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The Method of Team Sports Athletes' Motor Skills Development

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Abstract

It is proposed that the training session be conducted on the ground with controlled light-dynamic illumination to be generated by small-size laser or other light emitters fastened on the athlete's head. For safety the emitters are to be installed so as to prevent the trainee's eyes from direct emanation.

The emitters create mobile unallowed and allowed zones seen as the figures of various shape to be used for simulation of the training modes. The figures are controlled by software and hardware system including a gyroscopic orientation system of light emitters and a system of positioning of the athlete on the playing court. The system of gyroscopic orientation of light emitters is placed together with the emitters and depending on the head rotation, neck bends and vertical movements of the athlete's head and his/her movements on the playing court during the training session. The system of gyroscopic orientation automatically adjusts the position of the figures, while maintaining their target location and movement set by the selected training programme.

The training can take place outside of specially equipped athletic field, on any smooth surface. The contours of the mobile unallowed and allowed zones are clearly visible and have no shadow formations.

The method of motor skills development proposed incorporates the principles and techniques of sports coaching used for training both certain athletes and sports teams. The method facilitates in personalising the training tasks, acquiring playing skills by simulating different complex game situations, improving the efficiency of training, bringing it closer to the real play conditions, developing game thinking.

The method can be used for training teams of different profile specialising in football, hockey, handball, rugby, basketball and other team sports.

Keywords: athletic games, motor skills, training, principles of training, training areas, methodology of training, individualisation.

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1. Introduction

The performance component is paid much attention to in the game sports activity. This component depends on the proper motor skills and provides the necessary athletic effect (Makarov, 2013). To create such skills multiple drilling reiterations are required but the uniformity and monotony of training sessions is likely to bring the athlete to psychological tiredness, fatigue, loss of interest. Therefore, when choosing the training tools it is necessary to create more possibilities for a positive emotional background to ensure not only high performance, but also a faster recovery after the intense training session (Baikalova and Prostikhina, 2015).

In this regard, the search and study of new methods and techniques of using emotional and accessible motor skills development tools of beginner athletes in order to enhance their level of physical fitness is a necessary prerequisite for improving training programmes in many sports (Maslo, 2010).

Such methods and techniques are essential for both professional sports and the development and changes in the game trends will inevitably entail the changes in the pattern characteristics of the competition activity and, consequently, the athletes of the specific specialisation will not feel comfortable at the training court. In such a situation, the athletes will not be able to participate fully in the play and the effectiveness of their gaming activity will inevitably fall (Makarov, 2010).

The current status of the methods and techniques used for training athletes of sport games based on the information technologies has been considered in the article (Maksimenko, 2009). The prospects for using the multimedia programmes at the first, the second and the third stages of long-term training are discussed in the article. It has been shown that the computer software assists better in game technique mastery, develops tactical thinking and enhances the level of the athletes' theoretical competency.

The issues of the computer information technologies application for technical and tactical training in team sports have been earlier considered by the authors and the method of training technical (Afon'shin et al., 2014; Polevshchikov et all., 2014; Afonshin and Rozhentsov, 2016), tactical actions by means of simulating game situations in the virtual reality (Rozhentsov and Afonshin, 2013) and the technical and tactical training in team sports (Rozhentsov and Afonshin, 2014) have been proposed.

The purpose of the paper is to develop the methodology of motor skills development of a team sports athlete.

The Methods of Motor Skills Development of a Team Sports Athlete

The training session takes place on the ground with controlled light-dynamic illumination to be generated by small-size laser or other light emitters fastened on the athlete's head. For safety measures, the emitters are to be installed so as to prevent the trainee's eyes from direct emanation.

The emitters create mobile unallowed and allowed zones seen as the figures of various shape to be used for simulation of the training modes. The figures are controlled by software and hardware system including the gyroscopic orientation system of light emitters and a system of positioning of the athlete on the playing court. The system of gyroscopic orientation of light emitters is placed together with the emitters and depending on the head rotation, neck bends and vertical movements of the athlete's head and his/her movements on the playing court during the training session, the system of gyroscopic orientation automatically adjusts the position of the figures, while maintaining their target location and movement set by the selected training programme.

For example, when training opposition's groundmoves, the emitters generate around the athlete several light unallowed zones, which are purposefully 'pursuing' the athlete. The athlete's task is to bypass the light rivals, to escape from the encirclement of the unallowed zones. While the athlete is moving, the gyroscopic orientation system of the light emitters captures his/her movements in space and the hardware and software system adjusts the distance between the athlete and the projections of the unallowed zones, therefore there arises a feeling with the athlete that the light opponents are not connected with the emitters located on his/her head, and they act independently according to the programme (Patent..., 2015).

The athlete having done the groundmoves of the light zones is encircled by the light «opposition» again or is given another training task.

The training session can take place outside the equipped playground on any smooth surface. The contours of the mobile allowed and unallowed zones are clearly visible and have no shadow formations.

2. Discussion

The investigations carried out by the experts, according to V.A. Uskov (Uskov, 2004) prove that the basis for effective athletes' training is improving their motor actions. The methodological basis of motor actions enhancing in team sports is (Rodin, 2015):

– introduction of biomechanical control of kinematic characteristics of game skills in the course of practicing competition and training activity, which facilitates in finding the rational playing skill technique; it provides the knowledge of the specifics of the opposition game techniques in the course of individual tactical attacking and defending actions; it contributes to the effective movements control on the basis of the correction of the actions, depending on the opposition's actions.

– introduction of the method of game problems into the training process to identify the game situation and effectively simulate the right decision;

– implementation of the leading demonstration method aimed at enhancing individual technical and tactical players' arsenal in a particular game situation.

The term 'method' in sports training is understood as the method of the basic training tools application and a set of methods and rules for athlete and coach's practices divided into two large groups (Khvorykh and Akbatyrov, 2014):

- general pedagogical methods including verbal and visual ones;
- practical methods including the method of strictly regulated drill, game and competition methods.

The verbal methods applied in sports training include a narration, explanation, conversation, analysis, discussion, etc. They are most often used in a concise form, as special terminology particularly for training highly-qualified athletes. The effectiveness of training largely depends on giving skillfully guidelines, instructions, comments, verbal assessments and clarification.

The visual methods used in sports practice include (Khvorykh and Akbatyrov, 2014):

- the methodologically correct demonstration of the individual drills and their elements, which is usually done by a coach or a qualified athlete;
- demonstration of educational films, video record of the trainees' motor actions, tactical schemes on the training field layouts, playgrounds, etc.;
- use of simple landmarks that restrict the direction of movement, the distance overcome, etc.;
- the use of light, sound and mechanical leading devices, including those computer-controlled and feedback ones. These devices allow the athlete to obtain information on the spatial and dynamic characteristics of the movements and perform their correction.

The effectiveness of training largely depends on the correct application of training methods and devices, on compliance with the specific rules, so-called principles of sports training, which include (Khvorykh and Akbatyrov, 2014):

- integration of general and specialised training;
- continuity of the training process;
- gradual increase in loads and a must of maximum loads;
- waviness of load dynamics, their repeating pattern;
- individualisation of the training tools and methods applied.

In general, training athletes can be considered to be a subject-object in its nature activity, even in cases when it comes to team activities where the final result is the cumulative product of each member personal contribution. The said specifics makes the development of the ways to personalise control of the team sports training system extremely urgent. Thus, the problem of training process individualisation for the active sports teams with an emphasis on the dominance of personality characteristics is of primary importance (Makarov and Khusein, 2010; Losin and Makarov, 2011).

At the present stage, athletic games are in fact a professional occupation and the decisions taken to improve athletes training, according to I.A. Eroshenko et al. (Eroshenko et al., 2012) are to be innovative and focused on the search for fundamentally new methodological approaches to

sports training of both individual athletes and teams. The innovative technologies are considered to be a scientific description of those activities in the field of professional sport, which create prerequisites to enhance its level to ensure globally its priority position. At the same time a set of training methods and tools among the technologies is to be laid emphasis on.

On the assumption that the highest sports mastery is a different category, one ought to have specific training methods in addition to the traditional ones (Eroshenko et al., 2012):

– the principle of training load sufficiency (first of all, it allows one to forecast the sporting longevity and manage it, secondly, the training time saved can be used to the best effect);

– the principle of impact loads;

– the principle of focused specialization of the training loads;

– the principle of variability of training impact;

– the principle of compliance of the training loads to the nature of competition activity.

Therefore, the innovative approaches to training teams of athletic games are to include (Eroshenko et al., 2012):

- improving young athletes' individual proficiency in an extended range of game actions;

- increase in the variability of the tactical team actions;

- enhancing the basic level of athletic training focused on the development of power-speed qualities and specialised endurance.

Taking into account the specificity of the athletic games it is necessary that following athletes' training problem should be tackled (Rodin, 2015):

- improving the ability to coordinate one's movements and actions, taking into account the direction and speed of the implement motion (differentiation of space and time relations);

- development of the specialized physical abilities, mainly strength and speed of muscle contraction;

- development of complex responses speed, visual orientation, observation skills, tactical thinking and other skills that influence over the success of the game techniques application.

3. Conclusion

The developed method of motor skills improvement comprises the principles of sports training of individual athletes and athletic game teams. It facilitates in personalising the training tasks, acquiring game skills by simulating different complex game situations, improving training efficiency, bringing it closer to the real game conditions, developing game thinking.

The method can be used for training teams of various proficiency level, specializing in football, hockey, handball, rugby, basketball and other team sports.

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Метод развития двигательных навыков спортсмена в игровых видах спорта

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Аннотация. Тренировку спортсмена предлагается проводить на площадке с управляемой светодинамической подсветкой, которая создается малогабаритными лазерными или иными излучателями света, закрепленными на голове спортсмена. Для обеспечения безопасности излучатели устанавливаются так, чтобы исключить прямое попадание излучения в глаза тренирующегося.

Излучатели формируют мобильные запрещенные и разрешенные зоны в виде различных фигур, с помощью которых моделируют режимы тренировок. Управление фигурами осуществляется программно-аппаратным комплексом, который содержит систему гироскопической ориентации световых излучателей и систему определения координат спортсмена на игровом поле. Система гироскопической ориентации световых излучателей размещается совместно с излучателями и в зависимости от поворотов, наклонов и вертикальных перемещений головы спортсмена, а также его перемещений по игровому полю во время тренировки, автоматически корректирует положение фигур, сохраняя их целевое расположение и перемещение, заданное выбранной программой тренировки.

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Тренировка может проводиться вне специально оснащенной спортивной площадки на любой ровной поверхности. Контуры мобильных запрещенных и разрешенных зон хорошо видны и не имеют теневых образований.

Предложенная методика развития двигательных навыков учитывает принципы и направления спортивной тренировки при подготовке как отдельных спортсменов, так и команд по спортивным играм. Она позволяет индивидуализировать тренировочные задания, приобретать игровые навыки, моделируя различные по сложности игровые ситуации, повышать эффективность тренировки, приближая ее условиям, близким к игровым, развивать игровое мышление.

Методика может использоваться при подготовке команд разной квалификации, специализирующихся в футболе, хоккее, ручном мяче, регби, баскетболе и в других командных видах спорта.

Ключевые слова: спортивные игры, двигательные навыки, тренировка, принципы тренировки, направления тренировки, методика тренировки, индивидуализация.