

Technology Doping: Discourse Over the Use of Technological Innovations in Competitive Athletics

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In competitive athletics, some of the most divisive debates over the use of performance-enhancing substances (doping) have subsided as more athletes accept predominant standards (Morente-Sánchez and Zabala, 2013). However, a newer and less regulated means of gaining an advantage has emerged: performance enhancement through controversial, state-of-the-art athletics gear, known to its critics as technology doping. This issue came into focus during a 2019 marathon, where Kenyan runner Eliud Kipchoge beat the previous record time (which he also held) while wearing a pair of Nike's Vaporfly Next% shoes, designed to boost running performance (Kilgore, 2020). This is not the first occurrence of controversy over sports equipment. During the 2008 Beijing Olympics, numerous swimming records were beaten by athletes wearing full body Speedo LZR suits designed to improve swimming performance, in part by improving buoyancy. To some critics, wearing the suits was a kind of cheating. The ensuing controversy has divided athletes, audiences, governing bodies in sports, and the companies that supply athletics gear. No one favors tech doping, but athletes disagree about whether state-of-the-art athletic gear can impart an unfair advantage to the athletes who use it. To its defenders, the new gear is just new gear; people taking this position may be called gear liberals. Most uncontroversial gear began as controversial gear, they reason, but once it gained acceptance, it was just gear. In track, for example, wearing shoes at all was at one time an innovation with implications for performance. Conversely, gear conservatives argue that some gear can impart an unfair advantage, especially if it relieves a burden considered inherent to the sport. A swimsuit that improves buoyancy, for example, relieves in some small degree a burden inherent to swimming. Gear liberals note the inevitability of innovation, the growing

accessibility of successful new gear following its introduction, and the necessity of athletic excellence to athletic success, with or without new gear. In response, gear conservatives invoke the integrity of the sport, inequitable access to state-of-the-art gear, and the decisive difference that burden-relieving innovations in gear can make in a competitive athletic event.

Review of Research

Gamesmanship is the practice of using dubious, but not illegal, ploys and tactics to gain an advantage in a game or sport. This concept is a core part of the controversy surrounding performance-enhancing sports gear, and has been studied in the past. In the journal *Perceptual and Motor Skills*, researcher Pere Palou examines the acceptance of gamesmanship among competitive athletes, and attempts to discern the cause behind the “winning is everything” mentality. Palou argues that the prevalence of gamesmanship is a result of the motivational climate generated by coaches (Palou, 2013).

Researcher Michael Joyner conducted a study on the improvement in world record times of various running categories within the last several decades. In his study, he specifically examines the performance of Eliud Kipchoge, and attempts to determine how he was able to achieve a world record. Joyner discusses the factors influencing Kipchoge’s performance, including training, greater physical limits, and sports technology used. He concludes that Kipchoge’s performance cannot be attributed to any one of these factors, and was rather a result of their combination (Joyner et al., 2020).

The ethics of performance-enhancement in sports has been extensively studied. Loland (2009) compares perceptions of competitive sports as displays of performance, as means to other ends, and as expressions of cultural values. He espouses the “wide theory,” which values effort in

athletic performance, and correspondingly faults performance-enhancement as the negation of effort. To the question “is enhancement in sport really unfair?” Lenk (2007) answers yes, because it prevents equality of opportunity. In a review of research, Dyer (2015) finds six recurrent controversies in sports technology, all united by their implications for fairness: “assistive technology, safety equipment, widespread access and/or parity of equipment, non-human decision-making systems, governing body oversight, and the impact of de-skilling and re-skilling of a sport due to the introduction of new technology.”

Gear Conservatism

Gear conservatives invoke virtues such as integrity and fairness. In an interview, Olympic swimmer Janet Evans criticized swimming competitions in which some athletes wear swimsuits that aid buoyancy as unfair events that threaten to make a mockery of the sport (Associated Press, 2009). Evans proposed that records set by such swimmers bear a mark indicating the difference. Olympic runner Usain Bolt is also a gear conservative. In an interview, Bolt said that athletes wearing shoes with new types of spikes might erase his world records. He called such shoes “laughable”, and said that they give runners an unfair advantage (Raynor, 2021). In 2021, World Athletics, the international governing body for competitive running, chose to impose new regulations on shoes in response to the Nike Vaporfly controversy. However, the controversial shoes remained unbanned. British Olympic marathon runner Mara Yamauchi took to Twitter to condemn the ruling: “I’d hoped to see much more robust leadership to enforce fair & inclusive competition” (Yamauchi, 2021). Gear conservatives also cite unequal access to sports gear to defend their beliefs. In an interview, researcher Bryce Dyer commented on the shoe debate, and said that “athletes who are not sponsored or endorsed by Nike – they may even be sponsored,

endorsed by their competitors – now have a problem whereby they’re going to be questioning going into these games whether they actually have a technological chance of keeping up” (“Nike Vaporfly Shoes Controversy”, 2020). This inequality also reared its head in the months leading up to the 2008 Olympics, when discussions over the Speedo LZR swimsuit began heating up. Initially, the suits were only available to Speedo-endorsed teams. Swimmers such as Filippo Magnini, who swam for the Arena-endorsed Italian team, expressed frustration about not having access to the better suits: “Arena says it will give us a competitive costume, but the latest ones were not up to the job or broke. In a whole year, Arena have not managed to make a fast enough costume – how will they manage in a month?” (Klayman, 2008). In an open letter to FINA, the international governing body for swimming, Australian swim coach Forbes Carlile questions “how is it envisaged that throughout the sport of swimming the ethical idea of an ‘even playing field’ can be achieved when for various reasons, some would be wearing hi tech suits and others are not?” (Jakupsstovu, 2008).

Gear conservatives also raise concerns about the spirit of competition, and argue that the use of sports gear is harmful to the credibility of sports. In an interview, Norwegian hurdler Karsten Warholm said that great running performances are now called into question. To him, it’s not clear if the performances are due to the efforts of the athlete or the shoes they wear, and this is a credibility problem (Penney, 2021). Yamauchi also holds this view, and says “what we’re getting into now is not who is the best athlete, but who has got the best shoes on” (Hodgetts, 2020). Sports scientist Ross Tucker argues that the use of performance-enhancing shoes “disrupted the meaning of running. It broke the principle. The premise is that running, ‘natural’ as it is, should not be decided by who wears the best shoe, but by who has the optimal combination of physiology, psychology, and tactics” (Tucker, 2020). Professional golf has also

become involved in the debate over technological aids in sports due to green-reading books: digitally created maps of the playing field which players use to determine the best swing.

Professional golfer Davis Love III says that “it’s just a little too much technology. Yes, there’s technology involved in just about everything: rangefinders, GPS, scorekeeping, and all that kind of stuff. But we need to be careful that it doesn’t become a computer game out here” (Schupak, 2022).

Gear Liberalism

Gear liberals claim that sports and athletes must adapt to developing technology, including new athletics gear. They are often accused of taking a self-serving position in the controversy. When accused of imparting unfair advantages to some athletes, they cite such athletes’ talent and effort, and even argue against the notion that the gear is performance enhancing. Defending her controversial shoes, runner Florence Griffith-Joyner said that other athletes would not match her performance just by wearing them (Raynor, 2021). Kipchoge agrees: “it’s the person who is running, not the shoe” (Bloom, 2020). This defense suggests that gear conservatives are envious of gear liberals’ performance, and use the gear as a scapegoat for their own shortcomings. Further emphasizing the necessity of adaptation, Kipchoge also said “we live in the 21st century, whereby firstly we need to accept change and secondly development goes hand in hand with technology” (Al-Samarrai, 2020). American runner Trayvon Bromell also questions the impact of the shoes, stating “I don’t think there’s a lot of data to show that they’re having such a big improvement. I know we are constantly building onto what we have to make the perfect spike, but for me personally as a runner I still feel like it’s not enough data to really show” (Raynor, 2021). Gear liberals deflect accusations that some gear imparts unfair

advantages to the athletes who use it by arguing that the gear is available to anyone. Athletes who choose to forego it are themselves responsible for any performances disadvantage they incur. Jamaican sprint coach Stephen Francis says that “whatever the advantage, anyone can benefit from Nike’s technology based on the rules set by World Athletics” (Raynor, 2021). Gear liberals also include athletes with physical disabilities who seek to compete on the same playing field as able-bodied athletes. South African runner Oscar Pistorius is one such gear liberal. Pistorius was initially banned from competing against able-bodied athletes because it had been determined through studies and tests that his prosthetic legs conferred an unfair advantage. This decision was overruled following an appeal submitted by Pistorius. Speaking about his appeal, Pistorius said “I am filing this appeal not just for myself, but for all disabled athletes. We deserve a chance to compete at the highest levels if our bodies permit us to do so” (Mehaffey, 2008). In this, Pistorius employs similar methods as gear conservatives, by also appealing to ideals of fairness and equal opportunity. He also argues that his prosthetics do not give him an advantage over other athletes, stating that the mechanical differences observed in his running do not impact his results. Researcher Jill McNitt-Gray concurs with this: “the fact that Pistorius runs differently does not necessarily indicate an advantage, because even the most elite sprinters have their own running styles” (Eveleth, 2012). She says that one sprinter might use his hips more than the next, while another may rely more on his arm thrust.

The sports gear manufacturers who supply athletes with the controversial equipment may generally be classified as gear liberals. These groups seek to avoid having their products banned, while still proving their products superior to their competitors. Following the controversy in the 2008 Beijing Olympics after which the Speedo LZR swimsuits were banned, Speedo released a statement protesting the decision. In their statement, Speedo cited the fact that their swimsuits

had previously been approved and deemed acceptable for competition (Ryan, 2009). They also brought up their long history in designing competitive swimwear, and argued that the ban could be detrimental to the future of swimming. They continued to argue against the ban, saying “the Speedo LZR Racer suit, which was developed in strict accordance with FINA rules and regulations and fully approved by FINA in 2007, has had an unprecedented positive impact on the sport of swimming since its launch” (Associated Press, 2009). In doing so, they reframed their argument around the ban’s effects on the sport, instead of their profit margins. Some sports gear manufacturers also denied the efficacy of the technology, and sought to downplay the gear’s effects on athlete performance. While awaiting a decision from World Athletics on the Vaporfly shoes, Nike spokesman Greg Rossiter said “we respect World Athletics and the spirit of their rules, and we do not create any running shoes that return more energy than the runner expends” (Orti, 2020). Nike continued to develop new shoes after World Athletics released their new regulations. Upon launching a new shoe in the Vaporfly series, Nike CEO John Donahoe said that it did not give athletes a mechanical advantage; “it’s simply using the same materials that go into a shoe and putting them together in an innovative way that allows the athlete to do their very best in a safe way” (Phillips, 2020). However, Nike’s previous advertising offers a different perspective on their goals. In an advertisement for their Zoom Vaporfly 4% shoes, Nike cites Kipchoge’s record-breaking performance, saying that “Eliud Kipchoge recorded the fastest time across all six World Marathon Majors while wearing the NIKE ZOOM VAPORFLY 4%” (Gabay, 2017). They also stray from common gear liberal ideology, instead proudly proclaiming “19 top finishes. 6 world marathons. It’s gotta be the shoes” (Gabay, 2017). Clearly, Nike are more than willing to describe their shoes as performance-enhancing in order to improve their reputation and sales.

Governing Bodies of Sports

The international governing bodies which oversee competitive sporting events seek to maintain impartiality and appease both gear conservatives and liberals by carefully regulating the use of sports gear. Ahead of the 2020 Tokyo Olympics, World Athletics created the “Working Group on Athletic Shoes”, which became responsible for determining the rules and regulations for shoes in athletics. World Athletics CEO Jon Ridgeon said that the group’s central issue is a “long-term sustainable and implementable solution for athletic shoes which balances innovation and fairness” (Anthony, 2022). World Athletics also stated that they intended to balance several principles, including fairness within athletics, ensuring performances in athletics are achieved through the primacy of human endeavor over technology in athletic shoes, while acknowledging that athletes wish to compete in “high quality”, “innovative”, and “leading” athletic shoes (Anthony, 2022).

After the controversy involving Kipchoge and the Vaporfly shoes, World Athletics created a panel of technical, scientific, and legal experts in order to examine the controversial shoes. This panel concluded that the shoes “may provide a performance advantage and there is sufficient evidence to raise concerns that the integrity of the sport might be threatened by the recent developments in shoe technology” (Hodgetts, 2020). With this conclusion, World Athletics imposed a new set of regulations on shoes worn by athletes, limiting the sole thickness, and requiring that shoes worn at competitions must have been available on the market for at least four months prior to ensure equal availability. According to World Athletics president Sebastian Coe, the organization is not responsible for regulating the entire sports shoe market, but needed to intervene to preserve the integrity of competition (Hodgetts, 2020). However, since the new

regulations did not ban the Nike Vaporfly shoes which initially sparked the discussions, some athletes questioned whether World Athletics went far enough. Addressing these complaints, Coe said “as we enter the Olympic year, we don’t believe we can rule out shoes that have been generally available for a considerable period of time, but we can draw a line by prohibiting the use of shoes that go further than what is currently on the market while we investigate further” (Hodgetts, 2020). With these new regulations, World Athletics attempted to demonstrate their commitment to the principles they previously outlined and show that they were willing to listen to the complaints of competing athletes. In a separate case, World Athletics and the Court of Arbitration for Sport (CAS), an independent institution which arbitrates sports-related disputes, also encountered the issue of performance-enhancing technology in athletics. In 2020, Blake Leeper, a U.S. Paralympian sprinter, was training to participate in the upcoming Tokyo Olympics and World Athletics Series, until World Athletics deemed him ineligible to compete against able-bodied runners. Leeper appealed the ruling to the CAS, and a panel was created to investigate the matter. The CAS ultimately upheld World Athletics’ decision, and concluded that “Leeper’s prosthetic legs make him about six inches taller than he would be with biological legs, which gives him an artificial performance advantage by subtracting several seconds from his 400-meter race” (Kaplan, 2021). This decision is in stark contrast to a previous CAS ruling made in 2008, regarding Oscar Pistorius. Like Leeper, Pistorius had been banned from competing against able-bodied athletes by World Athletics, known at the time as the International Association of Athletics Federations (IAAF), on account of the carbon-fiber blades attached to his legs giving him an unfair advantage. After Pistorius appealed the ruling, CAS concluded that “on the basis of evidence brought by the experts called by both parties, the panel was not persuaded that there was sufficient evidence of any metabolic advantage in favor of the double amputee using the

Cheetah Flex-Foot” (Meadows, 2008). As a result, IAAF’s decision was overturned, and Pistorius was allowed to compete for a spot at the 2008 Olympics. These decisions show CAS’s commitment to impartiality and listening to experts.

Outside of competitive running, governing bodies of other sports have also had encounters with this issue. Following the 2008 Beijing Olympics, during which numerous swimming records were broken by athletes using full-body performance-enhancing swimsuits, FINA issued new regulations banning the swimsuits and any others made of polyurethane or neoprene. USA Swimming, the national governing body for swimming in the United States, were a step ahead of FINA, having already banned the suits several months prior. They also welcomed the new regulations, and Jamie Olsen, communications director for USA Swimming, said “we have been in support of swimsuit regulations and worked together with other nations and with FINA on these regulations, and USA Swimming felt so strongly about the importance of creating an even playing field that we adopted these regulations on Oct. 1” (Wong, 2009). In golf, the United States Golf Association (USGA) and the Royal and Ancient Golf Club (R&A) have proposed a rule to limit the distance golf balls may travel, in order to curb the increasing distances as a result of improving golf club technology. The PGA Tour, which operates on its own set of rules, did not commit to enforcing this rule. In a statement, the Tour said “we will continue our own extensive independent analysis of the topic and will collaborate with the USGA and the R&A, along with our membership and industry partners, to evaluate and provide feedback on this proposal” (Porter, 2023).

Conclusion

A perfect resolution of the controversy surrounding sports technology will never be found, as there will always be athletes who are unsatisfied by the status quo. Gear liberals will continue to practice gamesmanship and use the best technologies available, while gear conservatives will push back and argue for stricter regulations. As the field of sports technology continues to advance and further developments in sports gear are released, it will be increasingly important for the governing bodies of sports to continue to closely monitor the effectiveness of performance-enhancing gear in order to preserve the integrity of competitive sports.

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