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Research on biomechanical analysis of football player using information technology in sports field

Ali Zaib[1], Muhammad Talal Ahmad[2]*

Abstract
The basic aim of this research study is to measure the research related to the biomechanical analysis of football players using information technology in the sports field. This research study depends upon questions related to the biomechanical analysis of football players and information technology. This research study depends upon primary data analysis to determine the research used questions related to biomechanical analysis and information technology. For measuring, the research study used the software of smart PLS and generated informative results, including the smart PLS Algorithm model. The indicator correlation, significant analysis, and total effect present the research between them. The biomechanical analysis of football players is the main independent variable, and information technology is the dependent variable. The football players, coaches, and every person related to sport industries are considered as research participants. The overall research found that the biomechanical analysis of football player positively affects by using of information technology. Information technology shows a significant impact on the biomechanical analysis of football player. Information technology plays an informative role in the biomechanical analysis in football players activities.
Keywords: biomechanical analysis of football player (BMA), using information technology (IT), sports industries (SI), smart PLS

1. Introduction

The development and advancement in the field of sports of the 21st century can be made using information technology. Information technology is a field that has influenced other areas of the world. Therefore, the role of information technology in the sports field holds critical importance.in the sports field, various technology-based systems are used to study different postures and movements of the athlete during a particular sport. The complete information regarding an athlete's activities and posture then help improve the athlete's overall performance. The best example of using information technology systems in sports is biomechanical analysis of an athlete. Biomechanical analysis is used in various sports to analyze athlete position and posture (Wei et al., 2021). The study of multiple sports injuries can also be made using the biomechanical analysis method. The term mechanical in the biomechanical analysis is related to mechanics, which means the study of movement .so biomechanical analysis involves the complete study of human body movement, that's why this analysis method is used in the sports field to understand athlete's postures (Yu et al., 2022).

Various biomechanical analysis techniques are widely used in sports to enhance players' performance. The first is the mathematical modelling technique that uses a mathematical equation to determine multiple angles of an athlete's posture. The second technique used is computer tracking and stimulation techniques. This computer-based technique is built on the principle of information technology and provides complete data regarding the athlete's movements during particular sports (Di Paolo et al., 2021). These two techniques are helpful; in determining the overall biomechanical posture of athletes.in football sports, the biomechanical technique that has a bunch of benefits is performing analysis technique. This technique analyzes the performance of football players to improve their performance. In addition, biomechanical methods offer one more significant advantage that it guides to maintain the proper posture of the athlete during the sport to avoid sports injuries. For optimizing the techniques of biomechanics, coaches and sports teachers use their mechanical approaches (Bai & Bai, 2021). These mechanical skilled coaches play their part in increasing the scope of biomechanical methods in the sports sector.

In the era of science and technology, the field of information technology has proved itself to be the most advanced filed. Information technology's study the behaviors, movements, position, and postures of sports athletes so it holds immense importance. Many technology-based web systems that detect the biomechanical motion of sports player's works using information technology (Bortone et al., 2021). This web system functions by detecting the motion of sports players and, at the same time provide information regarding the fundamental biomechanical analysis of the player. In football sports, information regarding football and posture is determined using technology-based biomechanical analysis techniques and algorithms. The most common and advanced algorithm used for biomechanical analysis of football players is is the dynamic head tracking algorithm. This algorithms model uses the intelligence system and provides accurate data regarding football players' postures

[1] Department of civil engineering, university of Lahore, Pakistan
[2] Department of Agriculture, University of agriculture, Faisalabad Pakistan, Talalahmad11@outlook.com

during the match. One of the most widely used algorithms in the sports of football is the local search algorithm. This algorithm also works on information technology systems and provides information about players training strength and his physical strength and activity (Rico-González et al., 2020). The analysis of the headshot strength of football players can also be made using this algorithm. This biological analysis algorithms aids in studying football players' strengths and also provides the evaluation method to calculate the accuracy of headed shooters in the sport of football. The conclusion regarding the head shooters' strength and ability is then easily made.

In the sports of football, there are greater chances of head injury events. These injuries can damage athletes' neuro-system. They can prove life-threatening. To overcome such head and other harms among football players, biomechanical analysis techniques and methods are widely used. The biomechanical approach helps guide the player about the correct posture to use while playing football. Football players are generally well trained about the playing techniques before they start playing professionally (Herold et al., 2019). The training given to the football players during their training session involves using biomechanical methods to teach them the correct posture to play with the football. The proper training methodology then, in return, benefits the player and saves him from various injuries.in many football training centers and sports complexes, sports coaches train the football player regarding multiple sports tactics, keeping the biomechanical techniques and methods in mind (Rana & Mittal, 2020). Also, the critical feature of the biomechanical techniques used in these football training centers is that they use information technology to carry out biomechanical analysis among their football players.

The training of various sports keeping in view the trend of using information technology-based biomechanical techniques for improving football athletes' performance, is essential. If athletes are well trained with these technology-based methods of biomechanical analysis, then they can perform better and optimize their playing strategies. Many sports training centers also educate their players and trainers about biomechanical techniques. This educational training thoroughly guides football players about every possible technology-based method used to improve the functioning of biomechanical processes (Rathi et al., 2020). Football sports centers and stadiums also use biomechanical technology-based sensors to detect complete information about the athlete's body language. The field of sports, especially football sports, is improving daily because of innovative technology. Many governments worldwide are revolutionizing their sports byadopting the most advanced form of biomechanical technology-based sensors for analyzing the performance of their sports athletes (Arguz et al., 2021). The whole football sport is based on mechanics, so to improve the mechanics of this sport, the body postures of the athlete should be in the proper order. And this order is achieved only through advanced technological biomechanical techniques and algorithms. Also, the advancement of football sports all over the world highlights the importance of using information technology in sports filed. The aspect of the use of technology for advancing sports filed in the present world is encouraged through the use of technology based system in sports field.in the future more advancement in sports field is expected due to innovative technology.

Research objectives

This research paper aims to understand the use of various biomechanical analysis methods to improve the performance of football players using information technology in the sports field. Teaching biomechanical analysis among their football players also describe in research paper.

Research questions

What effect on biomechanical analysis of football player using information technology in sports field?

How biomechanical analysis of football player is importance by using information technology related to the sport field?

This research study measures the biomechanical analysis of football player using information technology in sports field. This research paper divided into five chapters first portion represent the introductory part related to the biomechanical analysis of football player and information technology of sport this portion describe the research questions and objective of research study. The second chapter represent that review of research also describe analysis of previous researcher related to the biomechanical analysis of football player and IT this part describe the hypothesis development in between dependent and independent variables. the third chapter represent research methodology, research tools and techniques, theoretical framework, defined overall variables, and represent the econometric model related to the biomechanical analysis of football player using information technology in sports field. The fourth chapter describes results and descriptions included indicator correlations, co-linearity statistical analysis, the composite reliability analysis, significant and model fitness analysis between them. This chapter describe that smart PLS Algorithm model in between dependent and independent indicators. The last chapter summarized overall research study this part also presents some recommendations about information technology and biomechanical analysis related to the sport fields.

2. Literature Review

Artificial intelligence in the football sport has developed dramatically from theoretical development

to practical implementation because of advancements in information technology and computer science. Artificial intelligence (AI) seems to be a vital technology in today's society, and it has been quickly influencing all aspects of everyday life for individuals (Brady et al., 2021). Artificial intelligence (AI) can be viewed as a form of enabling technology that can be used to improve physical educational training of football players in a variety of ways, including through the evaluation of information and the modeling of training scenarios (Benson et al., 2020). Researcher highlighted that from recent many years, with the development of science and technology, information technology has become essential part for the development of the every sector including sports sector (Linke et al., 2020). Especially in football sport information technology has great advantages. Many scholars highlighted that with the growth of smart football sports in China and the faster development of the strength of universities and universities, (Zadeh et al., 2021) it becomes more and more important to change the method of football players' training and trained them traditionally to shoot headers (Adesida et al., 2019). This will help resolve some issues in the growth of sports and enhance the intelligent training of football players in China (Windt et al., 2020). In this research paper, researcher studied the biomechanical analysis of football player using information technology in sports field and It was highlighted that hat an intelligent football players training system that relies on a local algorithm for searching has the benefits of being easy to use, giving accurate data, and moving diligently (King et al., 2020). It can provide accurate guidance as well as improve the accuracy of getting shot based on the biomechanical qualities of header shooting strength (Bayliff et al., 2019). It was also studied that information technology had provide great significant to the training of football players and help to improve the performance of the athletes during sport (Fields et al., 2021).

Apart from this, many scholars studied that many different types of biomechanical analysis has been widely utilized in sports to help players do better performance during football match. Biomechanical techniques involve mathematical modeling, which utilizes an equation to figure out how a football player can stands from different angles (Ibodov, 2021). Moreover, another biomechanical technique which uses computers to track and stimulate the person also holds great significance in the training of football players (Diekfuss et al., 2020). Researcher said that computer-based method has been based on the concept of information technology as well as gives full information about how a player moves during certain sports (Gómez-Carmona et al., 2020). Whereas many scholars examined that since the beginning of the 21st century, the training of football players has become extremely difficult, especially when it comes to building systems for teaching and coaching football (Nambi et al., 2020). Researchers discovered that most football coaching still utilizes the old coaching methods and doesn't focus on developing practical skills as well as comprehensive expertise (Mataruna-Dos-Santos et al., 2020). It was explored that professional knowledge, basic football skills, board football skills, as well as basic football knowledge has been considered as the basic elements of football training system because many football player did not show their interest in getting traditional training of football sport (Buckthorpe, 2019). Therefore, in this context, biomechanical techniques play a vital role to improve training system (Li et al., 2020). Furthermore, many other Researchers presented the research which was based on the rules of playing football, as well as they propose that there must need to emphasis on the development of teaching explanation or trying to teach video streaming, enhance the creation and implementation of professional football knowledge trainings, and improve the cognition and attention to football learning (Dos' Santos et al., 2021). Moreover, the development of the ability of football teaching should also be improved (Marcelino et al., 2020). Apart from this, researcher investigated that the study of a football athlete's biomechanical properties has a significant impact on that athlete's ability to grasp the technical aspects of their sport and has the potential to significantly improve the progress of football sports (Yang et al., 2021). In addition, many information technological based Devices including high-speed camera systems, electromyogram (EMG) systems, sensors, and dynamometers have been successfully utilized in the sports fields, revealing a high level of reliability in extracting the direct behaviors of football players and analyzing their biomechanical characteristics (Aroganam et al., 2019; Le Flao et al., 2021). These devices have been made possible by the technological development and due to the various applications of information technology in sports field (Douglas & Kennedy, 2020). Moreover, researcher investigated that due to the advancement in the information technology, many engineers have developed various technology based equipment that can lead to better athletes performance, as well as led to a transformation in the way athletic competitions were held as a result of these developments (Rajšp & Fister Jr, 2020). However, not every athlete seems able to take advantage of the new, improved equipment, and the results of some athletes' performances have even worsened (Dos'Santos et al., 2019). In this research, it was also examined that biomechanical analysis techniques based on the applications of information technology and various algorithms have been utilized in football sports to determine knowledge related football players and position (Johnston et al., 2021). It was claimed that the dynamic head tracking system has become the most popular and sophisticated method used mostly for static and dynamic analysis of football players as well as it has been considered as the most commonly utilized method to improve performance

from recent many years (Alanen et al., 2021). This algorithmic model makes utilization of the intelligence system, and it delivers exact information about the postures adopted by football players during football match (Joseph & Cashin, 2021). Many scholars put light on the significance of information technology in the field of various sports including swimming, cricket, football, basketball, soccer etc., to investigate the importance of technology in sports field, a biomechanical analysis has been examined by utilizing various techniques of information technology (Low et al., 2020; Zhang, 2022). It was highlighted that information technology has vast application in this field including image recognition science utilized intelligent technology to tested athlete's performance through image processing by implementing artificial intelligence technologies. This also highlighted that biomechanical techniques have provide tremendous advantages to the sports sector (Izzo et al., 2020; Lutz et al., 2020).

Hypothesis Development

H1= There are positive effect of biomechanical analysis related to the football player using information technology in sports field.
H2= There are significant impact of effect of biomechanical analysis related to the football player using information technology in sports field.
H3= There are negatively associated biomechanical analysis related to the football player using information technology in sports field.
H4= There are negative but significant link of biomechanical analysis related to the football player using information technology in sports field.

3. Research Methodology

This research study represents that investigate research on biomechanical analysis related to the football player using information technology in sports field. This study based on primary data analysis the biomechanical analysis related to the football player is main independent and information technology in sport field is dependent variable. for determine the research study used different questions related to the biomechanical analysis and information technology. The coaches of sport fields, football players, and workers of sport industries all of them are consider as research participants (Konam & Rao, 2021). This research study depends upon data analysis for this purpose used smart PLS software and generate different results in between information technology and biomechanical analysis.

Econometric Model:

The basic equation model in between dependent and independent variables are as under:

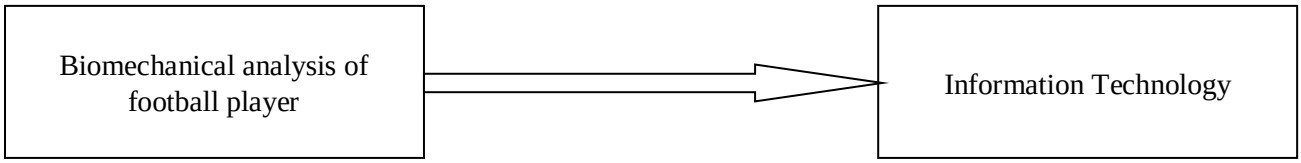
$$BMA = \propto + IT\beta 1 + \varepsilon \quad (1)$$

BMA= biomechanical analysis
IT= Information Technology

Research Tools, methods and Techniques:

For measuring the overall research study used different tools related to the effect of biomechanical analysis related to the football player using information technology in sports field. Smart PLS software used in this research for determine the analysis between independent and dependent variables. indicator correlation coefficient, model fitness analysis, co-linearity statistical analysis, the significant analysis, probability test, hypothesis test, also that explain total effect between variables. the smart PLS Algorithm model used to measure the relation between biomechanical analysis of football player and information technology related to the sport industries.

4. Research Design



Biomechanical analysis in sport field

The analysis system used for studying the movement of someone is termed biomechanical analysis system. This analysis study plays a pivotal role in predicting the performance of an object in a particular field. The component of biomechanical analysis greatly helps in predicting various movements (Konam & Rao, 2021). The first component of the biomechanical system is motion. The second component includes force, the third and the fourth component is momentum and lever, and firth component is balance. All these components together make the motion of a body. The main things important in the biomechanical system's motion components are acceleration and speed. These components make a mechanical study of the human body part easy. Understanding the role of this component in body movement can minimize the chances of cracks on bones and joints due to pressure. Knowledge about the five components of biomechanical analysis in the sports field is very important for predicting athletes' body movements. In the sports field, the biomechanical analysis predicts the sequenced right movement of the athlete's body part to minimize the risk of any injury during playing. The biomechanical analysis's main aim is to provide guidance and governance related to various sports variables to the player. The right governance will help

the player to match the particular movement in a specific sport. The right guide regarding the biomechanical analysis of players results in improved athletic activity, betterment in athlete performance, reduction in the chances of injury, and the well-being of players. All these factors help to improve the sports playing tactics of any athlete. The biomechanical analysis involves researching sports athletes' various mechanics and strategies to improve athlete games. Sports coaches use various biomechanical analysis techniques in various sports training sessions to prepare athletes for the future. The main objective of biomechanical analysis techniques in various sports is to enhance basic and simple sports techniques. One more aim of biomechanical analysis in the sports field is to reduce the chances of injury among sports players. The clinically proven advantage of biomechanical analysis is that it reduces the chances of muscle and skeletal injuries in sports athletes.

Information technology

Information technology is regarded as a broad field that covers the agendas of providing better communication networks, ensuring information safety, and dealing with computer programing problems. Information technology deals with all these agendas using the intelligence system or software in its working mechanism. Information technology is a computer program or software that supports computer systems by helping them process and store information. It also helps computer programs to run spreadsheets. Information technology-based software maintains the working of any organization or institute by ensuring the maintenance of the digital infrastructure of these organizations. In addition, information technology system provides various organizational assistant to cope with the challenges of working with digital systems. Information technology is a broad field, and managing this field requires expertise in information technology. The experts in information technology work with information technology software to manage all the information provided by information technology systems, maintain the database system, eradicate any computer error, and develop business-oriented software. All these managing duties of the expert of information technology help in better working of information technology systems. The tools used by IT experts for the smooth running of information technology software include; Ninite, CCleaner, Recuva, and SISCIN Preview. All these tools help IT professionals to run the IT system smoothly. There are also a bunch of benefits of information technology system that makes it worth using systems. The first benefit is that it safeguards all the information stored in the computer program, and the second benefit ensures the management of the computer program's database. The third benefit is that it resolves all the technical errors of computer programs; the fourth benefit of Information technology is that it maintains the working integrity of any business by managing its old software and making new software for business development. An IT expert's gets a lot of advantages through the proper use of the information technology. These advantages include; jobs in good professional IT departments, more opportunities for earning money, and modernization of skills. All these advantages help the IT expert to excel using information technology.

IT in sport field

Using computer and software programs to provide information is termed information technology. All the information regarding business areas, the healthcare sector, the sports field, and all other fields is available through the use of information technology systems in these fields. The most common example of an information technology system is Management software; this software works by accessing the performance of athlete through its technology-based system. This performance management system in sports provides authentic information on athletes' performance. Moreover, information technology has four features that allow this technology to store and process information. The first feature is sensing, the second feature is information storage, and the third and fourth feature is transferred as well as the processing of stored information. The feature of sensing involves the conversation of data from the real form into digital form. All these features make information technology the best technology to be used in almost every field. The other key feature of information technology is that it provides the most accurate form of data. This authentic data helps improving the performance of various fields.in sports, the use of information technology and its related applications is of great significance. For example, the sensors used in sports field work using the information technology-based system. These sensors in sports fields provide accurate data regarding athletes' heart rates and track athlete pulse. Information regarding the breathing pattern of an athlete is also provided through these information technology-based sensors. Many computer-based systems in sports field work using information technology and provide the most appropriate data regarding the athletes. The intelligence software used in the sports field all works on the information technology system. Information technology is viewed as a wide discipline that addresses issues with computer programming, better communication networks, and information security. Information technology uses an intelligence system or software as part of its functioning mechanism to address all of these goals. A computer programmer or piece of software known as information technology assists computer systems by processing and storing information. Running spreadsheets helps computer programmers as well. Software based on information technology keeps any company or institute operating by assuring the upkeep of its digital infrastructure. In addition, information technology systems offer a range

of organizational helpers to manage the difficulties of using digital systems. It takes knowledge of information technology to manage the vast area of information technology. These systems use complex analyzing mechanisms to predict the trajectory of the ball and the body language of the athlete during the sports. The information technology systems or software use in sports field include; Speed gun, Spidercam, Hawkeye, etc. All these computer systems gadgets work using information technology.in the sport of tennis, tennis players can improve their techniques of playing tennis using the information technology system in their sports training sessions.

5. Result and descriptions

Table-1

Significant analysis

Matrix	Original sample	Sample Mean (M)	Standard Deviation (SD)	T statistic	P values
BMA1<- Biomechanical analysis of football player	0.966	0.923	0.249	3.878	0.000
BMA2<- Biomechanical analysis of football player	-0.131	-0.103	0.199	0.658	0.0511
BMA3<- Biomechanical analysis of football player	-0.053	-0.027	0.167	0.319	0.075
BMA4<- biomechanical analysis of football player	-0.371	-0.297	0.287	1.294	0.196
BMA5<- biomechanical analysis of football player	0.966	0.923	0.249	3.878	0.000
IT1<- information Technology	-0.073	-0.022	0.253	0.290	0.077
IT2<- information Technology	-0.463	-0.350	0.345	1.344	0.018
IT3<- information Technology	0.230	0.213	0.199	1.157	0.024
IT4<- information Technology	0.930	0.862	0.269	3.455	0.001
IT5<- information Technology	-0.008	0.017	0.213	0.037	0.097
IT6<- information Technology	0.061	0.095	0.211	0.290	0.072

The above result represents that significant analysis of all variables included independent also that dependent variables for measuring the analysis of biomechanical related to the football player using information technology in sports field. The result describes that original sample values, the sample mean, standard deviation rates, T statistic and all probability values of each matrix. The first five matrixes are generating in between BMA1 to BMA5 with biomechanical analysis of football player its overall original sample values are 0.966, -0.131, -0.053, -0.371 and 0.966 shows that positive and negative rates. The sample mean values are 0.923, -0.103, -0.027, -0.297 and 0.923 shows that negative rates of each matrix. The T statistic values are 3.878, 0.658, 0.319, 1.294 and 3.878 all of them are present that positive effect of biomechanical analysis related to the football players. According to the result analysis its P values are 0.000, 0.0511, 0.075, 0.196 and 0.000 shows that 5%, 7%, 19% and 100% significant effect of biomechanical analysis of football players with information technology. The another matrix considers in between information technology of sport fields according to the above result its T statistic vales are 0.290, 1.344, 1.157, 3.455, 0.037 and 0.290 all of them present positive impact of information technology on biomechanical analysis in football players. The P values of each matrix are 0.077, 0.018, 0.024, 0.001, 0.097 and 0.072 which means that 7%, 1%, 2%, 100%, 9% and 7% significantly level between them.

Smart PLS Algorithm Model

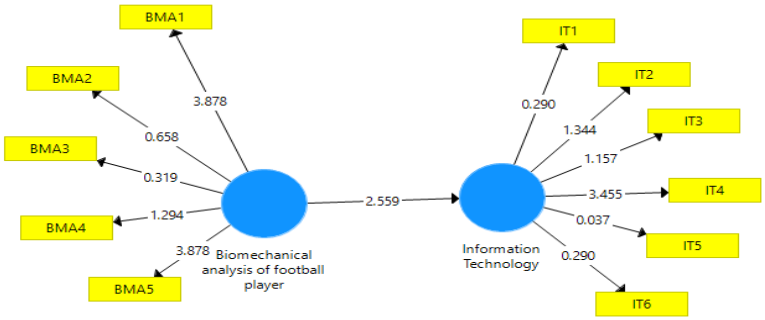


Figure 1: Smart PLS algorithm model.

The above model describes that smart PLS Algorithm model in between biomechanical analysis of football player and information technology. The result shows that 3.87, 0.65, 0.31, 1.29 and 3.87 all of them are present positive impact with each other. Similarly, the information technology is dependent variable its shows that 0.29, 1.344, 1.157, 3.455, 0.037 and 0.290 these are all present that positive and relation between them. According to the overall result its present that 2.559 positive and significantly associated biomechanical analysis of football player using information technology in sports field.

Table-2

Indicator Correlations

variables	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
BMA1	1	0	1.870	2.000	1.000	4.000	0.820	-0.786	0.468
BMA2	2	0	1.900	2.000	1.000	4.000	0.843	-0.984	0.397
BMA3	3	0	2.170	2.00	1.000	5.000	0.762	0.750	0.387
BMA4	4	0	2.500	2.000	1.000	4.000	0.933	-0.852	-0.188
BMA5	5	0	1.870	2.000	1.000	4.000	0.820	-0.786	0.468
IT1	6	0	2.000	3.000	1.000	4.000	0.787	-0.740	0.250
IT2	7	0	2.500	2.000	1.000	4.000	0.933	-0.852	-0.188
IT3	8	0	1.990	3.000	1.000	4.000	0.854	-1.168	0.215
IT4	9	0	1.870	2.000	1.000	4.000	0.820	-0.786	0.468
IT5	10	0	1.620	2.000	1.000	4.000	0.690	-0.689	0.672
IT6	11	0	1.860	2.000	1.000	3.000	0.679	-0.826	0.182

The above result describe that indicator correlation result describe that mean values, the median rates, minimum, maximum also present the skewness and excess kurtosis rate of each variables for determine the research on biomechanical analysis of football player using information technology in sports field. The standard deviation rate of BMA1, BMA2, BMA3, BMA4, and BMA5 shows that 0.820, 0.843. 0.762, 0.933, and 0.820 all of them are shows that positively deviate from mean. The excess kurtosis values of each variable are -0.786, -0.984, 0.750, -0.852 and -0.786 all of them are shows that negative kurtosis rate of biomechanical analysis in football players. The information technology presents that standard deviation values of each variables are 0.787, 0.933, 0.854, 0.820, 0.690 and 0.679 these are all shows that 93%, 78%, 85%, 82% and 69% deviate from mean. The result shows that overall minimum rate is 1.000 and maximum value is 4.000 and the median values is 2.000 respectively.

Table-3

Total effects

Variables	Biomechanical analysis of football player	Information Technology
BMA1	0.434	1.000
BMA2	-0.066	1.000
BMA3	-0.034	1.000
BMA4	-0.306	1.000
BMA5	0.434	1.000
IT1	1.000	0.048
IT2	1.000	0.446
IT3	1.000	0.089
IT4	1.000	0.774
IT5	1.000	0.027
IT6	1.000	0.022

The above table describe the total effect of each variable for determine the biomechanical analysis of football player using information technology in sports

field. The values of biomechanical analysis of football players are 0.434, -0.066, -0.034, -0.306 and 0.434 some positive and some negative. The information technology represent that values of total effect are 0.048, 0.446, 0.089, 0.774, 0.027 and 0.022 these are all present the positive effect with each other.

6. Conclusion

In conclusion, we examined that information technology has it applications in almost every field of science and with the development of the science and technology, the applications of information technology, artificial intelligence as well as many image processing technologies have been increased. Almost every emerging sector has been implementing the various applications of information technology on order to enhance the performance of their sector. Like many other sectors, sport fields have also been implementing the different application of information technology as well as biomechanical technology in order to enhance the playing performance of the athletes by improving training system. In this research paper, we studied the research on the biomechanical analysis of football players by utilizing various techniques of information technology in sports related fields. It is highlighted that the application information technology in the sports related fields have great significance. Research on the various positions and movements which an athlete adopts throughout the training of a sport has been frequently conducted with the help of a number of technologically advanced equipment's. When an athlete has gained complete information as well as guidance regarding their movements and postures, it helps improve their overall performance. To investigate the research on the biomechanical analysis of the football players using information technology in sport related fields, we collected sample data from previous research as well as from the survey of different football team's players. After investigating, it is reveal that in order to improve athletes' overall performance; several methods of biomechanical analysis are increasingly being utilized in the world of sports. It is examined that the most significant method is a type of mathematical modeling techniques which involves the mathematical modeling equation in order to calculate a number of different angles associated with an athlete's movements, activities as well as posture. Another important technique which is utilized in biomechanical analysis using information technology is computer tracking and stimulation procedures. This information technology based method, monitors an athlete's motions while they are competing in a specific sport and offers detailed information about those movements. Furthermore, many other technological based wearable sensor devices have been also available which also helps to improve the performance by monitoring athlete's postures during training. Apart from this, we studied that the study of human movement, such as the relationship between the user and the equipment being used, is referred to as biomechanical analysis. This highlights the body movement and postures of the football player in detail. In this analysis, we studied that there are various most important biomechanical analysis including 3D analysis, high speed video analysis, force plate analysis, competition analysis has great importance. In addition, EMG also utilized to identify muscle activity. It most utilized in combination with force plate analysis and 3D motion analysis in order to enhance accuracy of the analysis. Whereas we examined that the gyroscopes, lasers as well as accelerometers have various applications in determining technical characteristics of the movements of athletes. Moreover, information technology is also utilized in the execution of a significant number of internet technologies that can recognize the biomechanical motion of football player effectively in sports field.

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