *Никифорова Т.Ю.* Методика коррекции координационных способностей у подростков с нарушениями интеллекта // Известия Тульского государственного университета. Физическая культура. Спорт. 2019. № 10. С. 45-52. https://elibrary.ru/gfayrp
3. *Руднева Л.В., Шелиспанская Э.В*. Педагогические условия коррекции основных видов движений у младших школьников с умственной отсталостью // Известия Тульского государственного университета. Физическая культура. Спорт. 2019. № 7. С. 29-38. https://elibrary.ru/rdbhzq
4. *Калмыков Д.А.* Особенности реализации методики развития координационных способностей на основе комплексного подхода у детей с умственной отсталостью // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2019. Т. 24. № 183. С. 118-127. https://doi.org/10.20310/1810-0201-2019-24-183-118-127, https://elibrary.ru/oudtxw
5. *Коротков К.Г., Барябина В.Ю*. Исследование психофизиологического состояния лиц с интеллектуальными нарушениями (литературный обзор) // Адаптивная физическая культура. 2022. Т. 90. № 2. С. 16-17. https://elibrary.ru/weyhpw
6. *Федулова Д.В.* Диагностика координационных способностей у детей с нарушением интеллекта // Известия Тульского государственного университета. Физическая культура. Спорт. 2023. № 2. С. 56-62. https://doi.org/10.24412/2305-8404-2023-2-56-62, https://elibrary.ru/jhzplj
7. *Дерябина Г.И., Лернер В.Л., Терентьева О.С.* Модельные параметры уровня координационных способностей спортсменов с ПОДА // Психолого-педагогический журнал Гаудеамус. 2017. Т. 16. № 3. С. 63-69. https://doi.org/10.20310/1810-231X-2017-16-3-63-69, https://elibrary.ru/znombj
8. *Правдов М.А.* Развитие равновесия у детей с легкой степенью умственной отсталости // Известия Тульского государственного университета. Физическая культура. Спорт. 2024. № 4. С. 20-26. https://doi.org/10.24412/2305-8404-2024-4-20-26, https://elibrary.ru/plukny
9. *Чебенева О.Е., Базаров Р.Т.* Методика проведения занятий с умственно отсталыми детьми по адаптивной физической культуре // Известия Тульского государственного университета. Физическая культура. Спорт. 2022. № 12. С. 55-63. https://doi.org/10.24412/2305-8404-2022-12-55-63, https://elibrary.ru/xvyjek
10. *Кондрашкина Е.В., Шаршов И.А.* Особенности творческого саморазвития подростков с нарушением интеллекта средствами театрального искусства // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2024. Т. 29. № 3. С. 699-707. https://doi.org/10.20310/1810-0201-2024-29-3-699-707, https://elibrary.ru/lovnfs
11. *Котова М.С., Голубь О.В.* Особенности социальной адаптации у подростков с легкой степенью умственной отсталости // Российская наука и образование сегодня: проблемы и перспективы. 2021. № 3 (40). С. 68-71. https://elibrary.ru/upgmgg
12. *Кречун П.А., Кашина А.Ю., Абрамова М.А.* Влияние физических упражнений на эмоциональное состояние детей с умственной отсталостью легкой степени // Международный студенческий научный вестник. 2023. № 6. Ст. 36. https://doi.org/10.17513/msnv.21355, https://elibrary.ru/cjspim
13. *Куропаткина Н.А., Бахнова Т.В., Котрунова Т.С.* Физическая рекреация детей и подростков с ограниченными возможностями здоровья (ОВЗ) в условиях образовательных учреждений интернатного типа // Вопросы курортологии, физиотерапии и лечебной физической культуры. 2024. Т. 101. № 3-2. С. 112-113. https://elibrary.ru/vqddtw
14. *Бегидова Т.П., Агеева Н.В., Петрова И.В.* Адаптивная физическая культура в психогимнастике для лиц с нарушением интеллекта // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2023. Т. 28. № 1. С. 143-153. https://doi.org/10.20310/1810-0201-2023-28-1-143-153, https://elibrary.ru/ftqicr
15. *Мельникова Т.А., Михеева О.С., Милованов С.Н.* Коррекция координационных способностей школьников с умственной отсталостью, обучающихся в инклюзивной образовательной организации // Адаптивная физическая культура. 2024. № 1 (97). С. 51-53. https://elibrary.ru/cbpekx
16. *Ramanovich D.V., Kalyuzhin V.G.* Тестирование развития координационных способностей школьников с умственной отсталостью легкой степени // Scientific News of Academy of Physical Culture and Sport. 2022. Т. 4. № 3. С. 61-64. https://doi.org/ 10.28942/ssj.v4i3.553, https://elibrary.ru/nrpnfv
17. *Одинцова М.А., Ячменев Н.В.* Влияние дифференцированного подхода к дозированию физической нагрузки на показатели умственной работоспособности подростков // Вестник педагогических инноваций. 2024. № 3 (75). С. 113-121. https://doi.org/10.15293/1812-9463.2403.10, https://elibrary.ru/ijpazo

18. *Прохоренко Е.С., Макаров И.В.* Расстройства поведения у детей и подростков с умственной отсталостью // Журнал неврологии и психиатрии им. С.С. Корсакова. 2022. Т. 122. № 4. С. 36-43. https://doi.org/10.17116/jnevro202212204136, https://elibrary.ru/mbywth
19. *Обивалина М.С.* Особенности развития двигательной сферы и физических качеств у лиц с умственной отсталостью // Энигма. 2022. № 42. С. 173-183. https://elibrary.ru/nwwojb
20. *Недуруева Т.В.* Особенности двигательных единиц мелкомоторных функций у младших подростков с умственной отсталостью // Региональный вестник. 2019. № 12 (27). С. 5-7. https://elibrary.ru/enepoj

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