IMPACT OF CONTEMPORARY TECHNOLOGIES ON SPORTS

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ABSTRACT

In the early stage computer science and informatics technology were used for the biomechanical analysis of human traits, various kind of forces implementation, assessing the C.G. etc, the coaches and sports experts started analyzing of sports technique and game patterns by the help of recorded, collected and interpreted the value and features of the movements. Over the past century, computer technology has affected the athletes as well as officials in various sports. So, modified the way sports to prepare for playing in sports which should be reviewed by officials. Computer Technology is used most of sports scientists involved in a current sporting event. If look back in the past depth of the history of these discipline. The involvement of computer science & informatics in 1960, initially it was used for the collection of sports data, records and literature, gradually, in 1970 with great changes database was developed.

Nowadays, nobody can assume any field without computer science, it helps individual to make faster and precise, positive in sports, it has changes the complete scenario of sports. Sports science and computer science is an inter-disciplinary section but both have similar objectives and goal, in combines form the theoretical and practical aspects. Therefore, computer and sports sciences work as a mutual associate, as sports science associated with the form of use of data, media, models, analysis, historical data and technique patterns. Computer is a prevalent and pioneer gift in modern era. Its changes the human life style and working capacity, Computer science has involvement in every field whether it is agriculture, medical, research, business, education, administration, industry, business and sports.

Key word: Technology, Computer, Technique, Biomechanical Analysis, iso- kinetic etc

1. INTRODUCTION

Computer is a prevalent and pioneer gift in modern era. Its changes the human life style and working capacity, Computer science has involvement in every field whether it is agriculture, medical, research, business, education, administration, industry, business and sports.

Nowadays, nobody can assume any field without computer science, which provide help to an individual to them make faster and precise, positive in sports (1), it has changes the complete scenario of sports. The computer science is an inter-disciplinary branch of sports sciences but both have similar objectives and goal, in combines form the theoretical and practical aspects. Therefore, computer and sports sciences work as a mutual associate, as sports science associated with the form of use of data, media, models, analysis, historical data and technique patterns (2).

If look back in the past depth of the history of these discipline. The involvement of computer science & informatics in 1960, initially it was used for the collection of sports data, records and literature, gradually, in 1970 with great changes database was developed, where the beneficiary may create and stored there documentation, information, records, publication, articles, books etc. after this decades with the time being, first organization namely IASI (International Association For Sports Information) was established (3). Establishment of the organization reveals the importance of computer application in sports. With the progression of computer application and the innovation of more powerful hardware and software the real contribution of computer science begun in sports (4).

In the early stage computer science and informatics technology were used for the biomechanical analysis of human traits, various kind of forces implementation, assessing the C.G. etc, the coaches and sports experts started analyzing of sports technique and game patterns by the help of recorded, collected and interpreted the value and features of the movements (5).

The consequence of the interchangeable efforts of these disciplines the term computer science and sports were added in encyclopedia of sports science in year 2004.

After tracing a brief history of the computer in sports, a article consider particular area of application covering sports research, competitive sports, sports and recreation, management, education of sports and the sports and leisure industry.

The concept of sports always is an undergoing progress, in the western society, for example a modern sport is deeply connected to the market and to moving towards the commercialization and globalization. Because of expansion of technology, the characteristics of the expectations might have practically. In this view, the *guttmainian* analysis of E- sports and its development leads to their scenario (6).

The computer science technology in sports field can build a considerable contribution, the function that technology play in our lives by carefully considering the benefits and liabilities of newer technologies. The worth of sports in human life is very significant, influence worldwide to bring harmony with each nation.

Creating revolutionizes into a sport, through the insertion of new technologies and equipments caused a controversy. One a side expert have views that the use of the technologies in the sports make the game slow and on the other hand have dissimilarity in the views, technologies makes sports more pleasurable while watching the correct decisions are made due to it. Some experts have opinion that if any accurate and precise technologies are accessible that it would be employed so that the actual decisions can be made. If a new technology is available, and shown to be accurate, then it should be used so that the correct decisions can be made. It is better for the athletes as well as for the teams also(6).

2. MATERIALS

There are some aspects, where computer sciences have distinct function.

The role of Computer science in sports and sports performance, Training and coaching, Sports Biomechanics, Sports equipment and technology, Computer provided the extra applications in sports, Multimedia, Storing video & watching, Data Analysis developing equipment, Training and health, reduce human error, Scouting Development in equipment for special people.

2.1 Storing statistical data

Indeed historical data and records very helpful for the improvement for any discipline, while reading and reviewing the historical data, however the statistics have miracle of the world. It's give the meaning to the raw data or numbers, while analyzing the data with the help of statistical analysis it provide the hidden valuable information to the sports expert and coaches. Stored data help the coaches and experts to know the how the athletes will perform the in various situations, it's not only confined upto athletes but too grounds and teams also. Computers/ CD/floppy/ are used in sports to accumulate and keep path of such data. Manager/ coaches take help from computer to generate a spreadsheet database for store all the stats regarding the team and opponents. Media and various web pages may also use the same. While script and publishing the inside stories concerning to the performance of athlete and teams (7).

2.2 Watching and storing video

It is magic stick to coaches and players, while watching the videos of techniques or movements, they may use it for learning of technique, also understand and read the opponents movements in term of technique and tactics of the game. For example in judo, judoka are master of one or two techniques but to score easily they used to perform combination of techniques, with this each player have their particular style of play. It is difficult to analysis the opponents techniques, style and reaction along with weak point of the opponents. Similarly, in cricket batsman always trying to see the grip of the bowler, which helps the batsman to understand the behavior of the ball, in kabaddi also each player have their own style to attack and defense, some players used to slow the game and some trying to play in fast movement.

2.3 Developing Equipment

While helping the computer science, sports changes entirely, make it faster, safer, advance and more pleasant. In sports development industries because of computer there are huge improvement in safety. In the present athletes have many light weight, advance, burly and attractive equipments, but also have more protective and easy to useable. Sports equipment producer have developed gadgets to minimize the chance of injuries on athletes, developed equipment for particular devices i.e. iso-kinetic machine, separate devices for particular muscles etc, its covers all the aspects area like clothes, shoes, instrument for referee, score display many more. For instance, cricket leg pad, helmet in cricket, cycle racing helmet, sin guard, bats etc. all theses equipments designs have biomechanical advantages and reduces the injuries in sports.

2.4 Training and health

The sports manufacture and industry are widely take helped from the computer, for preparation of advance training, schedules, diet & nutrition plan for athletes, further, science also provide the digital instruments to assess the various physiological and psychological parameter, with help of these equipments layman also diagnose or assess the effect of training and improvement of various parameter but in later stage, to assess the physiological & psychological was a complicated work for coaches. In the present just giving the information of the athlete like height, weight, age and other body measurement into the device, athlete get a planned program

that helps to get advantage in competition. Now a day's athlete may find the precise and meticulous training equipments as per their sports event and requirements.

2.5 Eliminating human error

The evolution in the sports are continues for the centauries, where the use of technologies have very significant role, it made huge impact on the nature of the sports. However, making the changes in due to involvement of the computer sometimes it create the controversy, some people have different observation regarding the inclusion of the technologies in the sports. Although no doubt human may do the mistake but not machine, as human has certain limitations. To eliminating the error in the sports many technologies were used in the sports, computer science introduced equipments & devices time to time as it demanded. There are some technologies which are widely used in the present state.

3. METHODS

3.1 Hawk-Eye Technology

It is a combination of computer and camera system, which trace the object trajectory. This system is opted in cricket, tennis, rugby and many more games & sports, many sports are to come to utilization of this system, under this many sports are under trails. The purpose of this system is to overcome and improve the decision making to the television officials and also useful for athlete safety. The Hawk Eye installed cameras take 600 frames per second, this information being analyzed through computer and sent to referee handset/devices. There are some examples of sports where this technology is using.

3.1.1 Tennis

It used for the line review of the ball, however it used in major tournaments only

3.1.2 Basketball

National basketball association tournaments it being used for the last touch and to determine whether release the ball within the shot clock expires.

3.1.3 Cricket

This system is widely used in cricket, players may take decision referral system (DRS), and with the help of hawk-eye system and hot spot system third umpire (TV officials) take decision.

3.1.4 This system is also widely used in Baseball, Football, Rugby League and Union,

3.2 Software

There are numbers of software packages are developed and designed for nutrition and fitness by the help of connoisseur, which individual may easily access on internet and many websites. A huge number of professionals recommended fitness packages are available as per the individual requirements with variations of features(8).

Instant Replay: - it is an excellent example of technology which is ever used in sports. This is helpful to the officials to watch precisely the moment and given the chance to outlook the sports events, with different angle and motion.

3.3 Sensor Tools

This technologies help to exactly find out the correct place of an object at a specified time. It is generally used where the naked eye are not able to see the moment. This system is worked on the laser beam technology with the combination of sound analysis. This Computer technology is implemented in cricket, tennis and many other sports. A Sensor system technology is very help to get exact location of the object at a specified moment. It used often when naked eye unable to see the exact moment. Sensor tools are used as per there requirement, sensor system use in combination of laser beam and sound to find the precise results, it frequently used

in cricket and tennis for decided the unfairly blocked from wicket and to determine the ball position during the line touch (9).

3.4 Timing Systems

This technique help to reduce the errors in the sports, it recorded the moment of thousand of per second which is more than the recommendations of sports federations. In past racing events time were taken by stop watch which have less consistency. Later a pistol wire was connected to clock, on fire simultaneously clock start the counting. Similarly in various events laser beam and photo shot was used to decide the accurate result. In swimming touch pads used for taking timing.

3.5 Awards

To enhance the inter-disciplinary approaches between the sports sciences and sports, organization began the many awards to the computer & it scientist for motivating them (10). These type of awards in the field of sports are given in various categories. Some of them categories are mentioned below-

Best Sports App, New Technological Concept in Sports, Technology collaboration , Technology for Commercial Return, Technology for Fan Engagement, Technology for Managers and Coaches, Technology for Use by a Venue, Stadium, Club or Franchise, Technology to Promote Participation, Sports Kit or Apparel Technology, Use of Technology by a Rights Holder, Broadcaster or Governing Body, Use of Technology by a Sponsor, Wearable Technology in Sport, Sport England Design Challenge and Sports Technology Innovator

4. CONCLUSION

It's difficult to envision we ever survived by in the sports world without computers, especially when you consider that we now thoroughly investigate every aspect of an athlete's performance and keep stats on almost everything. Computers have proven to be invaluable to sports because of the gains they've enabled in player performance, training, equipment, and sports medicine.

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