THE IMPACT OF TECHNOLOGY ON SPORTS PERFORMANCE

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Abstract:

In modern life technology is greatly helped in making life easy and well used. Technological advances have greatly affected sport science and other vast areas of life. As the sport industry's market has expanded alongside popularity, technological study demand has increased. Technology is evident in sport in a variety of contexts including from the playing, consuming and spectator experience. In this paper qualitative analysis was done to find out the different technologies being used in sports industries which affect the sports performance. The discussion of different technological devices also focuses on the role of certain games and sports. Through this advanced technology the different skills of games and sports definitely increases. In order to develop performance, correct decision should be needed to choose the correct technology as in the present world handling and managing player is a difficult task. With the help of this article the sports organization planned for innovation of new techniques with the help of latest technology.

Key words: Performance; Sports; Technology; Innovation; Skill

Introduction:

In the past, sports training required extensive paperwork and post-practice effort from both the trainer and the athlete. While the athlete practiced, notes and video were diligently taken and then collated into charts and graphs representing that athlete's performance. After practice, trainer and athlete would work together discussing aches, pains, and thoughts about physical movements that happened much earlier. Advanced technology has become smaller, more resilient, and less burdensome over recent years, paving the way for new opportunities, especially in athletics. Now athletes wear sensors that convey real-time information to a trainer's tablet, GPS accurately pinpoints motion, smartphones keep everyone current and wearable tech can prevent injuries. Compared to whiteboards and post-practice reviews, technology has substantially increased athletic potential.

Technology is revolutionizing sports training by live-tracking performances, perfecting athletic movements, enhancing communication and virtually eliminating injuries.

The use of technology in sports is growing rapidly. In football, for instance, new devices are used for different reasons such as to help referees in decision-making and to quantify the athletes' performance during a game, thus helping the coach to set the training program and the game strategy.

How Advancement in Technology Impact On Sports:

- Analysis of sport performance and enabling coaches to greatly improve the quality of feedback to players/athletes
- Increase accuracy in time measurements of sport performance
- Enabling referees, umpires and sport officials to make better decisions on rule infringements
- Improvements in the design of sport equipment and apparel
- Providing spectators with better viewing of sport performance

The video camera became commonplace in the 1980's and provided sports coaches with a way to capture and analyses sport performance like never before. The video camera is perhaps the single most important development in coaching in the modern era of sport.

Electronic timing controlled by computers is employed to measure performance times of athletes in a great many sports including Athletics, Cycling, Skiing, Triathlon and many more. In the case of Athletics, the electronic timing also measures the athlete's reaction time to the start gun in case the athlete moves too early in the blocks.

The Force Platform is an apparatus placed under the feet of the athlete and measures their 'ground reaction force'. This is useful in sports such as Weightlifting and enables measurement of force and acceleration throughout the athlete's performance of a lift. Curiously, the measurement of force is due to the miniscule change in properties of crystals upon which the platform rests.

Hawkeye, a computer system first used in 2001 for showing the trajectory of a cricket ball has made an immeasurable difference to the sport of Cricket. Hawkeye produces all manner of statistical analysis such as ball speed, ball pitch on the wicket and trajectory of the ball after bounce. Hawkeye is now used in Tennis to assist in determining whether a shot is "in" or "out". The analysis of sport performance provided by Hawkeye has greatly enhanced the spectator's knowledge and involvement.

As a result of miniaturized video cameras, spectators are also now able to witness sport performance in ways that previously was not possible. Video cameras can be placed in places such as racing cars, cricket stumps, goal posts, and even on the athlete themselves.

Sporting equipment continually undergoing research and development to improve sporting performance. Some of the best examples include:

- Fully body swim wear, made of polyurethane, made a huge impact in the 2008 Olympics only to be banned a year later because it was

too obviously making a difference to sporting performance.

- Kevlar fiber (5 times stronger than steel yet lighter, used in the manufacture of sails, bicycle tires, football boots, tennis rackets, helmets, body armor and more.

- Raving cycles and rowing shells made of lightweight but strong materials, and minimize drag though the air or water.

Some people decry the use of technology to improve sports performance but in reality it is inevitable. The research and development of sport apparatus and apparel is an industry in itself which creates opportunity for investment and employment.

Five Exciting New Technologies Being Used in The Sports Industry:

One of the most definitive tests for human athleticism is sports, but this does not mean that technology cannot facilitate it. When administering and officiating sports, technology can succeed where humans may not. This guarantees fair judgment of the performance and ensures that athletes win fairly. Here are five exciting new technologies being used in the sports industry today.

Instant Replay:

Instant replay is an example of the remarkable technology being used in sports today. With this technology, officials are able to see exactly what happened, providing a second perspective on sports events. Instant replay is used in games like cricket, American football, rugby, soccer, and even in combat sports. However, FIFA banned instant replays on screens in sports arenas during the 2010 World Cup for fear that it might incite fans to behave untowardly.

Sensor Tools:

Sensor tools are often used to analyze whether a goal is valid or not. It is often used in cases where the naked eye cannot truly tell if a ball went past the goal line. Different sports use varying sensor tools. For example, cricket's Hawk-Eye technology analyzes sound to determine if the ball smashed into the bat before it was caught. Hawk-Eye is also used to determine where the ball would have landed if it had not hit a player's foot. This establishes

whether the ball was unfairly blocked from striking the wicket. On the other hand, tennis sensor tools use laser beams to determine whether the tennis ball went out of bounds or not. Sensor technologies help to accurately determine the position of the ball at a given time.

Timing Systems:

Nobody uses a stopwatch when timing a race anymore. This means that differences in reaction time no longer affect the precision and consistency of a racing event. In many races today, the starter pistol is linked to a clock. Once the pistol goes off, the clock immediately starts timing the race. On the other hand, swimming uses a touch pad placed at the finish lanes as well as wearable inertial sensors to determine performance. Many racing events also use laser beams and photographs to determine winners.

The results of timing systems are often provided to the nearest thousand of a second. However, world and Olympic records are only recorded to the nearest hundredth of a second. This technique was established to eliminate insignificant errors.

RFID Chips:

RFID chips are often used to time individual contestants in an event. The devices use antennas that relay wireless signals. RFID chips are often used in long distance races to help broadcasters and viewers track the exact locations of contestants during a race. There are two types of chips used in races: active and passive chips. Active chips have an in-built battery or power source and can determine the exact time a participant crosses a specific line. Passive chips can only be used with sensors placed in a mat because they do not have an in-built power source.

Equipment Development:

In sports, safety is a key factor. Equipment manufacturers have developed devices to reduce injuries on athletes. In the 2010 season, special helmets were used in the National

Football League after several players experienced concussion injuries. The helmets were designed to absorb shock caused by collisions and protect athletes from suffering head and neck injuries. Similar technology is being used for games like auto racing and hockey to enhance the safety of participants.

Technology has taken over today's modern world. Many professional and amateur sports bodies have embraced new technologies featuring certain gears and gadgets to protect athletes and make it easier to officiate the games.

Conclusion:

Technology invented the many digital and latest tools in the sports industry such as**;** instant replay, sensor tool, timing system, sports Chips like RFID chips, which are very helpful to determine the right decisions and examine the exact timing during the game. As well as**,** technology is beneficial in the sports industries in another way, like give digital training to new trainees and helps the assistant empire as a referee.

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