



# Wearable Technology

Where we are now & where we are headed

## Wearables: It's more than just numbers

Scout Player Personnel for the Chicago Bulls, Dave Bollwinkel, has seen the growth of the wearable technology field over the course of his athletic career. Throughout his early years of coaching basketball at the collegiate level, wearable technology was only beginning to take root in professional sports teams. However, after Bollwinkel began his career in professional basketball, the field of wearable technology use started to quickly expand. Athletic teams began to take advantage of this new technology to better inform the coaches and train the athletes.

However, advancements in wearable technology did not come without obstacles.

"I think one of the things that wearable technology has to overcome is old school coaches," said Bollwinkel. "Sometimes coaches aren't willing to listen to people with the technology that can help them."

Although athletic practitioners were able to assess varying factors of athletic performance in real time, feedback from wearables was not always taken into consideration on the court.



Another important factor in the use of wearable technology is the mass amount of data collected from the devices.

"There's a mountain of data," said Bollwinkel. "Deciding what data is relevant and useable is an important consideration moving forward."

Sports practitioners must decide which aspect of athletic performance is most important for their team and for individual players. Expertise from those trained in health and safety decision making will focus attention toward the right data variables collected from wearables, minimize excess feedback and making wearable use actionable.

## Athlete Engineering partners with MSU Athletics

Coach Collin Crane has been a consistent partner of the Athlete Engineering program throughout his time as MSU's Strength and Conditioning Coach for the Men's Basketball team. He and Dr. Reuben Burch, the Associate Director of Human Factors and Athlete Engineering, began a collaborative partnership to explore the use of wearable technology in athletic performance.

"We've accomplished so much between athletics and Athlete Engineering," said Crane.

The use of wearable technology in athletics has become more common over the past several years. Coaches and athletic trainers use these devices to measure athletic performance in athletes. The results provide a better understanding of factors related to athletic performance such as physical health and mental alertness.

"Our work was something that I knew would lead to better opportunities down the road for us as coaches and for us to provide services to our student athletes," said Crane.

Through the Athlete Engineering Student Pipeline, this partnership also provides an educational avenue for engineering students to gain hands-on experience with real people and real data before entering the workforce.



## Wearables: Going beyond the court

Director of Athletic Performance for the Washington Wizards, Adam Petway, has years of experience in the field of wearable technology. Petway understands the importance of collegiate sports programs utilizing various research avenues available at universities.

“I became the head Strength Coach at the University of Arkansas,” said Petway. “Within that time, I spearheaded a lot of innovative integration with our kinesiology department.”

Petway was an early adopter of integrating sports performance technology into his training regimen.

“Wearables add a layer of objective analysis to what our coaching eye already sees,” said Petway. “Speed, position, distance—all of these variables are super helpful in not only understanding the mechanical demands of what our athletes are exposed to, but also some of the internal parameters such as heart rate.”



Athletic professionals also utilize wearables to predict upcoming generations of professional athletes.

“There’s a big push, especially within professional sports, within the last five to six years to have some objective data not only for your current roster, but also for talent identification in potential prospects to forecast out where they’ll be in two, three, or four years from now,” said Petway.

As research and products in the field of wearable technology develop, old-school ways of coaching and assessment are evolving to include these new-world methods.

## The future of wearables

Head Strength and Conditioning Coach of the Minnesota Timberwolves, Bill Burgos, is no stranger in the field of wearable technology. Throughout his career, Coach Burgos has witnessed the evolution of wearables in athletic training.

“We’re at a point now where technology is moving too fast,” said Burgos. “We don’t have enough people to grow as quickly with the technology.”



Coach Burgos and MSU Athlete Engineering collaborated in a qualitative research study to explore attitudes surrounding wearable technology by sports practitioners. Results show that although wearable technology is readily available to many athletic programs, its use is often sparse.

Lack of time to evaluate the data and sometimes the lack of adoption interest by the players to wear the devices were two of the largest issues discovered. However, the benefits of practitioners utilizing wearables cannot be overlooked.

“Management believes in it because we collect all of this data,” said Burgos. “Analytics is huge.”

As the popularity of wearables continues to boom in the athletics industry, Athlete Engineering at MSU continues to serve as a reliable source of research in the field of wearable technology.

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