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DEVELOPING AGILITY

THROUGH PHYSICAL GAMING ACTIVITY WITH ADOLESCENT KIDS DURING LESSONS OF PHYSICAL TRAINING

DESARROLLO DE AGILIDAD A TRAVÉS DE LA ACTIVIDAD DE JUEGO FÍSICO CON NIÑOS ADOLESCENTES DURANTE LAS LECCIONES DE ENTRENAMIENTO FÍSICO

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RESUMEN

The relevance of the issue of the study is that adolescence is the most suitable life period for development of agility. There are various methods of agility development actively used by coaches during classes of physical training. Exercises developing agility include special running exercises: interval running and relay race. But it happens quite often that kids lose the interest in training for the reasons of complexity and monotony. The goal of the article is to develop a set of active games to develop celerity with kids of middle school. The leading research method is the game method of active games during the classes of physical training. This study presents the most effective means for agility development. Separate attention is devoted to development of a set of motion games for middle school students. Physical faculty students can use these games to develop agility during the classes of physical training, during the extracurricular activity and during the period of pedagogical practice. The materials of the article could be of use to students of the faculties for physical training and sports, physical training pedagogues of secondary schools, middle and higher schools, as well as for teachers of compulsory education.

Keywords: Agility, celerity, physical culture, agile games, special running exercises, middle school age.

RESUMEN

La relevancia del tema del estudio es que la adolescencia es el período de vida más adecuado para el desarrollo de la agilidad. Hay varios métodos de desarrollo de agilidad utilizados activamente por los entrenadores durante las clases de entrenamiento físico. Los ejercicios para desarrollar la agilidad incluyen ejercicios especiales de carrera: carrera por intervalos y carrera de relevos. Pero sucede con bastante frecuencia que los niños pierden el interés en el entrenamiento por razones de complejidad y monotonía. El objetivo del artículo es desarrollar un conjunto de juegos activos para desarrollar la celeridad con los niños de la escuela secundaria. El método de investigación líder es el método de juego de los juegos activos durante las clases de entrenamiento físico. Este estudio presenta los medios más efectivos para el desarrollo de la agilidad. Se dedica una atención separada al desarrollo de un conjunto de juegos de movimiento para estudiantes de secundaria. Los estudiantes de facultad física pueden usar estos juegos para desarrollar agilidad durante las clases de entrenamiento físico, durante la actividad extracurricular y durante el período de práctica pedagógica. Los materiales del artículo podrían ser de utilidad para estudiantes de las facultades de entrenamiento físico y deportes, pedagogos de entrenamiento físico de escuelas secundarias, escuelas intermedias y superiores, así como para maestros de educación obligatoria.

Palabras clave: Agilidad, celeridad, cultura física, juegos ágiles, ejercicios especiales para correr, edad de escuela intermedia.

INTRODUCTION

Sufficient motional activity is a precondition for harmonious development of a student's personality. Insufficient motional activity at school and at home resulting in hypokinesia threatening the undesired changes of a student's body has been observed quite frequently during the last several years (Grishina & Volkova, 2019).

Physical culture, being a part of general culture, allows for child's development and preparation for further self-managed adult life. Whereas sport is frequently being referred to as a school of life. Since one learns not only to play this or that kind of sport (if game sports are taken into account), but also to work in a team, use strategy and tactics, to lose and to win, maintaining relations with rivals and team members within a limited territory (especially in competitive activities), make own decisions not only in game, but in life as well (Kovalko, 2013). Systematic exercises of physical culture and sports result in continuous development of body mechanisms, regulating the work of all organs and human body systems. This is to a major extent the positive influence of the physical training as of one of the most powerful factors of health improvement (Weinbaum, Kovalko & Rodionov, 2002).

Middle school students are 12 to 15 years old. Middle school age is characterized by an intensive growth and increment of body size. Annual growth of 4 - 7 cm in length is achieved mainly by the growth of legs. Body weight increases annually by 3-6 kilograms. The most intensive growth rate of boys occurs in the period of 13 to 14 years when the body grows 7-9 cm in length. Most intensive growth of up to 7 cm per year occurs with girls in the age of 11 - 12 years (Obukhova, 2011).

Long tubular bones of upper and lower limbs grow rapidly as well as vertebrae grow faster in height. Adolescent's spine is highly mobile and flexible. Excessive muscle tensions can delay the tubular bones growth through the ossification process intensity (Alferova, 2012).

This age is characterized by higher rates of muscle system development. From the age of 13 a prompt increase of muscle mass occurs to a major extent due to increasing thickness of tissues. Muscle mass usually grows intensively with boys at the age of 13 - 14 and girls of 11 -12 years of age (Rudenskiy, 2019).

Puberty periods vary significantly depending on age. The girls' puberty process starts 1-2 years earlier than that of boys. A class consists of students with various puberty grade thus with various functional and adaptational opportunities. Therefore, it is evident that adolescence is the age for compulsory individual tuition in addition to collective forms of upbringing. Middle school students have significant rate of coordination capabilities improvement, abilities in terms of strength and strength agility; stamina and agility are increasing moderately. Relation of practical methods (game and ordinary procedural exercise) is approximately the same. Physical activity of a teenager is utilized basically in organized forms - during classes of physical training, physical time-offs, during active recreation, hiking tour etc (Obukhova, 2011).

MATERIALS AND METHODS

Basic characteristics of elementary school age is noted in the studies of Podlasy (2004). According to Podlasy (2004), the main type of activity for this age is obtaining knowledge, but another element starts playing an important role - ability to communicate. An adolescent person starts studying fundamentals of science in a systematic way. Learning becomes multi-subject. Higher requirements are set for an adolescent person. This changes the attitude towards learning. Adolescent students tend to avoid extra exercises and perform only required homework or even less. Decreases in progress occur frequently. Abramova (2010), remarks in her book, that middle school adolescents like motion games provided they contain competitive elements. Motion games start to follow the sport rules. Such traits as wittiness, coordination, bravery, dexterity, agility are primary game skills.

Games used for physical development are various in their nature. They can be divided into 2 major categories: motion and sports. There is a great number of domestic literature sources of theoretical and methodical nature which deal with the role of games, their popularity, commonalities and distinctions of game folklore with various nations, methodical peculiarities thereof, etc. Such researchers as Litvinova (1986); and Zhukov (2000), considered game to be rather useful for national upbringing. Based on their works and considering foreign publications, motion games are considered as a conscious activity, directed for achievement of particular motional tasks in rapidly changing conditions. Creative initiative of a player is developed in the game and finds its expression in the variety of actions compliant with collective actions.

Issues of game influence on the development of physical qualities with kids were studied by Vavilova (1986); and Timofeeva (1986), developed motion games to develop basic movement types with pre-school kids, influencing development of physical qualities. Earlier theories and methods for physical upbringing in Russian educational institutions were proposed by Lesgraft (1998), who categorized motion games into team and non-team games.

His scholars complimented the taxonomy with a transition type of motion games similar to team games. Thus, motion games were categorized into team, non-team and transitional types, depending on the number of players. Another taxonomy of motion games is focused on the impact on the human body and special skills development, as there are common physical skills are required in these games like dexterity, strength, agility, stamina, flexibility and specialized psychical and physical skills, motion games are categorized by many authors using this taxonomy. Motion game is defined as an ***"exercises assisting the child to be prepared for further life".*** These games help the child to gain skills and habits, obtaining new character traits (Skitnevskiy, et al., 2018a).

Rules in games have a meaning of a law, which cultivate conscious and responsible attitude. Compliance with this rules is obligatory for everybody; therefore, they have significant pedagogical power. Games develop as well such moral traits as discipline, fairness, patience. Motion games belong to vital needs for pre-school kids. Conditions favorable for development and improvement of moral traits, as well as habits and skills of collective being are created in the process of games. Pre-school kids are fond of completing game tasks. Various actions are exercised during the game. With the assistance of adults, children master new, more complicated motions. Such authors as Ivankov (2000); Matveev (2003); Runova, Gutsu & Nyagolova (2019), noted the significance of motion games for physical, mental and personal development of a kid.

Motion games correspond to the internal needs of preschool kids for movement as well as create optimal dynamic environment. According to Belova (2007), motion game is an irreplaceable means of physical education, source of knowledge and reflections of environment, development of mindset, dexterity, marksmanship, swiftness of reaction, motion intensity, plasticity, development of personal morale and ethical qualities. The game process serves to not only train and improve the already existing skills, but also to build new ones - of physical and cognitive nature. Being an important means for physical training, a motion game has a healing influence at the same time. The healing effect of motion games is multiplied by conducting them outdoors; as kids are exercising in various motions: running, jumping, climbing, flinging, throwing, catching. A great number of motions activates breathing, blood circulation and metabolism, positively influences the psycho-activity (Skitnevskiy, et al., 2018b).

Gaming activity objectively comprises two important factors: on the one hand, children are included into practical activity, develop themselves physically, get accustomed with self-reliant actions; on the other hand - they receive moral and aesthetic satisfaction from this activity, deepen the knowledge of the environment. All this serves for bringing up the personality in general. Thus, a game is one of systematic forms of upbringing: it is focused on the entire physical preparedness (through direct appropriation of motional basics and complex motions in changing conditions of collective activity), improvement of character traits and body functions. Motion games are most frequently used during physical training lessons in primary schools. The experience of organizing such classes are described in the studies of Orlova (2002); Gorbacheva (2012); Rudenskiy (2019). Middle school physical training classes do not contain as much motion games for development of agility of middle school students.

Thus, the research problem is to develop a set of motion games to develop agility with kids of middle school age group.

The object of the study is the learning and development process of a motion games framework for agility development of middle school students.

The subject of the study is a motion game class of activities which build the core of the physical training course for development of agility of middle school students.

The goal of the study is to develop a framework of motion games for improvement of agility of middle school kids.

As a research hypothesis we accepted the assumption that motion games being played at classes for physical culture would contribute to improvement of agility of middle school kids.

RESULTS AND DISCUSSION

The task of the research is to develop a framework of motion games for improvement of the agility of middle school students.

Having analyzed the psychological and physiological peculiarities of the middle school age we have observed that the communication aspect of tuition gains priority. Adolescent students need peer communication, and physical training class offers the easiest way of motion games. Motion games are a useful means of agility development so we have developed a framework of motion games for agility development during physical training classes.

A Framework of Motion Games for Agility Development of Middle School Children

"Changing numbers" game

The class is divided into two teams staying in rows facing each other. Upon a signal each player has to cross

the line of the opposite team as quick as possible. The winning point belongs to the team the players of which will complete the task, and hand in hand will pronounce an agreed greeting outloud. The winning team is the one with more points. Players should be disconnected before the start to avoid clashes. Depending on physical preparedness of the teams the running distance and amount of lines can be customized. The game can be variated by changing the initial condition (from the lower start, sitting on the floor, backwards to the running direction), as well as by changing the types of movement (jumping, jumping on one leg, siderun, backwards etc.). Players can move, as well, as passing obstacles standing on the field border lines, use side or pair run, hold hands on each other's shoulders, back-to-back;

"Passing the gates" game

Players of two teams should stand in two rows facing each other on the starting lines. Gates for each team are marked by a pair of flags in the middle of the field. After the signal the players should run towards the opposite line with an obligatory crossing the own gates and lining up on the opposite line. The game is repeated several times.

"Pull for the ball" game

A coach holding the ball in hands divides the players in two teams with each player obtaining his ordinal team number. The coach throws the ball ahead calling some number out loud. Players of both teams having that number should run for the ball. The first one to reach the ball wins the point for the team. The team scoring 10 points first wins.

"Numbers calling" game

Players are divided into two teams. Players of each team should sit down to one of two benches behind the common start line on the distance of at least 1 m from each other. Each team player gets his/her ordinal number. At the end of the field there should be a run around stick for each of the teams. The coach shows different motions for players to repeat. Most suddenly the coach should shout out a number. Players having this number should reach and run around the runaround stick and return promptly to previous position. The fastest runner brings a point to the team. The winning team is the one having maximum points.

"Day and night" game

The playground's middle area is crossed by two parallel lines with 1-1.5 m distance from each other. The players are divided into two teams with players staying in two rows facing each other. One team becomes "Day", the other - "Night". The coach chooses the position aside the playground to be seen by each player and performs various movements, to be repeated by the players. In a most sudden moment either a "Day" or "Night" exclamation is to follow. The players of the appropriate team should strive to reach the outside boundary of own line, whereas the "Night"/"Day" team players should chase and catch them within the field limits. Each player caught brings a penalty point to his team. The game can be repeated as teams stand again in the initial position. The game is played until the defined quantity of points or time limit is reached. The team scoring less penalty points wins. The setting can be varied by changing the initial position of players.

"Collect the flags" game

Flags are set on a field with 25 m distance from each other. First row of flags should contain 2 flags less than the quantity of the players. The second row should have 2 flags less than the first row and so on. Thus, if initial number of players is 10 the rows should contain 8, 6, 4 and two flags correspondingly. Players should start their run upon the signal. Each should try to come into possession of the flag in the first row. Those two players failing to pick the first-row flags quit and the procedure repeats till the last flag is picked up. The player holding the last flag is the winner of the game.

"Pull attempt" game

Players of each of two teams receive the same ordinal numbers. Everybody should run in pairs along the runway. At some point of movement, the coach shouts out the ordinal number. Those players having this number should reach the head of the column and be the leading runners. The run (walk, jumps, other movements) should proceed till the new signal. The winning team is the one, having the most leaders in it.

"Win the edge" game

20-30 meters in front of the runway turn each of two teams (four persons each) starts the game. The player who is the first to take the internal road receives 1 point. The following player receives 2 points and so on. The least resulting score defines the winning team. Points are assigned in the order of places occupied after the turn.

"Following rows"

Players are divided into two teams; each team stands in four rows. For example, team A makes the first and the third row, team B - the second and the fourth. The distance between rows should be about 5 steps. The finish line

is situated 20-30 m away from the start. Players of each row start the run upon the signal having the aim to touch those running ahead and not letting be touched by those running behind. Each touch is marked with a point. Upon the count of points, the race in the opposite direction occurs. The team winning the most points wins.

"Circulation" game

Players run in a column. After the coach's signal the last in column should accelerate, take the column over and stand in front of it. Once the position is taken, the one who became the last starts the run. Depending on the lesson goals the presented games can be started in any part of the lesson.

The research goal is to develop a framework of motion games for improvement of agility of middle school students. Agility is a very important skill for improvement throughout the school time. It is a necessary attribute of dynamics of the modern human activity. Agility is the ability of a human being to perform motions within minimal time interval for given conditions. Any exercises performed at high speed and frequency should be considered developing agility. Sprint races, short distance run, various jumps, throwing, motion and sport games, relay races are considered as such. It is necessary to consider the following items of methodology when improving agility: the rate of performance should not exchange 60-90% of maximum.

The duration of exercises should be such that the rate of performance remains stable during the exercise. Exercises are to be finished in the moment of having sensations of fatigue or loss of top performance rate measured by the equipment. The pause between exercises should create preparedness to repeat them at the same rate (using optimal interval and recreation mode) (Semyonov, 2005).

Exercises of light athletics improving the agility include high hip running, backwards ankle throwing, stroke running, support run, angle run; ladder steps running up and down; sportsman towing; accelerations; time-based walk-to-run; windside running; pursue-the-leader running; handicap running; start-from-any-position accelerated running; same but with various tasks running (Zhilkin, 2005).

Jumping exercises include: up and downhill jumping on both and on one leg; up and down the ladder step-by-step jumping on both and on one leg; jumping rope exercises; jumping to pick the hanging objects; obstacles jumping (benches, barriers and so on) on both and on each of legs; resisting running in pairs; no-knee-bowing-jumping on both legs; broad thrust jumping with leg shuffle; multiple leg-to-leg jumping, both leg jumping frequency variation; out-of-deep-seat jumping (Kholodov & Kuznetsov, 2006).

Jumping exercises with previous short 8-10 m run. Each and every exercise can be performed in any conditions (in- and outdoors) during any period of preparation and training. It is most expedient to do jumping and running exercises in the beginning of the training. Jumping exercises can be included in the finishing part of the training as well, depending on the tasks of the workout.

Motion games have a century-long history of development of various skills and crafts, physical qualities, everyday proficiency, labor and defence activity of kids. Orderly organized motion game mode strengthens health, gives ability to achieve significant improvement of psychophysical state and which is especially important that development occurs in a harmonious manner. Motion games including such physical exercises like jogging, throwing/slinging, jumps in response to sequential whistles can be used effectively used for improvement of swift reactions (reactivity), abruptness (ability for swift muscle tension), agility (ability to accelerate swift movement of joints). For example, when playing "Attack" game the players of both team should react swiftly on the given whistle and those who is to escape should run away and those who catch should catch. Motion games with a small(tennis) ball are useful to develop reactions to a moving object. Using the so-called speed exercises (short distance run, jumping etc.) at maximum speed also allows to improve the agility. Such exercises shouldn't last longer than 20-22 seconds with consequent time-off to avoid fatigue. In case of fatigue not the agility becomes the skill for training but the stamina. Therefore, agility exercises are included in the initial part of training. (Zheleznyak, Kashkarov & Kravtsevich, 2005).

Any motion games can be used to develop agility, including swift short-term movements and local actions in response to teacher's commands, as well as such exercises as jumping, multi-jumps, jumping-outs performed at a high speed. Dexterity development can occur through physical exercises of high coordinative complexity with novelty elements games, equilibrium and exactness exercises, as well as games, connected with the necessity to make unusual swift motional movements with a time-limit and use of various objects. Various motion games like "Rope", "Prisoners", "Watchmen and scouts" etc. can be used to develop dexterity of primary school children. When developing dexterity, it is to be taken into account that this quality is rather specific and kids who are handy with a ball can be less successful in other games. This should be taken into account by their teacher during the organization. It is necessary to use different games and

their variants and ensure perfection in all their components to develop dexterity.

It has to be kept in mind that motion games developing dexterity require hard work of many physiological systems, therefore children get tired very fast which makes the game impact ineffective. Usually, games developing dexterity are used either in the beginning of the workout, or after a significant recreation break. Folk motion games can be effectively used for development of strength, including games with external resistance (weights, resisting partner etc.) or exercises with overcoming own weight (push-ups, rope climbing, etc.). Motion games for strength development could be used after agility and dexterity motion games, preparing the breathing and cardio-vascular system for power exercises.

Motion games, which meet the below conditions can be effectively used for development of stamina: including most muscle groups, use of known simple movements, ability to regulate the exercise intensity, break intervals between moments of muscle tension and relaxation, possibility for iteration. Stamina development adheres to the rules of age. According to age physiology, dynamic stamina increases 3 to 4 times in the age interval of 14-15 years. In the process of morphological and functional transformations stamina reaches the "adult" level significantly later than agility, dexterity and strength. Motion games have another advantage: depending on the level of physical form players can regulate the load intensity choosing the break intervals. There is also one drawback of motion games. Their competitive nature leads to emotional excitement, mobilization of body powers and increased performance causing the players to forget about fatigue. Though stamina development presumes the coming of fatigue, the coach should limit its extreme forms by a timely decrease of intensity and load volume.

CONCLUSIONS

It is possible to conclude that use of motion games in physical training classes in the middle school is an efficient form of agility development. It is necessary to use them systematically and regularly but it is to be noted that using only motion games during physical training classes is an error. It is recommended to combine motion games with other activity types when conducting physical training courses.

The method is also directed to improve the level of teachers' pedagogical knowledge in the subject of motion games, suitable for adopting a healthy life style as well as personal development of students. Our methodology allows guiding students in self-studies and exercises by means of motion games taking into account the professional specialty of the university and family requirements. Thus, basic research tasks are solved - the contemporary state of the issue was researched, peculiarities of physiological and physical state of adolescents and the influence of motion games on the body and physical qualities of the student in the system of physical training classes have been considered. The motion games contain elements of light athletic exercises, which allows the pedagogues to maintain motivational component of the lesson and at the same time use the game in any part of the physical training class. The use of motion games allows developing teamwork, tactics, and strategy. Due to the game rules, schoolchildren build the relations based on them: with competitors and in own team in the limited space (in competitive activity especially). Children learn to make their own decisions not only in a game, but in their life as well. The game process emulates success (victory) and failure (loss) situations. This helps schoolchildren to accept losses and to win not only at playground but in school and social life.

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