The Deleterious Effects of NCAA Division I Programs

A Comparison of the Current Activities of Student-Athletes of Two Different Division Schools Through the Prism of the Wellness Paradigm

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Abstract

The majority of American student-athletes participate in National Collegiate Athletic Association (NCAA) programs. Those programs are categorized into three different Divisions, which demonstrate differences in athletic scholarship support, level of competition, and philosophy. Among them, Division III (DIII) institutions account for the highest percentage of schools who play collegiate sports, followed by Division I (DI). Recent events and evidence on depression and suicide, anxiety, disordered eating and eating disorders, and substance use and abuse have raised awareness on mental health difficulties in this specific population of young adults. The purpose of this study is to add to the current state of knowledge by investigating whether there are differences in the promotion of a wellness lifestyle between a DI and a DIII university. Using an online interview created by Côté, Ericcson, and Law (2005) all student athletes from both Rice University (DI) and State University of New York (SUNY) at Plattsburgh (DIII) were recruited via email. Sixty-three participated from Rice and 90 from SUNY Plattsburgh. The response rate was 17% and 29%, respectively. Descriptive statistics and parametric tests were used in data analysis. By comparing these two case studies, differences with statistical significance were found in the current activities of sleeping, socializing, school/career, and studying. These differences infer that a DIII school may be promoting a wellness lifestyle more than a DI school. Possible limitations are the use of unequal samples and self-reported data. Future research on comparing more cases of different Division schools is recommended.

Keywords: NCAA, collegiate athletics, Côté, student-athlete, wellness paradigm, mental health, applied sport psychology, well-being

1. Introduction

In the U.S.A., the majority of student-athletes in the collegiate level are members of the National Collegiate Athletic Association (NCAA). NCAA groups schools in Divisions, based on their athletic scholarship support, level of competition, and differences in philosophy. NCAA consists of 19,500 teams with 52,500 student-athletes that compete in 90 championships in three Divisions (NCAA, 2015). The Divisions (i.e., DI, DII, and DIII) were created in 1973 and some important characteristics are presented in Table 1 (NCAA, 2016).

Table 1. The three NCAA Divisions

	Division I	Division II	Division III
Schools (%)	351 (32)	308 (28)	443 (40)
Students who are athletes	1 in 25	1 in 11	1 in 6

As shown in Table 1, DIII institutions account for the highest percentage of schools and the highest ratio of students

who play collegiate sports. Below, the authors introduce the wellness paradigm, explore the prevalence of mental problems in student-athletes, present evidence from relevant scholarship and current events, identify the gaps in the literature, and state the purpose and the hypothesis.

1.1 The Wellness Paradigm

Good health is no longer viewed as the absence of disease. Scientists concluded that *fitness* is not adequate and therefore, the concept of *wellness* was developed in the 80's (Hoeger, Hoeger, Hoeger, & Fawson, 2018). There are several wellness paradigms. However, it is generally conceived as a lifestyle of several dimensions, such as physical, emotional, intellectual, social, environmental, occupational, and spiritual. Non-athletes have reported higher levels of wellness than athletes (Watson & Kissinger, 2007). Recent events and research findings have raised skepticism on whether collegiate athletics promote a lifestyle that focuses on all the aforementioned dimensions.

1.2 Recent Events and Suicide

In January 2017, 19-year-old Jordan Hankins, a Northwestern basketball player, hanged herself in her residence hall room (USA Today, 2018a). A year later, in January 2018, 21-year old Washington State football player, Tyler Hilinski, was found dead in his apartment from a self-inflicted gunshot (USA Today, 2018b). Between 2003 and 2013, 477 student-athletes died from suicide (Rao, Asif, Drezner, Toresdahl, & Harmon, 2015). In fact, the incidence of suicide in DI programs was found to be almost double when compared to DII and DIII schools (i.e., 48.65 vs. 25.7%; same for DII and DIII). Suicide is associated with depression.

1.3 Depression

Depression is well defined by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013). Depression symptoms have been found up to 27% of athletes (Gulliver, Griffiths, Mackinnon, Batterham, & Stanimirovic, 2015) with high comorbidity between depression and anxiety (Frank et al., 2013).

1.4 Anxiety

There are three anxiety disorders: generalized anxiety disorder, panic disorder, and social anxiety disorder (American Psychiatric Association, 2013). In addition, competitive anxiety, a well-studied construct in sporting environments, can be experienced as a negative emotion at somatic and cognitive levels (Martens, Vealey, & Burton, 1990). Anxiety (as well as depression) is associated with eating pathology (Johnson & Wardle, 2005).

1.5 Disorder Eating and Eating Disorders

The DSM-5 includes three eating disorders (i.e., anorexia nervosa, bulimia nervosa, binge eating disorder). The prevalence seems higher in athletes (Taylor, 2017).

1.6 Substance Use and Abuse

Across NCAA Divisions and sports, there is wide variation of substance-use patterns for alcohol, amphetamines, anabolic steroids, cocaine/crack, ephedrine, marijuana/hashish, psychedelics/hallucinogens and smokeless tobacco. In general, alcohol is the most widely used (i.e., up to 80% of student-athletes), followed by marijuana and smokeless tobacco. Substance use is highest among Division III schools. Ephedrine use is highest in Division III (Green, Uryasz, Petr, & Bray, 2001; NCAA, 2014b). According to Brown (2014), student-athletes are prescribed pain medications more than non-athletes. Anxiety and depression may be additional reasons athletes use substances (Berger, Pargman, & Weinberg, 2002; Brown, Hainline, Kroshus, & Wilfert, 2014).

1.7 The Reaction of NCAA

Due to the above, lately, NCAA has turned its focus on the wellness of the student-athlete population. For instance, through its Sport Science Institute, there is a national effort to keep them healthy and safe. In more detail, the Institute provides educational resources to college athletes, coaching and athletics administrative staff, it collects and analyzes data, and organizes summits and task forces on issues, such as nutrition, sleep, and mental health (NCAA, 2018). That initiative is also evident from the amount of monetary resources going towards projects that proposed to investigate issues, such as mental health for healthy and injured athletes, sleep and circadian rhythm, long-term health, and mindfulness through the *NCAA Innovations in Research and Practice Grant Program* (NCAA, 2014a).

Student-athletes must be physically fit. However, from a wellness perspective, besides being physically fit and not having symptoms of disease, one must also avoid all risk factors for disease, such as cigarette smoking and excessive stress. Based on the literature and events presented above, there is preliminary evidence to suggest that both, DI and DIII, Divisions do not seem to place those individuals in an environment that supports their well-being in a holistic

way. Nevertheless, is there a Division between the two with the highest percentage of schools (i.e., DI and DIII) that promotes a wellness lifestyle more?

1.8 Purpose of This Study

The purpose of this study is dual:

(a) To add to the current state of knowledge concerning current activities of DI and DIII student-athletes, and

(b) To provide evidence-based recommendations to all stakeholders by comparing the data through the prism of the Wellness Paradigm.

1.9 Hypothesis

Hypothesis: DI athletes lead a less wellness lifestyle than DIII athletes.

2. Method

2.1 Participants

Student-athletes were the target population. Participants from all sports from a DI institution (i.e., Rice University in Houston, TX) and a DIII institution (i.e., State University of New York at Plattsburgh, NY) were invited to participate. Therefore, the sample was a criterion-based purposive sample and there was no random selection of participants. Their demographic information is presented in Table 2.

Table 2. Demographic Information from Participants (*n=153*)

Variables	Count/Mean		Percentage/SD	
	DI	DIII	DI	DIII
Gender				
Males	35	38	53	42
Females	28	52	47	58
Age	20.03	19.05	3.25	1.34
Ethnicity				
White or Caucasian	30	73	48	81
Hispanic or Latino	5	4	10	5
Black or African American	21	11	33	12
Asian or Pacific Islander	5	1	8	1
Other	1	1	1	1
Primary Sport				
Track & Field	40	27	64	30
Football	14	0	22	N/A[a]
Baseball	9	0	14	N/A[a]
Basketball	0	17	N/A[a]	19
Hockey	0	15	N/A[a]	17
Soccer	0	13	N/A[a]	14
Softball	0	6	N/A[a]	7
Tennis	0	5	N/A[a]	6
Other[b]	0	7	N/A[a]	8

Note. [a] Not applicable. [b] Lacrosse and Volleyball.

As seen in Table 2, 63 DI and 90 DIII athletes participated. Significant differences were identified in ethnicity (i.e., White, Black, and Asian) and primary sport (e.g., Track & Field, athletic programs that by NCAA rules do not exist

in both DI and DIII institutions). These differences will be further commented on the Limitations subsection.

2.2 Instrument

Retrospective information on current activities was collected via the interview questionnaire proposed by Côté, Ericsson and Law (2005). This instrument was chosen because it has been adapted in several other studies of athletes of different sports, of its psychometric properties, and its potential to answer the research question (Helsen, Starkes, & Hodges, 1998; Hodge & Deakin, 1998; Hodges, 1995; Starkes, Deakin, Allard, Hodges, & Hayes, 1996). In this study, we are reporting results only from the items of the questionnaire that directly provided information to our research question.

2.3 Procedure

The study followed an observational and cross-sectional design. After both Institutional Review Boards (IRB) approved the research study proposal, the instrument was uploaded on Qualtrics (www.qualtrics.com). Participants were contacted electronically receiving information about why there were asked to participate, the rationale of this project, and the link. Then, they were able to go online and complete the questionnaire, after reading and accepting the Consent Form first. This form included the purpose of the research study, discomforts and risk and precautions taken to minimize them, the participants' benefits, and the researchers' contact information. The Mobile Friendly option was activated, as well. Recruitment ended after two follow-up emails. The response rate was 17% and 29%, respectively. There were no missing data.

2.4 Data Analysis

The goal of analysis was to capture the descriptive information of each Division sample, such as central tendencies and amount of variation. Therefore, descriptive statistics were utilized. In more detail, frequencies and percentages were generated for the categorical variables and means and standard deviations for the continuous ones.

Then, parametric tests (i.e., two-sample t-test) were performed. The goal was to identify at significance level of 0.05 (i.e., $p<0.05$) whether the average difference between the samples of the two Divisions was statistically significant or due to random chance.

3. Results

The findings from each school were analyzed via descriptive statistics and then, compared via parametric tests. Below, the authors report all relevant results, including statistically-significant findings ($p<0.05$).

3.1 Current Activities

Data were collected through five items. The participants were asked to assess the number of hours per week they spent on other -than related with their sport- activities during their current (at the time) stage of development. The collected data are presented in Table 3 in the form of means and standard deviations per Division.

Table 3. Information about Responses about Current Development (*n=153*)

Response	Mean[e]		SD	
	DI	DIII	DI	DIII
Eating	9	12	6.34	6.28
Sleeping[a]	25	52	5.69	10.23
Social Activities[b]	9	21	6.52	14.58
School/Career Activities[c]	8	21	5.07	14.95
Studying[d]	9	15	5.64	9.10

Note. [a]Includes night sleeps and naps during the day. [b]Includes socializing, watching TV, reading, and other leisure activities. [c]Includes time spent outside the regular workday. [d]Includes homework and exam preparation. [e]In hours per week.

As shown in Table 3, eating is the only category that athletes from both Divisions tend to be relatively close. Statistical significance was found in all other four categories.

4. Discussion

The aim of the present study was to investigate and compare, using a cross-sectional design, the current activities of students-athletes in two different NCAA Divisions. Data were collected from DI (track and field, football, and baseball) and DIII (track and field, basketball, hockey, soccer, softball, tennis, lacrosse, and volleyball) student-athletes through a questionnaire. Following is a discussion of the inferences of the results and how they relate to the current literature. Then, the limitations of the study are discussed along with suggestions for future research. We conclude with practical implications.

4.1 The Two Case Studies Through the Prism of the Wellness Paradigm

Drawing from the holistic theory of Wellness, our findings can be considered alarming. In more detail, according to the National Sleep Foundation (Hirshkowitz et al., 2015), the recommendation of sleep for adults is 7 to 9 hours per day. Only the DIII participants satisfy the minimum requirement. According to the American Sleep Association, sleep deprivation affects somatic and cognitive function negatively (American Sleep Association, 2018). Less than recommended sleep does not only hinder performance (Pilcher & Huffcutt, 1996), but is also associated with depression (Tsuno, Besset, & Ritchie, 2005), weight gain (Patel & Hu, 2008), diabetes (Knutson, Spiegel, Penev, & Van Cauter, 2007), reduced healing (Irwin, Wang, Campomayor, Collado-Hidalgo, & Cole, 2006), decreased growth (Redwine, Hauger, Gillin, & Irwin, 2000), and diminished working memory and attention (Chee & Choo, 2004).

Although there is no optimal amount of social activity established, limited social activity is associated with higher levels of anxiety and depression (Dumont & Provost, 1999). It is also linked with higher rates of mortality (House, Robbins, & Metzner, 1982) and dementia (Wang, Karp, Winblad, & Fratiglioni, 2002) and increased time of recovery after injury (Bramwell, Masuda, Wagner, & Holmes, 1975).

Lastly, the fact that the DI athletes tend to spend a limited amount of time for studying and career activities, as well, reinforces the notion of them leading a lifestyle predominantly focused on their sport, while neglecting all other dimension of wellness.

4.2 Limitations

This study is not immune to limitations. Therefore, the interpretation of the results should be done with caution.

Firstly, the samples may not be representative of their populations, which affects the external validity. More specifically, the Rice student-athletes were represented by three sports only. Therefore, athletes from sports, such as golf, tennis, or swimming did not participate. In addition, the percentage of male participants was lower than that of the actual Rice student-athlete population (i.e., 35% to 68%, respectively). Concerning SUNY Plattsburgh, although most sports were represented, the percentage of male participants was, too, lower than that of the actual student-athlete population (i.e., 42% to 57%, respectively).

Secondly, the fact that the sample sizes were unequal is another possible validity threat. Although there was no missing data, statistical conclusion validity issues exist due to the low response rate.

Lastly, a word of caution is necessary regarding data collection. They are self-reported data, which means that they may be subject to bias, such as overestimation or underestimation of actual current activities.

4.3 Future Research

This was a study comparing two specific schools from two different Divisions. However, more research is needed comparing more cases of different Division schools (including DII). Other sports need to be represented, as well. Lastly, differentiation of the student-athletes lifestyle based on the time of the year (i.e., offseason, postseason, preseason, inseason) is recommended.

4.4 Conclusion

Despite several limitations, the results confirm the hypothesis. Therefore, parents, coaches, administrators, student counselors, current and aspiring collegiate athletes need to take into consideration the inferences of the results. It is imperative that our student-athletes are not placed in "toxic" environments that promote mainly physical and not equally emotional, intellectual, social, environmental, spiritual, and occupational growth.

The college student-athletes face unique stressors and mental health challenges due to their dual role. Those stressors and challenges can compromise their well-being, including duration and quality of life. For our student-athletes to enjoy a wellness lifestyle, deliberate efforts from all stakeholders have to be implemented (e.g., wellness programs, access to counselors, more free time, less pressure/barriers from parents, coaches, and professors), so they practice behaviors that will lead to positive outcomes in all dimensions of wellness. Aligned with the work stated above, our

findings provide additional support for the need of the continuation of the discussion on providing (especially DI) athletes with the necessary setting in order for them to reach their (wellness) potential.

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References

American Psychiatric Association. DSM-5 Task Force. (2013). Diagnostic and statistical manual of mental disorders: DSM-5™. Arlington, VA, US: American Psychiatric Publishing, Inc.

American Sleep Association, A. S. A. (2018). Sleep Deprivation - Latest Research & Treatments | American Sleep Assoc. Retrieved from https://www.sleepassociation.org/sleep-disorders/sleep-deprivation/

Berger, B. G., Pargman, D., & Weinberg, R. S. (2002). *Foundations of exercise psychology*. Morgantown, WV: Fitness Information Technology, Inc.

Bramwell, S. T., Masuda, M., Wagner, N. N., & Holmes, T. H. (1975). Psychosocial factors in athletic injuries: development and application of the social and athletic readjustment rating scale (SARRS). *J Human Stress, 1*(2), 6-20. https://doi.org/10.1080/0097840X.1975.9940404

Brown, G. T., Hainline, B., Kroshus, E., & Wilfert, M. (2014). Mind, body and sport: understanding and supporting student-athlete mental wellness. *Indianapolis, IN: National Collegiate Athletic Association*.

Chee, M. W., & Choo, W. C. (2004). Functional imaging of working memory after 24 hr of total sleep deprivation. *J Neurosci, 24*(19), 4560-4567. https://doi.org/10.1523/JNEUROSCI.0007-04.2004

Côté, J., Ericsson, K. A., & Law, M. P. (2005). Tracing the development of athletes using retrospective interview methods: A proposed interview and validation procedure for reported information. *Journal of Applied Sport Psychology, 17*(1), 1-19.

Dumont, M., & Provost, M. A. (1999). Resilience in adolescents: Protective role of social support, coping strategies, self-esteem, and social activities on experience of stress and depression. *Journal of Youth and Adolescence, 28*(3), 343-363. https://doi.org/10.1023/A:1021637011732

Frank, R., Nixdorf, I., Beckmann, J., Kramer, U., Mangold, S., Krumm, P., . . . Claussen, C. (2013). Depression among elite athletes: prevalence and psychological factors. *Deut Z Sportmed, 64*, 320-326.

Green, G. A., Uryasz, F. D., Petr, T. A., & Bray, C. D. (2001). NCAA study of substance use and abuse habits of college student-athletes. *Clinical Journal of Sport Medicine, 11*(1), 51-56. https://doi.org/10.1097/00042752-200101000-00009

Gulliver, A., Griffiths, K. M., Mackinnon, A., Batterham, P. J., & Stanimirovic, R. (2015). The mental health of Australian elite athletes. *J Sci Med Sport, 18*(3), 255-261. https://doi.org/10.1016/j.jsams.2014.04.006

Helsen, W. F., Starkes, J. L., & Hodges, N. J. (1998). Team sports and the theory of deliberate practice. *J Sport Exerc Psychol, 20*(1), 12-34. https://doi.org/10.1123/jsep.20.1.12

Hirshkowitz, M., Whiton, K., Albert, S. M., Alessi, C., Bruni, O., DonCarlos, L., . . . Adams Hillard, P. J. (2015). National Sleep Foundation's sleep time duration recommendations: methodology and results summary. *Sleep Health, 1*(1), 40-43. https://doi.org/10.1016/j.sleh.2014.12.010

Hodge, T., & Deakin, J. M. (1998). Deliberate practice and expertise in the martial arts: The role of context in motor recall. *J Sport Exerc Psychol*.

Hodges, N. J. (1995). *Wrestling with the Nature of Expertise: A Sport Specific Test of Ericsson, Krampe and Tesch-Römer's (1993) Theory of" Deliberate Practice"*.

Hoeger, W. W., Hoeger, S. A., Hoeger, C. I., & Fawson, A. L. (2018). *Lifetime of Physical Fitness and Wellness*. Boston, MA: Cengage Learning.

House, J. S., Robbins, C., & Metzner, H. L. (1982). The association of social relationships and activities with mortality: prospective evidence from the Tecumseh Community Health Study. *Am J Epidemiol, 116*(1), 123-140.

Irwin, M. R., Wang, M., Campomayor, C. O., Collado-Hidalgo, A., & Cole, S. (2006). Sleep deprivation and

activation of morning levels of cellular and genomic markers of inflammation. *Arch Intern Med, 166*(16), 1756-1762. https://doi.org/10.1001/archinte.166.16.1756

Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: a prospective analysis. *J Abnorm Psychol, 114*(1), 119-125. https://doi.org/10.1037/0021-843X.114.1.119

Knutson, K. L., Spiegel, K., Penev, P., & Van Cauter, E. (2007). The metabolic consequences of sleep deprivation. *Sleep Med Rev, 11*(3), 163-178. https://doi.org/10.1016/j.smrv.2007.01.002

Martens, R., Vealey, R. S., & Burton, D. (1990). *Competitive anxiety in sport*. Human kinetics.

NCAA.org. (2014a, 2014-07-23T12:56-04:00). NCAA Innovations in Research and Practice Grant Program | NCAA.org - The Official Site of the NCAA. Retrieved from http://www.ncaa.org/about/resources/research/ncaa-innovations-research-and-practice-grant-program

NCAA.org. (2014b, 2014-07-21T14:10-04:00). NCAA Student-Athlete Substance Use Study: Executive Summary August 2014 | NCAA.org - The Official Site of the NCAA. Retrieved from http://www.ncaa.org/about/resources/research/ncaa-student-athlete-substance-use-study-executive-summary-august-2014

NCAA.org. (2015, 2015-06-16T10:24-04:00). What is the NCAA? | NCAA.org - The Official Site of the NCAA. Retrieved from http://www.ncaa.org/about/resources/media-center/ncaa-101/what-ncaa

NCAA.org. (2016, 2016-01-07T14:25-05:00). Our Three Divisions | NCAA.org - The Official Site of the NCAA. Retrieved from http://www.ncaa.org/about/resources/media-center/ncaa-101/our-three-divisions

NCAA.org. (2018). Sport Science Institute | NCAA.org - The Official Site of the NCAA. Retrieved from http://www.ncaa.org/sport-science-institute

Patel, S. R., & Hu, F. B. (2008). Short sleep duration and weight gain: a systematic review. *Obesity (Silver Spring), 16*(3), 643-653. https://doi.org/10.1038/oby.2007.118

Pilcher, J. J., & Huffcutt, A. I. (1996). Effects of sleep deprivation on performance: a meta-analysis. *Sleep, 19*(4), 318-326.

Rao, A. L., Asif, I. M., Drezner, J. A., Toresdahl, B. G., & Harmon, K. G. (2015). Suicide in National Collegiate Athletic Association (NCAA) Athletes: A 9-Year Analysis of the NCAA Resolutions Database. *Sports Health, 7*(5), 452-457. https://doi.org/10.1177/1941738115587675

Redwine, L., Hauger, R. L., Gillin, J. C., & Irwin, M. (2000). Effects of sleep and sleep deprivation on interleukin-6, growth hormone, cortisol, and melatonin levels in humans. *J Clin Endocrinol Metab, 85*(10), 3597-3603. https://doi.org/10.1210/jcem.85.10.6871

Starkes, J. L., Deakin, J. M., Allard, F., Hodges, N. J., & Hayes, A. (1996). *Deliberate practice in sports: What is it anyway*.

Taylor, J. (2017). *Assessment in Applied Sport Psychology*. Champaign, IL: Human Kinetics.

Today, U. S. A. (2018a). Northwestern women's basketball player Jordan Hankins' death ruled suicide. Retrieved from https://www.usatoday.com/story/sports/ncaaw/2017/01/09/northwestern-basketball-player-jordan-hankins-found-dead/96376536/

Today, U. S. A. (2018b). Washington State QB Tyler Hilinski dies in apparent suicide. Retrieved from https://www.usatoday.com/story/sports/ncaaf/2018/01/16/washington-state-qb-tyler-hilinski-found-dead/109530414/

Tsuno, N., Besset, A., & Ritchie, K. (2005). Sleep and depression. *J Clin Psychiatry, 66*(10), 1254-1269.

Wang, H. X., Karp, A., Winblad, B., & Fratiglioni, L. (2002). Late-life engagement in social and leisure activities is associated with a decreased risk of dementia: A longitudinal study from the kungsholmen project. *American Journal of Epidemiology, 155*(12), 1081-1087. https://doi.org/10.1093/aje/155.12.1081

Watson, J. C., & Kissinger, D. B. (2007). Athletic participation and wellness: Implications for counseling college student‐athletes. *Journal of College Counseling, 10*(2), 153-162.