

## Meet Your Sports Team's Newest Player – Technology

The soundtrack of an athlete training in an empty gymnasium has typically been composed of the ball pounding on the wooden court, the ball swishing through the net, the athlete's sneakers squeaking, and, if you're close enough, the athlete panting.

Now a lonely night in the gym has a new soundscape: beeps, clicks, chimes, and chirps emitting from cellphones, plus hums and buzzes from automatic rebounding machines and wristwatches.

This phenomenon is not limited to the court; it can be found at the field, track, or pool. Meet your sports team's newest, brightest, and strongest player, trainer, and coach, all in one- technology.

The sports industry has become increasingly data-driven, with today's athletes being more connected than ever through phones and other mobile devices. Whether enhancing communication, eliminating injuries, or improving performance, technology has evolved into a critical ingredient for success in any sport.

As technology ingrains itself further into the realm of sports, its market value increases. According to a [MarketsandMarkets](#) Sports Technology Report, the market for sports technology is estimated to grow from \$21.9 billion in 2022 to 41.8 billion by 2027. This growth can be attributed to an increased focus on enhancing the fan experience via "smart" stadiums (such as location-based services, contactless self-purchasing, and immersion and interaction with the game) and increased adoption of data-driven coaching and sports analytics.

Athletes worldwide have taken to sports technology to improve their game, such as Ava Salti, a third-year Emerson College basketball player. Salti spends more time in the gym than in the classroom. It's a haven for her, in which all she has to focus on is the rhythmic motion of her shot. When watching her, it's hard not to notice the practiced ease with which she releases the ball from her fingertips and into the air. What's even more noticeable, however, is the black band around her wrist.

"It's called a WHOOP," she explains, "and I haven't taken it off in over a year."

Developed in 2015 by Harvard University student-athlete Will Ahmed and released in 2015, WHOOP is a wearable technology and fitness tracker, with its name deriving from a phrase Ahmed used before big games in college. Its principal function is to measure strain, recovery, and sleep by collecting data on heart rate variability, resting heart rate, and respiratory rate. Through its five optical sensors, the device accumulates 100 megabytes of data per user per day, recording heart rate, heart rate variation, blood oxygenation, breathing rate, and skin temperature.

"After a workout, it lets you know, on a scale of 0 to 100, how much your body needs to recover," Salti says. The metric in question is known by WHOOP as "strain," an individualized measure of cardiovascular exertion that quantifies the amount of physical and mental stress you're putting on your body. WHOOP tracks a user's strain on a 0-21 scale for the user's entire day and specific workouts and activities. Strain is calculated based on the length of time a user spends in various heart zone rates, meaning the longer your heart rate is elevated, the higher your strain will be. From

there, the WHOOP curates a recommended sleep and calorie intake for the user to recover the next day.

Unlike other wearable sports technology, WHOOP has no screen or buttons, and all information must be accessed on the user's smartphone via the WHOOP app. Additionally, WHOOP charges a subscription fee in order to collect the user's data.

The band is popular among athletes and has even been endorsed by professional athletes such as LeBron James and Michael Phelps.

"My mom is a fitness trainer, so I got her one as a gift, but then I started to see how beneficial they are, so I got one for myself," Salti states. "I think it's been really helpful so far, especially in terms of recovery. I lose track of how hard I'm going in the gym, so I think the WHOOP helps me stay balanced with what I'm doing."

Salti isn't the only one who uses the WHOOP, and she isn't the only one who refuses to take it off, either. In 2017, multiple NBA players, including DeAndre Jordan, and Matthew Dellavedova, were reported to have been hiding WHOOP devices under their wristbands during games. This goes against the league's protocol that players may only use wearable technology on the practice courts, games being off-limits.

According to the Continental Basketball Association, "Pending an agreement between the parties, Wearables may not be used in games, and no player data collected from a Wearable worn at the request of a Team may be made available to the public in any way or used for any commercial purpose."

This statement brings forth the question of whether players want to use wearable devices themselves and the worry that teams will use this information against them in contract negotiations.

However, aside from the NBA, multiple professional sports leagues have recognized WHOOP as a fitness wearable, including Major League Baseball (MLB), The National Football League (NFL), and The Ladies Professional Golf Association.

Aside from many professional athletes, WHOOP has also been endorsed by colleges and universities. Third-year student-athlete Abe Atiyeh revealed that every Boston College Men's Basketball Team member uses the WHOOP.

"When you're lifting and in the gym for hours every day, it's easy to forget to put emphasis on rest and recovery, which is just as important," Atiyeh says.

Sports technology benefits trainers and coaches as well. Seamus O'Connor, a youth soccer coach and trainer in Belmar, N.J., says sports technology has had the most significant impact on younger players. "When I was a player, the only person who had access to game and player stats was the coach; now the players have access to that information and can interpret it the way they choose and personalize their playing style," he says.

Ron Smithers, Emerson College's associate athletic director, added that sports technology allows athletes to understand their bodies and game better. "Sports technology doesn't just track your statistics for running, jumping, or lifting anymore. Now it can take those numbers and curate a workout regimen for you. It can tell you by what date you should be hitting certain numbers and what you need to do to reach that point."

Not all sports technology comes in apps and wearables with data and numbers. Some take the form of physical devices and tools to help improve players' performances. Take the Tandem Sports "Volleyball Pal." This device consists of a Velcro strap that secures around the player's waist, a neoprene pouch that holds the volleyball, and an elastic cord connecting the waist strap to the ball pouch. Players can practice serving tosses or arm swing techniques as the elastic cord guides the ball back to the player every time, allowing for hours of practice without the need for another person.

Jillian Kay, women's volleyball senior captain at Emerson College, shares experience with the device, having used it in the past. "With team sports like volleyball, it can be hard to practice on your own without someone else there to retrieve the ball. It becomes even more challenging as you advance in your career and coaches start emphasizing the need to work on your individual skills outside of practice," she explains. "Unless you're with your team 24/7 or have a sibling or parent willing to work with you, it's impossible to work on your own."

In terms of other sports, tennis players utilize telemetry sensor racquets, such as the Babolat Play, which features a small motion sensor fitted to the inside handle of the racket. The device works in tandem with the Babolat Play app to provide an accurate analysis of their training session or match. The motion sensor can determine whether a user is hitting a forehand or backhand at any given moment, as well as record a user's racket head speed, along with how much spin is generated on a shot. Additionally, the app also features a depiction of a virtual racket head, allowing users to visualize what percentage of balls were struck in each area of the string bed. Lastly, the app allows users to connect and compare data with other Babolat Play users, allowing coaches and trainers to keep up to speed on their player's performance.

For football, helmets evolved beyond just a protective safety measure in 1965 when inventors John Campbell and George Sarles presented the Cleveland Browns coach Paul Brown with a radio receiver they had developed. Since then, the coach-to-quarterback communications system via helmet radio receiver has all but replaced the hand signals and player substitutions as methods for coaches to relay play calls to quarterbacks.

Last, for basketball, the undisputed most used (and most coveted) technological tool is the gun. Whether made by Shoot-A-Way or Dr. Dish, nearly all professional and college gyms are home to one. The shooting gun lines up directly underneath the hoop. With an extendable netting system, the gun can capture all made and missed shots and funnel them into the ball feed, where they are launched out for a continuous feed of passes. Most current models can rotate 180 degrees, and the force with which balls are passed can be modified, allowing players to shoot from multiple angles on the court from various distances.

Bianca Benson, an Emerson College basketball player, has longtime experience with the gun.

“You’re not always going to have the trainer, teammate, or coach with you who’s down to rebound for you, so it’s the best tool you’ve got,” She says, “It’s fast, efficient, and the best part is, it keeps track of your shooting percentage.”

However, while the technological advancements of the sports industry are cause for some celebration, there is still one looming challenge – cost.

While the Volleyball Pal costs roughly \$20, the WHOOP subscription fee comes in at over \$30 per month. The shooting gun tops off at \$3,000 with an additional delivery at a set-up fee.

For many young athletes, the cost of sneakers and gear is enough of an expense. If technology is to become an ingrained factor in the sports industry, it’s paramount that all players, coaches, and trainers be able to afford it.

“I know having technology like this is a leg up,” Ava Salti says. “I know not everyone has \$30 to cough up every month to have a wristwatch tell you how much sleep you need. But if the impact that this has had on me can impact someone else in the same way, I would want to work to make that happen.”

“[Sports and technology] are actually two worlds that are closer than people seem to think,” says Francisco Baptista, CEO, and founder of AI-algorithm-based sports app, TeamSportz. Sports played a huge role in Baptista’s life, growing up in Angola. No matter where he and his family went, basketballs, rugby balls, and bikes were in tow. Following in his mother’s footsteps, basketball became Baptista’s true love and helped him escape the harsh reality of his country’s ongoing civil war.

When he was younger, Baptista developed a passion for both computer programming and playing video games. His father had a floppy disc computer, and Baptista often spent hours programming games. This early exposure to technology sparked a lifelong interest in software development and computer programming. However, it wasn’t until Baptista was much older that he had the idea to combine his two passions by creating his own AI-algorithm-based sports app.

Baptista, an athlete himself, was always keenly aware of how technology could improve athlete performance. Data tracking and analysis had the potential to help athletes train more efficiently and identify areas for improvement. However, most advanced sports AI technologies were only available to elite athletes with access to the best resources. Baptista wanted to make these same tools available to all athletes, regardless of background or experience. “I thought there should be a way to create elite sports technology but actually give it to everyone,” he says.

To make his vision a reality, he founded his own company in Hemel Hempstead, United Kingdom, that specializes in developing sports A technologies for many athletes.

From his and his fellow athletes’ personal experiences, what Mr. Baptista found to be lacking among preexisting sports technology was the core element of sports – teamwork. “There was nothing out there that could bring teams together” On his basketball team, Baptista realized that

despite his teammates' shared energy, passion, and performance, no resources allowed them to keep progressing with each other when separated. "For me, that was the lightbulb moment."

With team sports, players can track and improve their performance through interactive drills while connecting with their teammates within the app. The app goes beyond simple data monitoring with an AI algorithm to analyze and measure every workout component, including reps, reaction time, completed sets, accuracy, and more.

In an interview with [SportTechie](#), Baptista describes TeamSportz's function as follows: "Players will use the mobile app to train, exercise and stay connected as players, stay organized around games, practice times, attendance, etc. The coaches will use a web interface, a web app, where they can organize the players, the squads, and the scheduling payments, but also, most importantly, understand the training patterns of the players because the players use a mobile app that has AI embedded in it that they can exercise. The coaches can see all their stats in the coach application."

TeamSportz allows teams to stay connected regardless of whether they are physically together.

Baptista envisions a world full of more athletes like NBA All-Star Giannis Antetokounmpo and FIFA Club World Cup Champion Mo Salah. Despite their humble upbringings in foreign countries, these athletes would be afforded the same resources and opportunities to succeed as other, more privileged athletes.

For Baptista, this is the power of technology. It can level the playing field and give everyone a fair shot at success. "My vision is that one day, maybe a kid like me living in Angola, dreaming about being the next Kobe Bryant, would have access to the technology to achieve that."