Investigating Perceptions of Performance Enhancers Amongst Student-Athletes

Easton Eberwein

easton.eberwein1@marist.edu

Marist College

Abstract

This study examines the use of performance enhancers by student-athletes through open-ended, semi-structured interviews, shedding light on an understudied topic of growing concern within the realm of sports ethics, health, and educational integrity. Focusing specifically on 15 track and field student-athletes (14 males and 1 female), this paper delves into the complex world of performance enhancers, covering various themes including sleep, gear, substances, diet, and amateurism. My findings suggest that performance-enhancing techniques should not be limited to the use of substances alone. Instead, I conclude that performance enhancers for track and field student-athletes encompass anything that can help one gain a competitive advantage in high-stakes events.

Keywords: Performance enhancer, student-athlete, track and field, semi-structured interview, collegiate athletics

Athletics have been an integral part of my identity and livelihood for as long as I can remember. Blood, sweat, tears, success, and failure have played a part in my journey from childhood through collegiate competition. For the past three years, I have been a member of my college's track and field team and a captain for the past two. During my time as a collegiate athlete, I have experienced firsthand the relentless pursuit of excellence that defines the world of college athletics. Beneath the surface of dedication and determination lies an unspoken acknowledgment of pressure and expectations placed upon student-athletes to perform at their best, often at any cost necessary. Consequently, this demanding nature inherent to being a student-athlete sparks the potential for increased usage of performance-enhancing substances and techniques among student-athletes. From the headlines across sports news outlets to the whispers exchanged in locker rooms, there are temptations and consequences in the minds of athletes. While participation in sports is 'just a game' to hobbyists and other casual players, college athletes fall in a gray area. Unlike traditional students, student-athletes must contend with the reality of being assessed both in and outside the classroom. Predictably, the constant evaluation and scrutiny student-athletes face can lead to serious consequences. One recent study revealed that suicide was the second leading cause of death among the 1102 NCAA athletes who passed away between 2002 and 2022 (Whelan et al., 2024). This study investigates how the pursuit of performance optimization can sometimes overshadow concerns about athletic integrity and health, highlighting the complex intertwinings between personal aspirations and external pressures to perform.

As someone who has dedicated countless hours to striving to be a better runner and pushing the boundaries of my physical capabilities, I am aware of the temptation to seek an edge

athletically. While the use of prohibited or banned substances has often been the primary interest of this type of research, other studies note that performance enhancers do not solely include illegal substances (Ganson et al., 2020; Smith & Stavros, 2020). Accordingly, my results indicate that student-athletes refer to a wide range of practices within the realm of what constitutes a performance-enhancing technique. Student-athletes interviewed during data collection commonly mentioned following proper sleep hygiene, strict adherence to healthy dieting protocols, the use of competitive gear (most notably 'super shoes'), and/or the intake of legal substances such as caffeine or creatine. Thus, by providing a platform for student-athletes to share their experiences and opinions on performance enhancers, this research seeks to uncover a deeper understanding of the sociocultural dynamics surrounding the use of performance-enhancing techniques within collegiate athletics.

Literature Review

Previous research into student-athlete experiences emphasizes the struggles emerging from regulating the dual role of being both a student and an athlete. I identified two categories relevant to my research interests in my review of recent scholarship. The first category is the pressures of balancing athletic and academic obligations. The second category is the pressure to optimize performance using good nutritional practices, legal/illegal substances, and sleep management.

Pressures to Optimally Balance Athletic and Academic Obligations

One study by Wilkes et al. (2021) notes how college athletes "...represent a unique target population for sleep measurement and intervention, especially given their unique time constraints, stresses, and sleep behaviors" (p. 17). Other research has also explored the challenges that are faced by student-athletes as they navigate the duality of athletic and academic

commitments (Lopes Dos Santos et al., 2020). Student-athletes face pervasive stress as they navigate the demands of intense academic coursework, rigorous training regiments, and other extracurricular activities. In fact, as Rothschild-Checroune et al. (2012) note, student-athletes become immediately aware of this as they transition from high school to college: “Beginning a new university life produces the challenge of adapting to the dynamic systems of both new academic and athletic programs which can be overwhelming for a young person” (p. 247). The constant juggling act between educational endeavors and athletic pursuits can exact a significant toll on the mental well-being of student-athletes, which can in return contribute to heightened anxiety levels, burnout, and emotional exhaustion (Gomez et al., 2018). For example, researchers examining the sleep habits of 22 high-performing collegiate swimmers found that 42% reported struggling with poor sleep (Astridge et al., 2021).

Furthermore, O'Neill et al. (2013) highlight how student-athletes experience a spectrum of pressures across physical, social, educational, psychological, and economic domains. The intricate interplay of these pressures underscores the complex and often daunting realities that student-athletes face as they navigate the demands of pursuing academic excellence and collegiate athletics. Physically, student-athletes have to contend with the rigorous demands of training and competition, which often lead to pushing their bodies to the limit in pursuit of athletic success (Gomez et al., 2018). Socially, student-athletes grapple with the expectations and perceptions of peers, coaches, and the campus community, negotiating their identities within the context of both student and athlete. Educationally, the responsibilities of maintaining academics while meeting athletic obligations present a unique set of challenges. This forces student-athletes to develop time-management and prioritization skills. Psychologically, student-athletes are confronted with the pressure of performance expectations set by themselves, others, and coaches,

self-doubt, and the fear of failure. These all can contribute to an impacted mental well-being and resilience. Economically, financial concerns such as scholarship retention and access to resources further compound the stresses that are experienced by student-athletes (Lim et al., 2017).

Additionally, Bolin (2019) expresses the importance of sleep for student-athletes and its factors in impacting mood, cognitive function, and athletic performance. Research suggests that chronic sleep deprivation among student-athletes is multifactorial, stemming from a combination of academic pressures and obligations, early training schedules, and overall poor sleep hygiene, heightened by pre-performance anxiety, overall stress, and electronic use. There is a circadian rhythm that is a necessity for effective sleep and this is often thrown off for student-athletes. Sleep deprivation impairs reaction time and vigilance and as a result, leads to impacted performance when competing. Emotional health and sleep are also closely linked, with sleep deprivation increasing tension, anger, fatigue, confusion, irritability, and decreasing vigor, energy, and confidence. Interrupted sleep negatively impacts the ability to recognize positive stimuli and affects social interactions. Interventions such as sleep education and sleep extension have shown some promise in mitigating these effects, improving mood, alertness, and performance both in practice and competition. Medications can offer short-term relief, but they must be used with caution due to potential side effects and risk of addiction. Bolin's (2009) observations underscore the importance of incorporating sleep education and interventions within collegiate sports programs to enhance athlete well-being and performance.

In general, previous scholarship has illustrated the need for comprehensive support systems and targeted interventions to address the multifaceted needs of student-athletes. Recognizing the intertwined nature of physical and mental health in optimizing athletic performance and general well-being (Lopes Dos Santos et al., 2020), ensuring that

student-athletes feel academically, socially, and economically secure is a crucial goal requiring further investigation to effectively intervene (Lopes Dos Santos et al., 2020; Riviere et al., 2021).

Pressures Surrounding the Use of Performance-Enhancing Substances & Techniques

Student-athletes take performance-enhancing substances for a variety of reasons. Among these motivations are concerns for health and immune system support, in attempts to bolster energy levels and combat fatigue (Tabata et al., 2018). Additionally, some athletes may turn to performance enhancers as a means to address underlying medical conditions or illnesses, utilizing performance enhancers as potential aids in their treatment (McLean, 2022). The allure of enhanced performance and improved physical prowess also drives athletes to explore the use of performance enhancers, specifically in a sport like track and field where thousandths of a second or inches can make a difference. Dietary considerations and the pursuit of greater strength are also factors that influence the decision to engage with performance enhancers (Nieper, 2005). For example, concerning nutritional balance within sports, student-athletes are inclined to turn to a variety of specialized sports drinks and foods that are tailored to support their performance and recovery needs (Peeling et al., 2019).

Designated sports foods encompass a variety of diverse array of products which include isotonic sports drinks, electrolyte replenishers, sports gels, and high-energy beverages. All of these are engineered with the purpose of optimizing hydration, energy levels, and electrolyte balance which is crucial for optimal performance (Peeling et al., 2019). Additionally, the availability of protein supplements offers athletes a convenient option for post-workout recovery (Close et al., 2019). By incorporating specialized products into the diets of student-athletes, performance can be enhanced and overall health and well-being can be maintained in the pursuit of athletic excellence. However, according to Simpson et al. (2017): “Among athletes, sleep may

be deprioritized relative to other training needs" (p. 266). Furthermore, unlike professional athletes, student-athletes within the NCAA face a unique challenge given their dual role as 'amateur' athletes and college students. As a result of the typically overloaded schedules student-athletes must juggle, sleep, a critical component of nutritional maintenance, is often overlooked. In pursuit of this goal, I seek to further understand the nuanced challenges student-athletes in the United States face. To accomplish this, I propose the following research questions:

RQ1: How do student-athletes perceive the use of performance-enhancing techniques, gear, and substances?

RQ2: How do student-athletes respond to and deal with the pressure that comes from the need to perform at a high level?

Methodology

According to Barriball and While (1993), the semi-structured interview method is chosen for data collection for two reasons: "First, they are well suited for the exploration of the perceptions and opinions of respondents regarding complex and sometimes sensitive issues and enable probing for more information and clarification of answers. Second, the varied professional, educational, and personal histories of the sample group precluded the use of a standardized interview schedule" (p. 330). Given my history as a current track and field student-athlete, a semi-structured interview design best allows me to input relatable experiences or narratives to share that can further spark dialogue with my interview subjects.

For this study, 15 interviews were conducted at a small private liberal college in the Northeast United States with members of the college's track and field team. Amongst the 15 interviewees, 14 were male and 1 was female. These interviews averaged around 16 minutes and

followed best practices that granted “control” over the interview process to the participant. Subjects were allowed to select the time and setting of the interview that best suited their needs (Herzog, 2005; Warren, 2002). Interviews were recorded after receiving written consent from participants and transcribed using Otter.ai (an AI-driven tool for audio recording and transcribing). In total, data collection took around a month. While not every participant shared identical perspectives on the advantages of various performance enhancers, common themes emerged, offering insights into the motivations driving student-athletes to use performance enhancers, how performance optimization can take precedence, and the perceived benefits and risks associated with various performance enhancers. The constant threat of coaches and the NCAA regulations may detract from the comfort of participants to be fully honest during the interview sessions.

All of the interviews began with an initiated discussion about what the participant considered to be a performance enhancer for athletes and then seamlessly transitioned into questions about the participant's use of performance enhancers, opinions about various performance enhancers, and questions about amateurism at the collegiate level. Overall, 13 questions were utilized as guiding “goalposts” for the interviews, each question based on concepts of performance enhancers and amateurism (see *Appendix A: Interview Sample Questions* for more details). Following data collection, I analyzed the data for emergent themes using qualitative thematic analysis to identify relevant patterns and trends captured while conducting the interviews (Braun & Clarke, 2006).

Results & Discussion

After analyzing the interviews and information I collected, 5 major themes emerged as significant factors influencing athletic performance and collegiate athletics' culture. These

encompass a range of topics from the fundamental importance of sleep, the increasingly prevalent use of super shoes/spikes, the complex issue of substance (both illegal and legal) use in sports, the critical role of diet and hydration, and the exploration of amateurism within collegiate athletics. Each theme encapsulates diverse perspectives and challenges that collegiate athletes face when preparing for competition and offers valuable insights into the multifaceted landscape that is college athletics.

Theme #1: The Importance of Sleep

The most prominent theme that emerged when interviewing participants was the critical importance of sleep. The majority of participants stressed the importance of getting a good night's sleep, both throughout their normal schedules and especially in the nights leading up to a big competition. One javelin thrower stated, “Sleep is the most important performance enhancer.” Sleep allows athletes to heal their bodies, making it essential to prioritize. A sprinter said, “Sleep is something that I take very seriously and that a lot of people don't and I don't understand how they function without it.” Participants highlighted that sleep plays a vital role in performing on the track, in the classroom, and feeling overall awake and focused. Many participants noted their daily routine of napping immediately after practice, especially when they had a class at night. Overall, sleep as a performance enhancer helped participants recover from their rigorous training routines, perform on the track during competitions, excel in the classroom, manage stress, and have the energy to get through their demanding schedules.

Theme #2: The Use of Gear (Super Shoes)

The second theme that arose was the utilization of super shoes or super spikes in competition. The rise of super shoes and super spikes has become huge in the track and field world and can be seen at any level of competition. Carbon-fiber-plated shoes or spikes designed

to return energy have become ubiquitous in the world of track and field. On one hand, if you are not using a super shoe or spike, you are immediately at a disadvantage and can be seen as not trying to do everything to improve performance. One middle-distance runner noted, "You can sometimes get a vibe of how good of a runner someone is based on what they're wearing. And it's not to judge a book by its cover, but I would be more concerned about the guy that's in super spikes. If I see someone that's not wearing something that I recognize, I'm going to think 'This guy, he's not really as into it.'" However, just because someone is wearing a super shoe or spike in competition, does not mean that they will automatically become a better runner. Another cross-country/distance runner stated, "I think it's hard to determine if [super shoes/spikes] help or not because there's all this science that proves they do but at the end of the day, you could have someone that isn't the best at running and they're not going to magically improve with the shoes." While super shoes and spikes may not be magic, they are going to help high-level runners and in a sport that is decided by fractions of a second, the usage of super shoes/spikes, or lack thereof, could be the difference between gold and silver.

Theme #3: Substance Usage in Sports (Illegal and Legal)

Substances used by track athletes can be both legal and illegal with each type presenting its own set of challenges and ethical considerations. Legal substances often include performance-enhancing aids such as caffeine, which many participants consume before competition for an extra boost of energy. As one javelin thrower explained why he uses caffeine before a competition: "I want to be in the best mindset and not only the mindset, but I want to be at my peak performance physically." Other legal substances utilized by participants are ibuprofen, Advil, creatine, and various vitamins such as iron, fish oil, and vitamin D.

When it comes to illegal substances, the athletes I interviewed consistently stayed away. Substances like steroids, Adderall, and stronger painkillers are off-limits. One cross-country/ distance runner said, “I feel like I'm always by the book and if I used illegal performance enhancers, I would feel like everything that I've done would be discredited. I would never take anything like a steroid or a drug because it's cheating and if you accomplish something, it's like you accomplish maybe half of it, and the drug or steroid accomplished the other half. I feel like it would make me feel super bad about myself.” For many athletes, integrity plays a critical role in their decision to avoid steroids and other banned substances. Overall, it appears that while participants are open to using some legal performance-enhancing substances that could provide a competitive edge, there is a line drawn at the utilization of illegal drugs, showing the value placed on fair play and personal integrity over potential gains.

Theme #4: Diet & Hydration Importance

Diet and hydration play a crucial role in elevating athletic performance. This can be a culmination of an athlete’s overall diet, their pre-meet dinner, what they eat the day of a race, or hydration both generally and before a race. In the running world, the concept of “carbing up” before a race is well-known, particularly among distance runners. While diet impacts sprinters, jumpers, and throwers to a lesser extent, overall nutrition remains significant for all athletes. However, participants were somewhat divided on the importance of diet. One middle-distance runner remarked, “Overall diet I would say it doesn't matter. I've seen people that would eat anything they see. Then there are people that, stick to a strict diet, but I really don't see a difference in their performance.” This sentiment suggests that, for some, as long as they consume enough calories and are staying hydrated, the specifics of their diet might not matter. On the other hand, some place a great emphasis on what they are putting into their bodies. A

cross-country/distance runner noted, “I definitely feel like hydration and diet are important. I think I've personally felt it more with cross-country than with track.” This indicates that being hydrated and maintaining a clean diet has a more pronounced effect on longer-distance events like cross-country or the 5k and 10k events in track. In summary, the body can be compared to a car. The quality of fuel determines its maintenance and performance. Using low-grade fuel in a car that requires premium will still allow it to run, but the lifespan may be shortened, and the performance may suffer (Cornil et al., 2020).

Theme #5: Amateurism at the College Level

With the rise of NIL (Name, Image, and Likeness), student-athletes are increasingly being treated like professionals, leading many to feel like their sport is becoming more of a job, rather than just a sport. The amount of time dedicated to training and competition at the collegiate level parallels that of a full-time job. Most participants echoed this feeling. One middle-distance runner remarked, “I think to a certain extent track is a full-time job. I think some days it feels like much more of a job than others,” particularly on days with double practices or overnight trips for meets that can last up to 3 days. College sports, including track, consume the lives of student-athletes contributing to heightened stress levels. The introduction of NIL, which allows collegiate athletes to be compensated for their participation in sports, further blurs the line between amateur and professional status. As one sprinter noted, “Track can definitely feel like a job. I feel like there's more of a spotlight on college athletes to perform or even act more like a professional athlete.” This shift underscores the evolving nature of collegiate athletics, where demands and expectations placed on student-athletes increasingly mirror those of professional sports. Ultimately, while NIL grants opportunities and financial benefits to college athletes, it

also amplifies the pressure and responsibilities of student-athletes and has completely transformed the landscape of collegiate athletics.

Conclusions

In conclusion, the analysis of the five key themes that I discovered among student-athletes, sleep, super shoes/spikes, substance usage, diet and hydration, and amateurism in collegiate athletics, reveals the multifaceted nature of factors that influence the performance and overall well-being of student-athletes. Sleep emerged as the most critical performance-enhancer, emphasizing its role in recovery and overall effectiveness of student-athletes both on and off the track. The utilization of super shoes or spikes highlights the technological evolution in sports equipment and the impact gear has on performance, with some controversy regarding the tangible benefits. Substance usage, whether legally or illegally, presents ethical dilemmas and creates varied perceptions among athletes, with a strong consensus on maintaining integrity and avoiding banned substances like steroids. Diet and hydration, while universally recognized as important, combine to create a divide in perceived impact, particularly among different types of track athletics based on which event the athlete does. Finally, the rise of NIL and the shift toward treating collegiate athletes as professionals, underscores the significant transformation in the landscape of college sports, bringing in both opportunities and additional pressures for student-athletes. However, one issue that needs further examination is the impact that these aforementioned pressures and policy shifts have on female athletes.

While this investigation was limited by only interviewing a single female athlete, the detrimental impact of societal pressures and body weight fixations among female runners is apparent. Powers et al. (2020) shed light on the plight of women specifically and the prevalence of eating disorders among female athletes within the running community. The intersection of

performance demands, gender expectations, and body image ideals, creates a perfect storm for the development of eating disorders among female runners specifically. There is a relentless pursuit of leanness and the myth of the ideal athletic physique that perpetuates unhealthy attitudes and behaviors toward food and weight management. This places female athletes at a heightened risk for disordered eating patterns. There is a pervasive culture of thinness and there is somewhat of a normalization of extreme dietary restrictions within the running world, which exacerbates the vulnerability of female athletes to develop eating disorders. Because of this, there is an urgent need for targeted interventions and comprehensive support systems to address the unique challenges that are faced by female student-athletes. A culture of body positivity, self-compassion, and holistic well-being also needs to be promoted within the athletic community (Powers et al., 2020).

Regardless, the themes revealed within this investigation illustrate the complex interplay between physical preparation, technological advancements, ethical considerations, and the evolving nature of collegiate athletics. While student-athletes navigate these difficult challenges, the balance between maximizing performance and maintaining personal well-being remains prominent. The insights gathered from the interviews conducted not only reflect the current state that college athletics is in but also show the direction college athletics is heading, emphasizing the necessity of maintaining and creating supportive environments for student-athletes that prioritize both athletic and personal growth.

Appendix A: Interview Sample Questions

1. What do you consider to be a performance enhancer for athletes?
    a. What are your feelings regarding the use of performance enhancers?
    b. If a participant needs clarification about what constitutes a performance enhancer, I will provide a brief explanation.
        i. Super shoes, caffeine, steroids, supplements, Adderall, ibuprofen, tiger balm, creatine
2. Have you ever used performance enhancers?
    a. If so, what? Gear, drugs, etc.
    b. If not, why not?
3. To what level do you believe performance-enhancing shoes like those with carbon fiber plates provide a competitive advantage?
    a. How many people do you see using "super shoes" during races?
    b. Do you believe that "super shoes" should be allowed?
    c. How do you think your coaches feel regarding the use of "super shoes"?
4. If someone were using a banned performance-enhancing drug or substance (such as steroids) on your team, would you say something to your coach?
5. If a teammate was using performance-enhancing drugs or gear, would you be more likely to?
    a. Would it depend on the drug/substance?
    b. Would this also apply to gear such as "super shoes"?
6. Do you believe that THC or CBD could provide benefits in the sense of recovery?
    a. Do you think it should be legal in the NCAA?

7. Do you use any performance enhancers before a race? These could include examples such as caffeine, ibuprofen, etc.
8. To what extent do you believe that sleep plays a factor in performance?
9. To what extent do you believe that diet plays a factor in performance?
    a. Food
    b. Water
10. What do you find makes your body feel good before a race?
    a. Stretching, mental preparation
    b. WU in a group or by yourself?
11. What do you find to be the best form of recovery after a race?
12. Do you feel like a professional or as if track is a full-time job?
    a. Do you feel like you are a professional with all of the NIL and other marketing that college athletes experience?
13. Is there anything else related to the use of performance enhancers in track and field that you would want to mention or comment on?

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