

Technology in Sport

Technology affects many aspects of sport from performance on and off the field to spectating and public profile. Increasingly, advances in technology influence grass-roots as well as elite sport.

Athlete performance

Technology is used to enhance athletes' performances at all stages – before, during and after events. It may be used by the athletes' support teams, such as coaches, medics and technicians, as well as by the athletes themselves. For example:

- **health, wellbeing and fitness:**
 - wearable devices track performers' cardiovascular rates.
 - hyperbaric oxygen therapy aids recovery after injury.
- **technique and tactics:**
 - performance analysis software shows body movements in slow motion.
 - game analysis software tracks team, ball and opposition movements.
- **equipment:**
 - cambered wheels on wheelchair basketball chairs improve turning.
 - smaller, turbo engines in Formula 1 cars are more fuel efficient.
- **clothing and footwear:**
 - cricket helmets are lighter, better ventilated and more affordable.
 - track shoes are lighter and have greater grip for cornering.
- **facilities and playing surfaces:**
 - fourth generation (4G) pitches can be used whatever the weather, all year.
 - artificial snow allows winter sports to take place anywhere in the world.

Officiating and Spectating

Technology plays a key part in how sport is played and watched. Increasingly, it means that officials, spectators and the media are interconnected during performances.

Officials

Technology shapes how officials manage a performance. For example:

- **communicating** – microphones to consult with other officials on and off the pitch.
- **decision-making** – playback facilities to watch events from different angles.
- **ball tracking** – allows for the ball to be minutely tracked to ensure accuracy of decisions in cricket, tennis and football.
- **scoring** – laser technology to measure jumps and throws more accurately.
- **time-keeping** – shot-clock in basketball to speed up play and keep it exciting.
- **record-keeping** – computers to track points and faults for multiple athletes at once.

Spectators

Watching sport no longer means sitting passively at home or in a stadium. Technology has enabled spectators to have a more active part in events. For example:

- **camera coverage** – remote-controlled and micro-cameras provide more angles, track individual athletes or provide a performer's viewpoint.
- **statistical information** – on individuals, match play and past performances is available on-screen or at the click of a button during play.
- **interactive software** – apps offer access to merchandise, information, competitions, games and voting through links on tickets and programmes or via downloads.
- **digital media** – means that sports fans can follow a wide range of amateur and professional sports in a huge variety of ways.
- **social media** – allows fans to have a personal link with their sporting heroes and share views with others across the world.

Advantages and Disadvantages of Technology

Technology brings benefits to sport, but it also brings disadvantages. Sometimes the technology needs to be embedded and improved before it is fully effective, often the problems only emerge after time.

These tables highlight some of the advantages and disadvantages of technology in sport.

For athletes

Advantages	Disadvantages
Better performance – marginal gains make the difference	Invades privacy
Better medical care results in fewer injuries or faster recovery from injury	Blurs lines between personal and professional time
Feedback from coaches is more focused, objective and helpful	Availability and cost – makes sport and success exclusive to wealthy people and countries
Improved kit is more comfortable, more efficient and safer	Tempts athletes and coaches into cheating or unfair practices
Part of a team, not isolated	Puts the sole focus on winning not athletic endeavour

For officials

Advantages	Disadvantages
Supports team approach so there is less pressure on individuals	Slows the game
Information can be shared easily and quickly and stored over time	Not available at all levels of competition
Decisions and scoring are more reliable and accurate	No longer trust people's decisions

Advantages	Disadvantages
There is increased confidence and trust in officials	Undermines respect for officials' knowledge and expertise
	Undermines honesty, integrity and the spirit of fair play

For spectators

Advantages	Disadvantages
More engaged in the sport	Detracts from actual play
More informed about rules, players etc	Reduces the atmosphere at live events
Have a direct link to athletes	Reduces interest in grass roots events that aren't supported by technology
	Increases spectator/broadcaster costs
	Enables trolls to attack individual athletes

For sport generally

Advantages	Disadvantages
Increases participation	Detracts from intensity of physical activity
Promotes new and alternative opportunities	Reduces emotional wellbeing that comes from escaping digital pressures/routines
Supports less-wealthy sports to promote themselves	Increases costs to sports and participants

Advantages	Disadvantages
Leads to more coverage and revenue	Sponsors more interested in technology than sport or athletes
Adds glamour	
Improves safety	

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