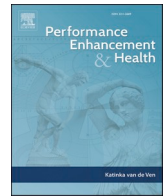


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The “big red bull” in the esports room: Anti-doping, esports, and energy drinks

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ABSTRACT

In this paper, I examine the theoretical foundations of esports anti-doping policies. Specifically, I focus on the health- and integrity-related arguments on which esports organizations rely to justify their anti-doping efforts and how the arguments relate to esports organizations' partnership with energy-drink companies. First, I briefly explain the creation and development of anti-doping policies in esports. Subsequently, I identify the theoretical foundations of such policies. Then, I expound how the commercial partnership between esports organizations and the energy-drink industry may impact esports anti-doping theoretical underpinnings. I conclude by critiquing this partnership.

1. Esports, cognitive stimulants, and anti-doping

Electronic sport, most commonly known as “esports,” is a form of competition using video games (see [Hemphill, 2005](#); [Holt, 2016](#); [Llorens, 2017](#); [Parry, 2018](#)). Over the last decade, the commercialization and consumption of esports have skyrocketed, especially due to the development of streaming platforms such as YouTube and Twitch ([Johnson & Woodcock, 2019](#)). These streaming services allow esports promoters to reach millions of viewers¹ and anybody to broadcast their gameplay live. The growth of esports, which further intensified during the COVID-19 pandemic ([Kim, Nauright, & Suveatwatanakul, 2020](#); [Murray, Birt, & Blakemore, 2020](#)), “has in many ways legitimised excessive consumption of an activity that was long thought to be best consumed in moderation.” ([Holden, Kaburakis, & Rodenberg, 2018](#), p. 830) Among the excesses resulting from the overconsumption of esports is the use of cognitive stimulants such as dextroamphetamine-amphetamine (e.g., Adderall) and methylphenidate (e.g., Ritalin), also referred to as “neuro-doping substances” ([Lopez Frias, 2020](#)) or “nootropics.” Video game players, commonly known as gamers, utilize these substances to boost cognitive functioning, reduce fatigue, and enhance reaction times in order to sustain high performance during marathon gaming and streaming, as well as to seek a competitive edge ([Rosenthal, 2020](#); [Heintz, 2016](#)).

The use of cognitive stimulants for enhancing purposes “has been an open secret in the esports community for years” ([Hamstead, 2020](#)). Talks about drug use are commonplace among gamers, especially at the competitive level ([Stockton, 2015](#)). For instance, Halo professional player Clete “Assault” LoRusso stated that gamers freely discuss the use of performance-enhancing drugs and typically ask him about substances to compete at the elite level –to which he usually responds that he only has a “fair share of Red Bulls.” ([Luongo, 2018](#)) Esports administrators, journalists, and scholars have demanded “clear guidelines” on drug use and testing in esports ([Hodson, 2014](#); [Hoggins, 2019](#)). These demands intensified in 2015 after Counter-Strike professional player Kory “Semphis” Friesen admitted to taking Adderall during an Electronic Sports League (ESL) tournament ([Maiberg, 2015](#)). Moreover, referring to his teammates and fellow competitors, he added, “We were all on Adderall... Tons of people do it.” ([Wingfield & Dougherty, 2015](#)) In response to Friesen’s declaration, the ESL partnered with the World-Anti Doping Agency (WADA) to establish anti-doping measures, including the identification of forbidden drugs and implementation of testing protocols ([Graham, 2015](#); [Krishnaswamy, 2020](#)). Other esports organizations followed suit. For instance, in 2018, the Federation Internationale de Football Association introduced drug testing at the 2018 FIFA eWorld Cup ([Harris, 2018](#)).

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¹ In 2018, the League of Legends Mid-Season Invitational became the largest esports event on record, reaching 60 million viewers and two billion of total hours watched ([de la Navarre, 2020](#)). The esports industry is on track to surpass one and a half billion dollars by 2023 ([Soto Reyes, 2021](#)).

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Regardless of such efforts, complaints regarding the lack of anti-doping officials and testing at esports events have mounted ([Anti-doping efforts still in their infancy in esports 2017](#); [Should Adderall Be Banned From esports? 2020](#)). Moreover, none of the three most prominent esports tournament organizers –Riot Games, Blizzard Entertainment, and Valve— enforces anti-doping regulations during professional tournaments ([Should Adderall Be Banned From esports? 2020](#)). For example, Riot Games' competition guidelines do refer to drug use as follows: "Any prescription drugs or drugs that are not 'over-the-counter' drugs including items such as CBD oils, etc." ([Riot, 2020](#)). However, this statement, which is included in the "Prohibited Sponsor and Advertiser List" section, has little to do with anti-doping –and everything with public relations and marketing. In sum, as journalist [Luongo \(2018\)](#) posits, "[esports] tournament organisers and leagues seem lackadaisical to back anti-doping measures."

2. Esports competitions: A wild west?

In 2019, David Howman, former head of WADA, characterized esports as "The Wild West" –a young world lacking a uniform anti-doping policy and governance." ([Baldwin, 2019](#); "Governing the Wild West," 2019) Absent such a governance structure, including an anti-doping strategy, the parties in the esports world are left to their own devices to deal with systemic challenges such as performance-enhancing drug use. In the last decade, some of the main actors in the esports community, in particular companies and tournament organizers, have developed cooperative efforts to provide esports with a uniform governance structure. The World Esports Association (WESA), the International Esports Federation (IESF), and the Esports Integrity Commission (ESIC) resulted from such collaborations ([Everything you need to know about the Esports Integrity Coalition 2017](#); [Kandell, 2020](#)). These associations have developed anti-doping policies and lists of prohibited substances (see [WESA, 2017](#)).²

Esports anti-doping policies identify two reasons for regulating performance-enhancing substances: integrity and player safety. Take the ESIC anti-doping policy, which "is adopted and implemented as part of ESIC's continuing efforts to maintain the *integrity*, popularity and public image of esports as well as the *health* and safety of all players" ([ESIC \(2021\)](#), emphasis added).³ Similarly, WESA and IESF borrow WADA's criteria of performance enhancement, health, and the spirit of sport to justify their anti-doping policies: "Anti-doping programs seek to protect the health of *Athletes* and to provide the opportunity for *Athletes* to pursue human excellence without the *Use of Prohibited Substances* and *Prohibited Methods*." ([IESF, 2021](#))

² Esports anti-doping is in its infancy ([Holden et al., 2019](#)). Anti-doping efforts are dispersed and lack a global governing body that harmonizes them. Different esports organizations, such as IESF and ESIC, have developed comprehensive anti-doping regulations and practices to reduce the prevalence of drug use among players and protect the integrity of video game competitions as well as the players' health. Such organizations have also developed Therapeutic Use Exemption Policies and testing procedures. Although esports organizations have taken into account the specificity of video game competitions to craft anti-doping regulations and practices, they encounter a plethora of challenges to enforcing anti-doping regulation, including the prevalence of grueling lifestyles, lack of advocates for professional players, and absence of job security. For an extensive analysis of esports anti-doping policies and their challenges, see [Bogle, 2020](#); [Hamsted, 2020](#); and [Stivers, 2017](#).

³ Note that popularity and public image tightly connect to fairness ([Starr, 2015](#)). As an ESL spokesperson explained on Reddit after the official announcement of the ESL-WADA partnership, anti-doping aims to "maintain the fair play spirit and the integrity of our competitions", which is crucial to help esports "advance as a sport." ([Roston, 2015](#))

Like traditional sport governing bodies, esports organizations regard anti-doping as one of the main threats –along with match-fixing, gambling, and cheat-code hacking— to the integrity of the activity ([Ashton, 2019](#)). Thus, the protection and promotion of integrity are essential to esports anti-doping. However, esports organizations hold different views of integrity. For instance, in their announcement following the Friesen incident, the ESL declared that anti-doping efforts are "an ongoing commitment to safeguarding both the integrity of competitions and that of esports as a whole ... provid[ing] a *fair playing field* for all participating players ... in order to maintain the *spirit of fair play* within esports [and] ensure that ESL's company values of *exemplary sportsmanship* and integrity are maintained." ([McConnell, 2015](#), emphasis added) WESA and IESF, in alignment with WADA's definition of doping, connect integrity to the spirit of sport: "[a]nti-doping programs are founded on the intrinsic value of esports. This intrinsic value is often referred to as 'the spirit of sport'." ([IESF, 2021](#))

Despite their different notions of integrity, esports organizations take the protection and promotion of integrity to be crucial to maintaining the "popularity and public image of esports." [ESIC \(2021\)](#) Esports scholars strongly connect integrity to financial interests. [Stivers \(2017, p. 268\)](#) contends that, since esports organizations are businesses, "it is in their financial interest to avoid scandals like the Friesen leak." Some of the main negative effects of these scandals in esports result from fans' and consumers' negative attitudes towards the use of banned performance-enhancing substances. If such substances provide a competitive edge,⁴ players who wrongfully benefit from using them are cheaters. According to [Rosenthal \(2020, p. 15\)](#), "fans don't like cheaters." Moreover, in her view, esports fans' perception that players are cheaters significantly hinders esports' popularity because esports "fans have a greater 'degree of kinship' to pro players than in other major sports" (see [Smith, 2018](#) and [Molina, 2018](#)). Also, if performance-enhancing substances detrimentally affect the fairness of esports competitions –or consumers' perceived fairness of the competitions—, consumer demand of esports competitions suffers ([Malpani, 2019](#)).⁵

The most significant negative effects on esports popularity of cognitive stimulant use among players have to do with sponsorship. As esports commentator [Tucker \(2015\)](#) suggests concerning the prevalence of performance-enhancing substances in esports: "It's all about image: esports is striving towards mainstream visibility, but if it becomes tarnished by drug-taking rumors it's going to be hard to bring in and maintain the big corporate sponsors that keep everyone swimming in baths full of money." Doping scandals and rumors hinder esports financial success because they scare sponsors away. For instance, Lance Armstrong revealed that his doping confession cost him \$100 million

⁴ Studies have reported positive cognitive effects of cognitive stimulants in skilled and non-skilled individuals ([Macgregor, 2020](#)). However, the assessment of the effectiveness of cognitive stimulants is complex, since the stimulants' effects vary based on cognitive task, environmental influences, and dosage. Thus, more evidence is needed to prove that esports players benefit from using cognitive stimulants ([Smith et al., 2020](#)).

⁵ A widespread claim among sport economists is that consumer demand of sport competitions varies based on the degree of unpredictability about the competition's result ([Forrest & Simmons, 2002](#)). For instance, sport management experts [Rascher & Solmes, 2007](#) explain, "If the outcome of a contest or a season is nearly certain, demand may begin to decline." Thus, esports consumers who think that cognitive stimulants confer a competitive edge would consider the uncertainty of esports competitions far from optimal. Despite the wide acceptance of this claim among experts, more evidence is needed to support the claim that performance-enhancing substance use reduces fan interest (see [Ciszyk and Courty, 2017](#)).

(Cycling News, 2018).⁶ Moreover, following the Russian doping scandal in 2019, Nicole Sapstead, chief executive of UK Anti-Doping, urged sport sponsors to help fund anti-doping by appealing to financial interest. She stated, “Do you really want to put your brand with somebody who may be found wanting?” (Doward, 2019). In sum, at the base of the integrity principle is the concern that rumors of widespread cognitive stimulant use among esports players negatively impact esports’s popularity—even if such substances have little or no performance-enhancing effects—and thereby esports organizations’ (and related industries) financial gain.

That financial gain is one of the main driving forces of anti-doping policies is hardly surprising. Financial and public relations concerns have animated anti-doping since its inception in traditional sport. As Hoberman argues, doping is “primarily a public relations problem that [threaten] lucrative television and corporate contracts.” (Hoberman cit. in Johnson, 2016, p. 87) Yet, the protection of integrity is arguably more important in esports than in traditional sport because esports activities still have to gain sport status.⁷ Ensuring a level virtual playing field and developing a hierarchical institutional framework are among the biggest hurdles esports organizations must clear to have their competitions recognized as sport.⁸ For instance, in its 6th Olympic Summit, the International Olympic Committee (IOC) stated that esports could be admitted as a sporting activity if esports organizations ensure that their competitions align with the Olympic values by developing “an organization guaranteeing compliance with the rules and regulations of the Olympic Movement” (IOC, 2017).

Drawing on Howman’s analogy above, “the ‘wild western town’ [of esports] must have a sheriff (a single governing body) for the entire industry” to be recognized as a sport (Malpani, 2019). A single esports governing body would standardize anti-doping criteria, testing practices, and sanctions to guarantee that all competitors are subject to the same anti-doping rules and, provided a violation occurs, penalties. Enforcing anti-doping policies consistently would level the playing field, helping esports competitions meet the two main criteria to be conferred a sport status. In turn, receiving such a status would contribute to the institutionalization of esports in general and the development of anti-doping efforts in particular. Esports organizations would enjoy greater funding opportunities (e.g., funding from national Olympic committees) and institutional support, especially from sporting international governing bodies such as the Court of Arbitration for Sport (CAS). Securing CAS’ support is critical to meet not only the institutionalization criterion but also the integrity one. For instance, CAS could adjudicate legal disputes concerning performance-enhancing drug use in esports, providing esports organizations with more powerful tools to enforce anti-doping rules and level the playing field.

Health is the second pillar of esports anti-doping policies. Health concerns have animated anti-doping since, at the very least, the 1960s (Gleaves & Lewellyn, 2014). In fact, doping scholars and sport administrators have often regarded the protection of athletes’ health as the only legitimate reason for developing and enforcing anti-doping policies (Kornbeck, 2013; Loland & McNamee, 2019; Macedo, 2020). Moreover, during the last decade, WADA has drawn on health reasons to expand anti-doping measures beyond elite-level competitive sport into recreational physical activity and amateur sport (Henne, Koh, & McDermott,

⁶ For further analyses of the economic cost of doping, see Wilson, 2012; 2013 and Neghaiwi, 2015. Also, for critical analyses on the assumption that doping scandals negatively impact sponsors, see Leeds, 2010 and Danylichuk et al., 2016.

⁷ None of the most influential sport governing bodies recognizes esports activities as sport (Parry, 2021; Abanazir, 2021), but esports players are recognized as professional athletes in countries such as the United States and Pakistan (Houston, 2021; Tassi, 2013).

⁸ For a philosophical debate on the relevance of this criterion on whether esports are sports, see Abanazir (2018). Also, for a more general analysis of the notion “sport,” see Meier (1988), and Suits (1973, 1988).

2013; Henning, 2017; Henning & Dimeo, 2018; Thualagant, 2015; Waddington, Christiansen, Gleaves, Hoberman, & Møller, 2013).

Esports anti-doping regulation builds upon WADA’s position on the need to protect and promote athlete health. Moreover, anti-doping advocates’ health concerns are fueled by fears⁹ of video game addiction, which the World Health Organization recently listed as a mental disorder (Kamenetz, 2018), and the development of a “stimulant epidemic” greatly affecting youths with attention deficit hyperactivity disorder and college students (Ream, Elliott, & Dunlap, 2011; Goodman, 2018; Hymas & Dodds, 2018). For example, in 2015, Alex Lim, the then Secretary-General of IESF, justified esports anti-doping policy on the following grounds: “Most substances, including Adderall and Propranolol which are frequently used in esports, have *critical side effects* [including nausea, diarrhea, heart failure, hair loss, hallucinations, nightmares, and even sexual and erectile dysfunction] which most of people do not realise in daily life.” Moreover, Lim added, “Once players use doping, they will *depend on it*, and they will lose faith in their own capability.” (Kamen, 2015) emphasis added) Fears of addiction and physical harm influence Lim’s stance on cognitive stimulant use in esports. Similarly, addressing the importance of anti-doping regulation, Michal Blicharz, Vice-President of Pro Gaming at ESL, said, “we don’t want to see a situation where players are putting their health at risk and take PEDs just to make sure they don’t lose a competitive edge” (Lumb, 2015).

3. Strange bedfellows¹⁰: Esports anti-doping regulations and energy-drink companies

Esports anti-doping policies face myriad challenges (Czegledy, 2021). Some result from commercial relationships between the esports world and the energy-drink industry. Energy drinks are high-sugar, high-caffeine, non-alcoholic beverages marketed to improve energy,

⁹ Over the last decades, health fears around the use of drugs in sport and the larger society have fueled the anti-doping cause (Coomber, 2014). Anti-doping regulation’s main landmarks coincided with, or even resulted from, eras where anti-drug sentiments and fears were prominent. For instance, sport governing bodies intensified anti-doping efforts, introducing anti-doping testing for the first time in history (Ljungqvist, 2017), in the 1960s, when fears around the use of amphetamines, LSD, heroin, and cocaine, especially among young people, were prominent. Anti-doping advocates and policymakers can hardly isolate themselves from views linking drug use to detrimental elements such as physical harm, moral corruption, and social dysfunction. Such views provide a fertile ground for anti-doping ideas and policies connecting performance-enhancing drugs to similar, or the same, detrimental elements (see Johnson, 2016, Chapters 16–18).

¹⁰ As one of the anonymous reviewers of the journal pointed out to me, historically speaking, partnerships between sport institutions and industries that commercialize unhealthy products are commonplace. Historically, governments have regulated the marketing and selling of food and drinks with harmful effects on children such as tobacco products, alcoholic drinks, junk food, and sugary beverages (Crompton, 1993). Despite this regulatory effort, corporations find ways to circumvent anti-marketing regulation and target children and teenagers. One such way is marketing through sport—and sport-like activities such as gaming. When the U.S. Government imposed the ban on advertising tobacco products on television 1971, tobacco corporations diverted their efforts into sport. Virginia Slims sponsored the women’s tennis circuit, Winston the motor racing cup, and Philip Morris the Marlboro Cup horse race. In the late 1980s, the major multinational tobacco companies had advertisements in 22 of the 24 Major League ballparks, and Camel became one of the four primary sponsors of the 1986 Soccer World Cup (DeParle, 1989). Regarding the alcohol industry, alcohol companies, especially breweries such as Miller, Heineken, and Coors, are the dominant sponsors in most sports. Heineken has 25 major sponsorship deals, including Formula One, Major League Soccer, and UEFA Champions League. Cola-Cola and McDonald’s are among the main official partners of the FIFA Soccer World Cup and the Olympic Games (Collin & MacKenzie, 2006).

stamina, athletic performance, and concentration. Because of these beverages' alleged performance-enhancing effects, gamers consume them to seek a competitive edge. Thus, energy-drink companies aggressively target gamers to make a profit,¹¹ and esports organizations and competitions benefit from energy-drink marketing practices to grow (see Lopez Frias, 2020).

Take the case of Red Bull, an energy drink commercialized by Red Bull GmbH. The company's logo is omnipresent in the esports community. Red Bull sponsors local area network (LAN) parties such as Weekend Wars and international competitions such as the League of Legends European Championship; has built the largest esports studio, the Red Bull Gaming Sphere, in London, U.K.; and has started its own video gaming competitions such as the Red Bull Conquest Tournaments. Red Bull also recruits famous gamers and sponsors professional teams to advertise their products (Menayang, 2017). In addition, Red Bull promotes its products during major gaming events – by giving away prizes, free samples, and merchandise of their products ("Red Bull Throws," 2014) – and through gaming media outlets (e.g., Twitch and YouTube) by sponsoring highly influential streamers such as David "TheGrefg" Cánovas Martínez, Anne Munition, and Tyler "Ninja" Blevins (Beresford, 2021; Hitt, 2019; Pryor, 2021). The partnership between Red Bull and esports organizations is just one of many. The energy-drink industry has become a major actor in the esports world with the approval and support of esports organizations (see Duran, 2020).¹²

The relationship between esports organizations and energy-drink companies erodes the theoretical foundations (i.e., integrity and health arguments) and practical viability of esports anti-doping policy. Regarding integrity, gamers consume energy drinks for enhancing purposes (A Story of Doping in esports: And Proven Tips to Optimize Your Performance (legally!) 2015; Kiff, 2020). Indeed, like banned cognitive stimulants such as Adderall and Ritalin,¹³ substances contained in energy drinks, especially caffeine and taurine, have performance-enhancing effects (Gutiérrez-Hellín & Varillas-Delgado, 2021). Yet, far from condemning their use for enhancing purposes, esports organizations approve of and contribute to it. As for health, competitive video gaming has long raised concerns among public health experts and scholars. Wattanapisit et al. (2020) identify three public health risks connected to engagement in esports: sedentary behavior, mental illness, and drug use. Indeed, because of the combination of drug use and inactivity, Holden et al. (2018) regard esports as a "potential destructive cocktail" (p. 831). Public health experts operate under a much broader understanding of drug use than esports companies, tournament organizers, and regulatory bodies. From a public health perspective, the drug use problem in esports goes far beyond the competitive level and includes the use of cognitive stimulants by amateur gamers. Gamers typically consume such substances through energy drinks, for these beverages are legal and easily available to people of all ages and esports organizations openly promote them. Scientists have identified detrimental health effects of

energy-drink consumption on cardiovascular, metabolic, renal, and dental conditions resulting from these substances (Clauson, Shields, McQueen, & Persad, 2008). Furthermore, energy drinks exacerbate health conditions such as attention deficit hyperactivity disorder, eating disorders, and diabetes prevalent among children and teenagers, which in most countries comprise almost a third of the gaming community (Seifert, Schaechter, Hershorin, & Lipshultz, 2011).¹⁴ Yet, despite all this evidence, esports organizations rarely question their engagement with energy-drink companies. For instance, in a recent interview, current IESF President Vlad Marinescu spoke about the importance of promoting health "in a strategic and efficient way in collaboration with the official International Federations, and all of the stakeholders including publishers" (Rowbottom, 2020). However, he made no reference to the energy-drink industry.

4. Conclusion: What should esports organizations do about their partnership with energy-drink companies?

Should esports organizations consider the justification of anti-doping more critically, they would realize its *uncritical* and *hypocritical* character. On the one hand, esports organizations openly and strongly endorse stimulant substance use by allowing and facilitating the infiltration of energy-drink companies in the esports world. On the other hand, esports organizations condone the use of performance-enhancing substances with similar performance-enhancing¹⁵ and adverse health effects to those of the ingredients contained in energy drinks. Thus, when it comes to justifying anti-doping regulations, esports organizations must consider their partnership with energy-drink companies and develop a consistent stance on this matter. Such a stance would require either controlling and possibly banning the use of energy drinks¹⁶ or dropping health-related and integrity-based justifications for anti-doping. The former would require that esports organizations confront the big animal in the room, a "big red bull," and demonstrate that their concern with the promotion of health is legitimate. Indeed, the energy-drink industry's influence over the esports community is one of the reasons, if not the main reason, why esports organizations, as Luongo (2018) points out, "seem lackadaisical to back anti-doping measures." Banning cognitive stimulants could lead to a slippery slope concerning the use of other substances with similar stimulant effects, including energy drinks. A different response, indeed the most common response in the esports world, would be to refuse to acknowledge the "big red bull" in the room. This indicates that health- and integrity-related concerns are dependent on financial gain; esports organizations are willing to trade the promotion and protection of health and integrity for economic profit.

5. CRediT author statement

Since this is a sole-authored piece, there is no need for this statement.

¹¹ To make their products more appealing to the gaming community, energy drink companies design products for gamers. G-Fuel is advertised as "The energy drink of tomorrow, the official energy drink of esports, AND the original energy formula of gaming!" (The Beginning of G FUEL, 2019). The Monster Energy Drink Facebook page declares: "Next time you are looking for some gaming fuel, grab a Monster Energy and unleash the beast on some noobs!" (Stout, 2015). An advertisement of Nintendo Power Up Energy Drink, a Nintendo licensed energy drink made by Boston America Corp., states: "If you're feeling the drag after all that running, jumping and coin collecting and can't find a super mushroom, try taking a sip ... for the ultimate boost. This ... high caffeine drink will give you all the energy you need to help you save Princess Peach" (Nintendo Mario, 2019).

¹² Indeed, the esports world would hardly be as popular as it currently is without the energy-drink industry's involvement (Li, 2017).

¹³ Although most scientists agree that more empirical evidence is needed to prove the performance-enhancing effects of these drugs (Alford, Cox, & Wescott, 2001; Smit & Rogers, 2002).

¹⁴ According to the Entertainment Software Association 2019 report, 21% of gamers in the United States are under the age of 18, and 40% of them between the age of 18 and 35 (Essential Facts, 2019). In the United Kingdom, 29% of the gaming population is under the age of 18 (England, 2018). A recent report by Interactive Software Federation of Europe declares that, in Europe, 76% of people aged 6-10, 84% of those aged 11-14, and 74% of those aged 15-24 play video games (ISFE, 2019).

¹⁵ See notes 4 and 13 above.

¹⁶ ESIC currently prohibits the following substances: amphetamine sulfate, dextroamphetamine, dexedrine, dexmethylphenidate, lisdexamfetamine, methylphenidate, and modafinil and armodafinil. Caffeine (specifying a specific concentration of the substance in the body) could be included in this list. Indeed, WADA had caffeine in the List of Prohibited Substances and Methods from 1984 to 2004, and the National Collegiate Athletic Association still has caffeine in its list of banned substances (see NCAA, 2021 and Diel, 2020).

Declaration of Competing Interest

The author, Francisco Javier Lopez Frias, certifies that he has NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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