Maneuverable Games as a Tool for Improving Fine Motor in Children

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Abstract: Maneuverable games are of great educational, upbringing and health-improving value and with their help you can develop the physical qualities of children with cerebral palsy, attention deficit hyperactivity disorder, visual impairment, dysarthria, retardation of psycho-motor development, autism.

First of all, it is possible to improve quickness, dexterity, coordination abilities and especially to develop fine motor skills of the hands.

Key words: fine motor skills, speech impairment, coordinated movement, learning and maneuverable games.

Introduction. A small motor skill is a set of coordinated actions of the nervous, muscular and bone systems, often in combination with the visual system in the execution of small and precise movements of paintbrushes and fingers and legs. The area of fine motor skills includes a wide variety of movements: from primitive gestures, such as grasping objects, to very small movements, on which, for example, a person's handwriting depends. The motor cortex, also known as the movement cortex, is the area of the cerebral cortex responsible for planning, controlling, and performing voluntary movements. From an anatomical point of view, about a third of the entire area of the motor projection of the cerebral cortex is occupied by the projection of the hand, located very close to the speech zone. Traditionally, the motor cortex is the area in the frontal lobe located in the posterior part of the precentral gyrus just in front of the central sulcus. [5]. Therefore, the development of a child's speech is inextricably linked with the development of fine motor skills. The relationship between digital motor skills and speech function has been confirmed by researchers at the Institute of Physiology of Children and Adolescents. Among the researchers can be called LV Antakova-Fomin, MM Koltsova, EI Isenina [1]. In everyday life, every minute it is required to perform some actions of fine motor skills: pushing up buttons, manipulating small objects, writing, drawing, etc., therefore, his quality of life directly depends on its development. Fine motor skills develop naturally from infancy on the basis of general motor skills. First, the child learns to grab an object, after that the skills of shifting from hand to hand appear, the so-called "tweezers grip", etc., by the age of two he is already able to draw, hold a brush and a spoon correctly. During preschool and early school age, motor skills become more varied and complex. The proportion of actions that require coordinated actions of both hands is increasing. Physiological studies have shown that “there are reasons to consider the hands as an organ of speech - the same as the articulatory apparatus. From this point of view, the projection of the hands is another speech area of the brain”[7]. In other words, the more dexterous and skillful the baby's...
fingers are, the more successfully his speech will be formed: not only oral, but also written. By now, a certain concept of interpretation has been developed, proposed by L.S. Vygotsky [5], that written speech, being a complex form of psychological activity of a person, is necessary for him in everyday life and includes, on the one hand, the active expression of his thoughts.

In the elderly (60-75 years), senile (76-90) ages and in long-livers (over 90 years), the development of small motions are needed to maintain tonus and workability of the cerebral cortex and preventive measures for the dissolution of higher mental functions (perception, memory, thinking, speech). Additional measures for stimulating the work of small hand motors allows to keep the quality of life of elderly people in everyday life, to accelerate the processes of acquiring new knowledge, to develop their abilities for practical self-realization in various spheres of life. In the correction and restoration actions directed to repairing of central nervous system (CNS) and bone-muscular apparatus, exercises, for acting to small motion skills are a powerful stimulus to improve the mental health of persons who have carried the skull brain injuries, strokes, various diseases, leading to brain damage nose and distribution of psychic functions. In the field of providing medical and social assistance, the study of the features of the small motor skills will expand the objective parameters for the degree of the assessment of the functional opportunities of the elderly person for the address provision of services [6,10,11].

There are three main types of fine motor disorders:

- violations of the signal to perform an action (for example, with organic lesions of the brain, stroke, head trauma);
- violations of signal transmission (for example, in Parkinson's disease, in a post-stroke state);
- violations in the reception and implementation of the signal (with cerebral palsy, injuries of the extremities, insufficient development of dexterity, etc.).

Also, violations of fine motor skills can be observed in ADHD (attention deficit hyperactivity disorder), with visual impairment, dysarthria, autism and spinocerebellar ataxia [2,3,4,9]. If we focus on the most common diseases in which there are disorders in the motor sphere, and in particular limb motility, mental development pathology, speech impairment, then cerebral palsy (cerebral palsy) is one of the leading of these diseases. Child cerebral palsy (CCP) is a persistent, non-progressive lesion of the central nervous system that occurs in the peri- or postnatal period of a newborn child, manifested in motor disorders, but also causing a delay or pathology of mental development, speech impairment, hearing and visual impairment, etc. [3].

Currently in most countries, there is a trend towards an increase in the number of children diagnosed with cerebral palsy (cerebral palsy). Disability of children with cerebral pathology ranks first in the structure of children's disability in terms of neurological profile, and its severity is due to both motor and mental disorders [4,8]. According to Rosstat, at the beginning of 2015 there were about 13 million people with disabilities in Russia, of which 993 thousand people - disabled from childhood and 600 thousand people - disabled children. The number of disabled people with cerebral palsy is about 165 thousand people. [3.7]. In Uzbekistan, according to data for 2019, persons with disabilities with cerebral palsy accounted for 32% of all diseases of the nervous system (Code of the Ministry of Health of the Republic of Uzbekistan for 2019).

Based on the statistical data on the prevalence of disability, it can be concluded that the problem of raising and educating children with cerebral palsy is one of the most urgent and socially significant in the world. Adaptive physical activities plays an important role in the physical rehabilitation of children with cerebral palsy. Its main tasks are to reduce muscle hypertonicity, improve coordination of movements, form motor skills, prepare a person for an independent life [3]. The success of the
upbringing and education of such children depends on the severity of damage to the child's central nervous system (CNS) and timely diagnosis, the correct organization of the treatment process starting from the first years of life. Many scientists and practitioners have conducted scientific research on the correction of movement disorders in children with cerebral palsy [3,4]. They examined the features of the development of sensorimotor functions, cognitive activity and hand motility in children with cerebral palsy, using exercises with objects, balls, using elements of mobile and sedentary games. Obviously, motor actions in childhood should be given significant attention in order to better master the basic skills of movements, which form the basis of work, play, educational activity, which is necessary for successful adaptation and integration in modern society.

The problem of the prevalence of cerebral palsy is relevant in our time, and the disease needs a deeper study, as well as the development of new methods for the physical rehabilitation of patients, including means for the development of fine motor skills of the hands [3,4]. The leading role in the development of fine motor skills of hands in children with cerebral palsy is played by maneuverable games [4]. This is due to the fact that, specificity of motor disorders, many static and locomotor functions in children with cerebral palsy cannot develop spontaneously or develop incorrectly. According to Sh.Sh. Shomansurova, Z.B. Rafikova (2008) among the neurological manifestations in children with ADHD, attention deficit hyperactivity disorder, impaired coordination of movements are most often encountered. In the history of children, it is usually possible to establish a delay in the development of motor skills, the awkwardness of movements persists at an older age. They develop motor restlessness, and synkenesis of the fingers, at times individual muscle twitching. They have difficulty in performing small movements - when pushing up buttons, lacing up shoes, sewing, using scissors, paint pictures poorly, find it difficult to draw a straight line, draw a circle or other geometric shapes [12]. With the aim of stimulating mental functions, correcting violations of fine motor skills and psychophysiological parameters for persons with disabilities in the motor sphere, it is proposed to use a number of classes and models with training the way, the use of which allows the exclusion of vision from the operations performed by the hand, at the same time, the sense of touch comes to the fore as an analyzer, “counting” external information and operating it.

Activities for people of different ages are planned with the use of educational tasks of different levels of complexity and purpose, aiming (for the development and simulative demonstration of various skills, correction and restoration of psychological functions, prevention of their disintegration, etc.), allow to fix each step in the fulfillment of tasks, to carry out a detailed analysis and assessment of taken data and to carry out the research of the processes and mechanisms of the realization of psychophysiological and psychological functions.

The exclusion of the visual analyzer from the performance of the operations creates a non-standard system for processing information and forcing it to more actively use its own perception, attention, figurative, abstract and logical thinking, memory, speech. The use of methods with educational games in the field of medical and social assistance gives an opportunity to solve various tasks, as in the prevention of physical, mental and physical disorders, as well as the care of patients with an injury to the brain and nervous system: to maintain and develop coordination, dexterity and accuracy of hand movements, which allows to increase quality of life in everyday life and to master faster various new skills; stimulate the activity of the brain (perception, attention, memory, thinking, speech and others), which contributes to the preservation of the health of the cognitive functions.

Partially or completely restore the lost functions due to activation of neuromuscular connections with the responsible brain structures and the stimulation of their activities, to create conditions for the development, strengthening, and/or restoring these connections and sensitivity to perception and stimulation of the growth of new neural connections. Thus, the application of the proposed approach in combination of medical and social procedures, aimed at supporting the health of persons with lesions
of the central nervous system, allows the recovery of processes in central nervous system and movement-motor activity and, in general, prevention of the decay of the higher psychic functions. In correlation what was said above, we can conclude that the educational, instructional, and health-improving value of maneuverable games is great, and exercises with their help can develop the physical qualities of children with cerebral palsy, with ADHD (attention deficit hyperactivity disorder), visual impairment, dysarthria, psychotic delay, motor development, autism. First of all, it is possible to improve quickness, dexterity, coordination abilities and especially develop fine motor skills of the hands.

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