

[Primary Care]

Susceptibility for Depression in Current and Retired Student Athletes

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Background: Depression, a disabling mental disorder, adversely affects work, sleeping and eating habits, and family. Research does not exist on depression among athletes who have recently graduated from college and retired from their sport after exhausting their collegiate eligibility.

Hypothesis: Changes in lifestyle and loss of personal identity, which follow college athletics, would put former college athletes at an increased risk for depression.

Methods: A survey was sent to former (n = 163) and current (n = 117) college athletes to correlate depression and retirement from athletics.

Results: Depression levels were significantly higher ($P = 0.03$) in current college athletes (16.77%, n = 27) compared with former, graduated college athletes (8.03%, n = 9).

Conclusion: Completion of college sports may not increase levels of depression. There is a need for increased awareness, education, screening, and intervention for depression in college athletes.

Clinical Relevance: This study suggests that student athletes' depression levels should be monitored during their participation in college sports.

Keywords: depression; students; athlete; retirement; sports

Depression is a disabling mental disorder, which can include symptoms such as sadness, anger, or loss of interest in once enjoyable activities and can interfere with daily life.⁷ It is characterized by a low mood level for most of the day, nearly every day, for at least 2 weeks.³ Research on depression, specifically among athletes, has gained increasing public attention in recent years.⁹ Unfortunately, based on the negative stigma frequently associated with depression, the disorder often goes underdiagnosed in college athletes who attempt to ignore or cover up the problem.⁸ In contrast to the increasing attention and growing number of studies of current athlete depression levels,^{1,2} no studies exist on depression in athletes who have recently graduated from college and completed their sport after exhausting their collegiate eligibility.

College athletes often derive their personal identity from their sport, focusing a lot of their time on athletics in college. They are often surrounded by other athletes and frequently have an athletic identity from their peers who recognize them on

campus as an athlete. However, when graduation time comes, they are required to change from their college athlete identity. According to the American Psychiatric Association,⁵ the most common time for depression onset is between the ages of 20 and 30 years; this correlates with the age that college athletes are participating in their sport, as well as the age in which they are graduating and ending their sports career. In addition to being in a high-risk age bracket, former college athletes face the loss of social support that they once had from their teammates, coaches, and advisors. The absence of social support may constitute a form of strain that directly leads to depression.¹² This lack of social support may predispose former college athletes to develop mood disorders.¹² Former athletes may no longer workout as vigorously each day and, as a result, lose peak physical condition, which is a factor for depression.⁴

Changes in lifestyle and loss of personal identity, which accompany completion of college athletics, may put former college athletes at an increased risk for depression.

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Table 1. Participant demographics, n

	Retired Graduated Athletes	Current Athletes
Sex		
Male	58	62
Female	54	98
Age, y		
18-20	1	116
21-23	59	45
>23	52	0
Race		
White	100	142
African-American	4	5
Asian	1	3
Pacific Islander	1	1
Other	6	8
Ethnicity		
Hispanic	5	10
Latino	1	1
Non-Hispanic/Latino	73	92

METHODS

Participants

Of the 663 athletes contacted, a total of 280 took part in the study. The first group consisted of 117 recently graduated college athletes (out of 333) who were asked to participate within 2 years of graduation; 48.2% were women and 51.8% were men. The majority of participants in this group were white (n = 100, 89.3%); 53% were between the ages of 21 and 23 years.

The second group was composed of 163 current college athletes (out of 330): 61.5% women and 38.5% men. The majority of this group was also white (n = 142, 89.3%) and between the ages of 18 and 22 years (n = 116, 71.6%) (Table 1).

Based on National Collegiate Athletic Association bylaw 17, athletes are restricted to 20 hours of mandatory team practice. While all sports have their inherent differences, the official time requirement is relatively standardized across all sports.

Procedure

The study received approval by the Georgetown Institutional Review Board on January 11, 2011. A cross-sectional survey created on Survey Monkey was available online through a link in an e-mail sent out to participants of the study (see Appendixes A and B, available at <http://sph.sagepub.com/content/suppl>). Participants were located via current and archived public online college athletic rosters. E-mail addresses were then obtained through college directory databases. The survey could be accessed only through the secure link in the e-mail and be completed only once by each participant. An anonymous informed consent form was included as the first page of the survey.

The survey consisted of general background questions about age, sex, and specifics about the athletes' college sport experiences. Data collection continued through March 1, 2011.

Assessment of Depression

Within the survey was the Wakefield Depression Scale, a standardized scale that has been empirically shown to determine depression levels.¹⁰ Scores for each of 12 questions ranged from 0 to 3, depending on the responses of *No*, *not at all* through *Yes, definitely*. Depressed individuals are expected to have a total of 15 or greater.¹⁰ This scale was used for its brevity and numeric results, which could be objectively analyzed.

Data Analysis

Statistical analysis of the raw data exported from Survey Monkey was performed using SPSS 17.0 (IBM, Armonk, New York).¹¹ The significance level was set to $P = 0.05$ (2-tailed). A χ^2 test determined if men or women were more prone to depression. The Levene test for equality of variances determined if variance could be assumed for the independent sample t test for equality of means.

RESULTS

The 280 athletes that participated were from 9 universities and had participated in Division I-sponsored sports. The 117 graduated athletes represented 15 sports; 10 sports were represented by 163 current college athletes. The largest sport representation of graduated retired athletes was baseball (n = 20, 17.1%) and football (n = 16, 13.7%), while the majority of current athletes were baseball players (n = 56, 34.4%).

The mean of the Wakefield Depression Scale total for the current students was 8.67 ± 5.75 (range, 0-23). The mean total for the graduated athletes was 6.95 ± 4.94 (range, 0-21). The difference between the means of current and graduated athletes was analyzed by t test, which, when equal variances were assumed, resulted in $P = 0.01$ (95% confidence interval: 0.41, 3.04).

Analysis of individuals who had depression totals equal to or over 15 was performed for both groups: 16.77% (n = 27) of current college athletes had scores consistent with depression, compared with 8.03% (n = 9) of graduated, retired college athletes (Table 2 and Figure 1).

Table 2. Depression levels^a

Type	n	Valid %
Current athletes		
<15	134	83.2
≥15	27	16.8
Total	161	100.0
Retired graduated athletes		
<15	103	92.0
≥15	9	8.0
Total	112	100.0

^aConfidence interval, 0.01-0.16. $P = 0.03$.

A significance value of 0.027 (95% confidence interval: 0.01, 0.16) was found from the t test for current college athletes and retired graduated athletes with Wakefield Depression Scale totals ≥ 15 . Significance values for the χ^2 test between men and women with totals ≥ 15 in the current athletes and the recently graduated, retired athletes resulted in significance values of 0.05 and 0.81, respectively.

DISCUSSION

This study investigated depression levels in athletes who had exhausted their collegiate eligibility and had graduated from college, a topic not previously researched. It was anticipated that the changes in lifestyle, which included loss of identity, social support, structured schedules, and peak physical fitness, would result in higher depression levels in graduated, retired athletes; however, depression levels were higher in the current college athletes.

People with Wakefield Depression Scale totals over 15 are strongly advised to consult their doctor¹⁰; however, it is important to note that people with scores below 15 can also be depressed.¹⁰ A higher Wakefield depression total is associated with more symptoms of depression, indicating a need for concern.¹⁰ The data showed that current athletes' mean depression total, while less than 15, was significantly higher than the mean total of retired graduated college athletes. More important, the data also indicated that current college students were significantly more depressed (totals ≥ 15) than retired graduated athletes.

Studies of athletes suggest that the factors that cause depression in college athletes may disappear after graduation.¹³ Yang et al found that in 257 collegiate student athletes, 21% reported depression,¹³ which was slightly higher than the 16.77% found in the current college athlete group in this study.

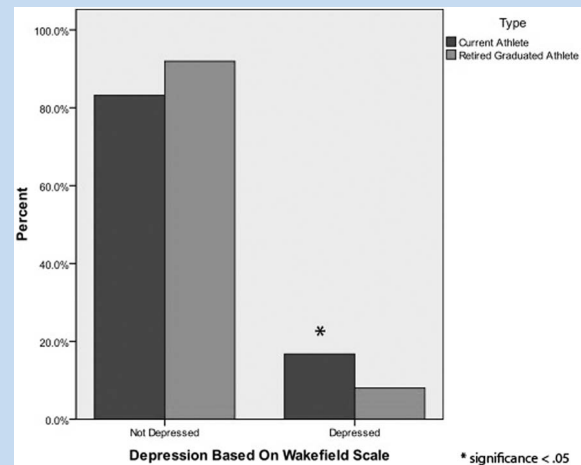


Figure 1. Depressed and not-depressed athletes by current or graduated status.

Multiple factors have been hypothesized to cause depression in current athletes. A possible contributing factor could be overtraining. The pressure to deliver peak performance, coupled with workload and lack of rest, can lead to overtraining, chronic fatigue, and depression.⁶ Morgan et al found that disturbances in mood in 400 competitive swimmers increased incrementally in response to increases in the training load and decreased when the training was backed off.⁶ Former athletes are no longer under the pressure to perform every week and therefore no longer participate in aggressive training methodology that could result in overtraining due to the high volume and little-to-no recovery time.

Another statistically significant factor positively associated with increased depression levels investigated by Yang et al was pain due to injury.¹³ Athletes that had sustained a sports-related injury had a 1.64-greater odds ratio of being depressed than those who did not.¹³ While retired graduated athletes might still experience some pain due to injuries incurred during their athletic career, it may not affect their life to the same degree as it did before retirement.

Yang et al also found that female college athletes had a higher prevalence of depression than their male counterparts.¹³ There were no statistical differences between the male or female athletes in either the current or retired graduated participants in this study.

Overall, the findings of this study indicated higher depression levels in current student athletes than in retired graduated athletes. This implies that the loss of athletic identity and the social support may not constitute a large enough strain to increase levels of depression, while some of the stressors experienced while engaged in collegiate sport, such as overtraining, injury, pressure to perform, lack of free time, or stress from schoolwork, may contribute to increased susceptibility to depressive symptoms.

Limitations

There were several limitations to this study, including recall bias in self-reporting of athletic experience. The surveys were completed from January through March, which put some senior athletes in a transition period where they had not yet graduated college but had completed their last competitive athletic season. As such, senior athletes who participated in fall sports and had finished their college athletic career but had not yet graduated were excluded in the study.

Additionally, the Wakefield scale does not diagnose clinical depression; however, it is empirically proven to efficiently measure the presence and intensity of symptoms characteristic of depression. There is also the possibility that depressed individuals were not willing to participate in the survey. The survey was sent out to nonrespondents every 2 weeks up to 3 additional times to address a response bias.

Additional analyses by individual sport or academic year were not performed, which may have affected the level of depression symptoms seen in comparison to the overall levels reported for current and retired college athletes. The sports distribution was skewed toward football and baseball, 2 sports composed of large teams. The sheer number of athletes on these team rosters resulted in a greater representation of sports that have more participants, while the number of responses from sports with fewer athletes was lower.

CONCLUSION

The results of this and previous studies on depression in college athletes call for increased awareness, education, screening, and intervention in college athletes by athletic departments as well as medical and university personnel, but they did not show an increase in depression rates in retired athletes. The negative

stigma associated with depression and with seeking help needs to be eradicated to enable college athletes to attain psychological wellness. While services to help with depression generally already exist, awareness of these support services should be greater emphasized in college athletics.

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