

Role of the Game Method in the Formation of Coordination Abilities in Children with Mental Retardation

Liliya Mansurovna Smirnova¹, Nuriya Mansurovna Kharissova^{2*}, Farida Amvarovna Mindubayeva², Yelena Yurevna Salikhova², Neylya Nurlanovna Akimzhanova², Sholpan Shaimenovna Sarsembayeva², Gulnur Kasymkanovna Ryspayeva², Yelena Gennadievna Komkina² and Khalil Nurlanovich Akimzhanov³

¹Department of Physical Culture and Sports, Institute of Culture and Art, Federal State Budgetary Educational Institution Higher Education "Kostroma State University" (KSU), Russia

²Department of Morphology and Physiology, Karaganda Medical University, Kazakhstan

³LLP "Miras", Karaganda, Kazakhstan

***Corresponding Author:** Nuriya Mansurovna Kharissova, Department of Morphology and Physiology, Karaganda Medical University, Kazakhstan.

Received: May 25, 2022; **Published:** May 30, 2022

Abstract

The Relevance of Research: Childhood disability is a particular problem today. According to scientists, 80% of disabled people are mentally retarded children. An analysis of the physical development of mentally retarded children showed that disability primarily leads to impaired coordination movements. For a disabled person, the development of coordination abilities at school age is of paramount importance, since the subsequent possibilities of motor activity and self-improvement depend on the level achieved. The most adequate form of overcoming and compensating for this shortcoming is an outdoor game.

Purpose of the Study: The purpose of the study is to determine the features of the organization of outdoor games aimed at educating coordination abilities in children with mental retardation in special (correctional) educational institutions.

Research Methods: Methods of development of coordination abilities in children with mental retardation in physical education classes.

Keywords: Physical Education and Sport; Psychological and Physiological Qualities; School Lessons; Outdoor Games; Special (Correctional) Educational Institutions; Coordination Abilities, Children with Mental Retardation

Introduction

Psychophysical features of children with mental disorders: Management of the development of the motor sphere of mentally retarded children involves the study of the specifics of their motor disorders and physical development, manifested in various locomotion, voluntary movements and negatively affecting their general psychophysical development. In mentally retarded children, in connection with a total organic lesion of the cerebral cortex, disturbances in voluntary movements in most cases are a kind of sign of the level of motor development. In explaining the motor insufficiency of children, one can rely on a multi-level theory of the construction of movements developed by N.A. Bernstein, the essence of which lies in the fact that the higher the level of the central nervous system is affected, the less likely it becomes to control the semantic organization of movements. The underlying cerebral levels, as a rule, are less affected, and therefore more intact than the overlying ones. However, with their help, the control of only elementary movements that do not require semantic organiza-

tion is regulated. And since the abnormal child does not have sufficient motor experience, his general psychophysical development will suffer, since he will not be able to communicate with other children at the proper level, learn from their experience, play with them [1-10].

Consequently, motor disorders in the developmental structure of a mentally retarded child are primary, as they are caused by an organic lesion of the central nervous system. This provision is of paramount importance when choosing pedagogical means and methods for correcting shortcomings in the motor sphere of children with intellectual disabilities.

With the help of rationally organized motor activity as a natural stimulus for life, using preserved functions, residual health, natural physical abilities of a disabled person, it is possible to bring the psychophysical capabilities of the body and personality as close as possible to self-realization in society.

The value of the game for children with intellectual disabilities: Play as a form of activity occupies a significant place in a child's life.

Psychological aspects of the game: The psychological basis of the game is the freedom of expression of the child's feelings. If the child is asked to imagine himself as a "birch tree" that sways from the fresh breeze, the child will make smooth inclinations easier and more expressive than if he simply repeated these movements on command and display. Images and bright emotions corresponding to the task allow the child to perform the movement more accurately and correctly. At the same time, he develops the ability to distinguish his own muscle sensations: smoothness, pace, rhythm, range of motion, motor dexterity appears. Thanks to this, mental functions develop - the ability to direct attention to one's own emotional sensations and the emotions of others.

Participating in outdoor games, children very violently experience all the events of the game. The very process of the game is always associated with new motor actions, new sensations and emotions.

Inattention, indifference or a harsh attitude on the part of others can extinguish the emotional outburst that the child experiences during the game. He needs support, help, praise even for the smallest successes.

Play shapes a child's personality. The first ideas about the world come to the child through movements, through movement in space, through interaction with toys. The more diverse information enters his brain, the more intensively his intellectual and mental development proceeds. The development of movements is one of the indicators of the correct neuropsychic development. The game not only expresses the inclinations of the child and the strength of his soul, but the game itself has a great influence on the development of children's abilities, and, consequently, on the future destiny.

Entering into communication, the child learns his inner world and the relationships of people, the secrets of their interactions, experiences joy and failure. At first, he only imitates, then a period of reflection passes, so that in the future he will independently determine his own socio-psychological motives, attitudes, and guidelines.

An environment of benevolence, mutual assistance and recognition in a peer group - all this is a permanent stimulus and the main value of an outdoor game for children with developmental disabilities. As a rule, these children, due to a decrease in motor activity, experience a lack of communication, which affects the child's psyche in different ways. So, in children with intellectual problems, mental traits predominate, characterized by the inability to obey the requirements and rules of the game, the inability to concentrate on the task, instability of attention, disinhibition of behavior, etc.

When working with such children, all attention should be directed to identifying their potential and the formation of such motives for activity that would be close and understandable to them. Disabled children, regardless of the degree and depth of pathological disorders, with the competent organization of outdoor games, can enjoy communication and achieve great success in physical and psychomotor development.

Pedagogical aspects of the game: A specially organized gaming activity, including outdoor games, is referred to as a gaming method. A conditional situation is created in which the interaction of children with each other is carried out according to the rules.

The game method is widely used in the physical education of children of all age groups. At the same time, outdoor games have a wide range of effects on the body and personality of the child. Purposefully selected outdoor games develop fine motor skills, balance, coordination and accuracy of movements in children with disabilities, improve the quality of attention, etc. that is, stimulate the development of physical, psychomotor and intellectual abilities of children.

Naturally, in groups with different types of diseases, the content of play activity is not the same and is limited by motor mobility, motor experience, physical fitness, age and other factors.

Games create favorable conditions for introducing children with disabilities to systematic physical exercises, which is the most important factor in integrating children into a society of healthy peers.

According to the number of participants, outdoor games can be individual, pair and collective.

For disabled children of any age, the game method seems to be the most appropriate. The lack of normal contacts with peers caused by a defect, the immaturity of the emotional and volitional spheres, insufficient independence, the inability to overcome difficulties and navigate life situations, the unfulfilled need for recognition and self-affirmation - all these are clear signs of social and mental maladaptation. Purposefully selected outdoor games are able to develop fine motor skills, coordination of movements, balance, accuracy, differentiation of efforts, time, etc. in children with disabilities, that is, they stimulate the development of physical, psychomotor and intellectual abilities of children.

Computer gaming is usually viewed to be a negative and undesirable activity for children (including CWSN). However, we found it to be useful to a great extent in dealing with skill deficiency among children with mental retardation. The results indicated strong support for believing that practicing computer games increases attention and memory of children with mental retardation [7].

The process of adaptive physical education of preschool children with delayed psychologic development should be based on accounting parameters of development of their physical qualities. Integrated Assessment of motor training of children is essential to have the development of power, velocity-velocity, speed-strength, endurance, flexibility and coordination abilities. The study of these characteristics in children with mental retardation revealed that they have the level of deviation from the age norm. The most significant variations were revealed in the completely formed coordination. For the correction of motor disorders need special organization of the pedagogical process of adaptive physical education. His target setting should be directed us to the development of children primarily coordination. Most of the funds must be pedagogical influence coordination exercises. Motor tasks for the development of other physical qualities should be organized under the coordination complexity. The process of forming physical qualities should be implemented in all forms as pedagogical process [9].

Features of education of coordination abilities in children with mental retardation: Children with mental retardation have persistent cognitive impairment; general underdevelopment of speech; lagging behind in physical development; concomitant diseases (anomalies of hearing, vision, etc.); low resistance of the body to colds and infectious diseases; violations in the formation of basic movements; violations in the development of physical qualities. The greatest lags are noted in coordination abilities: accuracy, ability to navigate in space, rhythm of movements, balance, etc.

Solving the problems of physical education for the directed development of coordination abilities leads to the fact that they:

- Master various motor actions much faster and at a higher quality level;

- Constantly replenish their motor experience, which then helps to successfully cope with the tasks of mastering more complex motor skills in terms of coordination;
- Acquire the ability to economically spend their energy resources in the process of motor activity;
- Psychologically they experience feelings of joy and satisfaction from mastering new and various movements in perfect forms.

The main means of developing coordination abilities are physical exercises of increased coordination complexity and containing elements of novelty. The complexity of physical exercises increases due to changes in spatial, temporal and dynamic parameters, as well as due to external conditions, changing the order of the projectiles, their weight, height; changing the support area or increasing its mobility in balance exercises, etc.; combining motor skills; combining walking with jumping, running and catching objects; performing exercises on a signal or for a limited time.

To develop the ability to quickly and expediently reorganize motor activity in connection with a suddenly changing situation, outdoor and sports games, martial arts, cross-country running, cross-country skiing, and skiing are effective means.

Exercises aimed at developing coordination abilities are effective as long as they are not performed automatically. Then they lose their value, since any motor action mastered to a skill and performed under the same constant conditions does not stimulate the further development of coordination abilities.

When educating coordination abilities, the following main methodological approaches are used:

1. Teaching new diverse movements with a gradual increase in their coordination complexity.
2. Education of the ability to rebuild motor activity in a suddenly changing environment.
3. Increasing the spatial, temporal and power accuracy of movements based on the improvement of motor sensations of perception.
4. Overcoming irrational muscle tension.

Improving the spatial accuracy of movements is carried out mainly in the following methodological areas:

- a) Improving the accuracy of reproduction of the specified parameters of movements. Tasks are used with the installation: It is possible to accurately and standardly reproduce the reference parameters of amplitude, direction of movement or body position. At the same time, the task is to achieve the stability of the reference parameters of movements;
- b) Improving the accuracy of the movements performed in accordance with the specified changes in the parameters.

Improving the power accuracy of movements involves the development of abilities to assess and differentiate the degree of muscle tension in various muscle groups and in various movements. As means, exercises with different weights, exercises on shells with strain gauges, isometric stresses developed on a hand dynamometer, etc. are used.

Improving the temporal accuracy of movements depends on the development of a "sense of time". To improve the temporal accuracy of movements, tasks are used to assess macro-intervals of time - 5, 10, 20 sec. and microintervals of time - 1; 0.5; 0.3; 0.2; 0.1 sec. and etc.

Methodical techniques for improving static and dynamic balance:

- a) For postural balance: Lengthening the time of maintaining the posture; exclusion of the visual analyzer, which imposes additional requirements on the motor analyzer; reduction of the area of support; increase in the height of the supporting surface; introduction of an unstable support; the introduction of accompanying movements; creating opposition;
- b) For dynamic balance: Exercises with changing external conditions (relief, location); exercises for training the vestibular apparatus (equipment - swings, lounges and other simulators).

The development of coordination abilities requires strict adherence to the principle of systematicity. Unjustified breaks between classes should not be allowed, as this leads to the loss of muscle sensations and their subtle differentiation during tension and relaxation.

The general attitude during the exercises "for coordination" should be based on the following provisions:

- a) It is necessary to engage in a good psychophysical condition;
- b) Loads should not cause significant fatigue, since fatigue greatly reduces the clarity of muscle sensations, and in this state, coordination abilities improve poorly;
- c) In the structure of a separate lesson, it is advisable to plan exercises for the development of coordination abilities at the beginning of the main part;
- d) The intervals between repetitions of individual exercises should be sufficient to restore performance;
- e) The development of various types of coordination abilities should take place in close connection with the development of other motor abilities.

Specific coordination abilities in children of this category go through the process of formation and becoming more complex and lengthy. This can be considered on the example of such coordination abilities as: the ability to orientate in space; ability to balance; ability to differentiate movement parameters; rhythm ability; ability to vestibular stability.

This is explained by the fact that one or other motor abilities of a child are determined not by one specific property of his nervous system (strength, mobility, balance or lability of nervous processes), but are determined by a combination of a certain combination of these properties of the nervous system.

Summarizing all of the above, a number of preliminary conclusions can be made: firstly, the emphasis on the development of coordination abilities of this category of children will help increase their motor base; secondly, an increase in the arsenal of their motor skills and abilities will increase the formation of new neural connections and, thirdly, by exerting a rather significant influence on the development of the motor analyzer, we will be able, to a certain extent, to improve the properties of the nervous system and the intellectual development of this category of children.

The role of the game method in the development of coordination abilities in children with mental retardation

Despite numerous physiological abnormalities, mentally retarded children are capable of learning and development. The applied pedagogical means, principles and methods are of a correctional and developmental nature. They are aimed at maximally overcoming the shortcomings of the cognitive, emotional-volitional and motor spheres of the child. The most adequate form of overcoming and compensating for these shortcomings is physical activity, in which the leading place belongs to the outdoor game.

Consider the main changes that can occur in children under the influence of play activities.

The dynamics of the physical development of the child: Motor activity of a gaming nature enhances the physiological processes in the body, improves the functioning of all organs and systems. Emotional upsurge in children increases the tone of the whole organism. The desire of children to win is expressed in a clear understanding of the task, in better coordination of movements, more accurate orientation in space and playing conditions. Active motor activity trained the nervous system, improving and balancing the processes of excitation and inhibition.

Influence on the formation of personality: The game more actively affects the processes of formation of the child's personality, because it affects his deepest emotional experiences more strongly. This is largely due to the fact that the game is a special activity in which the child first emotionally and then intellectually discovers himself, "gathers his Self", masters the system of human relations and the surrounding reality.

Influence on the educational process: Children with mental retardation are prone to rapid fatigue, especially from monotonous movements; the margin of safety of the supporting apparatus is also small, the muscles are weak, especially the back and abdominals. They are emotionally related to the requirements and rules of the school, and the new regime and higher loads on their psyche and body as a whole require relaxation, which they find in the game. Therefore, the game in relation to children with developmental disabilities, first of all, should be considered as a means of facilitating the transition to systematic learning and effectively adapting them to new conditions and the rhythm of life. The game allows these children to comfortably, in the most "pleasant" ways, enter a new social situation and organically, gradually acquire the status of a student, mastering the skills and abilities of educational activities.

The development of self-control: As a result of the implementation of the game program, children with mental retardation may develop skills of self-regulation and self-control: in behavior (determining the specific goals of their actions; taking responsibility for their behavior and actions); in the motor sphere (arbitrary focus on the muscles involved in the movement; determining the correspondence of sensations to the nature of the movements performed); in the emotional sphere (a response with adequate emotions to the feelings and emotional states of other people).

Working with parents: To involve children in active physical education, work with parents is of great importance. Such work involves familiarizing parents with the game methodology, as well as holding family holidays, for example, "The Most Dexterous". As a result, parents can be convinced that the game is not only entertainment, but also a natural "medicine" for their children, which can trigger the mechanisms of self-regulation of the children's body.

Conclusion

The value of the game in the educational process is provided and supported by a well-built strategy and tactics of the organizers of this work. In addition, the pedagogical effect of the game program is successful if parents participate in it. The opinions of loved ones are important to the child. Therefore, the effect of the application of the game program is positive.

In the process of analyzing the scientific and methodological literature, it turned out that the use of the game method in the development of the coordination abilities of children with mental retardation is successful, but subject to the following provisions:

- Taking into account, when selecting games, the individual characteristics of children with mental retardation (the ratio of biological and passport age); the level of physical fitness, in particular the level of development of coordination abilities;
- Implementation of game programs should be based on the theory and methodology of adaptive physical culture;

- Joint work of children and parents.

The game method of teaching has a number of advantages. It is the most adapted for children. At the same time, the game allows you to more successfully acquire motor skills and abilities; is an effective tool for deepening learning; develops the speech apparatus; promotes the development of the ability to quickly navigate in a difficult situation.

Gaming technologies make it possible to overcome the “shortcomings” of the gaming childhood of mentally retarded children, participate in the prevention and correction of intellectual skills.

Acknowledgements

The authors would like to thank of the professorial-teaching staff and students of Kostroma State University and Karaganda Medical University.

Funding Support

There is no funding involved for this paper.

Declaration of Interest

The authors declare no conflict of interest. The authors are responsible for the content and writing of the article.

Bibliography

1. Anju Agarwal and Yash Pal Singh. “Computer gaming for children with mental retardation”. *Spectrum: A Journal of Multidisciplinary Research* 1.8 (2012).
2. Antonyuk SD. “Education of coordination abilities in children with mental development”. *Adaptive physical culture* 3 (2001).
3. Antonyuk SD., *et al.* “Organization of the motor regimen of younger schoolchildren with persistent diseases”. *Sat. scientific works. Ecology, life safety, valeology: St. Petersburg, RGPU them. A.I. Herzen* (2000).
4. Dmitriev VS., *et al.* “Fundamentals of the prevention of hypodynamia and hypokinesia of disabled people by means of physical culture and sports”. *Sat. materials for lectures on physical culture and sports for the disabled. Makhalovka* 2 (1993): 87-128.
5. Dr. Gunjan Baweja *Intellectual Disability (Mental Retardation) In Children.*
6. Evseev SP. “Adaptive physical culture, its philosophy, content and tasks. *Adaptive physical culture and the functional state of the disabled*”. St. Petersburg (1996).
7. Lapshina MS and Ermolaeva LD. “The usage of non-traditional drawing techniques for speech development of children with a mild degree of mental retardation”. *Proceedings of the XI International Student Scientific Conference “Student Scientific Forum”* (2022).
8. Maksimova SY., *et al.* “Adaptive physical education preschool age with mental retardation based their level of physical preparedness”. *Journal Scientific Review. Pedagogical Sciences* 2 (2015): 134-135.
9. *Outdoor games for children with developmental disabilities.* Ed. L.V. Shapkova. - St. Petersburg, “Childhood-Press” (2005).
10. Volikova SV. “Family as a factor in the occurrence of anxiety and depressive disorders in children”. *Development and education of special children: problems, searches* (1999).

Volume 13 Issue 6 June 2022

©All rights reserved by Nuriya Mansurovna Kharissova., et al.