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**THE CONTENT AND ESSENCE  
OF EDUCATION KINESIOLOGY**

**СОДЕРЖАНИЕ И СУЩНОСТЬ  
ОБРАЗОВАТЕЛЬНОЙ КИНЕЗИОЛОГИИ**

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## ABSTRACT

This work is devoted to the content and nature of educational kinesiology, its differences from the physical culture, sports kinesiology and applied kinesiology. Ancient thinkers studied the interaction of human movement and its development. In the middle of the 20<sup>th</sup> century, scientists came to the conclusion that skillful usage of this interdependence promotes the effectiveness of trainings and the development of the whole person. In the 60-s of the 20<sup>th</sup> century, Gudchard introduced into scientific usage the concept «applied kinesiology», the main subject of the research was the influence of motor actions on physiological systems of the human body. Development of biomechanics and psychology in the second half of the 20<sup>th</sup> century determined the appearance of sports kinesiology, studying the peculiarities of the techniques of outstanding athletes. In the 70-80s of the 20<sup>th</sup>, century educational kinesiology began to develop, and it was based on the connection of the motor plastics, thinking process for the education through the movement. All means of educational kinesiology (speech movement, pantomime, coded speech and other) are different from the means of physical culture in their tasks, directions, content, methods and results. The usage of kinesiological means crosses the middle line of the body, performs several movements in a clear sequence with multiple repetitions and speed, or while the motion creative thinking and meaning of the speech is transmitted. Nowadays the theoretical and practical background for the development of kinesiological approach in education as a methodological base of motor pedagogy appears.

**Keywords:** the history of development; educational kinesiology; sports kinesiology; applied kinesiology; tools of educational kinesiology; content and essence.

**Introduction.** One of the key issues facing today's educational system is to enhance the relationships of motor actions and psycho-physiological processes of the student with the purpose to improve the efficiency of its training and simultaneous preservation of health. Such requirements are met by means of educational kinesiology, which unlike traditional methods of learning unlock the muscle zone, violate the physical and psycho-emotional balance, stimulating the influence of the muscular system of the body on the learning process at the level of the work of the whole brain. Despite the increasing popularity of educational kinesiology, there are still no special studies on disclosure of its contents and essence, the differences from the applied and sports kinesiology, means of physical culture. One of the purposes of the article is to fill the gap. The study of theoretical and practical prerequisites for the use kinesiological aids in the learning process have allowed to reveal the ideas put forward by thinkers since antiquity during the study of the relationship between human movement and its development. The analysis of works of I.M. Sechenov on the relationship of the physiological processes and mental phenomena, the theory of N.A. Bernstein about structural levels of the movement, the occurrence of 60-th years of XX century in the USA kinesiological concepts of «the Crucible», «Three in one» and others have highlighted three main directions of modern kinesiology: the applied kinesiology, sports and education, the contents and the essence of educational kinesiology.

**Aim of the paper:** to reveal the contents and essence of the educational kinesiology.

**Materials and methods of research.** The theoretical analysis of works of scientists on the problem of human movement and its development; comparative analysis of the contents and the essence of the educational, sports and applied kinesiology, physical culture; comparative-historical and comparative - logical methods; inductive-deductive method; the principle of scientific objectivity to ensure the adequacy and reliability of the interpretation of the respective scientific ideas.

**Results and discussion.** Since antiquity, thinkers examined the relationship of human movement and its development. Aristotle was one of the first in the IV century BC who described the action of muscles and carried out their mathematical analysis. His concept, according to which the movement is the interaction between the animal and its environment, laid the foundation for the subsequent works of Galen, Galileo, Newton (K. Galen, 1999; Ahundov M.D. , S.V. Illarionov, 1991; F.CH. Copleston, 2003). The works of these philosophers and scientists led to that person's movement was seen as a sequence of interaction of muscles and external forces acting on the system of psycho-physiological environment. Note that in this embodiment, kinesiology is now widely used in sports medicine and rehabilitation

In the medieval period, identity issues involved in human movement Leonardo da Vinci, William Harvey, A. Vesalius and others who studied the scope of anatomy and physiology. Later Rene Descartes solved the problem of relations between the two principles (matter and spirit) in person from the position of psycho-physical parallelism, according to which the physical and mental processes of human life do not depend on each other [14].

Rousseau, using the ideas of dualism put forward an idea of the unity of body and spirit, a significant place in the "natural education" took education through movement [26]. The consequence of the ideas of Rousseau was the introduction into the school curriculum the subject "physical education" to student learning motor skills.

J.H. Pestalozzi argued that the process of spiritual exercises drives and encourages activities of spiritual and bodily strength in the child, the process of spiritual development – the power of the soul and its sense organs and bodily exercises – a spiritual and moral nature, like a tool, purely tuned string which makes sound and other harmonically tuned strings [23]. Man, according to K.D. Ushinskiy, should be perfect physically, mentally and morally, that is to be developed harmoniously, and the education system – the nature is tailored to the rela-

tionship of mental and physical processes in the human body [28].

At a later period, the experiments of Sechenov proved a reflex nature of psychological processes of a living organism, the physiological patterns identified in humans. In its fundamental psychophysiological studies ("Reflexes of the Brain," "Elements of Thought", "Impressions and Reality", "Who and how to develop psychology?", "Specialization thought and reality," etc.) Sechenov convincingly reveals the dialectic relationships sensory and motor development in the child as a basis for the formation of reflective abilities of the brain. The historical achievement of Sechenov is a proof of interdependence of physiological and psychological processes. Scientists have shown their inseparability.

The questions about the impact of movements, muscle activity on the psyche, behavioral processes are reflected in the works of Pavlov, N.A. Bernstein, Leontiev, Luria and many others [22; 5; 16; 18]. Fundamentally important for the theory and practice of kinesiology is the question of the impact of movements, muscle activity on the psyche, thought processes, as reflected in the writings of Pavlov. The creator of the theory of higher nervous activity using his method of conditioned reflexes established that the basis of mental activity are the physiological processes of the cerebral cortex [22].

In the middle of the last century, Bernstein developed a theory building traffic levels, concluding that under the levels should be understood literally morphological "layers" in the CNS [5]. Each level, according to the author, has a specific, peculiar only to him motor manifestations, each level corresponds to a class of motions. For example, Level A "charge" an important aspect of any movement – muscle tone (involuntary shaking, rattling teeth with cold and fear, holding poses in the flight phase of the jump, etc.). At the level of the processed signals from mainly muscular and articular receptors that report relative position and movement of body parts. At the level of the incoming signals from vision, hearing, touch, that is all information of the external space. So, it built motion adapted to the spatial properties of objects – their shape, posi-

tion, length, weight, etc. Level D (cortical level) is responsible for organizing actions with objects. The movements feature at this level is that they conform to the logic of the subject. This is not so much a movement as action, they set a final substantive result. For this level of indifferent way to perform an action there is a set of motor operations. The highest level is E. This level of intelligent motor acts primarily speech movements, movements letters, as well as a symbolic motion, or encoded, speech – gestures deaf, etc. The movement of this level is determined not by objective and abstract, verbal meaning. In our view, at E level the implemented means of educational kinesiology are filled in some sense.

Such findings were consonant with the German scientist research physiologist Wundt, who claimed that the psychological associated with saline. Language is sound and all manifestations of sensory signs are being caused by muscular movements, open to the outside mental states, ideas, affects, volition, etc. (M. Wundt, 1874). It belongs in its origin to the individual expressive movements. American scientists R.S. Hutton, D.L. Nelson made a significant impact on the development of kinesiology research, relating to the management of the musculoskeletal system, P.F. Gardiner, M.E. Lapointe, S.Higgins (on the scientific principles of motion), R.M. Enoka, A.J. Fuglevand (neuro-mechanical basics for kinesiology), (R.S. Hutton, D.L. Nelson, 1985; S. Higgins, 1985; P.F. Gardiner, 1982; R.M. Enoka, A.J. Fuglevand, 1993).

Thus, philosophers, physiologists, psychologists and educators identified interdependence and interpenetration of physical activity and mental processes. Researchers concluded that the skillful use of this interdependence for training purposes enhances the effectiveness of the learning process and the development of the whole man.

In the 60 years of the twentieth century, an American explorer George Gudhard, an osteopath, engaged in manual therapy, introduced into scientific use the term "applied kinesiology" ("kinesiology" from two Greek words: «kinesis», in the sense of "movement", and «Logos» – "word, speech, concept, doctrine") (D. Goodheart, 2005).

During this period, Kinesiology is a unique method that enables you to quickly and effectively rid the body from the effects of stressful experiences, psychosomatic illness, the negative effects of relationship problems, remove the difficulties in learning. The subject of study of the Applied Kinesiology is the impact of motor actions on the physiological systems of the human body.

This system is common in the U.S. among psychotherapists and manual therapists. Applied kinesiology uses the relationship between the muscles, organs and meridians to determine these violations. In the context of applied kinesiology, in 1972, American researchers Gordon Stokes and Daniel Whiteside developed a concept of "Three in One" and "Crucible" [7]. The basic idea was to use the scientists of different motor actions to harmonize the energy in the human body. Thus, the purpose of the concept of "three in one" – harmonization of personality (Spirit, Soul, Body) for developing talent, calling, "his place in life" – the ultimate transformation of ourselves and the world.

Another concept of applied kinesiology is called eponymous club personality development "Crucible". It combines the teachers and coaches of various areas of psychology and pedagogy, art, physical perfection and sports medicine and healing practices, entertainment and leisure. The meaning of the name is that one comes with its own personality pattern, the amount of knowledge and skills, "calcination in the fire," the newest and oldest Psychology and methods of work with the body and other human plans, floated in communicating and interacting with other members of classes and harmoniously changed in accordance with their goals and growth opportunities, starting a new stage of his life, a more informed and efficient.

The rapid development of biomechanics and psychology in the second half of the XX century predetermined the process of becoming a sports kinesiology, studying art features outstanding athletes; questions the rational organization of actions during physical education classes; develops instructional techniques exploration movements, methods and technical self-improvement techniques. Unlike applied kinesiology, this

trend is more closely related to educational kinesiology because, to a certain extent, it develops the idea of programmed instruction. This is because, for example, learning athlete's motor actions differs significantly from the development of theoretical knowledge. Based on the ideas of N.A. Bernstein on the biomechanics of motor activity, V.B. Korenberg defined the essence of sports kinesiology, which, in his opinion, analytical and integrative physical activity is considered as a systemic set of motor acts, their psychological stimulation, rationale and provisioning, a combination of planning and programming, the definition of hierarchical structure, evaluation and accounting for them and their results and consequences [15]. As for educational motor activity, it refers, in his opinion, to motor pedagogy, that is educational kinesiology, which focuses on physical activity is educational rights.

A considerable contribution to the development of sports kinesiology was introduced by V.K. Balsevich who highlights its main concept of locomotor activity. In this paper, V.K. Balsevich "Ontokineziologiya rights" indicates that kinesiology fully reflects the active individual, aimed at developing and improving its capacity kinesiology, which is the achievement of human physical condition necessary and sufficient to develop and maintain a high level of health, physical fitness [4].

Kinesiology gradually grew into the scientific direction of the movements and motor actions, and then into educational kinesiology. The authors of this direction, U.S. researchers P. and G. Dennison, were intended to study the effect of the musculoskeletal system of the body on the learning process at the level of holistic brain [10]. Paul Dennison, after 20 years of work with children in the sub-center in California, in 1982, developed a recovery program coordination and included in both kids and adults. The results were successful. While developments in the field of educational kinesiology mainly used for educational purposes to improve learning, particularly in reading, writing, memory, solving mathematical problems, in situations that require clear thinking or related subject areas [10]. In this program, special attention was paid to the restoration of cooperation

and coordination between the right and left hemispheres, and then between the other parts of the brain. Back in the 1960s, cross-movement kinesiology used to help children with brain disorders, such as motion provides a coherent right and left hemispheres of the brain. Past experience has led in the 70-th of XX century in the U.S. to the development of a method "Educational Kinesiology" [6], which was used to enhance the learning ability. The method was based on the use of specific physical exercises borrowed from eastern gyms and yoga, combined with self-massage point, states as a means of encouraging the integration of brain activity.

In the global education system of the last quarter of XX century, there was reinforced a search for pedagogical means to enhance the mental and cognitive activity of students. The intensification of the educational process caused by the "information explosion" of recent decades has been a solution for preserving the health of students, including through the strengthening of their motor activity in the educational activity. The pedagogical theory and practice have accumulated a solid arsenal of teaching methods to stimulate motor activity of students in the educational process: modeling techniques of the game; assignments based on the performance of various motor actions (with objects, perform physical work), teaching techniques and gestures etc. On the other hand, teachers actively use a non-verbal interaction to improve the quality of the educational process. Not coincidentally, in the education systems of the U.S. and the UK, they widely use bodylanguage techniques (body language, facial expressions and body movements as a means of non-verbal communication) and facebuilding (methods and techniques of conscious use of facial expression in interpersonal communication).

Today, in England, USA, France, Russia and other countries educational kinesiology based on natural physical movements and physiological interdependence motor and psychophysiological spheres is developing quite rapidly. H.H. Gross, a domestic kinesiologist, working in this direction, included the use of a complex of simple exercises that affect the brain, stimulate the flow

of information between its individual parts and make both hemispheres work simultaneously and consistently. During the training in this system, a person gets the knowledge about himself, about his own problems, how to offset the effects of myocardial stress. The body becomes as if it were retrained. With the help of certain exercises the person balances all processes, including the interaction of intellect and body [6]. Kinesiology exercise, however, may perform other functions in the educational process. Echoing the ideas of prominent thinkers of the past, a modern German scholar E. Meinberg in 1995 stated that learning motor skills may be a general paradigm of human learning as it relates to the total volume of its capabilities and experience. While learning motor skills, in his opinion, is first and foremost that besides the development of motor qualities, it also performs additional functions, activating and implementing various human potentials [19].

In the 90s of the last century, the concept of justification received sensory freedom and emancipation by psychomotor V.F. Bazarny. Its basic aspects include the construction of the educational process on the basis of the motor-relaxed body, based on freedom and far vision shaped structure; random coordinator freedom (reading, writing, verbal expression, hand creation etc.) [3]. On the basis of the theory of sensory and psychomotor freedom, emancipation developed the technological, technical and methodological arsenal of teaching tools, widely used in the practice of educational schools in Russia. Primarily it is a method of dynamic poses, the finger gymnastics, improving the efficiency of the method of psychomotor functions through self-directed stepping rhythm. This technique, for example, aims to increase efficiency in general and psychomotor functions, motor speech functions, in particular, by summing up the foundation under their arbitrary step rhythm. The technique is used to form the stepping logarithm when reading a text with near and far vision; it is used in the process of a stepping logarithm when reading text using base Stepwise metric grids.

In recent years, domestic researchers carried out a number of studies [6; 29; 25], examining

different aspects of kinesiology techniques in the teaching process. And yet, despite the presence of a particular theoretical framework, the use of educational technology in the educational kinesiology practice has not received the necessary interpretation.

It is fundamentally important to distinguish between the means of educational kinesiology of physical culture. As a means of educational kinesiology, kinesiology can distinguish between a set of exercises, role-playing games, etude exercises, moving psycho games with objects, using gestures, dance fragments providing interconnection motor and motivational sphere of personality of students through movement. The means of physical culture include: an exercise, personal hygiene, and natural forces. A physical exercise is the main means of physical education, a special type of motor activity, using directional impact on the students.

The means of educational kinesiology differ significantly from the means of physical training in their tasks, focus, content, methods and results. In contrast, when using the exercise equipment, kinesiological intersects in the center line of the body performed several distinct movements in sequence to rote, and the speed or the movement transfers a figurative sense of thinking and speech. So, here speech movement, pantomime, coded speech and all physical actions are not determined by objective and verbal sense that affect sensory, motor and associative functional cells of the CNS. All this allows one to change the genetic predetermination asymmetry functions of the cerebral hemispheres, that is to reconcile the simultaneous operation of the central nervous system

The means of educational kinesiology imply the decision of educational problems through movement, including the problem of the so-called "body movement experiences." Covered facilities are based on plastics and motor connection thinking process that allows the use of a leading idea – "learning through movement." Decision problems by means of educational kinesiology educational organization are aimed at interaction of the thinking process sphere of psycho-emotional state and allow synchronization through the development of these systems that

affect the educational process so as to improve memory, coordination of the body in a concerted effort with hearing and vision.

In their direction, the means of educational kinesiology also differ from the means of physical culture. Thus, in the log file under the supervision of Professor V.N. Irkhina, the thesis research of O.V. Pol'schikova has shown originality of the use of educational kinesiology in the formation of future teachers' motivation for a healthy lifestyle [25].

In educational kinesiology we distinguish: the method relying on physical action [2], which allows you to activate the stimulus of interest, the ideal realization of motor activity as a component of healthy lifestyles; the method "Exercising the brain"[10] aimed at the relationship of physical development, language formation and educational achievements of the person; a communicatively-oriented method [19] which includes a vital principle – the authenticity of the speech and behavior knowledge, the method of activation of reserve capacity [18]. Based on the suggestopedical system, it includes redundant capabilities unwitting the human psychic sphere, the method of muscle testing (to determine muscle tone, with connections to certain internal organs, vertebrae and other structures); the game method (serves to satisfy the different needs – it serves to satisfy the different needs – self-knowledge, communication, spiritual and physical development, and recreation).

The kinesiology educational media content is based on the principle of sensory corrections made to the motor impulses based on sensory information on the movement (Bernstein). They are complemented by factors that, in addition to the motor commands affect the course of the movement. The media content of educational kinesiology determines their educational role, as through feedback signals produce a conscious impact on the student's personal development. So, perhaps to overcome various difficulties and to manage their emotions in the course of employment, to produce valuable life traits and qualities of character (courage, perseverance, hard work, determination, etc.) to develop the motivation to conduct for a healthy lifestyle.

For example, such a means of educational kinesiology as the game is also different from the game method used in the field of physical culture. The existing sports and outdoor games are aimed at improving motor activity, the development of physical qualities, abilities, creating a positive emotional lesson. Psycho-educational kinesiology uses games, role-playing which are sketchy. Study is often identified with the exercise. However, apart from the issue of improving performance techniques it has a greater or lesser degree of artistic content, the logic of psychological development. Etude is not limited to purely technical problems (as in the case of physical exercise), but also includes some elements of work. Sketchy-playing games as a means of educational kinesiology are usually carried out in order of motor improvisation as a response to the problem posed by the teacher education. Artists motor Etudes are free to choose the logic of motor actions. It is created every time depending on the circumstances in which the action takes place. This approach assumes that the selected and fixed logic of the events and the behavior of actors.

**Conclusion.** The analysis of the scientific literature led to the conclusion that the funds of educational kinesiology are the other pedagogical tools, which include motor position, methods and techniques, adapting them to higher levels of organization of movements. This primarily refers to the level E (according to N.A. Bernstein) that is associated with the semantic field of personality. Therefore, the funds of educational kinesiology are intelligent motor actions, including kinesiology exercises, role playing, sketchy exercise psycho mobile games, use of gesture, dance pieces and allow to strengthen the relationship of physiological and mental processes in order to solve a variety of educational tasks. The means of educational kinesiology are used for:

- Improvement of mental health of students (kinesiology exercises to stretch the muscles,

psycho games, dance pieces). These funds provide the necessary speed and intensity of the flow of neural processes, allow you to catch posonotical voltage to develop creative thinking (the ability to integrate knowledge from other people in their own experience ), the skills of self-awareness (the ability to maintain composure in all situations), the coordination of holistic body movements that affect the level of concentration;

- Development of mental abilities (kinesiology exercises to develop hemispheric interaction, crossing the midline of the body, for the development of coordination "rumor - hand - eye" psycho games with objects, using gestures ). These funds activate and synchronize the work of hemispheres, develop fine motor skills, memory, attention, and develop inter-hemispheric communication, increase intellectual capacity, develop intuition, stimulate creativity, increase the integration of visual and auditory skills; improve the ability of visual discrimination, body coordination, train motor skills, stimulate the perception of space, improve the sense of centering;

- Formation of knowledge about healthy lifestyles (active psycho games with objects and objects without using gestures, dance tracks). These funds stimulus activates interest ideal awareness of motor activity as a component of healthy lifestyle. Thus, the physical activity goes to the conscious doing of the exercises and activities in the classroom and in leisure activities.

Thus, the use of the ideas and principles of educational kinesiology in the educational process can be not only a factor affecting the personality of the student, but also the condition in which he/she (the person) is shown. Summarizing, we can say that now we can see a process of appearing of the theoretical and practical background for the development of kinesiology approach to education as a methodological basis of motor pedagogy.

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