



September 2008

## Who's Playing College Sports?

Money, Race and Gender

A Women's Sports Foundation Research Report



## Authorship and Acknowledgments

This report was authored by John Cheslock, Ph.D., Center for the Study of Higher Education, University of Arizona.

The author wishes to thank the following people for assistance: Deborah Anderson, Christine Grant, James Isch, Terri Lakowski, Donna Lopiano, Jaime McBeth, Karen Morrison, Amy Perko, Todd Petr, Don Sabo, Jocelyn Samuels, Marj Snyder, Welch Suggs, Andrew Zimbalist and Connee Zotos for insightful comments on earlier drafts of this report; Nicole Bracken, Randy Cohen, Kathleen LaRose and Jeff Thies for helpful discussions; Matt Foraker, Xin Liu and Cody Nicholls for excellent research assistance; and Deana Monahan for editorial assistance.

The Foundation acknowledges the contributions of Dana Brooks, Ph.D., Dean – School of Physical Education, West Virginia University; Christine Grant, Ph.D., former director of the Department of Women's Intercollegiate Athletics, University of Iowa; Tina Sloan Green, President/ Executive Director, Black Women in Sport Foundation, Professor, Temple University; Nancy Hogshead, J.D., Professor of Law, Florida Coastal School of Law; Deborah Slaner Larkin, Board Chair, The Center for Research on Physical Activity, Sport & Health, former member, President's Council on Physical Fitness & Sport, former Executive Director, Women's Sports Foundation; Donna Lopiano, Ph.D., President, Sports Management Resources; Lisa Maatz, Director of Public Policy and Government Relations, American Association of University Women; Karen Morrison, Director of Education Services, NCAA; Don Sabo, Ph.D., Professor of Health Policy – Center for Research on Physical Activity, Sport and Health, D'Youville College, Director of Research, Women's Sports Foundation; Jocelyn Samuels, J.D., Vice President of Education and Employment, National Women's Law Center; Ken Shropshire, J.D., David W. Hauck Professor, Director, Wharton Sports Business Initiative, University of Pennsylvania; C. Vivian Stringer, head women's basketball coach, Rutgers – The State University of New Jersey; Susan Ware, Ph.D., historian, Cambridge, Massachusetts; Charlotte Westerhaus, Vice President of Diversity and Inclusion; Andrew Zimbalist, Ph.D., Robert A. Woods Professor of Economics, Smith College; Connee Zotos, Associate Professor of Sports Management, New York University and former Athletic Director, Drew University; for their assistance in reviewing the policy recommendations.

The Women's Sports Foundation also thanks its national sponsors Advanta and Gatorade.

Published September 2008, by the Women's Sports Foundation®  
Eisenhower Park, East Meadow, NY 11554  
Info@WomensSportsFoundation.org  
www.WomensSportsFoundation.org  
© 2008, Women's Sports Foundation, All Rights Reserved

This report may be downloaded from [www.WomensSportsFoundation.org](http://www.WomensSportsFoundation.org). This report may be reproduced and distributed only in its entirety. Any material taken from this report and published or transmitted in any form, electronic or mechanical, must be properly attributed to *Who's Playing College Sports? Money, Race and Gender*, published by the Women's Sports Foundation.

Preferred citation: Cheslock, J. (2008). *Who's Playing College Sports? Money, Race and Gender*. East Meadow, NY: Women's Sports Foundation.

September 2008

**Who's Playing  
College Sports?**

Money, Race and Gender



# Who's Playing College Sports? Money, Race and Gender

Executive Summary	2
Major Findings	3
Introduction	6
Who's Playing College Sports?	8
Comparison of NCAA and EADA data: 1995-96 - 2004-05	8
Comparison of 2007 GAO Report with Earlier NCAA Studies	8
Recent Slowdown in Women's Participation Growth	10
Summary	10
The Influence of Title IX and Expenditure Growth on Intercollegiate Athletic Participation	11
Title IX	11
The Timing of Changes in Intercollegiate Athletic Participation Levels	11
The Timing of Declines in Wrestling Sponsorship	12
How Do Higher Education Institutions Respond to a Large Proportionality Gap?	13
Summary	13
Growth in Athletic Expenditures	14
Overall Growth in Athletic Expenditures	14
Growth in Expenditures per Team	16
Summary	17
Additional Explanations for Changing Patterns of Intercollegiate Athletic Participation	18
Changes in High School Athletic Participation: The Trickle-Up Dynamic	18
Athletic Injuries and the Rising Cost of Insurance	21
The Rise of International Student-Athletes	21
Enrollment Management Considerations	23
Academic Preparation	23
Ability to Pay Tuition	24
Diversity	25
Summary	25
Expansion of Women's Sports and the Racial and Ethnic Diversity of College Athletes	28
Summary	35
Implications for the Policy Debate	36
Policy Recommendations	38
Appendix A: NCAA Sports Sponsorship and Participation Rate Report	40
References	41

## Executive Summary

Critics of Title IX regularly claim that men's intercollegiate athletic participation has severely declined over time. But these claims could not be properly vetted in the past, because the research community had not produced the necessary body of evidence. In the past year, however, two separate and rigorous examinations of athletic participation data provided clear evidence that both men's and women's participation have actually increased during the last 15 years (Cheslock, 2007; Government Accountability Office, 2007).

Although past research has now clearly identified how athletic participation has changed, it has not provided as much evidence on the factors that drove these changes. Past debates usually attribute participation trends to two factors: Title IX and rapid athletic expenditure growth in men's basketball and football. This report presents new evidence for both. The three lines of inquiry undertaken for Title IX all produce the same conclusion: Athletic programs have responded to Title IX pressures by increasing women's participation rather than by decreasing men's participation.

The analysis of athletic expenditures is limited by the poor quality of available data. Higher education institutions do not utilize clearly defined accounting standards and often underreport important costs, such as coaching salaries and the costs of facilities. These flaws make it difficult to directly estimate the effect of expenditure growth on participation opportunities. However, the available data can still provide insights into whether or not athletic expenditures are growing at unsustainable rates that make it difficult for athletic programs to expand participation opportunities or even maintain current levels. The findings in this report clearly suggest that expenditure growth is restraining participation opportunities.

Title IX and rapid athletic expenditure growth by themselves cannot explain why participation in certain sports like lacrosse and soccer has grown

steadily over time for both men and women while participation in other sports (such as gymnastics, tennis and wrestling) has plateaued or declined. A complete explanation of these trends would incorporate the large number of factors that can simultaneously influence athletic directors and college presidents when they choose what sports to offer. This report does not examine every such consideration, but it does review the four for which available data provide meaningful insight: the influence of shifts in high school participation trends on intercollegiate sports offerings; the impact of rising health care costs on sports with high injury rates; the increased number of international student-athletes in particular sports; and the rise of enrollment management strategies that favor sports with athletes who are well prepared academically, able to pay high tuition prices, and diverse in terms of race and ethnicity. The findings suggest that a number of less prominent considerations in the Title IX debate have collectively influenced the rise and fall of individual sports.

The substantial variation in participation trends across sports has altered the extent of racial and ethnic diversity within college athletics. For men, some of the largest participation growth occurred in football and track and field, two sports that contain some of the highest levels of racial and ethnic diversity. For women, the initial sponsorship decisions after the passage of Title IX favored female sports with the highest levels of racial and ethnic diversity, but more recent sponsorship decisions favored female sports with fewer athletes of color. This latter shift is not surprising, because most of the female sports in which athletes of color regularly participate are already sponsored by most NCAA institutions. As a result, efforts to increase the extent of racial and ethnic diversity within many sports are needed to ensure that the participation levels for athletes of color continue to increase.

## Major Findings:

### 1. All available data on intercollegiate athletic participation produce the same conclusion: Both men's and women's participation levels have increased over the last 25 years.

- Analyses of Equity in Athletics Disclosure Act (EADA) data and National Collegiate Athletic Association (NCAA) data demonstrate that men's participation increased by around 6% between 1995-96 and 2004-05 and women's participation increased by more than 20%.
- NCAA data, the only source of information for earlier years, indicate that similar trends occurred between 1981-82 and 1995-96. During this period, men's participation slightly increased, while women's participation grew at faster rates.
- In recent years, gains in women's participation have slowed. NCAA data show that women's participation increased annually by 3.6% between 1991-92 and 2001-02, but only by 1.5% between 2001-02 and 2004-05. As a result, the gap between men's and women's participation has not meaningfully narrowed since 2001-02.

### 2. Higher education institutions have responded to Title IX by increasing women's participation rather than by decreasing men's participation.

- Between 1992-93 and 2000-01, the period during which Title IX was most vigorously enforced, women's participation increased annually by 4.5% and men's participation increased annually by 0.3%. The corresponding figures are 2.5% and 0.2% for the periods 1981-82 to 1992-93 and 2000-01 to 2004-05. These findings indicate that the period containing the strongest enforcement of Title IX had substantially higher growth rates for women but did not contain substantially lower growth rates for men.
- The number of men's wrestling teams fell by 36 between 1984-85 and 1987-88, one of the largest three-year declines in wrestling sponsorship. Because athletic programs were exempt from Title IX between 1984 and 1988, this finding suggests that Title IX is not the primary cause of the decline in wrestling sponsorship.
- Schools that were far from compliance with Title IX in 1995-96 were more likely to add women's participants over the next nine years but were not more likely to drop men's participants relative to schools closer to or in compliance (as measured by substantial proportionality).

### **3. Expenditures on intercollegiate athletics, especially for men's basketball and football in Division I of the NCAA, have grown at unsustainable rates.**

- Expenditure data collected under the EADA demonstrate that aggregate athletic expenditures increased annually by 7% between 1995-96 and 2004-05 after adjusting for inflation. Fulks (2008) found a similar rate of growth for the 2003-04 to 2005-06 period using NCAA data.
- While the overall rate of growth in athletic spending did not meaningfully differ by NCAA division, the growth rates for individual sports did. In Division I, the highest growth rates occurred in basketball and football, while in Divisions II and III, expenditure growth was more rapid in sports other than basketball and football.
- Because the scale of expenditures varies dramatically by NCAA division and sport, a comparison of growth rates can hide important differences. A 7% annual growth rate for the 1995-96 to 2004-05 period increased athletic expenditures per school by around \$8.2 million in Division I, \$1.2 million in Division II and \$675,000 in Division III. Within Division I, a 7% annual growth rate increased expenditures in men's football by approximately \$2.45 million per team and increased the expenditures in women's sports (other than basketball) by around \$135,000 per team.

### **4. A variety of factors beyond Title IX and rapid athletic expenditure growth help explain why participation in certain sports (such as lacrosse and soccer) has grown steadily while participation in other sports (such as tennis, gymnastics and wrestling) has waned.**

- In both men's and women's athletics, lacrosse experienced the largest percentage increase in high school participation between 1991-92 and 2004-05. Relative to most other athletes, lacrosse participants have stronger academic preparation and come from families with higher levels of income, traits that college presidents increasingly value.
- Tennis sponsorship has declined most rapidly in those NCAA divisions where international student-athletes are most prevalent. For example, men's tennis sponsorship has remained steady in Division III (where only 2% of tennis participants are international) and has substantially dropped in Divisions I and II (where 20-25% of tennis participants are international).
- Over the last 15 years, gymnastics is the only sport to experience participation declines at the high school level. Gymnastics has higher injury rates than other sports at a time when health care costs are steadily rising.



**5. While the early growth in women's athletics favored those sports with the highest levels of racial and ethnic diversity, recent growth has favored women's sports with less diversity. This latter shift has occurred because almost all NCAA schools already sponsor most of the sports with high participation by female athletes of color.**

- Of the 10 sports that contain the largest percentages of athletes of color, five (basketball, volleyball, cross country, softball and tennis) are offered by more than 83% of NCAA institutions. Two other sports (indoor and outdoor track and field) are sponsored by 59-68% of NCAA schools.
- Of the 12 sports with the lowest levels of diversity, only one (soccer) is sponsored by more than 48% of NCAA schools.
- The implication of these sponsorship patterns for future participation growth is most severe for African-American female athletes because they are heavily segregated by sport; close to 68% participate in three sports: basketball, indoor track and field, and outdoor track and field. Available data indicate that the level of segregation for African-American female athletes did not change between 1999-2000 and 2005-06.

## Introduction

How have men's and women's intercollegiate athletic participation levels changed over time? What factors caused these changes in participation? How have these changes influenced racial and ethnic diversity within college athletics? These three questions have produced debate that is long on emotion but short on empirical facts. The research community's longstanding inability to provide answers is the result of poor access to the necessary data. Thanks to the passage of the Equity in Athletics Disclosure Act (EADA) in 1994 and to a number of new reports that use data collected by the National Collegiate Athletic Association (NCAA), this barrier has partially been removed.

These new sources of information demonstrate that policymakers often received grossly inaccurate data on intercollegiate athletic participation in the past. For example, the Secretary of Education's Commission on Opportunity in Athletics released a report in 2003 that contained multiple references to statistics indicating large declines in men's participation. But two reports released in 2007, which contained the most thorough analysis to date of available data, demonstrated that men's participation has slightly increased over the past 15 years (Cheslock, 2007; Government Accountability Office, 2007). This study reviews and compares these reports and explains why the Secretary's commission so widely missed the mark.

The fundamental premise of virtually all criticism of Title IX with regard to intercollegiate athletics is that men's participation has drastically declined over time. Therefore, these recent findings, which convincingly demonstrate that men's participation has slightly grown, are of major significance. But aggregate participation figures are not the only source of information that provides insight into how Title IX influences intercollegiate athletic participation opportunities. This report presents three additional pieces of evidence, each of which also indicate that higher education institutions primarily responded to

Title IX pressures by increasing women's participation rather than decreasing men's participation.

The other common explanation for changes in athletic participation is rapid expenditure growth, especially in men's football and basketball in Division I of the NCAA. Investigation of the magnitude of this growth and how it influences participation is often stymied, however, by the very poor quality of available data on athletic expenditures. Existing information greatly underestimates important elements of athletic expenditures, such as coaching salaries and capital costs, that are thought to be rising rapidly. This report demonstrates that even without these elements, the available data clearly indicate that athletic expenditures are growing at rates that make it difficult for athletic programs to expand participation opportunities or even maintain current levels.

Title IX and rapid athletic expenditure growth are often chiefly blamed for substantial reductions in particular men's sports, such as gymnastics, tennis and wrestling. But if these two factors are the primary drivers of participation trends for individual sports, men's lacrosse and soccer should also have experienced participation declines rather than the considerable increases that have been recorded. There are a large number of alternative explanations for the observed changes in participation that rarely receive attention, and this report examines the four considerations for which available data provide insight: the influence of shifts in high school participation trends on intercollegiate sports offerings; the impact of rising health care costs on sports with high injury rates; the increased number of international student-athletes in particular sports; and the rise of enrollment management strategies that favor sports whose athletes are well prepared academically, able to pay high tuition prices, and diverse in terms of race and ethnicity. Collectively, these considerations indicate that past discussions of athletic participation trends for individual sports were overly simplistic and focused too heavily on a few select explanations.

Past inquiry into Title IX's impact on participation opportunities for athletes of color was also incomplete. While some pointed to recent data demonstrating that much of the growth in women's athletics has been in sports where the extent of diversity is lower, few highlighted the primary reason for this trend. Early expansions in women's athletics focused on the most diverse sports, which caused these sports to have little room for growth in later years. The final section of this report further examines this phenomenon.

## Who's Playing College Sports?

In June of 2007, the Women's Sports Foundation released *Who's Playing College Sports? Trends in Participation*. This report presented the most complete examination to date of intercollegiate athletic participation data collected under the Equity in Athletics Disclosure Act (EADA) (Cheslock, 2007). One month later, the Governmental Accountability Office (GAO) released a new study that provides the best examination to date of NCAA data, the other major source of athletic participation information (GAO, 2007). This section compares the results from these two studies to see if EADA and NCAA data tell a similar story.

### Comparison of NCAA and EADA data: 1995-96 – 2004-05

Table 1 (on following page) directly compares NCAA and EADA participation data for 1995-96 and 2004-05. The results for these two data sets tell a similar story. For sports other than cross country and track and field, NCAA data indicate that men's participation increased by 6.1% across the time frame, while EADA data put the increase at 5.3%. For women, the figures are qualitatively similar at 27.5% and 20.5%.<sup>1</sup> The small statistical differences are likely primarily due to the sample of institutions reporting NCAA data differing from the sample reporting EADA data.

Differences in participation trends across sports also correspond across the two data sets in Table 1. Football, lacrosse, soccer, and baseball are the men's sports with the largest growth in both data sets, while golf, lacrosse and soccer show the greatest growth rates among women's sports. Furthermore, both data sets indicate that tennis and wrestling were the two men's sports that experienced substantial declines, while tennis was the only women's sport that showed no growth.

### Comparison of the 2007 GAO Report with Earlier NCAA Studies

If the results are so clear, why did the final report of the Secretary of Education's Commission on Opportunity in Athletics contain multiple references to statistics indicating large declines in men's participation? The answer is that the commission relied upon analysis of the NCAA's Sports Sponsorship and Participation Rate Report that was not appropriately adjusted for the growing number of schools that belong to the NCAA. As Appendix A discusses in detail, when figures from the NCAA participation report are inappropriately adjusted, they indicate that men's participation fell by 3% between 1991-92 and 2004-05. The results in GAO (2007), which are based on the same data as the NCAA participation report but do not need to be adjusted, demonstrate that the correct estimate for this period is an 8% increase.

While GAO (2007) contains the best analysis of NCAA participation data for the 1991-92 to 2004-05 period, this report did not provide insights into the 10 years preceding 1991-92. For those years, the NCAA's Sports Sponsorship and Participation Rate Report remains the only relevant source of information. Figure 1 (on page 10) demonstrates that once figures from the NCAA participation report are appropriately adjusted for the growing size of the NCAA, the results show that men's participation increased by 1.2% and women's participation increased by 36.6% between 1981-82 and 1991-92. (See Appendix A for a description of the adjustment procedure used.)

---

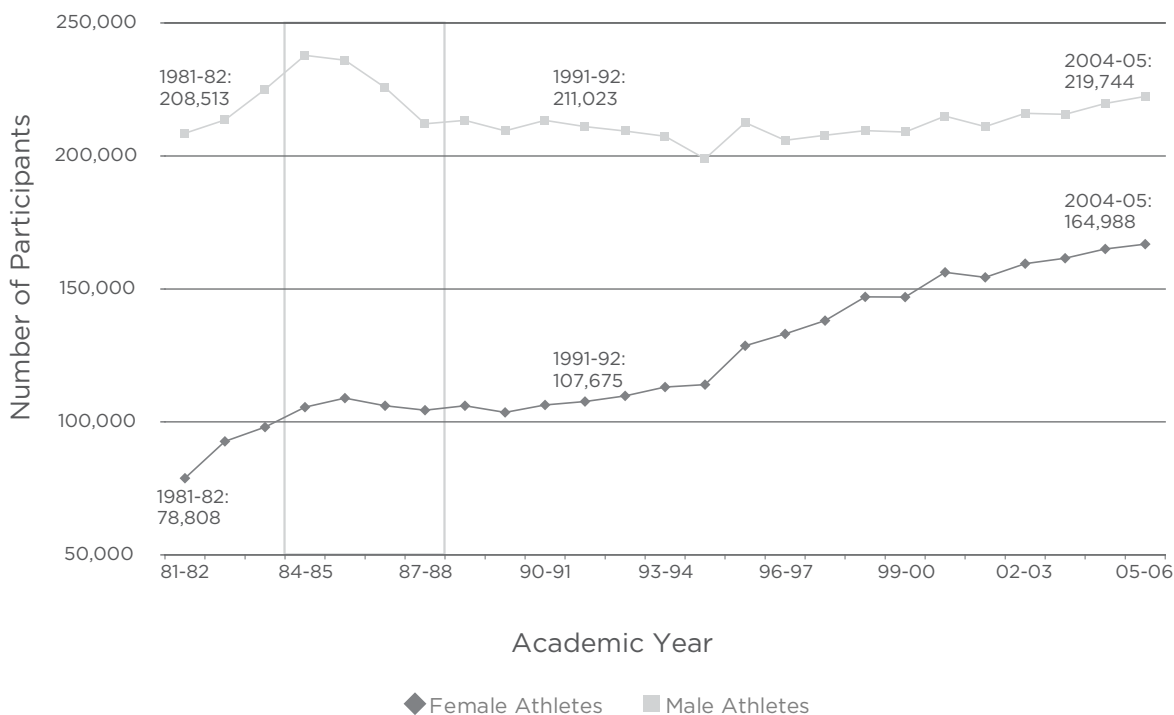
1 Raw EADA participation data for cross country and track and field differ substantially from NCAA data because of changes over time in the EADA reporting form that affect only these sports. Consequently, the EADA figures for these sports in Table 1 were adjusted to correct for changes in reporting standards using the procedure outlined in Cheslock (2007). The corrected EADA figures are similar to NCAA figures in that they demonstrate participation growth in these sports for both men and women.

Table 1: Comparison of NCAA and EADA data

	NCAA Data (n = 750)				EADA Data (n = 738)			
	1995-96	2004-05	Change	% Change	1995-96	2004-05	Change	% Change
<b>Men's Participation</b>								
Baseball	19,261	20,562	1,301	6.8%	19,482	21,043	1,561	8.0%
Basketball	11,398	11,792	394	3.5%	11,828	11,868	40	0.3%
Football	44,278	48,439	4,161	9.4%	43,814	47,870	4,056	9.3%
Golf	5,771	5,826	55	1.0%	6,008	5,932	-76	-1.3%
Ice Hockey	3,213	3,311	98	3.1%	3,027	3,003	-24	-0.8%
Lacrosse	4,754	6,272	1,518	31.9%	4,482	5,573	1,091	24.3%
Soccer	13,194	14,137	943	7.1%	13,492	14,250	758	5.6%
Swimming	6,572	6,836	264	4.0%	6,146	6,274	128	2.1%
Tennis	6,456	5,705	-751	-11.6%	6,252	5,572	-680	-10.9%
Volleyball	709	729	20	2.8%	719	768	49	6.8%
Wrestling	5,561	4,954	-607	-10.9%	5,089	4,601	-488	-9.6%
<b>Subtotal</b>	<b>121,167</b>	<b>128,563</b>	<b>7,396</b>	<b>6.1%</b>	<b>120,339</b>	<b>126,754</b>	<b>6,415</b>	<b>5.3%</b>
Cross Country	8,548	9,074	526	6.2%	8,308	8,474	166	2.0%
Track and Field, Indoor	13,469	16,206	2,737	20.3%	12,964	14,468	1,504	11.6%
Track and Field, Outdoor	16,016	18,258	2,242	14.0%	16,325	18,060	1,735	10.6%
<b>Total</b>	<b>159,200</b>	<b>172,101</b>	<b>12,901</b>	<b>8.1%</b>	<b>157,936</b>	<b>167,756</b>	<b>9,820</b>	<b>6.2%</b>
<b>Women's Participation</b>								
Basketball	10,032	10,704	672	6.7%	10,316	10,626	310	3.0%
Field Hockey	4,121	4,819	698	16.9%	3,953	4,356	403	10.2%
Golf	1,552	2,874	1,322	85.2%	1,795	2,956	1,161	64.7%
Gymnastics	1,163	1,327	164	14.1%	1,208	1,310	102	8.4%
Lacrosse	2,944	4,995	2,051	69.7%	3,038	4,588	1,550	51.0%
Soccer	9,328	15,903	6,575	70.5%	10,752	15,632	4,880	45.4%
Softball	9,425	11,766	2,341	24.8%	9,706	11,909	2,203	22.7%
Swimming	7,354	9,491	2,137	29.1%	7,088	8,718	1,630	23.0%
Tennis	6,363	6,478	115	1.8%	6,244	6,256	12	0.2%
Volleyball	9,152	9,998	846	9.2%	9,191	9,896	705	7.7%
<b>Subtotal</b>	<b>61,434</b>	<b>78,355</b>	<b>16,921</b>	<b>27.5%</b>	<b>63,291</b>	<b>76,247</b>	<b>12,956</b>	<b>20.5%</b>
Cross Country	7,912	10,160	2,248	28.4%	7,891	9,662	1,771	22.4%
Track and Field, Indoor	10,654	16,306	5,652	53.1%	10,747	15,036	4,289	39.9%
Track and Field, Outdoor	12,736	17,503	4,767	37.4%	13,546	17,541	3,995	29.5%
<b>Total</b>	<b>92,736</b>	<b>122,324</b>	<b>29,588</b>	<b>31.9%</b>	<b>95,475</b>	<b>118,486</b>	<b>23,011</b>	<b>24.1%</b>

Notes: The NCAA data results are drawn from GAO (2007). The EADA data results are drawn from analysis conducted by the author that utilizes the methods described in Cheslock (2007).

Figure 1: Adjusted Participation Figures from the NCAA Participation Report



Notes: These figures were adjusted assuming that existing NCAA members (as of 1981) have 57% more male athletes and 74% more female athletes than institutions that joined the NCAA after 1981. The unadjusted data are drawn from the 1981-82-2005-06 NCAA Sports Sponsorship and Participation Rates Report.

### Recent Slowdown in Women’s Participation Growth

This report has so far focused on changes in men’s participation because the debate over Title IX often fixates on whether men have maintained their traditionally high participation levels. The results in both GAO (2007) and Cheslock (2007) also came to the same conclusion regarding recent trends in women’s athletics: While women’s participation has increased since 1991-92, there has been a substantial slow-down in growth since 2001-02. The GAO results indicate that the average annual increase in female participation between 1991-92 and 2001-02 was 3.6%; the corresponding figure for the 2001-02 to 2004-05 period was only 1.5%.

### Summary

How have men’s and women’s intercollegiate athletic participation changed over time? This appears to be a simple question, but previous research was not able to provide a clear answer because researchers did not have access to the necessary data. During the last year, the answers have emerged because independent and rigorous examinations of EADA and NCAA data have produced very similar results. Men’s intercollegiate athletic participation has grown over the last 25 years, and women’s participation has increased at an even more rapid pace, which has reduced the gender gap in participation levels. However, women’s participation levels still trail those enjoyed by men by a considerable amount, and the rate of growth for women has slowed considerably in recent years.

## The Influence of Title IX and Expenditure Growth on Intercollegiate Athletic Participation

Although researchers now have a better understanding of how athletic participation levels have changed, they still know relatively little about the forces that drove these changes. Traditionally, changes in athletic participation opportunities are attributed to Title IX, the 1972 law that prohibits discrimination by gender in any federally funded educational institution, and to rising athletic expenditures, especially in men's basketball and football within Division I of the NCAA. But past research has not sufficiently measured the influence of either of these factors, and this section seeks to further our understanding of how Title IX and expenditure growth affect athletic participation levels.

### Title IX

The observed changes in men's and women's aggregate athletic participation, described in the previous section, suggest that athletic departments responded to Title IX by equalizing up rather than equalizing down to improve gender equity in intercollegiate athletics. That is, the female share of intercollegiate athletes increased due to rising female participation rather than decreasing male participation. This section presents three additional pieces of evidence that allow for a more sophisticated investigation of how Title IX influenced shifts in participation levels.

### The Timing of Changes in Intercollegiate Athletic Participation Levels

One of the best ways to assess the direct effect of Title IX on athletic participation is to compare time periods containing harsher penalties for non-compliance with Title IX's participation requirements with time periods containing weaker penalties. If Title IX was the major driver of increases in women's participation, for example, then participation growth should occur most rapidly during periods of active government enforcement. Effective comparisons

over time can be performed because the penalty for non-compliance has varied substantially since Title IX became law.

Although Title IX was passed in 1972, the final policy interpretation for intercollegiate athletics was not finalized until 1979. In 1984, the Supreme Court held in *Grove City College vs. Bell* that Title IX only applied to those specific programs that received federal aid, exempting athletics from the reach of the law. Title IX again became relevant to intercollegiate athletics in 1988, when Congress clarified its intent with the Civil Rights Restoration Act, which extended Title IX's protections to indirect recipients of federal funding, including collegiate athletic departments. The pressure to comply with Title IX increased rapidly during the 1990s. Bill Clinton was elected President in 1992, and his appointees to the Office for Civil Rights (OCR) more aggressively enforced Title IX than did previous or subsequent administrations (Suggs, 2005). The courts also played a major role. In 1992, the Supreme Court held in *Franklin v. Gwinnett County Public Schools* that monetary damages may be awarded to a plaintiff if the violation of Title IX was intentional. Soon after, in the case of *Cohen vs. Brown University*, the courts affirmed the application of Title IX's three-part test for participation, giving teeth to the Office for Civil Rights's policy interpretations.

If Title IX itself was the primary driving force behind athletic participation opportunities, then its largest effects should be visible during the mid- and late-1990s and its weakest effects during the 1980s, especially between the 1984-85 and 1987-88 academic years. According to the results reported in Figure 1, the annual percentage change in participation between 1992-93 and 2000-01 was 0.3% for men and 4.5% for women. The corresponding figures for the other years included in Figure 1 were 0.2% for men and 2.5% for women. In other words, the period containing the strongest enforcement of Title IX had substantially higher growth rates for women but did not contain substantially lower growth rates for men. Thus, this evidence suggests that schools

primarily responded to Title IX by increasing women's participation levels.

The results in Figure 1 pose an interesting puzzle, because they suggest that the only three-year period in which men's participation fell dramatically was the period in which Title IX did not apply to intercollegiate athletics. Between 1984-85 and 1987-88, men's participation fell annually by 3.7%. NCAA data from the mid-1980s, however, must be used with caution, because the average roster size reported by the NCAA fluctuated greatly during the 1980s. Reported roster sizes drastically increased between 1982-83 and 1984-85 and then fell by an equal amount between 1985-86 and 1987-88. Because nothing occurred during the mid-1980s to suggest that roster sizes would fluctuate so dramatically, these trends in the data may simply reflect temporary changes in reporting standards. But even if men's participation did not fall as dramatically as Figure 1 indicates, the results for the 1984-85 to 1987-88 period certainly suggest that men's participation did not grow more quickly when athletic programs were exempt from Title IX.

### The Timing of Declines in Wrestling Sponsorship

This report now turns to an examination of wrestling, one of the men's sports experiencing substantial declines over time. To ensure that the results are not driven by fluctuating roster sizes, Table 2 focuses on sponsorship levels rather than participation levels. The first column lists changes in the number of wrestling teams sponsored by NCAA members during the 1981-82 to 2005-06 period.<sup>2</sup> For example, the results indicate that the number of wrestling programs fell by eight between 1984-85 and 1985-86. The declines were even more severe over the next two years at 17 and 11, meaning that the number of wrestling teams fell by 36 during the three-year period in which Title IX did not apply to intercollegiate athletics. No other

three-year period experienced a larger reduction in wrestling sponsorship.

Table 2: Changes in Wrestling Sponsorship

Year	NCAA Participation Report		NCAA Sponsorship Lists	
	Unadjusted	Adjusted	All	Validated
1981-82				
1982-83		-12		
1983-84		-9		
1984-85		-17	<b>-36</b>	<b>-41</b>
1985-86		-8		
1986-87		-17	<b>-26</b>	<b>-22</b>
1987-88		-11	-10	-9
1988-89		-3	-11	-8
1989-90		-8	-7	-3
1990-91		2	-7	-7
1991-92		-5	-2	-8
1992-93		-10	-16	-7
1993-94		-1	0	<b>-8</b>
1994-95		-7	-1	0
1995-96		20	-7	-7
1996-97		-29	-15	-12
1997-98		-2	-16	-13
1998-99		-4	-5	-15
1999-00		-8	-4	-7
2000-01		1	-3	-3
2001-02		-4	-5	-4
2002-03		-9	-8	-6
2003-04		1	1	-7
2004-05		1	5	2
2005-06		4	5	0
			6	5

Notes: Bolded figures represent changes in sponsorship over the previous two years. The first two columns of results are based on findings reported in the 1981-82 – 2005-06 NCAA Sports Sponsorship and Participation Rate Report. The last two columns of results were calculated by the author using annual NCAA-provided lists of schools that sponsor wrestling.

These figures could be misleading, however, because they may understate cuts in the 1990s when the number of institutions belonging to the NCAA grew rapidly.<sup>3</sup> To allow for examination of this possibility, Table 2's second column reports net changes in wrestling sponsorship only for institutions that did not add or

2 See Hogshead-Maker and Zimbalist (2007) for similar data and analysis for the 1984-2000 period.

3 The first column of figures in Table 2 should accurately estimate the net change in wrestling sponsorship between 1984-85 and 1987-88 because the number of schools in the NCAA only grew by two during those years.



drop NCAA membership during the relevant years of study. These figures, which are only available after 1988-89, indicate that even when later years are adjusted for their growth in NCAA membership, the 1984-85 to 1987-88 period continues to contain some of the largest reductions in wrestling sponsorship. Only the 1994-95 to 1997-98 period contains similar levels of decline.

The first two columns of figures in Table 2 were drawn from the *1981-82 - 2004-05 NCAA Sports Sponsorship and Participation Rates Report*. To ensure that no measurement errors exist, the changes in wrestling sponsorship were directly estimated by comparing yearly lists of those NCAA institutions that sponsor wrestling. Furthermore, whenever possible, the accuracy of the NCAA lists was validated by cross-checking the list of discontinued or added wrestling programs with lists posted on prominent wrestling Web sites. The results tell the same story for both the full list and the subset of schools whose data were validated (in the third and fourth columns, respectively). The three-year period in which Title IX did not apply to intercollegiate athletics contains some of the largest reductions in wrestling sponsorship. This evidence definitely indicates that Title IX is not the primary driver of the decline in wrestling sponsorship, although the declines in the mid-1990s suggest that Title IX could have played a minor role.

### How Do Higher Education Institutions Respond to a Large Proportionality Gap?

An institution of higher education can comply with Title IX's participation requirements by demonstrating that its female share of athletes is proportional to its female share of undergraduates, by showing a history and continuing practice of program expansion, or by effectively accommodating the interests and abilities

of the underrepresented gender. Compliance with Title IX through the first of these three prongs occurs when a school's proportionality gap (the difference between its female share of undergraduates and its female share of athletes) is very close to zero. In contrast, a school is far from compliance with this prong when its proportionality gap is large. To understand how higher education institutions respond to Title IX compliance pressures, one could examine whether a larger proportionality gap makes a school more likely to add female athletes or more likely to drop male athletes.

Building on earlier work by Anderson and Cheslock (2004), this report uses regression analysis to examine how schools changed their participation levels during the 1995-96 to 2004-05 period.<sup>4</sup> The results indicate that institutions that are furthest from compliance with the first prong in 1995-96 were more likely to increase women's athletic participation over the subsequent nine years but were not more likely to decrease men's athletic participation. More precisely, a 10-point increase in an institution's initial proportionality gap was associated with an increase in female participation of 15 athletes. In contrast, an institution's initial proportionality gap was not significantly related to changes in men's participation. So once again, the evidence strongly suggests that institutions of higher education primarily improve gender equity by adding female athletes.

### Summary

In a recent study of high school athletic participation, Betsey Stevenson concludes that "compliance with Title IX largely involved an increase in girls' access to sports with little change in the opportunities available to boys" (Stevenson, 2007, p. 504). The evidence in this section demonstrates similar findings at the college level. In short, colleges and universities have

---

4 For these regressions, the change in athletic participation between 1995-96 and 2004-05 is the dependent variable and the proportionality gap is the primary independent variable of interest. Control variables include public/private control, region, an indicator for historically black college or university, Barron's selectivity ranking, endowment assets per student, tuition and fee level, state appropriations per student, giving dollars per student, undergraduate enrollment and NCAA division. See Anderson and Cheslock (2004) for more details and an analysis of earlier data.

improved gender equity in athletics by expanding women's participation rather than by decreasing men's participation.

### **Growth in Athletic Expenditures**

If an athletic program continually increases its expenditures on existing teams, it reduces the funds available for the creation of a new men's or women's team. Furthermore, expenditure growth could compel a school to drop an existing team so that the disbanded team's existing expenditures could be used to cover cost increases in other sports. Unfortunately, the poor quality of available athletic financial data makes it difficult to examine how expenditure growth is related to changes in participation opportunities. The form used to collect EADA data, the only publicly available source of information on athletic expenditures, has changed over time in a manner that may alter the share of expenditures that are not allocated to specific sports.

Even more troubling, institutions of higher education do not use consistent accounting standards when reporting expenditure information under the EADA. Litan, Orszag and Orszag (2003) suggest that the standards that are currently used lead schools to substantially underreport their level of athletic expenditures. They note that reported expenditures only capture part of the compensation paid to football and basketball coaches, and they find that around 50% of Division I-A schools do not report all capital expenditures nor include the athletic department's share of their university's indirect costs. Orszag and Orszag (2005) find that these capital expenditures, which are defined as the cost to own or lease facilities, practice fields and parking lots associated with athletics, represent a significant share of total athletic expenditures.

Despite all these flaws, the athletic expenditure data reported under the EADA are still the best publicly available source of information on intercollegiate athletic expenditures. Such information is vital, because policymakers do not currently have answers to even the most basic questions in this area. For example, researchers have rarely measured the rate at which intercollegiate athletic expenditures are growing. Although the NCAA has produced periodic reports on athletic expenditures since 1969, almost all of these reports use very different sets of schools across years, so comparisons across time are not informative (Fulks, 2005a; 2005b). Only the most recent NCAA report examined data for a consistent set of institutions across different years, but this report only focused on the 2003-04 to 2005-06 period (Fulks, 2008). To provide some insight into expenditure growth for earlier years, this section analyzes EADA expenditure data for a consistent set of schools during the 1995-96 to 2004-05 period.

### **Overall Growth in Athletic Expenditures**

Table 3 (on following page) presents estimates of the annual percentage increase in athletic expenditures for the 625 NCAA schools that reported the necessary EADA financial data for all years. The results demonstrate exceptional expenditure growth during the 1995-96 to 2004-05 period. After accounting for inflation, aggregate athletic expenditures grew annually by 7%. Fulks (2008) found a very similar growth rate in median expenditures for Division I institutions during the 2003-04 to 2005-06 period.<sup>5</sup>

The results in Table 3 also show that women's athletics received 35% of total athletic expenditures in 2004-05.<sup>6</sup> Similar to participation opportunities, the share of athletic expenditures allocated to women's sports did increase over the period, but that growth

---

5 The NCAA has substantially improved its data collection, so NCAA data from the 2003-04 period onwards are likely to contain less measurement error than EADA data and earlier NCAA data. See Fulks (2008) for a description of these improvements.

6 When calculating the share of expenditures that women's programs receive, only those costs that are allocated to specific sports were used. In other words, expenditures that simultaneously serve participants from multiple sports are not included in the calculation. How the inclusion of unallocated dollars would affect expenditure shares for women's programs is unclear, because past research has not closely examined these costs.

Table 3: Athletic Expenditures per Insitution

	1995-96	2001-02	2004-05	1995-96 to 2004-05 Change	
				Dollars	Yearly %
<b>All Institutions (n = 625)</b>					
Total Athletic Expenditures	\$4,794,472	\$6,606,694	\$8,720,986	\$3,926,514	6.9%
Men's Total	\$2,178,426	\$3,115,640	\$3,656,807	\$1,478,381	5.9%
Women's Total	\$1,030,138	\$1,680,626	\$2,007,142	\$977,003	7.7%
Unallocated	\$1,585,907	\$1,810,428	\$3,057,038	\$1,471,131	7.6%
<b>Division I Institutions (n = 250)</b>					
Total Athletic Expenditures	\$10,185,685	\$13,888,080	\$18,427,255	\$8,241,570	6.8%
Men's Total	\$4,459,315	\$6,526,999	\$7,716,780	\$3,257,465	6.3%
Women's Total	\$2,021,692	\$3,335,592	\$4,009,614	\$1,987,923	7.9%
Unallocated	\$3,704,678	\$4,025,489	\$6,700,859	\$2,996,181	6.8%
<b>Division II Institutions (n = 169)</b>					
Total Athletic Expenditures	\$1,628,962	\$2,247,691	\$2,829,443	\$1,200,481	6.3%
Men's Total	\$902,061	\$1,104,932	\$1,243,582	\$341,521	3.6%
Women's Total	\$501,556	\$759,191	\$870,552	\$368,996	6.3%
Unallocated	\$225,344	\$383,568	\$715,309	\$489,965	13.7%
<b>Division III Institutions (n = 184)</b>					
Total Athletic Expenditures	\$734,396	\$1,056,387	\$1,411,008	\$676,612	7.5%
Men's Total	\$391,577	\$501,026	\$561,870	\$170,293	4.1%
Women's Total	\$224,633	\$334,360	\$390,830	\$166,196	6.3%
Unallocated	\$118,186	\$221,001	\$458,308	\$340,123	16.3%

Notes: All figures were transformed into 2004-05 dollars using the Higher Education Price Index (HEPI). An institution is only reported in a division if it is in that classification for 1995-96, 2001-02 and 2004-05.

only occurred during the 1995-96 to 2001-02 period. The female share was 32% in 1995-96 and rose to 35% in 2001-02 before stagnating during the subsequent three years. Differences also existed across NCAA divisions. The percentage of athletic dollars spent on women's sports in Divisions II and III was 41% in 2004-05, which was much higher than the 34% share that female athletes received in Division I.<sup>7</sup>

NCAA divisions also differed tremendously in the scale of their operations. The average level of expenditures at Division I institutions was \$18.4 million in 2004-05, while the corresponding figures for

Divisions II and III were \$2.8 million and \$1.4 million, respectively. In terms of percentages, expenditure growth was relatively similar across divisions, but in terms of dollars, the growth in expenditures among Division I schools was seven times as large as the growth in Division II and 12 times as large as the growth in Division III. The need to find large amounts of money to cover expenditure growth at the highest level of competition may explain why Division I-A institutions were the only schools to reduce the number of men's participants between 1995-96 and 2004-05 (Cheslock, 2007).

<sup>7</sup> The division-level estimates hide important differences across schools, because the percentage of athletic expenditures spent on women's sports varies dramatically across subdivisions. EADA data indicate that for 2004-05, the relevant share is 30% in Division I-A, 39% in Division I-AA, 48% in Division I-AAA, 38% in Division II (with football), 49% in Division II (without football), 39% in Division III (with football) and 49% in Division III (without football). Fuls (2005a; 2005b) finds very similar figures using NCAA data.

## Growth in Expenditures per Team

If expenditures on existing teams increase rapidly, then an athletic program may not be able to add new sports and may even be forced to eliminate one of the teams it currently sponsors. The figures in Table 3 do not tell us how much spending on existing teams increased, because part of the reported expenditure growth may be owed to schools offering new sports. To remove this component from the analysis, per-team expenditure figures are reported in Table 4. Figures are aggregated by gender except for football and basketball, because the 1995 EADA form only

required schools to report separate information for a few sports.

The results in Table 4 demonstrate that the rate of expenditure growth continues to be high when examining expenditures per team. The annual growth rate was close to 6.5% for women's sports and men's football and basketball, and 5% for other men's sports. The trends differed across NCAA divisions. Within Division I, the highest rates of expenditure growth occurred in basketball and football, whereas the highest rates in Divisions II and III took place in sports other than basketball and football.

Table 4: Athletic Expenditures per Team

	1995-96	2001-02	2004-05	1995-96 to 2004-05 Change	
				Dollars	Yearly %
<b>All Institutions (n = 625)</b>					
Men's Football	\$1,514,618	\$2,233,295	\$2,649,265	\$1,134,647	6.4%
Men's Basketball	\$478,271	\$689,721	\$825,795	\$347,524	6.3%
Men's Other Sports	\$106,050	\$139,027	\$163,289	\$57,239	4.9%
Women's Basketball	\$312,436	\$459,012	\$545,925	\$233,489	6.4%
Women's Other Sports	\$104,581	\$154,054	\$179,286	\$74,706	6.2%
<b>Division I Institutions (n = 250)</b>					
Men's Football	\$2,946,260	\$4,447,693	\$5,392,090	\$2,445,831	6.9%
Men's Basketball	\$969,415	\$1,454,917	\$1,767,237	\$797,822	6.9%
Men's Other Sports	\$176,247	\$238,242	\$288,383	\$112,136	5.6%
Women's Basketball	\$603,489	\$916,640	\$1,108,428	\$504,939	7.0%
Women's Other Sports	\$181,261	\$270,115	\$317,485	\$136,224	6.4%
<b>Division II Institutions (n = 169)</b>					
Men's Football	\$516,495	\$619,937	\$706,981	\$190,485	3.5%
Men's Basketball	\$232,301	\$260,771	\$286,437	\$54,137	2.4%
Men's Other Sports	\$70,793	\$92,299	\$102,544	\$31,752	4.2%
Women's Basketball	\$184,360	\$229,458	\$248,256	\$63,896	3.4%
Women's Other Sports	\$59,987	\$84,867	\$94,851	\$34,865	5.2%
<b>Division III Institutions (n = 184)</b>					
Men's Football	\$173,606	\$208,255	\$228,873	\$55,266	3.1%
Men's Basketball	\$62,553	\$75,907	\$82,547	\$19,993	3.1%
Men's Other Sports	\$31,379	\$39,534	\$44,794	\$13,415	4.0%
Women's Basketball	\$52,352	\$64,585	\$70,335	\$17,982	3.3%
Women's Other Sports	\$24,260	\$33,159	\$38,468	\$14,208	5.3%

Notes: All figures were transformed into 2004-05 dollars using the Higher Education Price Index (HEPI). An institution is only reported in a division if it is in that classification for 1995-96, 2001-02 and 2004-05.

Once again, however, percent changes in spending do not accurately represent the extent to which expenditure increases impact participation opportunities. For example, an annual 6.9% increase in spending on a Division I men's football team increased spending by \$2.45 million over the period, while an annual 6.4% increase in spending on a women's team (other than basketball) only increased spending by \$135,000.

### **Summary**

The results in this section show that athletic expenditures increased rapidly from 1995-96 to 2004-05, but our estimates may actually understate the true level of growth, especially for basketball and football. Litan, Orszag and Orszag (2003) report that between 1990 and 2003, more than half of all Division I-A schools either opened a new football stadium or undertook a major renovation of their old stadium. Because existing expenditure data do not capture all capital costs, this spending was not fully included in our analysis. Existing data also do not fully capture the compensation paid to football and basketball coaches, which has drastically increased in recent years.

## Additional Explanations for Changing Patterns of Intercollegiate Athletic Participation

So far, this report has focused on factors that affect overall participation levels for men and women. But the results in Table 1 (presented earlier in this report) demonstrated that the observed trends in men's and women's total participation hide substantial variation across individual sports. For example, participation in men's lacrosse grew by 25-30% between 1995-96 and 2004-05, while participation in men's wrestling and tennis fell by 11%.

Individual athletic programs are also reallocating athletic opportunities within each gender. For example, of the 37 schools that dropped men's wrestling between 1995-96 and 2004-05, 30% (11 of 37) added another men's team during the same period. And seven more schools expanded rosters on other men's teams by an amount larger than the roster size of the discontinued wrestling program. Similar reallocation occurred in athletic programs that dropped men's tennis and gymnastics teams.

Title IX and athletic expenditure growth by themselves cannot explain why some sports grow while others wane. But past discussions of declines for individual sports often focus solely on these two considerations. In order to fully understand athletic participation changes over the recent decades, this report explores and discusses several considerations that influence college presidents and athletic directors when they choose which sports to drop. Four explanatory factors are brought into focus: grassroots trends in high school participation, the financial burden of injury rates, expenses associated with recruiting international student-athletes, and enrollment management considerations. Although this report does not provide definitive evidence that these

considerations are the primary cause for the rise or decline of individual sports, it does provide suggestive evidence that these considerations played a role in participation changes.

### Changes in High School Athletic Participation: The Trickle-Up Dynamic

All else equal, an institution of higher education is more likely to add a sport when that sport is growing in popularity at the high school level. Table 5 (on following page) presents high school and college participation levels by sport for 1991-92 and 2004-05 for those 14 men's sports and 13 women's sports that were included in the 2007 GAO athletic participation report. The high school figures are taken from the National Federation of State High School Associations (NFHS) participation study and the college figures are taken from the GAO report for all NCAA divisions.

The figures in Table 5 reveal much steeper growth at the high school level, but this is expected for several reasons. The number of higher education institutions included in the GAO study was stable over time, while the number of high schools reporting data to the NFHS increased. Furthermore, high school sports are less expensive, so they can more easily grow in size at a given school.

In terms of differences by sport, the growth rates for high school participation are highly correlated with those for college participation.<sup>8</sup> (The correlation coefficient is 0.56 for men and 0.50 for women.) For both men and women, lacrosse and soccer possess some of the highest growth rates at both educational levels. In contrast, wrestling and tennis had the slowest growth rate at the high school level among men's sports and were the only two men's sports to experience substantial declines in college participation. For women, gymnastics and tennis fared relatively poorly at both levels.

---

8 The correlation between changes in high school athletic participation and those at the collegiate level may be partially driven by high schools responding to changes in sports sponsorship within higher education. For example, high school administrators may see the growing scholarship opportunities in sports such as men's and women's lacrosse and women's ice hockey and decide to offer these sports for their students.

Table 5: Comparisons Between GAO (2007) and NFHS Data

	High School Participation			NCAA Participation (n = 750)		
	1991-92	2004-05	Change	1991-92	2004-05	Change
<b>Men's Sports</b>						
Baseball	419,015	459,717	9.7%	18,970	20,562	8.4%
Basketball	515,644	545,497	5.8%	11,382	11,792	3.6%
Cross Country	155,375	201,719	29.8%	8,404	9,074	8.0%
Football	941,423	1,045,494	11.1%	44,393	48,439	9.1%
Golf	125,903	161,025	27.9%	5,882	5,826	-1.0%
Ice Hockey	22,993	37,004	60.9%	3,217	3,311	2.9%
Lacrosse	20,472	59,993	193.0%	4,650	6,272	34.9%
Soccer	228,380	354,587	55.3%	12,960	14,137	9.1%
Swimming	82,925	103,754	25.1%	6,835	6,836	0.0%
Tennis	141,250	148,530	5.2%	6,591	5,705	-13.4%
Track and Field, Indoor	41,467	56,626	36.6%	12,797	16,206	26.6%
Track and Field, Outdoor	401,350	516,703	28.7%	15,732	18,258	16.1%
Volleyball	18,013	41,637	131.1%	713	729	2.2%
Wrestling	230,673	243,009	5.3%	5,840	4,954	-15.2%
<b>Women's Sports</b>						
Basketball	387,802	456,543	17.7%	9,638	10,704	11.1%
Cross Country	106,514	170,450	60.0%	6,955	10,160	46.1%
Field Hockey	48,384	62,980	30.2%	3,825	4,819	26.0%
Golf	41,410	64,245	55.1%	1,200	2,874	139.5%
Gymnastics	23,367	19,115	-18.2%	1,074	1,327	23.6%
Lacrosse	9,959	48,086	382.8%	2,600	4,995	92.1%
Soccer	121,722	316,104	159.7%	6,779	15,903	134.6%
Softball	219,464	364,759	66.2%	8,798	11,766	33.7%
Swimming	88,122	148,154	68.1%	7,107	9,491	33.5%
Tennis	132,607	169,292	27.7%	6,209	6,478	4.3%
Track and Field, Indoor	29,053	51,878	78.6%	8,629	16,306	89.0%
Track and Field, Outdoor	320,763	428,198	33.5%	10,681	17,503	63.9%
Volleyball	300,810	386,022	28.3%	8,683	9,998	15.1%

Table 6 (on following page) presents high school and college participation levels by sport for 1995-96 and 2004-05 for a larger number of men's and women's sports. These figures were drawn from the NFHS participation study and a 2007 Women's Sports Foundation Report (Cheslock, 2007). Once again, the high school and college growth rates by sport are positively correlated, with a correlation coefficient of 0.38 for men and 0.44 for women. The findings by sport are roughly similar to those in Table 5 for those sports included in both tables. In terms of the sports only listed in Table 6, the most interesting findings

exist for men's gymnastics and women's ice hockey and water polo. At the high school level, men's gymnastics fell by 13.5%, while the two women's sports both grew by more than 250%. These trends in high school participation mirror the changes at the collegiate level.

Table 6: Comparisons Between EADA and NFHS Data

	High School Participation			NCAA Participation (n = 738)		
	1994-95	2004-05	Change	1994-95	2004-05	Change
<b>Men's Sports</b>						
Baseball	444,476	459,717	3.4%	19,482	21,043	8.0%
Basketball	545,595	545,497	0.0%	11,828	11,868	0.3%
Fencing	692	1,811	161.7%	628	586	-6.7%
Football	957,573	1,045,494	9.2%	43,814	47,870	9.3%
Golf	140,011	161,025	15.0%	6,008	5,932	-1.3%
Gymnastics	2,635	2,278	-13.5%	354	277	-21.8%
Ice Hockey	24,281	37,004	52.4%	3,027	3,003	-0.8%
Lacrosse	24,114	59,993	148.8%	4,482	5,573	24.3%
Rifle	1,882	2,462	30.8%	210	169	-19.5%
Rowing	1,037	2,220	114.1%	2,388	2,436	2.0%
Skiing	9,962	9,288	-6.8%	417	405	-2.9%
Soccer	283,728	354,587	25.0%	13,492	14,250	5.6%
Swimming	81,000	103,754	28.1%	6,146	6,274	2.1%
Tennis	136,534	148,530	8.8%	6,252	5,572	-10.9%
Volleyball	31,553	41,637	32.0%	719	768	6.8%
Water Polo	10,238	16,822	64.3%	602	684	13.6%
Wrestling	221,162	243,009	9.9%	5,089	4,601	-9.6%
<b>Women's Sports</b>						
Basketball	445,869	456,543	2.4%	10,316	10,626	3.0%
Bowling	7,322	18,717	155.6%	29	289	896.6%
Equestrian	344	773	124.7%	331	1,041	214.5%
Fencing	527	1,677	218.2%	506	622	22.9%
Field Hockey	56,142	62,980	12.2%	3,953	4,356	10.2%
Golf	39,634	64,245	62.1%	1,795	2,956	64.7%
Gymnastics	19,398	19,115	-1.5%	1,208	1,310	8.4%
Ice Hockey	1,471	7,398	402.9%	377	1,348	257.6%
Lacrosse	14,704	48,086	227.0%	3,038	4,588	51.0%
Rifle	622	1,285	106.6%	110	135	22.7%
Rowing	966	2,398	148.2%	3,184	5,963	87.3%
Skiing	8,545	8,621	0.9%	373	389	4.3%
Soccer	209,287	316,104	51.0%	10,752	15,632	45.4%
Softball	305,217	364,759	19.5%	9,706	11,909	22.7%
Swimming	111,360	148,154	33.0%	7,088	8,718	23.0%
Tennis	146,573	169,292	15.5%	6,244	6,256	0.2%
Volleyball	357,576	386,022	8.0%	9,191	9,896	7.7%
Water Polo	4,564	17,241	277.8%	221	950	329.9%



## Athletic Injuries and the Rising Cost of Insurance

The cost of health care is growing rapidly in the United States, and this trend has important implications for athletic programs that cover the health care costs of their athletes who are hurt during practice or competition. As health care costs grow, those sports with higher injury rates become increasingly expensive for an athletic department, and all else equal, make an athletic director or president less likely to offer the sport.

Table 7 contains injury rates taken from a joint study by the NCAA and the National Athletic Trainers' Association (NATA) that were reported in a special edition of the *Journal of Athletic Training* (Dick, Agel and Marshall, 2007). In that edition, the number of injuries per 1,000 athlete exposures and the percent of injuries that were serious enough to cause 10 or more days of activity time loss were reported for eight men's sports and seven women's sports. These two figures can be combined to measure the number of serious injuries per 1,000 athlete exposures. A serious injury, measured here as one that causes an athlete to miss 10 or more days, is likely to be expensive as it may require treatment by a specialist outside of the athletic department, an expensive test or surgery.

The results in Table 7 indicate that football, wrestling and gymnastics are clearly the sports in which participants are most likely to incur a serious injury. The game serious injury rate is 9.7 for men's football and 9.0 for wrestling, and no other men's sport has a rate above 4.3. In terms of practice rates, football (3.2 in the spring and 0.9 in the fall) and wrestling (1.6) are the only sports above 0.8. Women's gymnastics has a game serious injury rate of 5.9 and a practice serious injury rate of 2.0. With the exception of soccer, no other women's sport has a rate above 1.9 for games or a rate above 0.9 for practices. For schools that cover the health care costs of their athletes, these statistics indicate that expenses for football, wrestling and gymnastics will grow more rapidly than for other sports when health care costs rise.

Table 7: Injury Rates by Sport

	GIR	PIR	% GI, 10+	% PI, 10+	GIR, 10+	PIR, 10+
<b>Men's Sports</b>						
Baseball	5.8	1.9	25.2%	25.0%	1.5	0.5
Basketball	9.9	4.3	18.0%	18.0%	1.8	0.8
Fall Football	35.9	3.8	27.0%	24.9%	9.7	0.9
Spring Football	n/a	9.6	n/a	33.5%	n/a	3.2
Ice Hockey	16.3	2.0	26.5%	25.4%	4.3	0.5
Lacrosse	12.6	3.2	21.0%	21.0%	2.6	0.7
Soccer	18.8	4.3	18.7%	14.6%	3.5	0.6
Wrestling	26.4	5.7	34.0%	28.0%	9.0	1.6
<b>Women's Sports</b>						
Basketball	7.7	4.0	25.3%	23.6%	1.9	0.9
Field Hockey	7.9	3.7	15.0%	13.0%	1.2	0.5
Gymnastics	15.2	6.1	39.0%	32.0%	5.9	2.0
Lacrosse	7.2	3.3	21.9%	23.9%	1.6	0.8
Soccer	16.4	5.2	21.8%	16.5%	3.6	0.9
Softball	4.3	2.7	24.8%	22.0%	1.1	0.6
Volleyball	4.6	4.1	23.0%	19.0%	1.1	0.8

GIR: Game Injury Rate (per 1000 Athlete Exposures)

PIR: Practice Injury Rate (per 1000 Athlete Exposures)

% GI, 10+: Percentage of all game injuries requiring 10+ days of activity time loss

% PI, 10+: Percentage of all practice injuries requiring 10+ days of activity time loss

GIR, 10+: Game Injury Rate (per 1000 Athlete Exposures) for injuries requiring 10+ days of activity time loss

PIR, 10+: Practice Injury Rate (per 1000 Athlete Exposures) for injuries requiring 10+ days of activity time loss

Data Source: April-June 2007 edition of the *Journal of Athletic Training*, which featured a study of injury rates conducted by the NCAA and the National Athletic Trainers' Association (NATA).

## The Rise of International Student-Athletes

Seeking competitive advantage, many collegiate athletic programs have increasingly enrolled international athletes over the last 30 years. The rise of foreign athletes has varied tremendously by sport, meaning that for some teams, schools can still compete successfully without recruiting internationally. But in other sports, a school may face failure on the playing field if it relies solely on domestic athletes. These sports may become

increasingly less attractive to an athletic director or a president who desires a winning athletic program, because the recruitment of international athletes can be substantially more expensive due to travel costs. Furthermore, public higher education institutions may find that state taxpayers and lawmakers complain when a substantial share of athletic opportunities go to international students.

Table 8 reports the average share of international students for each sport during the 1999-00 to 2005-06 academic years. These averages were computed using figures from the NCAA Student-Athlete Race and Ethnicity Report. The results demonstrate that tennis and ice hockey are the clear leaders in terms of reliance upon international student-athletes. Ice hockey, however, may not have substantially higher recruiting costs than other sports, because a large share of the international athletes are Canadians that are recruited by athletic programs located in the northern part of the United States.

To further investigate the influence of international athletes on tennis, an examination of differences across NCAA division was conducted. In Divisions I and II in men's tennis and in Division I in women's tennis, 20-25% of student-athletes are international students. For women's tennis in Division II, this share falls by half to 10.6%. The numbers are even lower in Division III, where international athletes only comprise 2.6% of male tennis players and 1.6% of female tennis players.

These differences become particularly interesting when compared to changes in tennis sponsorship for each NCAA division. According to the *NCAA Sports Sponsorship and Participation Rates Report*, net tennis sponsorship fell by 37 teams for Division I men's tennis and by 25 teams for Division II men's tennis between 1988-89 and 2005-06. In contrast, Division III men's tennis remained mostly stable over the period, falling by only two teams. For women, net tennis sponsorship declined by two teams in Division I, but increased by eight teams in Division II and 17 teams in Division III. Clearly, these data indicate that

**Table 8: International Student Share of Athletes by Sport**

	All	Div. I	Div. II	Div. III
<b>Men's Sports</b>				
Baseball	1.0%	1.2%	1.4%	0.6%
Basketball	2.9%	5.1%	3.5%	0.8%
Cross Country	2.6%	4.3%	2.9%	0.8%
Fencing	2.8%	3.2%	4.8%	1.8%
Football	0.5%	0.6%	0.5%	0.3%
Golf	5.0%	7.9%	6.0%	1.3%
Gymnastics	2.3%	2.6%	0.0%	0.0%
Ice Hockey	13.3%	19.3%	9.6%	8.3%
Lacrosse	1.2%	1.0%	3.5%	0.8%
Rifle	1.5%	1.3%	3.8%	1.4%
Skiing	6.1%	7.6%	11.2%	2.4%
Soccer	6.0%	8.1%	11.1%	2.6%
Swimming/Diving	3.9%	6.0%	5.4%	1.0%
Tennis	14.2%	24.9%	20.0%	2.6%
Track, Indoor	2.6%	4.0%	2.2%	0.8%
Track, Outdoor	2.5%	4.0%	2.4%	0.9%
Volleyball	3.6%	4.6%	3.4%	3.0%
Water Polo	4.7%	5.4%	9.8%	0.4%
Wrestling	0.5%	0.2%	1.4%	0.7%
All Sports	2.8%	4.0%	3.4%	1.1%
<b>Women's Sports</b>				
Basketball	2.4%	4.6%	2.3%	0.7%
Bowling	1.6%	1.1%	2.5%	0.0%
Cross Country	2.2%	3.5%	2.2%	0.7%
Equestrian	1.1%	0.5%	0.6%	1.9%
Fencing	2.4%	2.4%	5.7%	1.7%
Field Hockey	1.7%	3.2%	1.4%	1.0%
Golf	6.5%	10.4%	3.6%	1.0%
Gymnastics	2.5%	3.2%	0.8%	0.0%
Ice Hockey	11.5%	19.6%	14.9%	4.7%
Lacrosse	0.7%	0.6%	1.3%	0.7%
Rifle	1.8%	1.8%	3.4%	1.0%
Rowing	2.1%	2.2%	4.1%	1.4%
Skiing	7.6%	10.5%	10.4%	3.3%
Soccer	2.3%	3.6%	3.6%	0.7%
Softball	1.1%	1.3%	1.5%	0.6%
Swimming/Diving	2.7%	4.6%	2.5%	0.8%
Tennis	10.0%	20.6%	10.6%	1.6%
Track, Indoor	2.6%	3.9%	1.8%	0.6%
Track, Outdoor	2.5%	4.0%	1.6%	0.6%
Volleyball	2.6%	4.8%	2.8%	0.7%
Water Polo	2.6%	3.6%	3.2%	0.2%
All Sports	2.8%	4.6%	2.8%	0.9%

Note: Reported figures are based on average shares for the 1999-2000 to 2005-06 period, which were drawn from the 1999-2000 through 2005-06 NCAA Student-Athlete Race and Ethnicity Report.

tennis sponsorship has remained most healthy in those NCAA divisions where coaches do not have to recruit internationally.

### **Enrollment Management Considerations**

During the last 25 years, institutions of higher education have increasingly sought to shape their student body. This practice, commonly referred to as enrollment management, includes efforts such as the strategic use of financial aid and a variety of sophisticated marketing and recruitment techniques. When practicing enrollment management, higher education institutions are usually thought to seek a student body that contains high levels of academic preparation, the ability to produce substantial levels of net tuition revenue, and diversity in terms of race, ethnicity and other characteristics.

Athletics is one of the activities on campus that can help attract students with some of these characteristics. As enrollment management considerations gain prominence, a college president would increasingly prefer to offer sports whose participants have some or all of these traits and decreasingly prefer to offer sports whose participants do not. To investigate which sports would fall into these categories, this report turns to an examination of data on academic preparation, students' ability to pay, and racial and ethnic diversity by sport.

### **Academic Preparation**

Institutions of higher education can benefit in several ways from having a student body with strong academic preparation. The prestige and renown enjoyed by a college or university is often related to the academic abilities of its students. This relationship becomes clear when examining the formulas employed by influential college guides; SAT scores, high school GPAs and college graduation rates often help determine a school's national ranking. Graduation rates also are scrutinized by government officials who increasingly seek to hold schools accountable for their students' performance. Various stakeholders within an institution of higher education, most notably

faculty, also care about academic preparation and often clamor for bright students who will excel in the classroom.

Because college guides and accountability pressures increased in importance over the last 25 years, college presidents likely increasingly valued sports that attract students with high levels of academic preparation. Table 9 (on following page) presents evidence detailing which sports have the highest average marks for three different academic measures utilized by the NCAA. The Graduation Success Rate (GSR) for Division I and the Academic Success Rate (ASR) for Division II are measures of graduation rates developed by the NCAA that more accurately reflect the mobility among college students. The Academic Progress Rate (APR) is a new measure developed by the NCAA that measures the recent progress towards graduation of a Division I school's student-athletes. Recent reforms mean that poor performance on the APR can reduce a team's available scholarships; this new policy should cause athletic directors to consider academic performance even more in their sports sponsorship decisions.

The results in Table 9 indicate that substantial differences exist across sports in terms of academic performance. Men's sports separate into three tiers. The top tier contains sports that have a GSR or ASR above 80%, the second tier has a GSR close to 75% and an ASR close to 68%, while the third tier has a GSR close to 65% and an ASR close to 55%. The top tier includes a large number of less prominent sports headed by water polo, skiing, gymnastics and lacrosse. The middle tier contains volleyball, golf, soccer, cross country, and track and field, while the bottom tier contains wrestling, football and basketball. Baseball straddles the second and third tier with a GSR of 66% and an ASR of 68%.

Women's sports cannot be separated into distinct groups as easily as men's, but the results in Table 9 still demonstrate that a hierarchy exists among sports in terms of academic preparation. Athletes in field

**Table 9: Academic Performance (in College) by Sport**

	I-GSR	I-APR	II-ASR
<b>Men's Sport</b>			
Water Polo	86.6%	972	83%
Skiing	87.2%	966	84%
Gymnastics	84.6%	970	80%
Lacrosse	89.2%	967	75%
Rifle	77.1%	968	86%
Fencing	88.8%	974	65%
Ice Hockey	82.2%	970	72%
Swimming	81.9%	967	74%
Tennis	82.8%	959	76%
Volleyball	77.1%	962	69%
Golf	78.1%	962	66%
Cross Country/Track & Field	73.8%	954	70%
Soccer	76.8%	952	67%
Baseball	65.8%	934	68%
Wrestling	68.6%	937	55%
Football	64.9%	931	54%
Basketball	59.5%	927	56%
<b>Women's Sports</b>			
Field Hockey	93.5%	983	91%
Gymnastics	93.8%	980	93%
Lacrosse	93.6%	983	88%
Crew	89.6%	984	87%
Fencing	92.1%	971	90%
Swimming	90.9%	978	84%
Ice Hockey	90.0%	977	78%
Skiing	96.0%	959	83%
Golf	87.9%	973	82%
Water Polo	86.9%	973	84%
Tennis	88.1%	970	81%
Soccer	87.9%	971	80%
Volleyball	86.7%	969	78%
Softball	84.8%	965	80%
Cross Country/Track & Field	83.1%	966	79%
Basketball	81.3%	960	74%
Bowling	79.7%	942	37%

I-GSR: Graduation Success Rate for Division I athletes (1995-2000 cohort)

I-APR: Academic Progress Rate for Division I athletes (2004-06 average)

II-ASR: Academic Success Rate for Division II athletes (1997-2000 cohorts)

hockey, gymnastics, lacrosse and crew produce the best marks, while athletes in bowling, basketball, cross country, and track and field fare the worst.

Overall, the evidence for both men and women clearly indicates that sports vary dramatically in terms of the academic performance of their participants.

### Ability to Pay Tuition

Many colleges and universities receive substantial net tuition revenue from their athletes. In Division III of the NCAA, no athletic scholarships are provided, so athletes are similar to non-athletes in their ability to provide revenue to the institution. Even in Divisions I and II where athletic scholarships are provided, substantial tuition revenue can still be generated from student-athletes with partial or no scholarships. To demonstrate, consider the sport of lacrosse. The average roster size in Division I lacrosse is 44 for men and 27 for women, while the scholarship limits are 12.6 for men and 12 for women. In Division II, the average roster size in lacrosse exceeds the scholarship limits by 21 for men and 11 for women.

As institutions of higher education increasingly view students as a major source of revenue, those sports that contain students from wealthier families will become increasingly attractive. Students with greater financial resources will require less need-based financial aid and will consequently contribute more to an institution's net tuition revenue. To properly identify those sports that contain high-income students, one needs information on the family income and sport of participation for a large number of representative high-school or college athletes. To the author's knowledge, unfortunately, no existing survey contains such information. But for a nationally representative sample of 10th graders, the Educational Longitudinal Study (ELS) of 2002 does contain information on whether a student participates in high school sports, the specific sports that his/her high school sponsors and his/her family income. While these data cannot identify differences in family income between athletes playing different sports at the same school, they can identify those sports

that are disproportionately offered at high schools containing high-income athletes.

For each sport included on the ELS questionnaire, Table 10 (on following page) reports estimates of the family income and parental education of athletes who attend schools that offer that sport. Given the high correlation between educational attainment and wealth, parental education may give further insights into the financial resources of a student. The results in Table 10 demonstrate that, for both men's and women's sports, lacrosse is the clear leader in terms of parental education and income. Family incomes are also high at schools that offer women's field hockey, men's or women's gymnastics, and men's or women's ice hockey. As institutions of higher education rely more upon students' tuition dollars to cover costs, these sports will grow increasingly attractive.

### Diversity

To ensure that their students interact with a diverse set of peers while enrolled in college, most institutions of higher education wish to form a student body that includes substantial levels of diversity in terms of race, ethnicity and other student characteristics. Data from the *NCAA Student-Athlete Race and Ethnicity Report* can identify those sports that are most likely to help increase a school's enrollment of underrepresented minority students. Table 11 (on page 27) contains the average share of Native American, African-American, and Hispanic students for each sport during the 1999-00 to 2005-06 academic years. For men, the share of student-athletes that are underrepresented minorities is highest in basketball (44%), football (34%), track and field (24%), and volleyball (21%). Bowling (72%), basketball (29%), and track and field (23%) contain the highest shares of underrepresented minorities for women. No other sport in either gender is above 14%.

### Summary

The analysis in this section suggests that a number of less prominent factors can explain why participation in some college sports has grown in recent years while participation in other sports has stood still or declined. For example, there are several reasons

why lacrosse's rapid growth at the collegiate level is not surprising. High school participation in this sport is growing, and participants have high levels of academic preparation and family income. While gymnastics also has academically able and wealthy participants, the substantial declines in high school participation and the high injury rates in this sport may outweigh this consideration and account for gymnastics' decline.

Tennis and wrestling both grew relatively slowly at the high school level, but this fact by itself would not explain participation trends for these sports because their high school participation numbers are still relatively high. For tennis, the recent reliance upon international student-athletes is a more likely culprit. The absence of declines in tennis within Division III, where international students rarely participate in this sport, is the strongest evidence for this claim. For wrestling, growing health care costs and the increasing focus on academic performance within enrollment management may have contributed to participation declines. NCAA data indicate that, relative to other athletes, wrestlers have fared worse academically and have experienced higher injury rates.

Future policy debates need to consider all of the factors that influence the sports sponsorship decisions of athletic directors and college presidents. But this report has only examined those factors for which available data provide substantial insight, and future research should seek to investigate additional explanations for the rise and fall of individual sports. For example, the rapid increase in expenditures, especially in already expensive sports such as basketball and football, means that considerations related to the cost of a sport likely became increasingly important. As a result, athletic programs may be moving away from sports (like gymnastics) that require a separate training area, costly equipment and substantial travel (due to low conference and regional sponsorship).

Table 10: Average Parental Education and Income of Athletes at High Schools that Offer Specific Sports

	Mother's Education			Father's Education			Family Income
	% College	% Bach.	% Grad.	% College	% Bach.	% Grad.	
<b>Men's Sports</b>							
Lacrosse	77.9%	47.6%	20.1%	73.2%	47.2%	23.3%	\$93,064
Gymnastics	64.1%	38.7%	10.9%	76.1%	42.8%	20.4%	\$92,919
Ice Hockey	73.7%	41.2%	17.5%	76.8%	45.4%	18.5%	\$89,309
Volleyball	65.0%	37.9%	14.3%	67.4%	38.9%	16.8%	\$78,432
Swimming	68.3%	35.0%	11.9%	67.9%	38.0%	15.8%	\$74,391
Tennis	66.9%	33.2%	11.3%	66.0%	35.5%	14.8%	\$72,972
Soccer	66.3%	32.6%	11.0%	65.4%	35.7%	14.9%	\$72,533
Golf	66.5%	31.5%	10.6%	64.8%	34.2%	14.1%	\$71,541
Cross Country	65.2%	31.6%	10.6%	64.0%	33.9%	13.9%	\$71,273
Wrestling	65.0%	30.9%	10.4%	64.1%	33.9%	13.7%	\$71,717
Track & Field	64.2%	30.5%	10.1%	62.7%	32.7%	13.2%	\$69,255
Baseball	63.9%	29.8%	10.1%	62.5%	32.6%	13.3%	\$69,144
Basketball	64.0%	29.8%	10.1%	62.2%	32.1%	13.0%	\$68,475
Football	64.0%	29.6%	9.8%	62.4%	32.0%	12.6%	\$68,517
<b>Women's Sports</b>							
Lacrosse	78.8%	46.9%	20.4%	77.5%	57.8%	30.0%	\$103,453
Field Hockey	75.2%	42.6%	18.7%	73.7%	49.1%	23.5%	\$96,742
Gymnastics	72.8%	38.0%	15.6%	75.0%	50.9%	23.6%	\$86,747
Ice Hockey	78.9%	38.9%	13.2%	70.8%	47.5%	19.5%	\$92,582
Swimming	71.0%	36.9%	12.5%	70.8%	45.3%	21.0%	\$82,828
Tennis	69.4%	34.9%	12.0%	69.0%	42.3%	18.8%	\$78,984
Soccer	68.6%	33.5%	11.4%	68.1%	40.9%	17.6%	\$77,901
Golf	67.8%	33.3%	11.4%	68.2%	41.4%	19.0%	\$77,169
Cross Country	67.7%	32.7%	11.0%	66.5%	39.7%	17.3%	\$76,201
Volleyball	67.1%	32.5%	11.2%	66.1%	39.0%	17.3%	\$75,816
Track & Field	66.8%	32.3%	10.9%	65.6%	38.4%	16.8%	\$74,848
Basketball	66.3%	32.0%	10.7%	65.2%	38.2%	16.8%	\$74,330
Softball	67.0%	31.9%	10.8%	65.7%	38.2%	16.8%	\$74,286

% College: Percentage of parents who obtained at least some college education

% Bach.: Percentage of parents who obtained at least a bachelor's degree

% Grad.: Percentage of parents who obtained a graduate degree

Notes: These estimates were calculated by the author using the 2002 Educational Longitudinal Survey (ELS).

Table 11: Underrepresented Minority Share of Athletes by Sport

	Total	Native American	African-American	Hispanic
<b>Men's Sports</b>				
Baseball	9.9%	0.4%	4.7%	4.9%
Basketball	43.8%	0.3%	41.1%	2.4%
Cross Country	13.9%	0.4%	8.9%	4.5%
Fencing	8.1%	0.4%	4.1%	3.5%
Football	34.1%	0.4%	31.2%	2.5%
Golf	3.8%	0.4%	2.0%	1.5%
Gymnastics	8.8%	0.5%	4.1%	4.1%
Ice Hockey	1.4%	0.3%	0.6%	0.6%
Lacrosse	3.2%	0.3%	1.8%	1.1%
Rifle	4.5%	0.4%	1.9%	2.2%
Skiing	0.9%	0.4%	0.3%	0.2%
Soccer	12.6%	0.2%	6.1%	6.3%
Swimming/Diving	4.3%	0.2%	1.5%	2.6%
Tennis	9.6%	0.2%	5.3%	4.0%
Track, Indoor	23.6%	0.3%	20.4%	2.9%
Track, Outdoor	24.9%	0.3%	20.8%	3.7%
Volleyball	20.6%	0.3%	6.5%	13.7%
Water Polo	6.4%	0.6%	0.6%	5.2%
Wrestling	11.5%	0.7%	5.8%	5.0%
<b>Women's Sports</b>				
Basketball	29.2%	0.4%	26.3%	2.5%
Bowling	71.6%	0.1%	70.2%	1.2%
Cross Country	14.2%	0.3%	9.9%	3.9%
Equestrian	2.7%	0.4%	0.4%	2.0%
Fencing	10.6%	0.2%	5.4%	5.0%
Field Hockey	2.7%	0.2%	1.3%	1.2%
Golf	5.9%	0.3%	3.2%	2.4%
Gymnastics	5.5%	0.3%	3.3%	1.9%
Ice Hockey	1.3%	0.4%	0.4%	0.5%
Lacrosse	3.4%	0.2%	2.0%	1.1%
Rifle	6.7%	0.3%	2.7%	3.6%
Rowing	5.4%	0.5%	1.8%	3.1%
Skiing	0.7%	0.2%	0.2%	0.3%
Soccer	6.7%	0.2%	3.1%	3.3%
Softball	11.0%	0.5%	6.2%	4.2%
Swimming/Diving	3.5%	0.2%	1.2%	2.1%
Tennis	9.5%	0.2%	5.9%	3.4%
Track, Indoor	23.0%	0.3%	20.2%	2.5%
Track, Outdoor	23.7%	0.3%	20.2%	3.2%
Volleyball	12.6%	0.3%	8.7%	3.6%
Water Polo	6.7%	0.5%	0.8%	5.3%

Note: Reported figures are based on average shares for the 1999-2000 to 2005-06 period, which were drawn from the 1999-00 - 2005-06 NCAA Student-Athlete Race and Ethnicity Report.



## Expansion of Women's Sports and the Racial and Ethnic Diversity of College Athletes

The racial and ethnic composition of athlete populations varies substantially across sports. See Table 11. As a result, changes in athletic participation for individual sports can potentially influence the representation of various racial and ethnic groups among college athletes. If sports with larger levels of diversity grow at higher rates than other sports, the overall extent of diversity among collegiate athletes will grow as a result. And alternatively, if participation increases most rapidly in less diverse sports, then the overall extent of diversity will be reduced.

This section will investigate these possibilities, but before turning to that analysis, it is helpful to first describe the current levels of racial and ethnic diversity among college athletes. Table 12a (for women) and 12b (for men) contain statistics from the NCAA Student-Athlete Race and Ethnicity Report, which is the best source of information on this topic even though it only contains data from 1999-2000 onwards (Vicente, 2007). To provide a basis for comparison, Tables 12a and 12b (on following pages) also contain participation figures for full-time undergraduates at NCAA institutions.

The results show that white females and African-American males comprise a larger portion of NCAA athletes than of full-time undergraduates at NCAA institutions. White males and African-American females represent roughly similar shares of athletes and undergraduates. And for both genders, Native American, Asian-American and Hispanic students have much smaller shares among athletes than among the student body in general.<sup>9</sup> These figures

vary by division in that African-American athletes are much more prevalent in Division I (and to a lesser extent in Division II) and much less prevalent in Division III. The opposite is true for white athletes. The extent of racial and ethnic diversity within college athletics did change during the 1999-2000 to 2005-06 period as African-American, Hispanic and Asian-American athletes saw their portion of the athletic pool grow, while the portion of athletes that are white fell. These changes are similar to the trends for the undergraduate student population as a whole.<sup>10</sup>

Let us now return to the primary question of interest: Has variation in the growth of participation levels of individual sports favorably or unfavorably altered racial and ethnic diversity? In other words, has the expansion of athletic opportunities since Title IX primarily occurred in sports where athletes of color comprise a larger portion of participants or primarily occurred in sports where athletes of color are less prevalent? To investigate this question, the share of participants that are athletes of color for each year is predicted by allowing the participation levels for each sport to vary over time but freezing the racial and ethnic diversity of athletes within each sport to current levels.<sup>11</sup> This predicted share increases over time when sports that house many athletes of color grow relative to sports where the extent of diversity is lower. It decreases when the opposite occurs.

Table 13 (on page 31) presents these estimates for four different sets of participation data to demonstrate that the findings do not substantially vary by data source. The results indicate that the predicted share of athletes of color grew slightly over the last 25 years for men, which should not be

9 When viewing the figures in Tables 12a and 12b, it is important to remember that relative to their share of the general population, African-Americans, Hispanics and Native Americans are underrepresented among full-time undergraduates.

10 For Tables 12a and 12b, the share of students in the "other" category is abnormally high in 1999-00 and the portion of students labeled as nonresident aliens is abnormally high in 2000-01. These fluctuations, which probably reflect measurement error, likely cause the growth in the share of athletes of color to be slightly overstated in NCAA data.

11 More specifically, the predicted share for athletes of color is calculated in two steps. For each year, the number of athletes of color for each sport is first estimated by multiplying the number of athletes in the sport for that year by that sport's 2005-06 participation share for athletes of color. The sum of these estimates is then divided by the total number of athletes for the year in question. The results from this analysis will be presented in Table 13.



Table 12a: Changes in Race/Ethnicity Shares, Women

	Athletes - All Sports							Full-time Undergraduates						
	Nat. Am.	Asian	Afr. Am.	Hisp.	Int. Std.	Other	White	Nat. Am.	Asian	Afr. Am.	Hisp.	Int. Std.	Other	White
<b>Overall</b>														
1999-00	0.3%	1.5%	9.4%	2.4%	1.5%	6.8%	78.1%	0.8%	5.9%	10.3%	6.9%	2.3%	3.4%	70.4%
2000-01	0.4%	1.7%	10.2%	2.7%	4.5%	3.7%	77.0%	0.8%	6.0%	10.3%	7.0%	2.4%	3.8%	69.8%
2001-02	0.3%	1.7%	10.4%	2.8%	2.4%	3.2%	79.1%	0.7%	6.1%	10.9%	7.2%	2.4%	4.3%	68.3%
2002-03	0.3%	1.9%	10.5%	3.0%	2.6%	2.9%	78.9%	0.8%	6.2%	11.1%	7.4%	2.4%	4.5%	67.5%
2003-04	0.3%	2.0%	10.6%	3.2%	2.9%	2.8%	78.2%	0.8%	6.3%	11.3%	7.6%	2.3%	4.6%	67.0%
2004-05	0.3%	2.1%	10.9%	3.3%	2.8%	3.0%	77.5%	0.8%	6.4%	11.6%	7.8%	2.3%	4.8%	66.3%
2005-06	0.4%	2.0%	10.7%	3.5%	3.2%	2.7%	77.4%	0.8%	6.4%	11.6%	8.0%	2.3%	4.8%	65.9%
<b>Division I</b>														
1999-00	0.3%	1.6%	13.8%	2.4%	2.4%	6.7%	72.6%	0.7%	6.5%	11.1%	6.4%	2.2%	3.2%	70.0%
2000-01	0.4%	1.7%	14.8%	2.6%	5.4%	4.8%	70.4%	0.7%	6.6%	11.1%	6.5%	2.3%	3.6%	69.3%
2001-02	0.4%	1.8%	14.7%	2.8%	4.2%	3.9%	72.1%	0.7%	6.9%	11.7%	6.7%	2.3%	3.7%	68.1%
2002-03	0.3%	2.0%	14.8%	2.9%	4.5%	3.7%	71.9%	0.7%	7.0%	11.6%	6.9%	2.3%	3.8%	67.6%
2003-04	0.4%	2.1%	14.9%	3.3%	5.0%	3.7%	70.6%	0.8%	7.0%	11.8%	7.1%	2.3%	4.0%	67.2%
2004-05	0.4%	2.2%	15.4%	3.3%	4.9%	3.3%	70.5%	0.7%	7.0%	11.9%	7.4%	2.2%	4.2%	66.5%
2005-06	0.4%	2.2%	15.1%	3.5%	5.6%	3.1%	70.1%	0.7%	7.1%	12.0%	7.6%	2.2%	4.3%	66.1%
<b>Division II</b>														
1999-00	0.5%	1.1%	10.6%	3.8%	1.6%	2.6%	79.9%	1.2%	5.3%	10.6%	10.0%	2.3%	3.6%	67.0%
2000-01	0.6%	1.4%	11.1%	4.2%	5.0%	1.1%	76.7%	1.2%	5.3%	10.5%	9.9%	2.3%	4.0%	66.7%
2001-02	0.4%	1.4%	12.1%	4.2%	2.3%	1.2%	78.3%	1.2%	4.9%	11.0%	10.1%	2.4%	5.1%	65.2%
2002-03	0.4%	1.6%	11.9%	4.4%	2.5%	1.2%	78.0%	1.4%	5.0%	11.8%	10.0%	2.4%	5.7%	63.8%
2003-04	0.5%	1.4%	12.1%	4.6%	2.7%	1.3%	77.5%	1.4%	5.1%	12.4%	10.0%	2.2%	5.8%	63.1%
2004-05	0.5%	1.4%	12.1%	4.8%	2.7%	1.8%	76.7%	1.4%	5.2%	13.3%	10.2%	2.1%	5.4%	62.5%
2005-06	0.5%	1.4%	12.2%	5.2%	3.1%	1.2%	76.5%	1.4%	5.3%	13.4%	10.4%	2.2%	5.4%	61.9%
<b>Division III</b>														
1999-00	0.2%	1.5%	4.2%	1.7%	0.4%	9.0%	83.1%	0.5%	4.8%	7.4%	5.5%	2.7%	3.8%	75.3%
2000-01	0.2%	1.8%	4.6%	2.0%	3.3%	3.7%	84.3%	0.5%	4.8%	7.2%	5.4%	2.7%	4.6%	74.8%
2001-02	0.2%	1.8%	4.8%	2.1%	0.4%	3.6%	87.2%	0.4%	5.0%	8.1%	5.7%	2.7%	5.4%	72.7%
2002-03	0.2%	2.0%	5.0%	2.4%	0.5%	2.8%	87.1%	0.5%	5.2%	8.7%	6.1%	2.9%	5.5%	71.1%
2003-04	0.2%	2.2%	4.9%	2.4%	0.5%	2.5%	87.4%	0.4%	5.3%	8.4%	6.5%	2.7%	5.6%	71.0%
2004-05	0.2%	2.2%	5.1%	2.6%	0.5%	3.4%	85.9%	0.4%	5.4%	8.5%	6.7%	2.7%	6.1%	70.2%
2005-06	0.3%	2.2%	5.1%	2.7%	0.6%	3.2%	86.0%	0.5%	5.5%	8.7%	6.9%	2.7%	6.0%	69.8%

Notes: Data on the racial/ethnic composition of athletes are taken from the *NCAA Student-Athlete Race and Ethnicity Report*. Figures for all full-time undergraduates were computed by the author using enrollment data from the Integrated Postsecondary Education Data System (IPEDS). The following abbreviations are used: Nat. Am. represents Native American, Afr. Am. represents African-American, Hisp. represents Hispanic and Int. Std. represents International Students.

Table 12b: Changes in Race/Ethnicity Shares, Men

	Athletes - All Sports							Full-time Undergraduates						
	Nat. Am.	Asian	Afr. Am.	Hisp.	Int. Std.	Other	White	Nat. Am.	Asian	Afr. Am.	Hisp.	Int. Std.	Other	White
<b>Overall</b>														
1999-00	0.3%	1.2%	16.3%	3.0%	1.8%	6.0%	71.6%	0.7%	6.5%	7.9%	6.1%	3.4%	3.6%	71.7%
2000-01	0.3%	1.3%	17.2%	3.3%	4.1%	3.3%	70.4%	0.7%	6.5%	7.9%	6.2%	3.5%	4.1%	71.1%
2001-02	0.3%	1.4%	17.7%	3.5%	2.5%	3.1%	71.6%	0.7%	6.7%	8.5%	6.3%	3.6%	4.5%	69.9%
2002-03	0.3%	1.4%	17.9%	3.5%	2.6%	2.7%	71.6%	0.7%	6.7%	8.6%	6.4%	3.5%	4.8%	69.3%
2003-04	0.4%	1.4%	18.1%	3.5%	2.7%	2.5%	71.4%	0.7%	6.7%	8.8%	6.5%	3.3%	4.9%	69.0%
2004-05	0.3%	1.5%	18.0%	3.8%	2.6%	2.7%	71.1%	0.7%	6.8%	8.9%	6.7%	3.1%	5.1%	68.6%
2005-06	0.4%	1.5%	18.1%	3.7%	3.0%	2.7%	70.6%	0.7%	6.9%	8.9%	6.9%	3.1%	5.2%	68.3%
<b>Division I</b>														
1999-00	0.3%	1.4%	22.9%	2.8%	2.4%	5.8%	64.4%	0.7%	6.9%	8.1%	5.8%	3.3%	3.4%	71.8%
2000-01	0.4%	1.4%	24.3%	3.3%	4.7%	4.4%	61.6%	0.6%	7.0%	8.1%	5.8%	3.4%	3.8%	71.1%
2001-02	0.4%	1.5%	24.3%	3.4%	3.8%	3.7%	63.1%	0.6%	7.3%	8.7%	5.9%	3.4%	4.0%	70.1%
2002-03	0.4%	1.6%	24.6%	3.3%	4.1%	3.4%	62.6%	0.6%	7.4%	8.7%	6.1%	3.3%	4.2%	69.7%
2003-04	0.4%	1.6%	24.6%	3.6%	4.4%	3.2%	62.3%	0.6%	7.3%	8.8%	6.2%	3.3%	4.3%	69.6%
2004-05	0.4%	1.7%	24.8%	3.7%	4.1%	3.1%	62.2%	0.6%	7.4%	8.8%	6.4%	3.1%	4.6%	69.1%
2005-06	0.6%	1.7%	24.6%	3.6%	4.6%	3.1%	61.7%	0.6%	7.5%	8.8%	6.6%	3.0%	4.7%	68.8%
<b>Division II</b>														
1999-00	0.4%	0.8%	19.3%	4.2%	2.5%	2.9%	70.0%	1.1%	5.8%	9.0%	8.7%	3.7%	4.1%	67.6%
2000-01	0.5%	1.0%	19.9%	4.4%	5.6%	1.3%	67.2%	1.1%	5.8%	9.0%	8.7%	3.8%	4.4%	67.2%
2001-02	0.4%	1.1%	21.4%	5.1%	2.9%	1.3%	67.8%	1.1%	5.5%	9.4%	8.7%	3.9%	5.5%	65.9%
2002-03	0.5%	1.0%	21.8%	4.9%	2.9%	1.3%	67.6%	1.2%	5.5%	10.0%	8.6%	3.7%	6.3%	64.7%
2003-04	0.5%	1.0%	22.6%	4.3%	3.1%	1.4%	67.1%	1.2%	5.6%	10.5%	8.6%	3.4%	6.5%	64.1%
2004-05	0.4%	1.1%	22.3%	5.1%	3.0%	1.4%	66.6%	1.3%	5.8%	11.3%	8.7%	3.1%	6.1%	63.6%
2005-06	0.5%	1.0%	22.8%	5.1%	3.5%	1.1%	65.9%	1.2%	5.9%	11.3%	8.9%	3.1%	6.2%	63.3%
<b>Division III</b>														
1999-00	0.2%	1.2%	7.6%	2.4%	0.7%	7.9%	80.1%	0.5%	5.5%	6.0%	4.8%	3.6%	3.7%	75.9%
2000-01	0.2%	1.4%	8.2%	2.7%	2.6%	3.3%	81.6%	0.4%	5.4%	6.0%	4.7%	3.7%	4.5%	75.2%
2001-02	0.2%	1.4%	8.6%	2.8%	0.9%	3.5%	82.7%	0.4%	5.5%	6.6%	5.0%	3.7%	5.1%	73.7%
2002-03	0.2%	1.5%	8.7%	2.9%	0.9%	2.8%	83.0%	0.5%	5.7%	6.8%	5.2%	3.7%	5.4%	72.7%
2003-04	0.3%	1.6%	8.8%	3.0%	0.8%	2.3%	83.3%	0.4%	5.8%	6.7%	5.4%	3.5%	5.6%	72.5%
2004-05	0.2%	1.5%	8.9%	3.1%	0.8%	3.0%	82.5%	0.4%	5.9%	6.7%	5.6%	3.4%	6.0%	72.0%
2005-06	0.3%	1.5%	8.8%	3.1%	1.2%	3.2%	81.9%	0.4%	5.9%	6.9%	5.7%	3.3%	6.1%	71.5%

Notes: Data on the racial/ethnic composition of athletes are taken from the *NCAA Student-Athlete Race and Ethnicity Report*. Figures for all full-time undergraduates were computed by the author using enrollment data from the Integrated Postsecondary Education Data System (IPEDS). The following abbreviations are used: Nat. Am. represents Native American, Afr. Am. represents African-American, Hisp. represents Hispanic and Int. Std. represents International Students.

a surprise. Cheslock (2007) and GAO (2007) both find that participation in sports with a greater extent of diversity, like football and track and field, saw substantial growth in participation levels.

The trend for women is more complicated. Overall, the portion of female participants that was athletes of color only changed by 0.3 percentage points between 1981-82 and 2004-05. This long-term stability, however, masks several short-term fluctuations: growth during the late 1980s and declines during the mid-1990s. During the growth period, more racially diverse sports (i.e. cross country, track and field, and volleyball) experienced some of the largest participation gains, while participation levels

stagnated in less diverse sports like field hockey, gymnastics and swimming. The drop in the 1990s occurred because growth occurred most rapidly in golf, lacrosse, rowing and soccer, sports where the extent of diversity is lower.

The results in Table 14 (on following page) likely explain why recent growth has disproportionately occurred in those sports with lower levels of diversity. Table 14 demonstrates that most of the sports containing the largest levels of diversity are already offered by the majority of athletic programs belonging to the NCAA. Of the 10 sports that contain the largest shares of athletes of color, five (basketball, volleyball, cross country, softball and tennis) are

Table 13: Predicting Athletes of Color Share Using Participation Numbers by Sport

	GAO (2007)		Cheslock (2007)		NCAA Participation Report		GAO (1999)	
	Women	Men	Women	Men	Women	Men	Women	Men
1981-82					17.2%	23.1%		
1982-23					17.3%	23.3%		
1983-84					17.2%	23.2%		
1984-85					17.2%	23.1%		
1985-86					17.2%	23.3%	17.1%	23.3%
1986-87					17.2%	23.5%		
1987-88					17.2%	23.4%		
1988-89					17.3%	23.5%		
1989-90					17.3%	23.6%		
1990-91					17.5%	23.6%		
1991-92	17.5%	23.8%			17.4%	23.6%		
1992-93	17.5%	23.7%			17.4%	23.5%		
1993-94	17.6%	23.7%			17.4%	23.6%		
1994-95	17.5%	23.8%			17.4%	23.8%		
1995-96	17.5%	23.8%	17.1%	23.8%	17.2%	23.6%		
1996-97	17.5%	24.0%			17.0%	23.8%	16.9%	23.7%
1997-98	17.5%	23.9%			16.9%	23.8%		
1998-99	17.1%	23.6%			16.9%	23.8%		
1999-00	17.1%	23.9%			16.9%	23.9%		
2000-01	17.2%	24.0%			16.9%	23.8%		
2001-02	17.1%	24.0%			16.8%	23.9%		
2002-03	17.1%	24.0%			16.9%	23.9%		
2003-04	17.2%	24.1%			16.9%	23.9%		
2004-05	17.2%	24.0%	16.5%	23.9%	16.8%	23.8%		
2005-06					16.9%	23.7%		

Note: The reported figure for each year is the predicted share of athletic participants that are athletes of color. This share is predicted using participation numbers for each sport during that year and the share of participants for that sport that were athletes of color during 2004-05.

offered by more than 83% of NCAA institutions. Two other sports (indoor and outdoor track and field) are sponsored by 59-68% of NCAA schools. In contrast, of the 12 sports with the lowest levels of diversity, only one (soccer) has a sponsorship rate above 48%.

In many ways, these patterns are good news for those advocating for greater diversity within intercollegiate athletics. The initial sponsorship decisions of collegiate athletic programs after the passage of Title IX favored female sports with the highest levels of diversity. But the flipside of this coin is that unless institutions start to offer multiple teams per sport (i.e. junior varsity or freshmen teams), participation growth for athletes of color cannot be driven by an expansion in the number of women's teams that are offered. Future growth must come from individual women's sports increasing their share of athletes of color.

The need for increased diversity within many sports has been noted repeatedly over the years, and some programs have been developed to further this goal (Blum, 1996; Suggs, 2001; Smith, 2007). The figures presented in Tables 15a and 15b (on following pages) show that the extent of diversity has increased within individual sports, but these increases are concentrated in a few select sports. For men, the growth in the portion of participants that are athletes of color occurred most rapidly in basketball and football for African-American athletes and in fencing, rifle and gymnastics for Asian-American athletes. For women, the largest growth occurred in basketball for African-American athletes, water polo and softball for Hispanic athletes, and fencing for Asian-American athletes.

Table 14: Sponsorship Rate by Sport, 2005-06

Sport	# Teams	Sponsorship Rate	Athletes of Color	Percent of Female Athletes that are:			
				African-American	Hispanic	Native American	Asian American
Basketball	1039	97.7%	33.4%	29.0%	2.7%	0.5%	1.2%
Bowling	44	4.1%	55.1%	51.7%	2.1%	0.5%	0.8%
Cross Country	958	90.0%	16.5%	9.7%	4.8%	0.4%	1.6%
Equestrian	45	4.2%	4.3%	0.6%	2.0%	0.6%	1.1%
Fencing	44	4.1%	23.8%	5.8%	4.6%	0.5%	12.9%
Field Hockey	258	24.2%	4.5%	1.4%	1.5%	0.1%	1.5%
Golf	504	47.4%	11.0%	3.1%	2.8%	0.5%	4.6%
Gymnastics	86	8.1%	12.3%	3.9%	3.0%	0.4%	5.0%
Ice Hockey	75	7.0%	3.5%	0.4%	0.9%	0.6%	1.6%
Lacrosse	271	25.5%	5.1%	2.2%	1.3%	0.2%	1.4%
Rifle	137	12.9%	7.8%	2.1%	2.6%	0.5%	2.6%
Rowing	142	13.3%	10.5%	2.2%	3.6%	0.6%	4.1%
Skiing	40	3.8%	2.8%	0.6%	0.6%	0.0%	1.6%
Soccer	930	87.4%	9.6%	3.8%	3.8%	0.3%	1.7%
Softball	932	87.6%	13.4%	6.0%	5.5%	0.5%	1.4%
Squash	26	2.4%	7.8%	0.8%	2.8%	0.0%	4.2%
Swimming/Diving	497	46.7%	6.9%	1.3%	2.7%	0.3%	2.6%
Tennis	888	83.5%	14.7%	6.0%	3.9%	0.2%	4.6%
Track, Indoor	630	59.2%	25.0%	20.4%	2.8%	0.4%	1.4%
Track, Outdoor	722	67.9%	25.4%	20.0%	3.6%	0.3%	1.5%
Volleyball	992	93.2%	15.5%	8.8%	4.1%	0.3%	2.3%
Water Polo	61	5.7%	14.5%	1.3%	8.0%	0.9%	4.3%

Note: The NCAA contained 1064 institutions in 2005/06.

The figures in Tables 15a and 15b also indicate that African-American athletes are heavily concentrated in a few sports. This participation pattern has important implications, because as Table 14 illustrates, many of the sports in which African-American athletes are most prevalent are sports that are already sponsored by most NCAA member institutions. To ensure that African-American athletes continue to gain in large numbers from the expansion in women's athletics, efforts are needed to reduce the existing segregation patterns by sport. To test whether these patterns have changed in recent years, Table 16 (on following page) presents yearly segregation indices for the 1999-00 to 2005-06 period.<sup>12</sup> In general, the closer an index is to 1, the greater the concentration of African-American athletes in particular sports. The results

indicate that the level of segregation for women has not substantially changed in magnitude in recent years. Sixty-eight percent of African-American female athletes continue to be confined to three sports: basketball, indoor track and field, and outdoor track and field.

Interestingly, the level of segregation for men did grow over this period. This pattern may not represent good news overall, but in terms of participation opportunities, it is not a problematic development. The sports in which African-American athletes are increasingly congregating, basketball and football, are doing relatively well in comparison to other men's sports.

Table 15a: Changes in Women's Racial and Ethnic Shares by Sport, 1999-00 to 2005-06

Sport	African-American			Hispanic			Native American			Asian-American		
	99-00	05-06	Change	99-00	05-06	Change	99-00	05-06	Change	99-00	05-06	Change
Basketball	22.4%	29.0%	6.6%	2.2%	2.7%	0.5%	0.3%	0.5%	0.2%	0.7%	1.2%	0.5%
Bowling	75.6%	51.7%	-23.9%	0.0%	2.1%	2.1%	0.5%	0.5%	0.0%	50.0%	0.8%	-49.2%
Cross Country	8.8%	9.7%	0.9%	3.1%	4.8%	1.7%	0.3%	0.4%	0.1%	1.2%	1.6%	0.4%
Equestrian	0.3%	0.6%	0.3%	1.3%	2.0%	0.7%	0.0%	0.6%	0.6%	0.9%	1.1%	0.2%
Fencing	5.2%	5.8%	0.6%	4.9%	4.6%	-0.3%	0.1%	0.5%	0.4%	6.3%	12.9%	6.6%
Field Hockey	1.1%	1.4%	0.3%	0.7%	1.5%	0.8%	0.2%	0.1%	-0.1%	0.8%	1.5%	0.7%
Golf	3.0%	3.1%	0.1%	2.0%	2.8%	0.8%	0.4%	0.5%	0.1%	2.4%	4.6%	2.2%
Gymnastics	2.9%	3.9%	1.0%	1.3%	3.0%	1.7%	0.2%	0.4%	0.2%	3.8%	5.0%	1.2%
Ice Hockey	0.3%	0.4%	0.1%	0.6%	0.9%	0.3%	0.4%	0.6%	0.2%	0.4%	1.6%	1.2%
Lacrosse	1.9%	2.2%	0.3%	0.9%	1.3%	0.4%	0.3%	0.2%	-0.1%	1.1%	1.4%	0.3%
Rifle	2.1%	2.1%	0.0%	2.5%	2.6%	0.1%	0.0%	0.5%	0.5%	1.7%	2.6%	0.9%
Rowing	1.4%	2.2%	0.8%	2.3%	3.6%	1.3%	0.2%	0.6%	0.4%	2.4%	4.1%	1.7%
Skiing	0.5%	0.6%	0.1%	0.2%	0.6%	0.4%	0.2%	0.0%	-0.2%	0.7%	1.6%	0.9%
Soccer	2.4%	3.8%	1.4%	2.6%	3.8%	1.2%	0.2%	0.3%	0.1%	1.4%	1.7%	0.3%
Softball	6.0%	6.0%	0.0%	3.1%	5.5%	2.4%	0.5%	0.5%	0.0%	1.1%	1.4%	0.3%
Squash	0.5%	0.8%	0.3%	1.0%	2.8%	1.8%	0.0%	0.0%	0.0%	5.3%	4.2%	-1.1%
Swimming/Diving	0.9%	1.3%	0.4%	1.5%	2.7%	1.2%	0.2%	0.3%	0.1%	2.0%	2.6%	0.6%
Tennis	5.2%	6.0%	0.8%	2.8%	3.9%	1.1%	0.2%	0.2%	0.0%	4.2%	4.6%	0.4%
Track, Indoor	19.1%	20.4%	1.3%	2.0%	2.8%	0.8%	0.3%	0.4%	0.1%	0.8%	1.4%	0.6%
Track, Outdoor	19.2%	20.0%	0.8%	2.6%	3.6%	1.0%	0.3%	0.3%	0.0%	0.9%	1.5%	0.6%
Volleyball	8.3%	8.8%	0.5%	3.1%	4.1%	1.0%	0.2%	0.3%	0.1%	1.7%	2.3%	0.6%
Water Polo	1.0%	1.3%	0.3%	4.5%	8.0%	3.5%	0.2%	0.9%	0.7%	3.4%	4.3%	0.9%
Total	9.4%	10.7%	1.3%	2.4%	3.5%	1.1%	0.3%	0.4%	0.1%	1.5%	2.0%	0.5%

<sup>12</sup> Because a number of different segregation indices exist and they sometimes produce different results, two different indices are reported in Table 16. See Hutchens (2001, 2004) for the definition of these indices as well as a description of their strengths and weaknesses.

Table 15b: Changes in Men's Racial and Ethnic Shares by Sport, 1999-00 to 2005-06

Sport	African-American			Hispanic			Native American			Asian-American		
	99-00	05-06	Change	99-00	05-06	Change	99-00	05-06	Change	99-00	05-06	Change
Baseball	4.6%	4.3%	-0.3%	4.1%	5.3%	1.2%	0.3%	0.4%	0.1%	0.8%	1.1%	0.3%
Basketball	37.8%	42.6%	4.8%	2.4%	2.7%	0.3%	0.3%	0.5%	0.2%	0.5%	0.7%	0.2%
Cross Country	8.6%	8.6%	0.0%	3.5%	5.3%	1.8%	0.3%	0.6%	0.3%	1.2%	1.4%	0.2%
Fencing	3.4%	5.2%	1.8%	3.1%	5.0%	1.9%	0.9%	0.6%	-0.3%	7.9%	12.9%	5.0%
Football	28.1%	33.0%	4.9%	2.2%	2.5%	0.3%	0.3%	0.6%	0.3%	0.9%	1.1%	0.2%
Golf	1.8%	2.0%	0.2%	1.3%	1.6%	0.3%	0.4%	0.4%	0.0%	1.3%	1.8%	0.5%
Gymnastics	2.6%	3.4%	0.8%	3.5%	4.4%	0.9%	0.0%	0.9%	0.9%	6.1%	8.4%	2.3%
Ice Hockey	0.4%	0.8%	0.4%	0.4%	0.4%	0.0%	0.3%	0.3%	0.0%	0.4%	0.9%	0.5%
Lacrosse	1.5%	2.1%	0.6%	0.9%	1.1%	0.2%	0.3%	0.3%	0.0%	0.7%	0.8%	0.1%
Rifle	1.3%	0.9%	-0.4%	0.9%	2.7%	1.8%	0.0%	0.5%	0.5%	2.6%	5.9%	3.3%
Skiing	0.3%	0.0%	-0.3%	0.2%	0.6%	0.4%	0.0%	0.6%	0.6%	0.9%	1.3%	0.4%
Soccer	5.6%	6.2%	0.6%	5.5%	6.8%	1.3%	0.2%	0.2%	0.0%	1.4%	1.6%	0.2%
Swimming/Diving	1.4%	1.4%	0.0%	2.0%	3.1%	1.1%	0.2%	0.2%	0.0%	2.0%	2.9%	0.9%
Tennis	4.9%	5.2%	0.3%	3.6%	4.5%	0.9%	0.2%	0.3%	0.1%	4.1%	4.8%	0.7%
Track, Indoor	19.7%	20.4%	0.7%	2.1%	3.3%	1.2%	0.2%	0.4%	0.2%	1.0%	1.4%	0.4%
Track, Outdoor	20.2%	20.7%	0.5%	3.1%	4.3%	1.2%	0.3%	0.4%	0.1%	1.0%	1.5%	0.5%
Volleyball	5.8%	7.7%	1.9%	14.4%	11.2%	-3.2%	0.2%	0.3%	0.1%	3.9%	4.5%	0.6%
Water Polo	0.6%	0.8%	0.2%	5.8%	5.1%	-0.7%	0.7%	0.6%	-0.1%	3.1%	4.8%	1.7%
Wrestling	6.0%	5.6%	-0.4%	4.2%	5.0%	0.8%	0.6%	0.7%	0.1%	1.3%	1.6%	0.3%
Total	16.3%	18.1%	1.8%	3.0%	3.7%	0.7%	0.3%	0.4%	0.1%	1.2%	1.5%	0.3%

Table 16: Indices Describing the Segregation of African-American Athletes Across Sports

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
<b>Square Root Index</b>							
Women - All Divisions	0.12	0.13	0.13	0.12	0.12	0.12	0.12
Women - Division I	0.15	0.16	0.15	0.15	0.15	0.15	0.15
Women - Division II	0.10	0.11	0.11	0.11	0.11	0.11	0.10
Women - Division III	0.08	0.09	0.08	0.08	0.09	0.09	0.08
Men - All Divisions	0.12	0.12	0.12	0.13	0.13	0.13	0.13
Men - Division I	0.14	0.15	0.15	0.15	0.16	0.16	0.17
Men - Division II	0.12	0.13	0.13	0.12	0.13	0.13	0.14
Men - Division III	0.10	0.09	0.09	0.10	0.10	0.10	0.10
<b>Dissimilarity Index</b>							
Women - All Divisions	0.41	0.41	0.41	0.40	0.42	0.42	0.41
Women - Division I	0.45	0.46	0.46	0.45	0.46	0.46	0.46
Women - Division II	0.32	0.32	0.33	0.33	0.34	0.34	0.34
Women - Division III	0.34	0.33	0.32	0.31	0.34	0.35	0.32
Men - All Divisions	0.41	0.41	0.41	0.42	0.42	0.42	0.43
Men - Division I	0.42	0.44	0.43	0.44	0.45	0.45	0.46
Men - Division II	0.41	0.41	0.42	0.42	0.42	0.42	0.43
Men - Division III	0.36	0.35	0.35	0.36	0.36	0.36	0.37

Note: See Hutchens (2001) for a description of how each index is calculated.

## Summary

Since the passage of Title IX in 1972, the number of female athletes has grown dramatically, and female athletes of color have shared in that growth. Butler and Lopiano (2003) estimate that the number of female athletes of color grew from 2,137 to 22,541 between 1971 and 2000. This report only extends back to 1981 and finds that the growth in athletic participation across sports did not cause the share of female participants that are athletes of color to dramatically change over the period. Given that the number of female participants has steadily increased, this means that many athletes of color — especially African-American athletes — have gained from the overall expansion of opportunities. But Asian-American, Hispanic and Native American athletes still comprise a relatively small portion of participants. And almost all NCAA institutions now offer those sports in which African-American female athletes regularly participate, so future participation growth for African-American athletes must be driven by efforts to broaden their involvement across sports. Evidence from recent years indicates that the efforts to date in this area have not yet produced substantial results at the collegiate level.

## Implications for the Policy Debate

This report, for the first time, provides a complete picture regarding how athletic participation has changed over time and adds significant rationale and meaning to why these changes have taken place. The participation trends and explanations revealed in this report have several important implications for the ways that policymakers think about Title IX and the shifting patterns of female and male athletic participation.

### **Implication #1: Future calls for weakening Title IX's participation requirements should be viewed with caution.**

This report demonstrates that all available data indicate that men's participation has slightly increased, rather than decreased, over time. This finding is important because critics of Title IX regularly claim that male athletes have suffered a drastic reduction in participation opportunities and that a substantial weakening of Title IX's participation requirements is needed to stem these declines. Clearly, this line of reasoning is not supported by the available evidence. Not only has men's participation increased since the passage of Title IX, but three additional pieces of evidence indicate that institutions of higher education have responded to this legislation by increasing women's athletic participation rather than decreasing men's participation. Consequently, any calls to weaken the participation requirements of Title IX under the guise of increasing men's participation opportunities should be viewed with caution.

### **Implication #2: Policies must be instituted to restrain athletic expenditure growth.**

EADA data for the 1995-96 to 2004-05 period and NCAA data for the 2003-04 to 2005-06 period indicate that athletic expenditures are increasing annually by 7% after adjusting for inflation. When expenditures on existing sports grow rapidly, colleges and universities must choose some or all of the following strategies: rapidly increasing athletic revenues, increasing the subsidy provided to the

athletic department, or discontinuing some of the existing athletic teams. These strategies may conflict with the goals of the athletics program and/or the mission of the university because they can easily lead to increased commercialization within athletics, fewer dollars available for educational activities, and a smaller number of athletic participation opportunities.

Given these negative consequences, policies need to be instituted that will restrain athletic expenditure growth. Such policies must be enacted collectively, because any individual institution faces tremendous pressure to not risk competitive disadvantage by taking unilateral action. Athletic directors often justify extreme growth in coaching salaries and facilities for college football by noting similar increases at rival institutions. Clearly, collective action is the best route for success. The potential benefits of such an approach were noted by economist Robert Frank: "If governing bodies such as the NCAA were able (or were permitted by the antitrust authorities) to create incentives for each program to limit its expenditures, resources can be diverted to meet other pressing ends without sacrificing any of the real benefits that college athletic programs generate" (Frank, 2004, p.33). Unless the NCAA gains the legal authority and the will to aggressively restrain costs, the current unsustainable rate of expenditure growth will continue.

### **Implication #3: The explanation for shifting participation trends must not be based solely on Title IX or the experience of a few specific sports.**

Even if athletic expenditure growth can be moderated, the analysis in this report suggests that some sports may still face declines. Individual sports can increase or decrease in popularity among athletic directors and college presidents, and consequently, participation trends for some sports should be expected to differ substantially from overall participation trends. Such variation has indeed occurred as participation in soccer, lacrosse and football has grown faster than average, and gymnastics, tennis and wrestling have fared worse



than other sports. These patterns imply that a number of sport-specific explanations contribute to declines in specific sports. This report discusses four traits that currently make a sport less attractive to athletic directors and college presidents: falling or stagnant high school participation; high injury rates; heavy reliance on international student-athletes; and participants who do not possess strong academic preparation, the ability to produce large amounts of tuition dollars, or high levels of racial and ethnic diversity. Any initiative to stem declines in a specific sport must consider these issues as well as other potential explanations.

**Implication #4: Efforts must be made to increase the participation of athletes of color.**

Finally, this report shows that Title IX has substantially increased participation opportunities for athletes of color because the substantial increase in women's athletic participation that occurred after Title IX was in those sports that have the highest level of diversity among its participants. As a result, most of the sports with the highest diversity levels are now offered by a large majority of NCAA institutions. This means that it is increasingly difficult to substantially increase the number of athletes of color through further expansion of existing sport participation opportunities. Future improvements in the diversity of college athletes must come through efforts to increase the portion of participants that are athletes of color in many of the sports in which these athletes are underrepresented.

## Policy Recommendations <sup>13</sup>

The *Who's Playing College Sports?* series presents critical data on trends in collegiate athletic participation that lends insight and provides implications into the Title IX policy debate. Based on the information from this series, the Women's Sports Foundation has compiled the following policy recommendations:

### 1. The Title IX "Blame Game" Must End

Far too often shifting athletic participation trends, especially the dropping of sports programs, are wrongly attributed to Title IX. More accurate assessments of causal factors are mandated. This report suggests that institutions of higher education primarily improve gender equity by adding female athletes, not dropping male athletes. Furthermore, the fact that intercollegiate athletic participation in some sports has grown in recent years while participation in other sports has stood still or declined demonstrates that a number of sport-specific explanations, not Title IX, are contributing factors to declines in individual sports. These explanations include dropping sports that exhibit falling or stagnant high school participation rates, high injury rates, reliance on recruiting international student-athletes, and those that have participants who do not possess strong academic preparation, while adding sports that have the ability to produce large amounts of tuition dollars, or increase the racial and ethnic diversity of the student body. Further, some institutions may change the athletics program philosophy from a broad participation offering numerous sports teams to a more elitist model of offering fewer teams and striving for higher quality programs.

### 2. Efforts must be made to improve the diversity of college athletes through increasing grassroots participation of athletes of color in the youth pipelines of many sports.

Efforts to expand diversity in collegiate sports must be concentrated at the grassroots level across a wide

varsity of sports because sports with the highest diversity levels are now already being offered by a large majority of NCAA institutions. With the exception of track, basketball and football, where athletes of color are overrepresented, we know that athletes of color are underrepresented compared to their proportion in the general student body in all other sports. Participation starts in grassroots programs. The United States Olympic Committee (USOC) and their national sports governing bodies (NGBs) must act to fulfill their obligation under the Amateur Sports Act (ASA), which mandate continuing efforts to expand participation opportunities for females, individuals with disabilities and underrepresented racial and ethnic groups. NGBs must create new programs targeting these underrepresented groups and must sensitize the leaders of existing programs to make affirmative efforts to recruit and include athletes of color at the grassroots level in all sports.

Further, the school community must recognize their role in the encouragement of early sports participation in a broad variety of sports. While Title IX does not provide legal protection on the basis of race, it can be part of the solution to creating more opportunities for women of color as a means to combating sex discrimination. Women and girls continue to be underrepresented in athletics, receiving 1.3 million fewer participation opportunities than boys at the high school level and 86,305 fewer opportunities in college. As schools add more programs to address the gender participation gap, schools should give priority to adding those sports and creating opportunities that will also increase the representation of women of color. For example, the New York City schools recently added double Dutch as a varsity sport. As a sport with high participation rates of athletes of color, particularly among girls, this addition will both expand opportunities for girls and improve diversity in competitive athletics.

---

<sup>13</sup> The following policy recommendations were created by the Women's Sports Foundation based on the research findings of the *Who's Playing College Sports?* series.

### **3. The Office for Civil Rights should strengthen its enforcement of Title IX.**

Women's participation in sports still continues to lag far behind men; on average, women comprise 55.8% of college and university student bodies, but receive only 41.7% of athletic participation opportunities. Instead of narrowing this gap, in recent years, gains in women's participation at the college level have slowed, and the gap at the high school level has actually increased. NCAA data show that women's participation increased annually by 3.6% between 1991-92 and 2001-02, but only by 1.5% between 2001-02 and 2004-05. As a result, the gap between men's and women's participation has not meaningfully narrowed since 2001-02. More vigilant enforcement of Title IX is needed to reverse these alarming trends and close the participation gap. The OCR should strengthen its enforcement of Title IX by initiating proactive compliance reviews of educational institutions. In addition, when issuing findings in response to complaints, the OCR should be vigilant in its efforts to ensure that schools actually implement their compliance improvement plans.

### **4. Congress should grant the NCAA a limited anti-trust exemption to restrain athletic expenditure growth.**

Unless the NCAA gains the legal authority (i.e., an anti-trust exemption) and the will to aggressively restrain costs, the current unsustainable rate of expenditure growth by athletics programs will continue. Intercollegiate athletics is inter-institutional in nature. Individual institutions will not exercise restraint as long as one institution fails to exercise restraint. Conferences will not exercise restraint if such limitations appear to damage the competitiveness of its members nationally. Thus, the national governance association must exercise overall restraint of all members. NCAA cost limiting legislation continues to run afoul of the Sherman Antitrust Act with large judgments or settlements already straining NCAA coffers. With regard to coaches salaries in particular, it is clear that absent an anti-trust exemption, restricting earnings is not

permitted. Salaries and scholarships account for 50% of all Division I expenses. Thus, a limited antitrust exemption that would allow some restraint on coaches' salaries would have an immediate beneficial financial impact on most programs.

### **5. Every athletic governance organization should have a certification program or self-evaluation requirement that accesses gender equity and diversity within the athletic programs of its members.**

As a pre-condition and regularized continuing obligation to athletic governance organization membership, institutions should be required to conduct a gender equity and diversity assessments. The gender equity evaluation should require compliance with Title IX standards and enforcement mechanisms for failure to comply, following an opportunity to remedy such, should be effective disincentives such as the loss of eligibility to participate in championship tournaments.

### **6. The Office for Civil Rights should rescind the March 2005 Policy Clarification.**

Despite the fact that *all available data* indicates that men's participation has increased since the passage of Title IX, based on false claims of its adverse impact on men's sports, the Bush administration has attempted to weaken Title IX with the March 2005 Clarification. The Clarification allows institutions to use an online survey to demonstrate compliance with Prong Three of Title IX's participation standard, despite the fact that past research and basic methodological principles demonstrate that exclusive reliance on such a survey will not fairly reveal the interests and abilities of female athletes. Thus, this Clarification substantially reduces the pressure on institutions to ensure gender equity by expanding opportunities for women. The OCR must rescind the Clarification and reaffirm the 1996 policy standards, which allow surveys to be only one of a multitude of factors schools must use to determine if they are satisfying the interests of their female athletes.

## Appendix A: NCAA Sports Sponsorship And Participation Rate Report

Prior to the publication of GAO (2007), the NCAA's Sports Sponsorship and Participation Rate Report was the only document that reported participation levels for a large number of years using NCAA data. This report, however, does not employ a consistent sample of schools when calculating participation levels for different years, so the figures from this report cannot be used to examine whether individual athletic programs are increasing or decreasing participation levels. For example, the NCAA participation report indicates there were 183,673 athletes at 847 NCAA institutions in 1991-92 and 219,744 athletes at the 1,045 NCAA institutions in 2004-05. While these figures indicate that NCAA participation levels grew by 20%, this increase could be solely due to the rise in NCAA membership.

To use these data to examine whether individual athletic programs are adding or dropping participants, some researchers have computed per-school participation figures using data from the NCAA participation report. This metric, which would indicate that men's participation fell by 3% (from 217 per institution to 210 per institution) between 1991-92 and 2004-05, was used in the final report of the Secretary of Education's Commission on Opportunity in Athletics to suggest that men's intercollegiate athletic participation was falling over time.<sup>14</sup> But the results in GAO (2007) clearly show that per-school participation figures paint a very inaccurate portrait of how athletic programs have adjusted participation opportunities. GAO (2007), which uses the same data as the NCAA participation report and utilizes a consistent sample of schools, demonstrates that men's participation actually increased by 8% between 1991-92 and 2004-05.

Why are per-school measures so inaccurate? Cheslock (2007) explains that comparisons of per-school measures are only valid if the institutions that joined the NCAA in recent years have athletic programs that are similar in size to existing NCAA members. But this is clearly not the case. An analysis of EADA data for 2004-05 indicate that existing NCAA members (as of 1981) have 57% more male athletes and 74% more female athletes than institutions that joined the NCAA after 1981.

Because the NCAA participation report is the only source of information for years prior to 1991-92, it is important to develop a procedure that adjusts these data for the growing size of the NCAA and the smaller size of athletic programs that joined after 1981. Equation (1), introduced in Cheslock (2008), does exactly that for men's participation and is used to compute the results for Figure 1 of this report<sup>15</sup>:

$$\hat{A}_t = A_t + \left[ (1045 - M_t) * \left( \left( \frac{A_t}{M_t} \right) * \left( \frac{1}{1.57} \right) \right) \right] \quad (1)$$

where  $\hat{A}_t$  is the estimated number of athletic participants for year t for the 1,045 institutions that were NCAA members in 2004-05,  $A_t$  is the number of athletic participants in year t among those institutions that were NCAA members in that year, and  $M_t$  is the number of NCAA members in year t.

14 A 2007 College Sports Council report also used this method and also reported substantial declines in men's participation.

15 If 1.74 is substituted for 1.57, equation (1) can be used to estimate adjusted participation figures for women.

## References

- Anderson, D. and Cheslock, J. (2004). Institutional strategies to achieve gender equity in intercollegiate athletics: Does Title IX harm male athletes? *American Economic Review*, 94, 307-311.
- Blum, D. (1995, May 26) The battle for gender equity: Some fear that steps to help female athletes may curtail opportunities for blacks. *Chronicle of Higher Education*. Retrieved June 12, 2008, from <http://chronicle.com/che-data/articles.dir/articles-41.dir/issue-37.dir/37a00101.htm>
- Bracken, N. (2007). *1981-82 - 2005-06 NCAA sports sponsorship and participation report*. Indianapolis, IN: National Collegiate Athletic Association.
- Butler, J. and Lopiano, D. (2003) *Title IX and Race in Intercollegiate Sport*. East Meadow, NY: Women's Sports Foundation.
- Cheslock, J. (2007). *Who's Playing College Sports? Trends in Participation*. East Meadow, NY: Women's Sports Foundation.
- Cheslock, J. (2008). Title IX and intercollegiate athletic participation. Unpublished Manuscript, University of Arizona.
- Dick, R., Agel, J. and Marshall, S. (2007). National Collegiate Athletic Association injury surveillance system commentaries: Introduction and methods. *Journal of Athletic Training*, 42, 173-182.
- Frank, R. (2004). Challenging the myth: A review of the links among college athletic success, student quality, and donations. Retrieved June 12, 2008, from [www.knightcommission.org/about/white\\_papers/frank\\_report/](http://www.knightcommission.org/about/white_papers/frank_report/)
- Fulks, D. (2005a). *2002-03 NCAA revenues and expenses of Divisions I and II intercollegiate athletics programs report*. Indianapolis, IN: National Collegiate Athletic Association.
- Fulks, D. (2005b). *2002-03 NCAA revenues and expenses of Divisions III intercollegiate athletics programs report*. Indianapolis, IN: National Collegiate Athletic Association.
- Fulks, D. (2008). *2004-06 NCAA revenues and expenses of Division I intercollegiate athletics programs report*. Indianapolis, IN: National Collegiate Athletic Association.
- General Accounting Office. (2007). *Intercollegiate athletics: Recent trends in teams and participants in National Collegiate Athletic Association sports*. Retrieved February 6, 2008, from [www.gao.gov/new.items/d07535.pdf](http://www.gao.gov/new.items/d07535.pdf).
- Hogshead-Maker, N., and Zimbalist, A. (2007). *Equal play: Title IX and social change*. Philadelphia, PA: Temple University Press.

Hutchens, R. (2001). Numerical measures of segregation: Desirable properties and their implications. *Mathematical Social Sciences*, 42, 13-29.

Hutchens, R. (2004). One measure of segregation. *International Economic Review*. 45, 555-578.

Litan, R., Orszag, J. and Orszag, P. (2003). *The empirical effects of collegiate athletics: An interim report*. Retrieved February 6, 2008, from [www2.ncaa.org/portal/media\\_and\\_events/ncaa\\_publications/research/index.html](http://www2.ncaa.org/portal/media_and_events/ncaa_publications/research/index.html)

National Federation of State High School Associations. (2002). *National Federation of State High School Associations participation study 1971-01*. Retrieved February 7, 2008 from [www.aahperd.org/nagws/pdf\\_files/NationalFederationstudy.pdf](http://www.aahperd.org/nagws/pdf_files/NationalFederationstudy.pdf).

Orszag, J. and Orszag, P. (2005). The physical capital stock used in collegiate athletics. Retrieved February 6, 2008, from [www2.ncaa.org/portal/media\\_and\\_events/ncaa\\_publications/research/index.html](http://www2.ncaa.org/portal/media_and_events/ncaa_publications/research/index.html), last accessed February 6, 2008.

Smith, L. (2007, June 29) Black female participation languishes outside basketball and track. *Chronicle of Higher Education*. Retrieved June 12, 2008, from <http://chronicle.com/weekly/v53/i43/43a03401.htm>.

Stevenson, B. (2007). Title IX and the evolution of high school sports. *Contemporary Economic Policy*, 25, 486-505.

Suggs, W. (2001, November 30). Left behind: Title IX has done little for minority female athletes – Because of socioeconomic and cultural factors, and indifference. *Chronicle of Higher Education*. Retrieved June 12, 2008, from <http://chronicle.com/weekly/v48/i14/14a03501.htm>

Suggs, W. (2005). *A place on the team: The triumph and tragedy of Title IX*. Princeton, NJ: Princeton University Press.

Vicente, R. (2007). *1999-00 – 2005-06 NCAA student-athlete race and ethnicity report*. Indianapolis, IN: National Collegiate Athletic Association.

## About the Women's Sports Foundation

The Women's Sports Foundation—the leading authority on the participation of women and girls in sports—advocates for equality, educates the public, conducts research, and offers grants to promote sports and physical activity for girls and women.

Founded by Billie Jean King in 1974, the Women's Sports Foundation builds on her legacy as a champion athlete, advocate of social justice, and agent of change. We strive for gender equity and fight discrimination in all aspects of athletics.

Our work shapes public attitude about women's sports and athletes, builds capacities for organizations that get girls active, provides equal opportunities for girls and women, and supports physically and emotionally healthy lifestyles.

The Women's Sports Foundation is recognized worldwide for its leadership, vision, strength, expertise, and influence.

For more information, please call the Women's Sports Foundation at 800.227.3988 or visit [www.WomensSportsFoundation.org](http://www.WomensSportsFoundation.org).



**Women's Sports Foundation**  
founded by Billie Jean King

Eisenhower Park  
1899 Hempstead Turnpike, Suite 400  
East Meadow, New York 11554

☎ 800.227.3988 • 516.542.4700  
✉ info@WomensSportsFoundation.org  
www.WomensSportsFoundation.org