

Technology in Sports

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The world of sport is continually changing over the years, and the use of technology is just one of those areas that have made an impact on many sports in the modern day. One criticism of the use of technology is that it can slow down the speed of the game, but on the other hand for many people it makes watching it more enjoyable to see the correct decisions being made.

Assisting the Umpires / Referees

Most professional sports in the United States have long used instant replay and other high-tech aids to help referees make the right call. Gridiron has used video replay systems to check referees' calls for many years. Basketball referees use replay systems to make sure players are shooting within the time allotted by the shot clock. In international cricket, the third umpire has been used, one sitting off the ground with access to TV replays of certain situations (such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. The third umpire is also asked to adjudicate on run out decisions, which he makes without consultation with the two central umpires. One sport that has resisted the use of high-tech assistance is soccer/football. Replays could be used to decide off-side decisions, whether a ball passes over the goal line, and clarify penalty decisions.

Sport Specific

- **Tennis** - it is now standard at the major tennis tournaments for a line review system to be in place, with players given power to review contentious line calls. It is powered by the Hawk-Eye ball tracking system. See more about Hawk Eye for Tennis

Hawk-eye is the name of a line-calling system which traces a ball's trajectory and sends it to a virtual-reality machine.

Hawk-Eye uses six or more computer-linked television cameras situated around the court. The computer reads in the video in real time, and tracks the path of the tennis ball on each camera. These six separate views are then combined together to produce an accurate 3D representation of the path of the ball.

- **Soccer / Football** - Soccer is looking at joining the 21st century, looking at various technologies for the goal line to determine if the pass passes over the line or not. See more about Football/Soccer Technology. Technology use in sports is increasing rapidly. The use of technology to determine if a ball has crossed the goal line is one way that it is being tested.

There is a need for goal line technology in soccer, particularly as there are numerous examples where the TV reply has been able to show wrong decisions by the referee, where a ball has or has not passed over the goal line, and the goal was given or not given. Technology in cricket, tennis and American Football has been successfully implemented, and in general the fans have welcomed it.

There are currently three options that are being looked at for soccer goal line technology. In 2013, FIFA granted a license to third goal-line technology manufacturer, German firm Cairos, joining the Hawk-Eye and Goal Ref systems for the rights for use at the 2014 World Cup and the 2013 Confederations Cup, both to be held in Brazil.

- **Basketball** - the NBA uses replay vision to review 'last touch' decisions in the final two minutes of games, and also to determine whether players release the ball before the shot clock expires.
- **Cricket** - technology in cricket has been driven by advances in the TV coverage. Things that were once extra information provided by the TV networks are now being incorporated into the decision referral system (DRS), such as hawk-eye and hot spot, and maybe even the old favorite snicko. See more about Cricket Technology.

Over the years cricket has incorporated into the game a few of the latest technological advances available. There have been some rejections of technology, such as the use of aluminum cricket bats, but generally the ICC has been rightly cautious about making changes to the game that will impact the players and spectators.

Here are discussions about a few of the technological innovations that are in cricket or are being discussed about being included.

Third Umpire-

In international cricket, the third umpire has been used to supplement the role of the two umpires on the ground. The third umpire is equally qualified, and sits off the ground with access to TV replays of certain situations

(such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. The third umpire is also asked to adjudicate on run out decisions, which he uses video replay and makes a decision without consultation with the two central umpires.

- **Aussie Rules Football** - umpire review system has also been implemented in AFL, with an off field umpire in certain circumstances adjudicating on whether the ball passes over the line or is touched, using video evidence via multiple camera angles. See more about Technology in AFL.

The world of sport is continually changing over the years, and the use of technology is just one of those areas that has made an impact on many sports. The use of technology in Aussie Rules is increasing and has the potential to have a great impact on the sport.

The other popular football code, soccer, has been toying with the concept of goal line technology for quite a while, but has been slow to implement it at the elite level. Whether a ball has crossed over a goal line in both codes can have a great impact on the result of a game, and spectators expect that the right decisions are being made. With so many cameras following the ball in AFL games, when a goal umpire makes a mistake, it is usually clear for all to see.

- **Rugby League** - The NRL was an early implementer of using the video referee to help adjudicate questionable tries.

- **Computer Software**

There are numerous software packages that are designed for fitness and nutrition professionals to organize data and produce reports, ideal for visitors to this site. Here are a couple of packages that come recommended by Top end Sports.

Team Beep Test — the most versatile and useful software for conducting and recording results of the beep / beep test, with results recorded directly onto your computer.

Body Byte — a universal standalone computer software program specially developed to comprehensively organize and manage all the information associated with nutrition, training and fitness.

Science, Fitness & Nutrition Software

Fat Calculator — a very useful and easy to use software program, designed for health professionals, researchers and students for easy estimation of body fat percent.

Body Tracker — quickly and easily calculate and tracker your body fat percentage.

Fitness Age — a review of the online fitness assessment tool which uses the results of a series of physical tests to calculate the fitness age of a person.

Energy Test — a review of an online tool to determine the client's Energy Index, a factor of a person's healthiness, the body's physical performance and total energy level.

- **Biomechanics & Physics of Sport**

Biomechanics is the sport science field that applies the laws of mechanics and physics to human performance, in order to gain a greater understanding of performance in athletic events through modeling, simulation and measurement.

Physics of juggling, it is also necessary to have a good understanding of the application of physics to sport, as physical principles such as motion, resistance, momentum and friction play a part in most sporting events.

Biomechanics is a diverse interdisciplinary field, with branches in Zoology, Botany, Physical Anthropology, Orthopedics, Bioengineering and Human Performance. The general role of biomechanics is to understand the mechanical cause-effect relationships that determine the motions of living organisms.

In relation to sport, biomechanics contributes to the description, explanation, and prediction of the mechanical aspects of human exercise, sport and play.

Related references:-

- www.google.co.in
- www.topendsports.com
- Sport Science and Sports Apps
- Nutrition File Downloads
- Testing File Downloads.