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## **The Impact of Technologies on Sport**

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Technologies and science have influenced the world of sports dramatically but, in recent years artificial intelligence, data analytics and different sporting equipment have boosted the development of sport industry. In this paper the latest technological advances as electromyography muscle analysis, visual stimulus training, Hubor motion that help athletes improving their performance will be provided. Next, there will be information about checking and timing systems as VAR, VR and others as well as recovery technologies. Moreover, technologies for ordinary people will be discussed either. The last but not least, this paper focuses on competition participation of disabled people, technologies that help them feel like ordinary people and the event that is available for the disabled with prostheses.

Nowadays we live in the era where digital technologies are evolving very rapidly because humanity is producing and consuming more data than ever before. Professional sport is also working with data and statistics. For instance, Major League Baseball introduced StatCast by rolling out cameras and radar equipment to every team's ballpark for the "gathering and displaying previously immeasurable aspects of the game." Example of the technology that gather information and make results better is called electromyography muscle analysis. At the simplest level, electromyography involves the recording of electrical activity within the muscles [1].

But not only analyzing data can improve athletic performance. Such technology as visual stimulus training is a great illustration. It is used to improve a sportsman's reaction, response, cognitive skills, perception and speed.

Next technology that plays a crucial role for athletes to strengthen their weak points and stability is called Hubor motion. During the training, the system allows sportsmen to improve metabolic processes in the intervertebral discs, involving about 80 muscles in each exercise.

The technology which was made by three high school friends and change our vision on athletic performance is called Reflexion [2]. Reflexion is a groundbreaking solution that helps athletes from all types of competitions improve their mental cognition [2].

The technology which is known among football fans and players is called Video assistant referee or abbreviated VAR. With VAR, a team of referees located in the control room analyzes and corrects every missed call or non-call in the game, along with goals, penalty calls, and cases of mistaken identity. VAR helps ensure that referees make the correct calls every time, so the game is fair and equitable.

Many technologies improve the results of athletes but it's also crucial to track progress or understand who is a winner of a race so for these purposes new timing systems with infinitesimal inaccuracy were created. Start pistols can be linked to the start of the clock, and laser or touch sensors can be used to provide the most precise race time possible. These timing systems provide incredibly exact measurements and are used in races, marathons, water swims and etc.

The last but no least technology is related to virtual reality. Virtual reality technology (VR) has already begun to impact the sports industry as savvy sports organizations have begun to use VR tech to assist in training their athletes and helping them avoid injuries. It makes possible for sportsmen

and women to become accustomed to highly stressful situations in simulations to improve performance.

Next, recovery tools used by professional sportsmen are discussed. Recovery in sport is another important aspect. There are some technological advances that make recovery of athletes as rapid as possible. One of them is High Tech Athletic Recovery Tool For Body Soreness called “NormaTec” [3]. The NormaTec system is comprised of a control unit and separate attachments that can go either on the legs, hips, or arms [3]. The NormaTec system was the first of its kind, designed to mimic normal physiology in the body, and is the leader for athletic recovery and performance. These boots essentially utilize the well-known method of pneumatic compression along with innovative use of “pulse technology” [3].

Sportsmen who train hard in order to achieve great results use the latest technological advances. But what types of technologies can ordinary people use in order to be healthy and sporty? In fact, mobile apps are one of the best solutions to it. The first app is Alo Moves. It is a popular yoga brand. This app is loaded with more than 1,500 different video classes from world-class yoga instructors. Once a person shares a few details about their fitness goals, the app delivers personalized class recommendations. The second app is Nike training club [4]. In addition to that, it is also a community of people who train. This app gives the perks of personal training without the hefty price tag. In 2020, Nike made the app’s premium content permanently free. The third app is “Seven”. Seven’s workouts are based on research first published by the American College of Sports Medicine’s Health and Fitness Journal suggesting you can get an effective aerobic workout in just seven minutes a day [4].

The device that has gained its popularity in sport over the last 4 years is called a smartwatch. The benefits of

smartwatches include the capability of measuring heart rate and analyzing activity data.

Many people are aware of the Paralympics. However, there is Cybathlon which happens every 4 years. It's an International event where physically challenged athletes compete with the help of robotic devices. These sportsmen use bionic prostheses or exoskeletons.

Thus, the latest technological advancements have greatly improved the results and performance of athletes as well the recovery process. Ordinary people also benefit from using mobile apps to keep them fit and healthy. I'm personally in favor of using technologies as long as they are not harmful to the health of individuals.

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