
How does the Game of Life Play at Liberal Arts Institutions?

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In their widely-cited book *The Game of Life*, James L. Shulman and William G. Bowen studied the effects of intercollegiate athletics and intercollegiate athletes on various aspects of the mission and academic character of institutions of higher learning. In our view, Shulman and Bowen's most important findings concern the academic accomplishments of athletes during their college careers. Specifically, Shulman and Bowen concluded that varsity athletes who lettered in their sports:

- entered college with considerably lower SAT scores than non-athletes
- graduated at high rates despite their low SAT scores
- were far more likely to graduate in the lower 1/3 of their graduating class.
- tended to major in certain academic disciplines, especially business and the social sciences.

We gathered and analyzed data from 10 liberal arts colleges and nearly 13,000 students to determine whether Shulman and Bowen's conclusions about the poor academic performance of student-athletes were valid in a group of selective Division III liberal arts colleges.

Our Conclusions

1. A significant portion of the students at the colleges in our sample participate in intercollegiate athletics, although men are still much more likely (42%) to participate in athletics than women (24%).
2. Students who participate in intercollegiate athletics typically enter college with somewhat lower SAT scores than students who do not. These differences are largest, about 120 points, for men who play basketball and football.
3. Overall, athletes have notably higher four-year graduation rates than non-athletes. This difference is especially striking for students who are achieving lower grades in college.
4. Among graduating students, athletes' academic performance was lower than that of non-athletes. However, this difference is small; literally the difference between scoring an 85 and an 87 on an exam. To put it in a different way, the group of athletes in our

sample with the lowest average academic performance, high profile male athletes, graduated with a B average.

5. The difference in the grades of graduating athletes and non-athletes results, in part, because athletes with lower grades are more likely to stay in school and graduate, while non-athletes with lower grades are less likely to graduate.
6. We did not find systematic evidence that student-athletes were underperforming relative to their SAT scores and high school percentile ranks.
7. Student-athletes who receive varsity letters perform better academically and are more likely to graduate than student-athletes who do not earn varsity letters.
8. Finally, there are some differences in the kinds of majors that student athletes choose, especially among male athletes.

Background

Shulman and Bowen identified several widely-held beliefs, or “myths” in their parlance, about the role of intercollegiate athletics in colleges and universities and analyzed data from three entering classes (students who started college in 1951, 1976 and 1989) at thirty institutions to provide quantitative information to assess these myths. These academically selective institutions included eight NCAA Division IA private universities, four NCAA Division IA public universities, four NCAA Division IAA Ivy League universities, three NCAA Division III universities, seven NCAA Division III coed liberal arts and four NCAA Division III women’s colleges.

Shulman and Bowen studied the recruitment and “admissions advantage” of college athletes, as well as the socio-economic backgrounds, pre-college attitudes and preparation of these athletes. They also examined collegiate academic outcomes, including the level of post-graduate study, post-graduate earnings, community and professional leadership, and the nature of alumni relations and giving for athlete alumni. They found that college athletics impacts each of these variables.

Shulman and Bowen argued that the deficits they found for college athletes were particularly true for male athletes who participated in the “high profile” sports of football, basketball and ice hockey. This “high profile” effect was observed even for the NCAA Division III institutions where no athletic scholarships are awarded. Finally, Shulman and Bowen suggested that the non-scholarship Division III athletic profile became more similar to that of the scholarship Division I profile as time proceeded from 1951 to 1976 to 1989.

In a previous report for the Center of Inquiry, we raised a variety of questions about Shulman and Bowen’s methodology. Foremost among these was the question of whether the extraordinary selectivity of many of the institutions in their sample of liberal arts colleges limited the generalizability of their findings. These methodological concerns, along with our appreciation of the importance of Shulman and Bowen’s concerns for liberal arts colleges, led us to design and implement a study with a new group of institutions

Methods

We analyzed data for 12,835 students (6112 male, 6723 female) who entered ten institutions (Albion College, Allegheny College, Alma College, College of Wooster, Denison University, Earlham College, Hiram College, Hope College, Kenyon College, and Wabash College) in 1996, 1997 and 1998. We had data for all three entering cohorts for each institution except one institution, for which we had data only for the entering group of 1998. The colleges in our sample range in size from 850 to 3,000 students. All are members of the NCAA Division III. Nine of the institutions in our sample are coed, and one institution is a men’s college. The institutions in our sample are all private, ranging in cost from \$15,000-\$30,000, but all granted a substantial percentage of their students financial aid packages. According to U.S. News and World Report, all of the institutions in our sample are rated as “more selective” and eight of our ten institutions are ranked among their top 100 of national liberal arts colleges. Overall, the colleges in our study constitute a set of well respected, reasonably selective liberal arts colleges.

The colleges in our sample are different, as a group, from the liberal arts colleges that Shulman and Bowen used in their analyses: Although our institutions are more selective than most four-year colleges and universities, they are generally not part of the extraordinarily selective institutions that Shulman and Bowen's used in their analyses. The issue of selectivity is critical, in our view, because the difference between the level of academic preparation for incoming athletes and the student body at large is more likely to be exaggerated at highly selective institutions.

Another important distinction between our study and Shulman and Bowen's is that we distinguished between athletes who receive varsity letters and those who do not. In their original analysis, Shulman and Bowen defined athletes as "...all students who received one or more athletic awards – or "letters" – while in college" (p. 31). While this is a reasonable definition, it is important to note that it ignores a large number of students who participate on athletic teams but do not receive letters. Thus, many of the students that Shulman and Bowen categorized as non-athletes had in fact participated in intercollegiate sports. We chose instead to identify athletes who were listed on the rosters of all athletic teams and distinguish between athletes who received varsity letters and those who did not. We hypothesized that the difference in the academic performance of lettering and non-lettering athletes might provide some insight on the connection between athletic commitment and academic performance. We also kept track of the number of semesters that students were listed on the rosters of each team as well as the number of teams on which they played.

We used the following variables in our analyses:

1. High School Percentile Rank
2. Graduation: Four-year graduation rate.
3. Ethnicity: was collapsed into six categories: Asian/Pacific Islander; Black, Non-Hispanic; Hispanic; White, Non-Hispanic; Other; or Unknown.
4. SAT: The sum of the student's verbal and quantitative scores on the Scholastic Assessment Test. ACT scores were converted to a total SAT score using a concordance approved by Educational Testing Services and American College Testing.
5. GPA: The student's cumulative grade point average on a 4-point scale, rounded to 2 decimal places for all semesters the student completed. Students who dropped out before the end of their first semester were assigned a GPA of 0.0.
6. Percentile Class Rank: Calculated for all students who graduated in four years.
7. Major: One of 6 areas into which the student's major was categorized. Because a small portion of the students majored in more than one area, we counted the number of majors, not the number of students. The 6 disciplinary classes included:
 - a. Social sciences, such as economics, history, political science, and psychology;
 - b. Mathematics, such as calculus, applied mathematics, and computer science;
 - c. Technical/pre-professional, such as education, business, and physical therapy;
 - d. Arts and humanities, including literature, theater, philosophy, and languages; and
 - e. Natural sciences and mathematics: including biology, chemistry, and physics.
 - f. Interdisciplinary:

Results

Proportion of Athletic Participants

Forty-one percent of the 6112 men in the 1996-1998 entering cohorts participated in intercollegiate athletics. Of these, 19 % participated in football or basketball (“high-profile sports”) and 22 % participated in the remaining sports. Fifty-seven percent of the men who participated in intercollegiate athletics received at least one varsity letter.

Twenty-three percent of 6723 women in the 1996-1998 entering cohorts participated in intercollegiate athletics. Fifty-nine percent of all women who participated in intercollegiate athletics received at least one varsity letter.

Combined SAT Scores

Women athletes in our sample had slightly lower SAT scores than women who did not participate in intercollegiate athletics. In addition, non-lettering women athletes entered college with slightly lower SAT scores than women who went on to receive varsity letters (Table 1 below).

Table 1: Average SAT scores - Women in 1996-98 Entering Cohort

Group	Average SAT	SE	Δ
Non-athletes	1177	2.3	
All athletes	1155	4.1	-22
Letter athletes	1159	5.9	-18
Non-letter athletes	1150	6.1	-27

*(Δ is the difference from the non-athletes)

** SE = Standard Error of the Mean

Male athletes in the 1996-1998 in our study had lower SAT scores than male non-athletes. Moreover, the average SAT score of male football and basketball players was over 100 points lower than that of non-athletes, while men who participated in other sports had only slightly lower SAT scores than non-athletes. Once again, we found that athletes who received varsity letters typically entered college with higher SAT scores.

Table 2: SAT – Men from 1996-1998 Entering Cohorts

Group	Average SAT	SE	Δ
Non-athletes	1200	2.8	
All athletes	1134	3.5	-66
High profile athletes	1084	5.3	-116
Low profile athletes	1170	4.3	-30
Letter athletes	1141	4.9	-59
Non-letter athletes	1126	4.9	-74

*(Δ the difference from non-athletes)

Graduation Rates

Both male and female athletes graduated after four years at a higher rate than non-athletes. Furthermore, both male and female athletes who received varsity letters were much more likely to graduate in four years (See Table 3 below). However, males who were high-profile athletes or who participated in sports but did not receive a varsity letter graduated at lower rates than non-athletes.

Table 3: Four Year Graduation Rates – Men and Women in the 1996-98 Entering Cohort

Group	Graduation Rate	Δ
Female non-athletes	71%	
Female athletes	81%	+10%
Female letter athletes	85%	+14%
Female non-letter athletes	75%	+4%
Male non-athletes	63%	
Male athletes	68%	+5%
Male high profile athletes	59%	-4%
Male low profile athletes	77%	+14%
Male letter athletes	77%	+14%
Male non-letter athletes	57%	-6%

*(Δ the difference from the non-athletes)

Collegiate Academic Performance

As shown in Table 4 below, male athletes graduated with lower college grade point averages than non-athletes. High profile athletes' grades were, on average, about two-tenths of a letter grade lower than that of non-athletes, and low-profile athletes' grades were six

one-hundredths of letter grade lower than non-athletes. We also found that graduating high profile athletes underperformed relative to what their SAT scores and high school ranks would suggest, though by a very small amount. The GPAs of high profile athletes fell, on average, 0.08 GPA points below the GPA value predicted by their SATs and high school ranks. This value is significantly different from 0 (a situation in which the group is achieving as predicted, $t(329) = 3.9, p < 0.05$) and is lower than the residuals of low profile participants (residual = 0.0) and non-athletes (residual = 0.02). It should be noted, however, that the underperformance of high profile athletes was driven by the particularly poor academic performance of high-profile athletes at one institution and of high-profile non-letter winners. We found no evidence that low profile athletes underperformed relative to non-athletes.

Consistent with their lower grade point averages, male athletes were more likely to graduate in the lower third of their class than male non-athletes. This difference was driven largely by high profile athletes, who were about 17% more likely to graduate in the lower third of their class than non-athletes. Even so, high profile athletes typically graduated with a solid B average.

Table 4: GPA and Lower 1/3 Data – Male Graduates from 1996-1998 Entering Cohorts

Group	Average GPA	Δ	% in Lower $\frac{1}{3}$	Δ
Non-athletes	3.18		40%	
All athletes	3.07	-0.11	49%	+9%
High profile athletes	2.99	-0.19	57%	+17%
Low profile athletes	3.12	-0.06	44%	+4%
Letter athletes	3.06	-0.12	48%	+8%
Non-letter athletes	3.07	-0.11	40%	0%

*(Δ the difference from the non-athletes)

As shown in Table 5 below, female athletes had essentially the same GPA as female non-athletes. Consistent with their high grade point averages, female athletes had only a slightly higher tendency to graduate in the lower third of their class than non-athletes.

Table 5: GPA and Lower 1/3 Data – Female Graduates from 1996-1998 Entering Cohorts

Group	Average GPA	Δ	% in Lower $\frac{1}{3}$	Δ
Non-athletes	3.35		24%	
All athletes	3.31	-0.04	28%	+4%
Letter athletes	3.30	-0.05	28%	+4%
Non-letter athletes	3.32	-0.03	29%	+5%

*(Δ the difference from the non-athletes)

There was no evidence that female athletes in our sample underperformed academically. A residuals analysis on only those students who graduated revealed that both athletes and non-athletes were achieving GPAs very similar to those predicted by their SAT scores and high school class ranks.

An analysis of graduating GPA, however, does not tell the whole story. If we examine the academic performance of all students who entered college, including both those who graduate and those who do not, a more subtle story emerges. As we described above, when considering only graduates, athletes, and particularly male high profile athletes, graduate with lower GPAs than non-athletes. However, if we analyze *all* entering students, whether they graduate or not, athletes tend to have higher mean GPAs than non-athletes (See Tables 6 and 7 below). The only exceptions are men who are high profile athletes or participate in sports but do not receive varsity letters.

Table 6: GPA – Male Graduates *and* Non-graduates from 1996-1998 Entering Cohorts

Group	Average GPA	Δ
Non-athletes	2.82	
All athletes	2.83	+0.01
High profile athletes	2.68	-0.14
Low profile athletes	2.95	+0.13
Letter athletes	2.91	+0.09
Non-letter athletes	2.71	-0.11

*(Δ the difference from the non-athletes)

Table 7: GPA – Female Graduates *and* Non graduates from 1996-1998 Entering Cohorts

Group	Average GPA	Δ
Non-athletes	3.16	
All athletes	3.21	+0.05
Letter athletes	3.22	+0.06
Non-letter athletes	3.18	+0.02

*(Δ the difference from the non-athletes)

The reason for the discrepancy is that athletes graduate at higher rates than do non-athletes, especially among students with lower GPAs. If we sort all students in the 1996-1998 entering cohort into those with GPAs lower than 2.5 and those with GPAs higher than 2.5 and look specifically at the lower group, we find that a higher percentage of athletes graduating than non-athletes (Tables 8 below).

Table 8: Four Year Graduation Rate of Athletes in 1996-1998 Entering cohorts

Group	GPA > 2.5	Δ	GPA < 2.5	Δ
Male non-athletes	79%		20%	
Male athletes	83%	+4%	30%	+10%
Male high Profile athletes	77%	-2%	25%	+5%
Male low profile athletes	87%	+8%	37%	+17%
Male letter athletes	87%	+8%	44%	+24%
Male non-letter athletes	77%	-2%	18%	-2%
Female non-athlete	78%		18%	
Female athletes	87%	+9%	30%	12%
Letter athletes	89%	+11%	46%	+28%
Non-letter athletes	83%	+5%	12%	-6%

*(Δ the difference from the non-athletes)

The only notable exceptions are men and women who are members of athletic teams but do not receive varsity letters. Otherwise, students with lower GPAs who participate in intercollegiate athletics are more likely to stay in school and graduate. This retention difference between athletes and non-athletes can be quite large. For example, men and women who receive varsity letters and have GPAs below 2.5 are more than twice as likely to stay in school and graduate than non-athletes.

It is also important to note that even though all students in the “lower than 2.5 GPA” group were underperforming given their SAT scores and high school percentile ranks, athletes in that group were underperforming significantly less than were non-athletes. That is, athletes who were grouped as “lower than 2.5” came to college with lower SAT scores (by roughly 100 points) than did the non-athletes who achieved GPAs lower than 2.5. However, these athletes were actually achieving higher GPAs than the non-athletes (by approximately 0.2 GPA points).

One might argue that differentiating students based upon GPA and then looking at graduation rates is an unorthodox procedure, especially given the direct correlation between the two variables. Another method of investigating the ability of athletics to keep in school those students who might otherwise leave is to differentiate individuals by SAT score. For example, we classified students by whether they scored above or below the median SAT score (for males = 1180) and then investigated graduation rate as a function of the SAT classification and athlete status. Once again, we found that lettering high and low profile athletes who had SAT scores lower than 1180 graduated at much higher rates (71% and 77%, respectively) than did non-athletes who had SAT scores lower than 1180 (52%). Furthermore, among those students with SATs lower than 1180, high profile athletes achieved GPAs that were 0.20 GPA points higher than non-athletes with comparable SAT scores. Low profile athletes achieved GPAs 0.25 points higher than the comparable non-athletes. Importantly, the GPA differences among high profile athletes, low profile athletes, and non-athletes who had achieved SAT scores higher than 1180 were in the same direction, but were not as large, as those reported here.

Choice of Major

Female athletes were more likely to major in the natural sciences, social sciences, business, and interdisciplinary majors and less likely to major in the humanities/fine arts than non-athletes (Table 9 below). In addition, female athletes were less likely (14%) to pursue double majors than non-athletes (18%).

Table 9: Distribution of Majors – Female Graduates from 1996-1998 Entering Cohorts

	Natural Science & Math	Humanities & Fine Arts	Social Science	Business	Preprofessional & Interdisciplinary
Non-athletes	15%	31%	33%	4%	16%
Athletes	18%	19%	35%	7%	21%
Δ	+3%	-12%	+2%	+3%	+5%

*(Δ the difference from the non-athletes)

The differences in choice of majors for male athletes and non-athletes are more distinct than for female athletes. Male athletes were more likely to graduate as Social Science or Business majors and less likely to major in the natural sciences and humanities. (It should be noted that a number of schools in our study do not have a separate business degree designation.). Graduated male athletes had fewer double majors (11.3%) than non-athletes (15.7%).

Table 10: Distribution of Majors – Male Graduates from 1996-1998 Entering Cohorts

	Natural Science & Math	Humanities & Fine Arts	Social Science	Business	Preprofessional & Interdisciplinary
Non-athletes	23%	26%	36%	7%	8%
Athletes	17 %	16%	43%	15%	9%
Athletes Δ	-6%	-10%	+7%	+8%	+1%
High Profile Athletes	14 %	12%	44%	20%	10%
High Profile Δ	-9%	-14%	+8%	+13%	+2%
Low Profile Athletes	18%	19%	42%	12%	9%
Low Profile Δ	-5%	-7%	+6%	+5%	+1%

*(Δ the difference from the non-athletes)

Conclusions

Overall, while there are a number of differences in the academic performance of athletes and non-athletes, these differences are small and do not warrant the conclusion that the academic

performance of college athletes represents a grave threat to the academic integrity of the schools in our sample.

Obviously, our conclusions differ dramatically from Shulman and Bowen's. We believe this discrepancy is based on three factors. First, the institutions in our sample are not as extraordinarily selective, on average, as the majority of liberal arts colleges in Shulman and Bowen's study. This means that even if athletes enter our institutions with somewhat lower academic qualifications, the discrepancy between their qualifications and those of non-athletes will probably be smaller. Second, one of the liberal arts colleges in Shulman and Bowen's small sample is an athletic powerhouse that has won the Sear's Cup for Div III six of the last seven years. We hypothesize that a school which combines extraordinary selectivity with extraordinary athletic prowess may have a disproportionate influence on their data. Finally, Shulman and Bowen focused their findings on academic performance on percentile ranks rather than actual grades. We found, however, that percentile class ranks can exaggerate the magnitude of the differences because of the high density of grades in the GPA range of 2.8 - 3.8. In this range, very small changes in GPA can result in large changes in the percentile class rank. For example, we noted in one instance (Table 4) that the difference between a GPA of 3.06 and 3.07 translated into a difference of 8 percentile rank points (the 40th to 48th percentile). Moreover, focusing solely on relative rank also prevents us from asking the difficult question of whether a student who is only at the 25th percentile but is getting a B- average is really a poor student. This is critical for both ours and Shulman and Bowen's study because the average GPAs at our institutions can be very high, in the range of 3.4-3.6. This means that students who have grades in the B range, which by most standards constitutes good performance, may have a very low percentile rank scoring.

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