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Possibilities Of Application Of New Innovative Technologies In Football

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ABSTRACT

Modern technology is developing at an amazing pace in almost all areas of our lives. Most likely, it was inevitable that technological developments would also quickly become commonplace in the world of sports. Some of these technologies are at the heart of football today. Companies from all over the world are coming up with more and more new inventions designed to help teams prepare for the competition, improve training regimes and, finally, become a factor for winning matches.

KEYWORDS

Football, new technologies, VAR, psychology.

INTRODUCTION

Football is the most popular sport, modern technologies are reluctant to enter it. Some of them are trying to penetrate from other industries, such as TV broadcasting and mobile networks, while others are closely related to sports activities. It should be noted that among the trends there are those that will not change the game much, but will significantly improve its dynamics.

Objective – systematize data on new technologies used in football, and determine the effectiveness of their use.

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If we consider the problem as a whole, then new technologies are reluctantly introduced into football, however, in recent years, innovations are increasingly common in this sport. What's worth the introduction of video replays."VAR" related to controversial points in the game. It is proposed to consider in more detail those innovations that exist in football, they will concern not only the game itself, but also the training of football players.

It is important for a football referee to be able to communicate quickly and smoothly with assistants so that decisions can be easily negotiated and thus managed in the most objective and efficient way. The distance between the positions of the chief referee and his assistants during the match is constantly changing, and thanks to the new wireless communication system, the referees can now quickly and safely communicate and exchange operational information about any event in the match.As a result, the head referee can at any time request advice from the assistants, the reserve referee, which ultimately will help him to make a decision within a few seconds in any given situation.

All this allows the judiciary to manage the game with confidence at the highest levels.

THE MAIN PART

To help referees judge whether the ball has crossed the goal line or not, another technology has been developed and implemented to assist in the final assignment of the ball, the Goal Line Technology.This method is used to determine when the ball has completely crossed the goal line; electronic devices scan the space between the goal posts and under the crossbar. This helps the referee to sort out a situation where it is not clear whether the ball has actually crossed the line. GLT is not intended to replace judges, but is intended to assist them in making appropriate decisions. For a goal to be determined, the GLT must clearly indicate that the ball has completely crossed the line.

Goal Line Technology has undergone countless hours of testing, including in all weather conditions, to be used as a serious technology for competitive soccer matches. The tests included various soccer settings, pitch formats, goal types, and other variable playing situations. The GLT system works with 14 fast cameras (7 for each goal) located around the pitch on the roof of the stadium. The cameras are connected to a powerful computerized imaging system that monitors the movement of all objects on the field, including players, referees and other obstructing objects.The important object for this technology is, of course, the ball. The advanced Goal Line system knows the exact three-dimensional position (X, Y & Z) of the ball to within a few millimeters, no matter where it is on the field. When the ball passes the goal line, the system sends a vibration and optical signal to the referee's watch. Of course, all camera images of such events, as well as all close-ups, are saved and can be played back at any time.

Goal Control is a goal determination system. For many years, the football community has led a lively debate about whether or not to introduce a system in football that could replace a referee in controversial moments of determining a goal. Its essence is to install fourteen cameras around the perimeter of the field, tracking the position of the ball. And when he crosses the goal line, the Goal Control system immediately sends a message about

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this to the judge on the screen of the smart watch on his wrist.Under Armor E39 smart football shirt. This tracksuit is equipped with sensors that can measure the vital signs of the athlete's body. We are talking about body temperature, pressure, heart rate, metabolic rate, movement speed, body position in space, etc. With Under Armor E39, you can control this outside of training or a match. The Under Armor E39 smart football kit allows you to get the most detailed information about the physical condition of the player at any time in order to better understand what to expect from him, whether it is time to reduce the load on him during training or replace during the match. The Under Armor E39 form can work by communicating wirelessly with a computer, tablet and even a smartphone.

RESULTS AND DISCUSSION

EPTS - Electronic Performance & Tracking System: Electronic Performance Tracking Systems for athletes help football coaches make informed decisions to improve individual performance. These systems use cameras and transmitters used by players that can be used to control and improve both their individual and team performance.

EPTS primarily tracks the position of the player and the ball, but can also be used in conjunction with microelectromechanical devices (accelerometers, gyroscopes and heart rate monitors, and other devices to measure exercise or physiological parameters. Traditionally, the use of EPTS occurs during the training process to evaluate performance a specific player in a specific training session.

These decisions can help managers select the right players for a particular match and, for example, plan certain changes during the match itself.The companies that make these transmitters give them access to their own software. This means that the coach can not only analyze the position of each player, but also easily assess the team as a whole. As a result, the coach can get a detailed view of the team's performance throughout the season and a detailed comparison of the strengths and weaknesses of the players. The system can support key decisions such as talent identification and selection, providing training staff with valuable information about individual players.

Three types of physical tracking devices are currently available:

Camera systems based on optics.

Pros: Easy to use, widely used in the football market, high sample rate; can track the ball

Cons: Limited number of measurements, tracking of individual objects requires manual adjustment, installation time,

Local Positioning Systems (LPS)

Pros: a large number of measurements is possible, very high accuracy of measured data in real time, ultrasonic technology reduces the likelihood of data transmission errors.

Cons: Installation cost, installation time

GPS systems

Pros: Large number of measurements possible, short setup time, no operator needed.

Cons: Using this system during matches causes interference with TV broadcasts

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Another solution approved by FIFA, besides VAR, is the ability of the head coach to communicate with the assistants delegated to the stands. This allows the coaching team to observe the progress of the match and the tactical situation of both their team and the opponent from a distance. With this visual advantage, the assistant can provide the coach with valuable information and facts about the match.The last question then remains: what will happen next? Real-time imaging pills?Real-time analysis of changes in tactics or football players using an artificial intelligence system? The development of technology is so fast that perhaps we will find out about such changes at the next World Cup.

When preparing young footballers, coaches can use new mental training practices for footballers.Due to the fact that in modern football it is the mental training of football players that becomes the determining factor for a successful game, in the very near future one of the main and indispensable factors in achieving victory will be the level of effectiveness of the psychotechnics used to match the game. The team and all of its players managed to tune in properly, won. We couldn't, we lost. In practice, it is observed that a lot of cases when a football team beats a stronger opponent, and then the next match lose to a much weaker opponent. And neither tacticalnorphysicaltraininghasanythingtodowi thit, thegamewasloston a psychologicallevel.

Without belittling the leading role of the head coach in the creation of a football team in the broadest sense of the word, it should be noted that the practice of psychological preparation of football players in the club should be dealt with by an appropriate specialist. Special coaches are engaged in physical training in teams. The same special coach is needed for the mental preparation of football players. The volume of work for such a specialist is huge, because he works not so much with the team as a whole, but more individually with each player.And where a sports psychologist manages to teach football players the practice of mental training, it is much easier for the head coach to manage the team and achieve high results, and an example of this is the leading foreign football clubs, where a sports psychologist, or even more than one, necessarily works.

Another direction of the developed new training technologies is teaching athletes to control their body in a completely new way, which leads to a more economic.This is achieved by structurally functional restructuring of the brain structures responsible for the human motor sphere. Working in a new mode of controlling his body, the athlete includes in maximum work only those structures of his body that he needs at the moment of his sports activity. The same body structures that are not needed to provide this work relax and work only to maintain tone. As a result, the stiffness in movements disappears completely. He easily, without straining, performs the work that was previously given to him with difficulty.The volume of work performed does not decrease. Only the amount of energy spent on these volumes of work performed decreases. This means that with a certain accumulation of energy substrates in the body, a football player, playing or training in a new mode of controlling his body, will perform a much larger amount of work than before. It is important to pay attention to the fact that some psychologists offer seemingly similar techniques, in which the load seems to be

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performed easily, but this just creates the illusion of lightness. But if, well, master the new control of your body, then the loads are really easy to perform. And these are not subjective feelings of an athlete, not an illusion of lightness, but an objective process of optimal energy expenditure, which is easily revealed by modern methods of testing athletes.

CONCLUSIONS

Football technology plays a crucial role in helping players, coaches, referees and even us fans. In doubtful situations, this allows you to check the decisions of the referee or explain to a colleague who supports another team that they were mistaken.Some of these systems are certainly controversial, such as VAR. Indeed, some argue that technological innovation will kill the sport, while others say it is helping the game get even better. These technologies are so advanced that they can detect even the smallest errors. And after all, we all perfectly understand that the computerization of sports is a constant and unchanging phenomenon, but how soon will we ask ourselves the question: has technology killed Football?

Innovation in football does not come often, but if it does, it is known to the whole world. The innovations that we considered in this article are effective, since they radically change not only the conditions of the game, but also allow avoiding mistakes in controversial situations on the part of football referees, but also affect the physical and psychological preparation of athletes-football players for certain competitions. The proposed methods of increasing the mental level and teaching a new mode of controlling one's body are universal and can be successfully applied with a variety of categories of football players, including schoolchildren.Yes, these techniques are complex, but precisely the theoretical basis, at the same time, their practical application is not at all difficult and, when applied in practice, easily fit into the usual training process. Therefore, we can assume that the innovations that exist in the training of football players are effective and should be more often applied in practice at all levels of training.

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