

The ethics of tracking athletes' biometric data

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(Medical Xpress)—Whether it is a FitBit or a heart rate monitor, biometric technologies have become household devices. Professional sports leagues use some of the most technologically advanced biodata



tracking systems to monitor athlete performance as well as prevent potential injuries. Many of these tracking devices involve around the clock surveillance of athletes' bio signs raising several bioethical questions that apply to everyday users as well.

A recent target article in the *American Journal of Bioethics* looks at the ethics of tracking athlete biodata. Questions of privacy, autonomy, confidentiality, and conflicts of interest are just a few of the bioethical issues raised by new biodata tracking technologies. While specific to professional sports, this article has implications for anyone whose physical and physiological data is tracked using fitness devices.

Athletes have always given up some privacy rights, whether it is sharing medical information, on- and off-season testing for performance enhancers, or obtaining permission for off-season activities. Katrina Karkazis of Stanford University and Jennifer R. Fishman of McGill University contend that new biometric tracking technologies are different from previous monitoring methods in both their breadth and depth.

These technologies are noninvasive, often worn on the wrist or around the torso, and portable. They are able to continuously collect data for long periods of time. Furthermore, that data is typically uploaded to a cloud-server or other external server where it can be accessed by multiple people.

While ostensibly used with the best interests of the athlete and the team in mind, there are several issues regarding biodata that are of concern including the fact that the use and distribution of biodata is largely unregulated. Notably, HIPPA, the Americans with Disabilities Act, and the Genetic Information Nondiscrimination Act do offer some protections, but because of the nature of <u>athletes</u>' contracts, most sports' leagues can still acquire unmitigated amounts of data and use and



distribute it as they wish. Additionally, there are often ways to work around these laws. HIPPA, for example, does not cover new and emerging technologies.

Karkazis and Fishman provide a list of ethical issues based on literature reviews, interviews, and conferences on the use of <u>biometric</u> <u>technologies</u>. Foremost in their list of ethical issues is whether the data even provides the information that people expect it to provide. There is an assumption that because large amounts of data are being collected automatically, rather than self-reported by the athlete, it is more objective.

However, there are several factors that can skew the data results. Karkazis and Fishman provide <u>heart rate variability</u> as an example. Heart rate variability is a measure of the time elapsed between heart beats and can theoretically help trainers determine whether an athlete is overtraining or not. The science is a bit sketchy as to whether <u>heart rate</u> variability can accurately assess athlete fatigue. Furthermore, when and how measurements are taken play a large part in the accuracy of the data. Finally, the data is only as good as the user's interpretation of the data.

Additional issues are questions of the athlete's autonomy when it comes to surveillance and the athlete's privacy when it comes to confidentiality and data sharing. Advancements in biometric technology mean that teams can monitor athletes around the clock collecting a large number of data points on various physical and physiological factors.

There are several groups that would benefit from knowing an athlete's <u>biometric data</u>. The league has a vested interest in knowing athletes' data. Additionally, other teams stand to benefit from an athlete's biometric data, especially if an opposing team wishes to exploit an athlete's physical weaknesses. Fans are also interested in acquiring this



data for fantasy sports. (Fantasy sports is a billion-dollar-industry in which fans construct fantasy teams whose performance is based on the athletes' actual performance.) These are just a few of the reasons why an athletes' biodata is vulnerable. Furthermore, Karkazis and Fishman found that most sports teams and biomonitoring companies are not using rigorous data-protection measures.

Additional questions concern who owns the data and how its ownership is transferred when an athlete changes teams, as is common in professional sports. The standard for the EU and Canada is that a person maintains ownership of his or her biodata. However, in the US data is owned by the company that acquires it, or in the case of athletes, by the team. This raises issues of confidentiality because whoever owns the data also controls how the data is used and distributed.

Finally, there are questions about conflict of interest. Even when athletes are given the choice of opting in or out of biodata collection, that does not mean it is truly a choice. There is pressure from other players, coaches, and management to conform to whatever procedures they believe will result in winning more games. Furthermore, the view that biometric data is more objective and precise means that athletes often lose the ability to speak for themselves when it comes to personal capabilities.

Karkazis and Fishman offer suggestions that address some of these issues. Foremost, they suggest the development of a sound data governance program. This might be in the form a board that will help develop best practices and assess and oversee policies for <u>data collection</u>. They offer suggestions for who would be on this board, namely those interested in the data as well as medical and technical experts. Further, they offer suggestions for particular areas the board should review: The scope of data collection and use, data ownership and access to data, and safeguarding data and security.



While this research focused on professional athletes, the authors contend that these issues reach beyond professional athletes to the collegiate and high school level. Furthermore biomonitoring has been used in the military and for airline pilots. There is no reason why this may not extend to the typical workforce where employers want to enhance employee productivity. Many of these questions will become more important for non-athletes as the use of biometric <u>data</u> becomes more widespread.

More information: Katrina Karkazis et al. Tracking U.S. Professional Athletes: The Ethics of Biometric Technologies, *The American Journal of Bioethics* (2016). DOI: 10.1080/15265161.2016.1251633

Abstract

Professional sport in the United States has widely adopted biometric technologies, dramatically expanding the monitoring of players' biodata. These technologies have the potential to prevent injuries, improve performance, and extend athletes' careers; they also risk compromising players' privacy and autonomy, the confidentiality of their data, and their careers. The use of these technologies in professional sport and the consumer sector remains largely unregulated and unexamined. We seek to provide guidance for their adoption by examining five areas of concern: (1) validity and interpretation of data; (2) increased surveillance and threats to privacy; (3) risks to confidentiality and concerns regarding data security; (4) conflicts of interest; and (5) coercion. Our analysis uses professional sport as a case study; however, these concerns extend to other domains where their use is expanding, including the consumer sector, collegiate and high school sport, the military, and commercial sectors where monitoring employees is viewed as useful for safety or to maximize labor potential.

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