



Women's Sports Foundation

RESEARCH SERIES

The Women's Sports Foundation Report: Addressing the Health and Physical Activity Needs of Girls in the Boston Metropolitan Area

November 2007

About the Women's Sports Foundation

Founded in 1974 by Billie Jean King, the Women's Sports Foundation is a national charitable educational organization seeking to advance the lives of girls and women through sports and physical activity. The Foundation's Participation, Education, Advocacy, Research and Leadership programs are made possible by gifts from individuals, foundations and corporations. The Foundation is located in Nassau County, N.Y. For more information, please call the Foundation at (800) 227-3988 or visit www.WomensSportsFoundation.org. The Foundation serves as a center for collecting and sharing information on girls and women in sports and physical activity. The Women's Sports Foundation also produces academic research on the psychological, social and physiological dimensions of sport and physical activity in the lives of girls and women.

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The Women’s Sports Foundation Report:

Addressing the Health and Physical Activity Needs of Girls in the Boston Metropolitan Area

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Executive Summary

This report highlights key indicators of the status of (1) physical activity and health for female youth, (2) girls' sports and physical activity delivery systems, (3) public policy affecting the availability of sports and physical activity and (4) adult knowledge that may influence the encouragement of girls' sports and physical activity participation in the Boston metropolitan area. Statistics for the United States, Massachusetts and Boston are primarily from the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey.

1. Sports Team Participation

- ◆ Boston female athletes participation on high school teams is lower than that of Boston male athletes and female athletes nationwide. Just 36.1% of Boston female high school students (compared to 57.6% of Boston male students) participate on one or more sports teams inside or outside of school, compared with the national average of 50.2% for females (61.8% for U.S. males).
- ◆ Black and Hispanic female athletes participation on high school teams in Boston is lower than that of black and Hispanic female athletes nationwide. Among black high school girls in Boston, only 35.8% are athletes (compared to 43.6% in the United States) and only 24.8% of Boston high school females who are Hispanic are athletes (compared to 43.8% in the United States).

2. Vigorous Physical Activity

- ◆ Fewer Boston females meet recommended physical activity standards than the national average. Only 50.9% of Boston females participate in sufficient vigorous physical activity each week, compared with the national average of 61.5%.
- ◆ Black, non-Hispanic and Hispanic females in Boston are less likely to meet the previously recommended level of physical activity than all female race/ethnic categories nationally.

3. Physical Education Class Attendance

- ◆ There is poor female PE class attendance in Boston. Only 34.5% of female students in Boston participate in physical education one or more days a week, compared to 42.3% of Boston male students and 59.5% of Massachusetts female students.
- ◆ PE participation declines significantly as Boston girls get older. Boston males are significantly more likely than Boston female students to attend PE classes in all high school grade levels and 12th-grade females participate at the dismally low level of 23.2%, declining every year from a ninth-grade rate of 47.8%.

4. Sports Participation vs. Exercise

- ◆ Sports participation carries significant benefits in reducing health risks. With the only exception being dietary behaviors (eating recommended fruits and vegetables), moderately and highly involved athletes were less likely to experience health problems or engage in risky health behaviors than non-athletes.
- ◆ Health-risk behavior outcomes are not as clearly positive for Boston female exercisers as they are for athletes.
- ◆ There are greater health benefits for Boston black and Hispanic girls who participate in sports and physical activity. Even when there were no overall significant differences between all athletes and non-athletes or levels of all exercisers, in many cases, significant sports or exercise participation benefits for race/ethnicity groups were revealed on the variables of overweight, obesity, fasting and use of diet pills/products for weight loss and television viewing.

5. Overweight and Obesity

- ◆ Boston females are more overweight than U.S. females. Female high school students in Boston (20.6%) are more likely to be overweight than the national average (15.5%).
- ◆ Boston females are more obese than U.S. females. Female high school students in Boston (11.2%) are more likely to be obese than the national average of (10%).

- ◆ Boston black and Hispanic females are at greater risk for being overweight and obese than Boston white females. Mirroring a national trend, black and Hispanic females in Boston are more likely to be overweight and obese than Boston white females.

6. Other Health and Health-Risk Behavior Factors:

- ◆ Boston females fare worse than the U.S. average on some key health-risk behaviors. Boston females are more likely than U.S. females to have asthma, engage in excessive television viewing, engage in sexual intercourse, experience teen pregnancy and use marijuana (see Figures 1 and 2).
- ◆ Boston females fare better than the U.S. average on some key health-risk behaviors. Boston females are less likely than U.S. females to engage in unhealthy weight control, be depressed, have made a suicide plan, smoke cigarettes, use alcohol, engage in binge drinking, use steroids and use cocaine (see Figures 1 and 2).

Figure 1: Status of Female Youth Physical Activity and Health in Boston Compared with U.S. Averages

	Community and H.S. Sports Team Participation	Vigorous Physical Activity	Phys. Ed. Class Attendance	Overweight: At Risk for Obesity	Obesity*	Unhealthy Weight Control	Asthma	Physical Disability	Depression	Made Suicide Plan	Attempted Suicide
Boston	👍	👍	👍	👍	👍	👍	👍	no data	=	👍	=

👍 = Better than U.S. Average
 👎 = Worse than U.S. Average
 = = Same as U.S. Average

* Black and Hispanic youth are significantly more at risk for obesity than white youth

Figure 2: Status of Female Health-Risk Behaviors in Boston Compared with U.S. Averages

	3+ Hours TV on Average Day	Smoke Cigarettes	Had Sexual Intercourse	Teen Pregnancy	Current Alcohol Use	Binge Drinking	Steroid Use	Marijuana Use	Cocaine Use
Boston	👍	👍	👎	👎	👍	👍	👍	👎	👍

👍 = Better than U.S. Average
 👎 = Worse than U.S. Average

7. Access to Sports and Physical Activity Opportunities

- ◆ Boston schools are not providing equal opportunities and treatment for female athletes.
- ◆ There are serious physical education deficiencies for Boston girls. The current PE curriculum requirement of 90 hours per year does not meet national standards. Between 1996 (when existing but still not sufficient

standards were lowered) and 2007, Boston female PE class attendance has plummeted from 69% to 35%. Required physical education represents the most efficient physical activity delivery system (lowest cost/greatest reach) and is being underutilized.

- ◆ Boston needs more sports facilities for its youth. Boston has 60% of the sports and recreation facilities of middle- and upper-income suburbs, which limits the availability of sports and physical activity programming for boys and girls.
- ◆ Girls and boys with disabilities are underserved when it comes to sports and physical activity opportunities in Boston. No clear regulations that specify equal treatment of individuals with disabilities in school and college physical activity settings, including physical education, school recess and club, intramural and varsity sports programs, exist. No Boston data on sports and physical activity opportunities for girls or boys with disabilities exists.

8. Support of Youth and Girl-Serving Organizations (GSOs) Delivering Sports and Physical Activity Programs for Girls

- ◆ Boston GSOs are carrying a disproportionate burden in the delivery of sports and physical activity programs for girls. Safety concerns, failure of schools to meet sports and physical education needs of girls and “No Child Left Behind” mandates consuming the focus and resources of public schools have relegated major responsibility for delivering after-school adult supervised sports and physical activity programs to GSOs that do not enjoy the public’s financial support, easy access to use of school or park facilities or highly qualified professional expertise in the execution and evaluation of their programs.
- ◆ Male-focused organizations are shortchanging Boston’s girls. Many GSOs are coed and male-dominated in terms of participants and adult leadership, which results in girls feeling marginalized and being underserved. GSOs need specialized knowledge to remedy this culture and create programs that appeal to girls who want to play.
- ◆ There is a lack of knowledge of how to engage Boston’s sedentary girls in physical activities. Few GSOs understand how to capture sedentary girls who need special outreach and programming environments to engage in sports and physical activities.

9. Adult Knowledge and Influence

- ◆ There is a need for more public education and promotion around Boston girls’ physical activity. Encouragement on the part of parents is effective in increasing their daughters’ physical activity. Public education is required in Boston.
 - ◇ While many metro Boston residents believe that when it comes to sports, girls in Boston are not offered the same opportunities or attention as boys, males, blacks and Hispanics; and younger residents ages 18-39 were less knowledgeable about the benefits of physical activity for girls.
 - ◇ Women (69%), more so than men (56%), place more importance on girls being a healthy weight.
- ◆ Boston residents are ready to help get girls physically active. Boston residents appear motivated to join in the cause to get girls physically fit and are already heading in the right direction, with many saying they are likely to participate in a mentoring activity aimed at encouraging physical activity among girls over the next year.
 - ◇ Specifically, many Boston adults expect to participate in a physical activity with a girl (39%), speak to a girl about the importance of physical activity (39%) and/or make a commitment to get one or more girls they know involved in physical activity (30%).
 - ◇ Those who feel less equipped to help a girl get more physically active are more likely to be males (40%) rather than females (24%), younger residents aged 18-39 (37%) rather than older residents aged 40+ (26%) and those who have less interaction (38%) with girls than those who have more interaction (24%).

Introduction

Purpose

The purposes of this report are to:

1. examine the current status and raise awareness of issues surrounding:
 - ◇ sports and physical activity participation of girls in the Boston metropolitan area and how such participation is related to girls' health and health-risk behaviors,
 - ◇ girls' sports and physical activity delivery systems,
 - ◇ public policy affecting the availability of sports and physical activity for girls, and
 - ◇ adult knowledge that may influence the encouragement of girls' sports and physical activity participation; and
2. provide benchmark statistics from which the progress of the Women's Sports Foundation's GoGirlGo! Boston program and other metro Boston initiatives to increase the sports and physical activity participation of girls can be measured.

This report examines a considerable body of research that has been produced over the last decade by researchers and local, state and national agencies and relies heavily on data produced by the Centers for Disease Control and Prevention 2005 Youth Risk Behavior Survey (cited throughout as "CDC-YRBS, 2005"), considered by most to be the most accurate and consistent information on youth physical activity and health-risk behaviors.

This report prefaces the launch of GoGirlGo! Boston in November of 2007, the fourth Women's Sports Foundation community program (joining Atlanta, launched in 2004; Chicago–2005; and San Antonio–2006) targeting high-population urban centers for the purpose of increasing the participation of girls aged 8 to 18 in sports and physical activity. GoGirlGo! Boston provides a year-round program intervention consisting of cash and equipment grants and technical assistance in support of schools, recreation programs and nonprofit organizations that are the direct providers of physical activity programming to girls within the 128 Loop. In addition, GoGirlGo! Boston includes (1) a public education program aimed at parents and caring adults who have the power to influence the sports participation of girls, (2) efforts to encourage increased funding of sports and physical activity programming from the public and private sectors and (3) public policy initiatives that seek to ensure gender equity, address the under-representation of girls from racial and ethnic minority populations and those with disabilities and promote school recess and physical education requirements for all children. All of these programs are prefaced with an assessment of other available Boston-area technical assistance programs in order to provide this information to direct delivery program providers and prevent duplication or overlapping efforts. Partnerships with third-party funders and other community service programs are sought to enhance the power and reach of each of these efforts.

Overweight and Obesity Epidemic

The number of obese and overweight children is on a dramatic rise. Increasing youth physical activity and better nutritional habits are keys to reversing this trend. The prevalence of overweight children aged 6 to 11 has more than doubled in the past 20 years, increasing from 7% in 1980 to 18.8% in 2004. The rate among adolescents aged 12 to 19 more than tripled, increasing from 5% to 17.1% (Ogden, 2006). Girls are becoming overweight at an alarming rate, more so than boys. Many girls enter a period of reduced physical activity in the two or three years leading up to puberty. This age-specific drop in energy expenditure contributes to the growing incidence of obesity among pre-adolescent and adolescent girls (CDC, 2003).

Obesity is related to such chronic diseases as diabetes, heart disease, asthma, osteoarthritis and stroke. Poor diet and lack of physical activity are the most prevalent reasons for the recent increase in overweight and obese

children. Recommendations to prevent overweight children need to focus on “improving the balance between caloric intake and energy expenditure” (CDC, 1997).

Girls are at greater risk than boys to suffer from obesity and other health-related diseases. Between 1965 and 2000 the obesity rate among girls ages 6-19 increased from 4.2% to 15.5% (National Center for Health Statistics, 2002). Between 1999 and 2005, the obesity rate among high school girls increased from 7.6% to 10% (CDC, 2005). Moreover, race/ethnicity and social class play a role. Girls from lower socioeconomic households are at particular risk for being overweight (Litt, 1997); African-American high school girls have the highest overweight and obesity rate at 38.7%, followed by Hispanic American girls at 28.9% and white girls at 22% (CDC-YRBS, 2005).

The medical cost of obesity-related diseases alone has reached \$100 billion annually. These expenses account for nearly 5.7% of the total U.S. medical expenditures and 4.7% of such expenditures in the state of Massachusetts — more than \$1.8 billion each year (Finkelstein, 2004). Moderate and severe obesity were associated with 21% and 75%, respectively, in health care cost increases over normal weight individuals (Huse, 2007). If all physically inactive Americans became active, it would save \$77 billion in medical costs annually (Consortium for Citizens with Disabilities, 2007).

Thus, there are compelling health and economic reasons to address the obesity epidemic by increasing the sports and physical activity participation of girls, a population subgroup at high risk for obesity and being overweight.

Physical Activity: A Fundamental and Far-Reaching Solution

The benefits of sports and physical activity participation go beyond reducing obesity. Women’s Sports Foundation research and numerous other research studies point to physical activity as a fundamental solution to many of the health and societal problems faced by girls today (Sabo et al, 2004).

Regular participation in physical activity during childhood and adolescence promotes the development of:

- ◆ positive body image (Colton and Gore, 1991; Miller, K.E., et al, 2000; President’s Council, 1997; Women’s Sports Foundation, 1985);
- ◆ confidence (President’s Council, 1997; Women’s Sports Foundation, 1985); and
- ◆ self-esteem (Fox, 1988, 2000; Guinn et al, 1997; Palmer, 1995; Sonstroem, 1997).

Girls who participate in sports and physical activity:

- ◆ are academically more successful (Sabo, 1989);
- ◆ are more likely to graduate from high school (Sabo, 1989);
- ◆ are more likely to matriculate in college (Marsh, 2003); and
- ◆ experience greater career success (Bunker, 1988; Game Face, 2002).

Participation in sports and other physical activities can help reduce a girl’s health risk for:

- ◆ obesity (Colditz, 1999; U.S. Department of Health and Human Services, 1996; Ward, et al, 1997);
- ◆ diabetes (Associated Press, 2003; Colditz, 1999);
- ◆ heart disease (CDC, 1995; Haddock, et al, 1998; Kendig & Sanford, 1998; National Center for Chronic Disease Prevention, 1996);
- ◆ osteoporosis (Bonaiuti et al, 2002; Kannus, 1999; Teegarden et al, 1996);
- ◆ breast cancer (Bernstein et al, 1994; McTiernan et al, 2003; Patel et al, 2003; Thune et al, 1997);
- ◆ depression (Ahmadi et al, 2002; Dimeo et al, 2001; Dunn et al, 2001; Nicoloff and Schwenk, 1995; Page and Tucker, 1994; Sanders et al, 2000);
- ◆ unintended teen pregnancy (Dodge and Jaccard, 2002; Miller et al, 1999; Page et al, 1998; Rome et al, 1998; Sabo et al, 1998);

- ◆ anxiety (Taylor et al, 2004);
- ◆ lack of self-esteem (Artal and Sherman, 1998); and
- ◆ smoking (Melnick et al, 2001).

Addressing the Girls' Physical Inactivity and Health Crisis

Only 27.8% of American high school girls compared to 43.5% of high school boys meet currently recommended U.S. Centers for Disease Control standards of regular physical activity (physically active is defined as doing any kind of physical activity that increased their heart rate and made them breathe hard some of the time for a total of at least 60 minutes/day on more than five of the seven days preceding the survey) (CDC-YRBS, 2005). Adolescent girls (11.3%) are significantly more likely than boys (7.9%) to report no recent physical activity (CDC-YRBS, 2005).

Urban girls, especially girls of color, often face unique barriers to participation. Many have jobs in order to supplement family incomes, while others take care of siblings at home. In some ethnic groups, parental support for girls' athletic participation may be lacking (Place, 2004). Between ninth grade and 12th grade, girls drop out of sport at a rate that is double that of boys (CDC-YRBS, 2005). By the age of 16 or 17 only one girl in three in the United States attends P.E. classes compared to one in two boys (CDC-YRBS, 2005). Nationally, high school boys receive 1.3 million or 43% more chances to play varsity sports than girls (NFHS, 2007). Girls are at greater risk for inactivity and, therefore, at great risk for health conditions and diseases related to inactivity.

Complicating the challenge of engaging girls in physical activity is a media culture that encourages girls to diet as a means of attaining unrealistic body types.

- ◆ By the time a girl is 17 she has seen 250,000 TV commercials focusing on her looks, not her health or physical abilities (Mediascope, 2003).
- ◆ Forty-two percent of girls in grades 1-3 want to be thinner and 51% of 9- to 10-year-old girls feel better about themselves when dieting. Fifty-three percent of 13-year-old girls are unhappy with their bodies; 78% at age 17 (Mediascope, 2003).

The continuing focus on diet and unrealistic body sizes as the ideal sets many girls up for failure. Most of the literature demonstrates that being thin is the same as being attractive (Cachelin, 2002; Olvera, 2005). It is possible that neither girls nor the general public believe that full-figured girls and girls who are large by genetic inclination, who exercise regularly, are physically fit. Because most girls will never attain the body size portrayed as ideal in the media, it would be dangerous for girls to focus solely on body size as a measure of their attractiveness. Few would argue that a shift must occur where the standard for determining attractiveness becomes whether or not a girl is physically fit versus whether or not she is thin.

Removing the barriers girls face to engaging in sports and physical activity and promoting physical activity becomes a necessary and fundamental health solution if we hope to change the following statistics:

- ◆ One in three U.S. children born in 2000 will become diabetic if current dietary and exercise patterns persist (Narayan et al, 2003).
- ◆ One in every six girls is obese or overweight (National Center for Health Statistics, 2002); and as women, girls who were obese or overweight are 60% more likely to die from breast cancer (Calle et al, 2003).
- ◆ One in three teens gets pregnant (Henshaw, 2003).
- ◆ One in 4.5 girls in grades 9-12 currently smokes (CDC-YRBS, 2005); lung cancer is the leading cause of cancer deaths among women (American Cancer Society, 2005).
- ◆ One in three adolescent girls will experience depression (The Commonwealth Fund, 1997), anxiety or eating disorders (Schreiber et al, 1996).

In addition to offering a realistic preventative solution to health risks, sports and physical activity participation also offers significant benefits related to academic success and the development of confident, resilient and stronger girls.

Why Boston?

1. Opportunity to Reach a Large Number of Underserved Girls. Women’s Sports Foundation research demonstrates that the gender gap between girls’ and boys’ interest in sports is widest among urban girls and boys. Girls’ lower participation is attributed to fewer athletic opportunities in urban schools and communities because, as research shows, there are no statistically significant differences between girls’ and boys’ interest in sports in suburban and rural communities. Urban girls enter sports at later ages than urban boys and later than girls from suburban and rural areas. They also drop out of sports earlier than urban boys and girls from suburban and rural areas. Thus, the “window of opportunity” for urban girls to be involved with sports is narrower than for their male counterparts and girls from suburban and rural communities. Urban girls are significantly more likely to “never have participated” in sports than any of the other male and female subgroups (urban, suburban, rural) (Sabo, 2007).

Nonprofit organizations must be concerned with the cost and reach of programs. A major population market approach yields the greatest reach at the lowest cost with regard to the delivery of grassroots program support. For instance, 33% of the U.S. population lives in the top 11 population markets in the country and 43% in the top 20 (U.S. Census Bureau, 2000).

The “128 Loop” of “metro Boston” (terms used interchangeably throughout) includes 22 cities and towns (see Figures 3 and 4) and is encompassed by the larger Boston Primary Metropolitan Statistical Area (PMSA), which is among the top 10 population areas in the United States and includes Boston, Worcester, Lawrence, Lowell and Brockton in Massachusetts and extends into New Hampshire with a total population of 5.8 million in 2000. The 128 Loop represents a more compact geographical area (see Figure 4 on following page) within this PMSA with a primarily urban population of 1.5 million that accounts for 23.5% of the total population of Massachusetts, with 21% under the age of 19 and more than 200,000 children enrolled in grades 1 through 12. Slightly more than half of the 128 Loop population are female (52.1%), and 23.6% are minorities (Hispanic = 9.3%; African-American = 14.3% — the largest groups represented) (see Figure 5 on following page).

While grant-making and an extensive array of services to girl-serving organizations will occur within the 128 Loop, all communities in Massachusetts will be invited to receive free Women’s Sports Foundation award-winning curriculum materials, attend GoGirlGo! Boston training institutes and receive technical support.

Figure 3: Cities and Towns Included in the GoGirlGo! Boston Initiative (128 Loop)

City	Population
Arlington	42,389
Belmont	24,194
City of Boston*	589,141
Brookline	57,107
Cambridge	101,355
Chelsea	35,080
Dedham	23,464
Everett	38,037
Lexington	30,355
Malden	56,340
Medford	55,765
Melrose	27,134
Milton	26,062
Newton	83,829
Saugus	26,078
Somerville	77,478
Stoneham	22,219
Wakefield	24,804
Waltham	59,226
Watertown	32,986
Winchester	20,810
Woburn	37,258
TOTAL	1,491,111

*Also includes: Allston/Brighton, Hyde Park, South Boston, Charleston, Roxbury, W. Roxbury, Roslindale, Dorchester, Jamaica Plains, Mattapan, East Boston
Data Source: U.S. Census Bureau, Census 2000 Summary Files

2. Expanding Women’s Sports Foundation Efforts to Help Boston Girl-Serving Organizations.

The Women’s Sports Foundation seeks to build on its involvement in the Boston Girls’ Sports and Physical Activity Project (BGSPAP) and its experience establishing girl-serving organization (GSO) support and public education support programs in Atlanta, Chicago and San Antonio. BGSPAP was a four-year initiative, in which the Women’s Sports Foundation targeted 12 Boston girl-serving organizations offering physical activity programs to urban girls to increase girls’ sports and physical activity participation and explore the creation of an integrated and sustainable network among these agencies for the purpose of upgrading these programs, insuring developmental outcomes in addition to exercise, and overcoming the gender biases built into Boston school and community programs. A Women’s Sports Foundation team utilized various evaluation tools (survey, content analysis, field observations, interviews and focus groups) to identify needs and examine mechanisms for delivering technical assistance. Preceding this project, very little research existed on urban girls within community settings and sport or exercise programs. The BGSPAP was the most nuanced, multifaceted and protracted methodological effort to gather knowledge about urban girls in sports that has been executed to date (Women’s Sports Foundation, 2007).

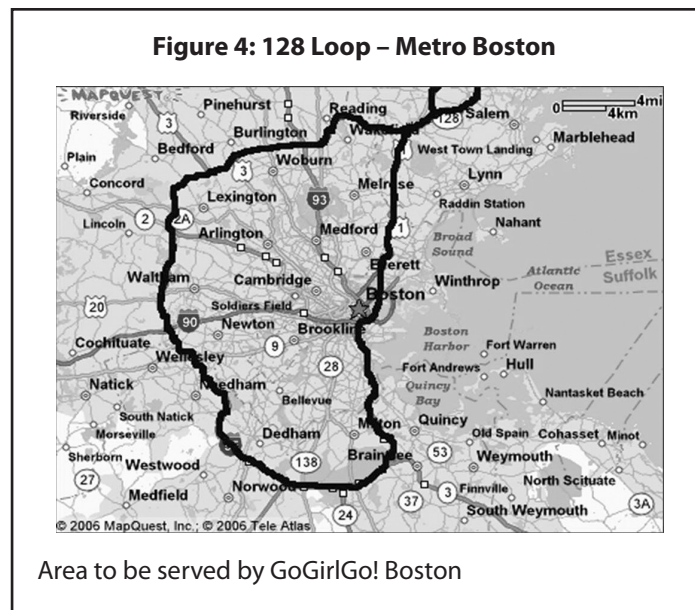


Figure 5: Demographics of Referenced Geographical Areas

Variable	U.S.	Massachusetts	128 Loop	Boston City
Population	281,421,906	6,349,097	1,491,111	589,141
Female	50.9%	51.8%	52.1%	51.9%
Male	49.1%	48.2%	47.9%	48.1%
Median Age	35.3	36.5	--	31.1
Under 19	28.6%	26.4%	21.0%	24.0%
White	77.1%	86.2%	73.9%	56.8%
Black	12.9%	6.3%	14.3%	27.7%
Hispanic	12.5%	6.8%	9.3%	14.4%
Primary School (grades 1-8)	33,653,641	703,094	133,754	55,372
Secondary School (grades 9-12)	16,380,951	340,205	69,184	29,398
Median household income	\$41,994	\$50,502	N/A	\$39,629
Mean household income	\$56,604	\$68,437	\$70,749	\$60,165
Individuals below the poverty line in the past 12 months	12.0%	9.0%	11.9%	18.5%

Boston City Schools data is from the public schools
 Data Source: U.S. Census Bureau, Census 2000 Summary Files

3. Commitment of the Boston Community to Address Youth Sport and Physical Activity Needs. More so than any top-20 market examined by the Women's Sports Foundation thus far, Boston governmental and non-governmental agencies have demonstrated a commitment to studying and addressing the physical activity levels of youth, the need for increased availability of after-school sports and physical activity programming and the special needs of girls as a severely underserved population in the sport and physical activity arena. Boston After School & Beyond, a partnership of the City of Boston, the local philanthropic community and the city's business and civic leadership, has designed and implemented a successful youth strategy for the children of Boston. These efforts have resulted in a doubling of participation in after-school programs among 6- to 14-year-olds in Boston public schools between 1998 and 2006, from 27% to 53%. Nearly 50% of Boston Public School students now participate in after-school programs (Boston After School and Beyond, 2006). Yet, girls continue to be significantly underrepresented in sports and physical activity.

This exceptional level of community leadership and effort, coupled with the need for additional expertise on girls' sports and physical activity participation, were important considerations in the Women's Sports Foundation's decision to launch GoGirlGo! Boston. The financial and expert knowledge investment of the Foundation and its local and national philanthropic, media and business partners will complement the Boston After School and Beyond commitment. Both the Women's Sports Foundation and Boston After School and Beyond are committed to learning what works, providing technical assistance to advance successful practices, trying to scale successful programs and solving the perpetual challenge of financially sustaining youth programming. GoGirlGo! Boston will focus on the special needs of girls, enhancing the quality of physical activity programs for girls, expanding girls' participation opportunities, public policy initiatives and public education on the importance of encouraging every girl to become physically active. Increasing the physical activity levels of girls will require consistent and persistent efforts over time by many Boston agencies. The Women's Sports Foundation is excited to be a part of this community effort.

Findings

I. Physical Activity Status

Methodology

Four indicators were selected to benchmark the physical activity status of Boston girls. Comparisons were made between U.S., Massachusetts and Boston male and female students. Differences by grade level and race/ethnicity were also examined for sports team participation and vigorous physical activity. When race/ethnicity data are presented, only the three largest subgroups, white, black non-Hispanic and Hispanic are presented with the category “Other” omitted. Indicators are defined as follows:

- ◆ **High school athletic participation statistics** generated by the National Federation of State High School Associations (NFHS), which depicts school-sponsored varsity and junior varsity athletic program participation (not out-of-school sports participation). Participation data only are available by state and aggregated nationally. Data does not distinguish between single- and multiple-sport athletes (NFHS, 2006-07).
- ◆ **Sports team participation**, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who were on one or more sports teams run by their school or community groups during the 12 months preceding the survey. Data are available nationally, for Massachusetts and for Boston. Data does not distinguish between single- and multiple-sport athletes.
- ◆ **Sufficient vigorous physical activity**, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance 2005 (CDC-YRBS, 2005) statistic that represents the number of students who participated in at least 20 minutes of vigorous physical activity (i.e., physical activity that made them sweat and breathe hard) on three or more of the seven days preceding the survey and/or at least 30 minutes of moderate physical activity (i.e., physical activity that did not make them sweat and breathe hard) on five or more of the seven days preceding the survey. This was the previously recommended CDC standard, which was selected because no data for Massachusetts or Boston are available for the new CDC standard. Data are available for the previous standard nationally, for Massachusetts and for Boston.
- ◆ **Physical education class attendance**, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance 2005 (CDC-YRBS, 2005) statistic that represents the number of students participating in physical education class one or more days a week on an average week in school. Data are available nationally, for Massachusetts and for Boston.

High school athletic participation and physical education class attendance were considered important to examine because these programs typically have greater reach and frequency (practice/competition multiple times per week), can be positively affected by school policy as compared to programs offered by the private sector, and the cost of such programs to participants compared to non-school sports or activities is lower or non-existent.

High School Athletic Program Participation

Females are less likely than males to participate in sports offered by high schools, despite the existence of a federal law (Title IX of the education amendments of 1972) that prohibits sex discrimination in the provision of all education programs and activities by schools that are recipients of federal funds (primarily public schools). Over the past 35 years, the gender gap has continued to decrease both as a percentage and in discrete participation opportunities (NFHS). However, more recently, the gap is closing at a very slow pace. While the number and percentage of athletes that are female has slowly increased as more female are given a chance to play, the absolute number of male athletes has actually been increasing over the last three decades (NFHS) (see Figure 6 on following page).

In fact, over the last five years, total male participation increases (350,586) have been larger than those of females (214,809). Instead of holding opportunities for over-represented males steady while under-represented females catch up, the growth of male participation opportunities has continued. Over the past five years, female participation has remained around 41% of all participants (see Figure 7 on following page).

This recent slow growth pattern relative to growth in earlier decades is due to several factors. First, the addition of new sports for girls has slowed down as school districts across the country struggle to overcome dwindling resources. Second, as school enrollments increase, the percentage of students playing sport drops, even though team rosters remain full. Third, some schools may be unwilling to provide more opportunities for girls because they buy into the misconception that girls just aren't as interested in playing sports as boys. Finally, as school enrollments grow larger, it becomes increasingly more difficult for females to gain membership on varsity teams. Without an expansion of opportunities for female athletes, the percentage of girls in varsity sports is likely to remain flat for the foreseeable future because

it is predicted that high school enrollments will continue to rise, peaking in 2007, when 14.8 million students are expected to enroll (Brady and Sylwester, 2003).

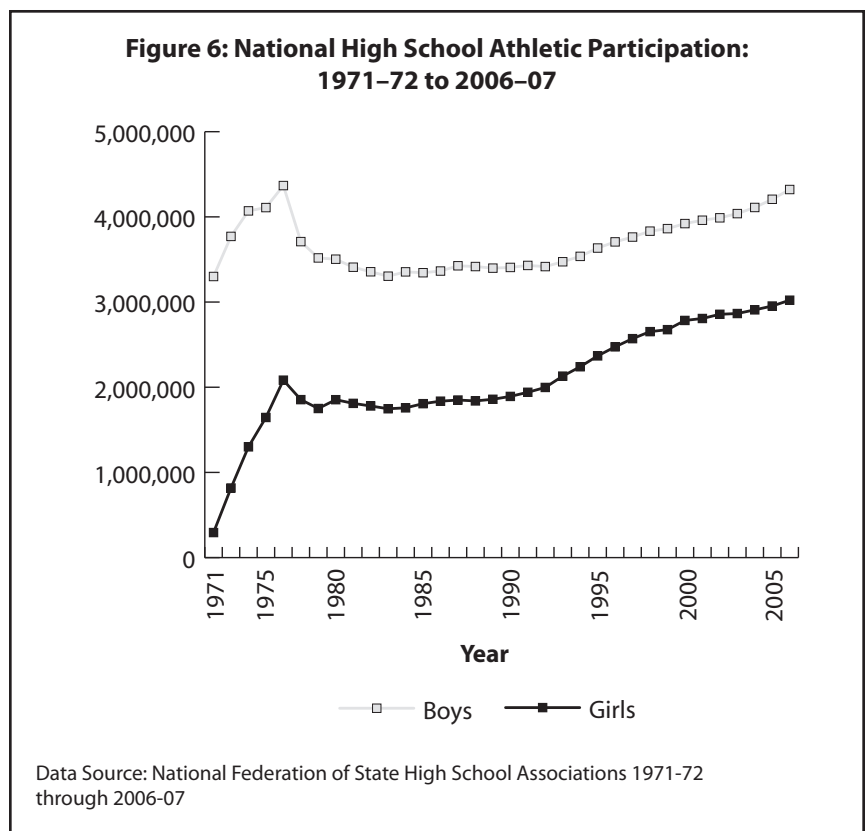


Figure 7: National High School Athletic Program Participation by Gender – 2002 to 2007

	# Female Athletes	# Increase Over Prev. Year	# Male Athletes	# Increase Over Prev. Year	Overall Total %	
					Male	Female
2002-03	2,856,358	49,360	3,988,738	28,221	58.3%	41.7%
2003-04	2,865,299	8,941	4,038,253	49,515	58.5%	41.5%
2004-05	2,908,390	43,091	4,110,319	72,066	58.6%	41.4%
2005-06	2,953,355	44,965	4,206,549	96,230	58.8%	41.2%
2006-07	3,021,807	68,452	4,321,103	114,554	58.8%	41.2%
Total Increase Over 5 Yrs.		214,809		350,586		

Data Source: NFHS High School Athletics Participation Surveys 2002-2007

Figure 8: Massachusetts High School Athletic Program Participation by Gender – 2002 to 2007

	# Female Athletes	# Increase Over Prev. Year	# Male Athletes	# Increase Over Prev. Year	Overall Total %	
					Male	Female
2002-03	85,970	954	109,668	804	56.1%	43.9%
2003-04	85,728	-242	110,659	991	56.3%	43.7%
2004-05	88,950	3,222	116,231	5,572	56.6%	43.4%
2005-06	91,248	2,298	119,268	3,037	56.7%	43.3%
2006-07	92,317	1,069	213,073	1,488	56.7%	43.3%
Total		7,301		11,892		

Data Source: National Federation of State High School Associations, 2002-2007

Currently Massachusetts is ranked 15 out of 50 states with a female athletic participation gap of 6%. In Massachusetts, 43.3% of student-athletes are female (NFHS, 2006) versus 49.3% of students being female (National Center for Education Statistics, 2006). The growth of boys' participation opportunities is continuing to outpace girls', stagnating female participation just above 43% of total opportunities over the last five years (see Figure 8).

Figure 9: Girls' Participation in High School Athletics by Sport: Massachusetts and the United States – 2006-2007*

Sport	# Mass. Schools That Offer the Sport	# Mass. Female Participants	U.S. Ranking (Most Popular by # Participants)
Basketball	360	10,427	1 (456,967)
Softball (fast pitch)	350	10,850	4 (373,448)
Outdoor Track & Field	307	11,664	2 (444,181)
Soccer	306	12,491	5 (337,632)
Cross Country	287	5,038	6 (183,376)
Volleyball	255	6,578	3 (405,932)
Tennis	238**	4,438**	7 (176,696)
Swimming & Diving	165	4,104	8 (143,639)
Lacrosse	137	5,706	13 (54,771)
Gymnastics	92	1,238	16 (18,929)
Golf	25	499	10 (66,283)

* Only those sports reported to the NFHS survey by Massachusetts high schools are included in the table above. Not all sports reported on the national level are offered at Massachusetts high schools.

**Information not available for 2006-07; # schools and # participants represent 2005-06 data

Data Source: National Federation of State High School Associations, 2006-07 except tennis, which is NFHS 2005-06

According to the NFHS, the most popular sports for girls in Massachusetts are soccer, outdoor track and field, softball (fast pitch) and basketball (Figure 9).

School and Non-School Sports Team Participation

The percentage of Boston female high school students who played on one or more sports teams inside or outside of school (36.1%) is significantly lower than female high school participation nationally (50.2%), in Massachusetts (50%) and when compared to male high school participation in Boston (57.6%), Massachusetts (59%) and nationally (61.8%) (CDC-YRBS, 2005) (Figure 10).

Notably, at the national, state and local levels black non-Hispanic and Hispanic females are more significantly under-represented than white females and when compared to their male counterparts in sports participation with particularly low participation levels in Boston (see Figure 11) (CDC-YRBS, 2005).

Nationally, females drop out of sports participation at a rate double that of boys (14.8% vs. 7.4%) between ninth and 12th grades. Boston reveals a very different picture with male participation declining by 14.7% between ninth and 12th grades and female participation starting and remaining at significantly low levels, with a 1.1% drop from 34.2% to 33.1% (see Figure 12 on following page).

These results are consistent with the 2002 Play Across Boston study, which found that females participated at half the rate of boys, occupying only 33% of all participation opportunities as contrasted with 67% male participation. The youth survey component of this study indicated disparities in sports participation caused by a lack of programs to which girls feel they have safe and effective access (Cradock et al, 2002).

Figure 10: School and Non-School Sports Participation in the Past 12 Month by Gender

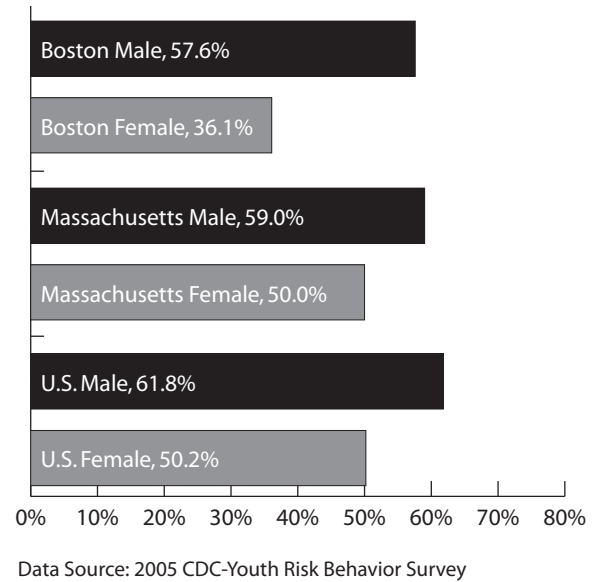
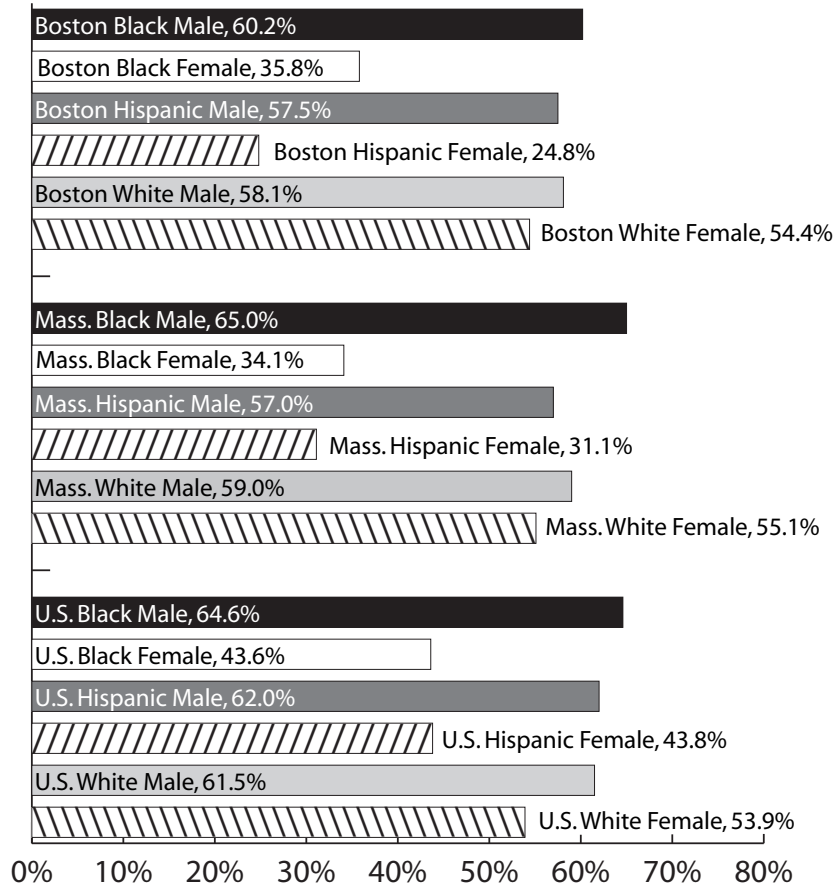
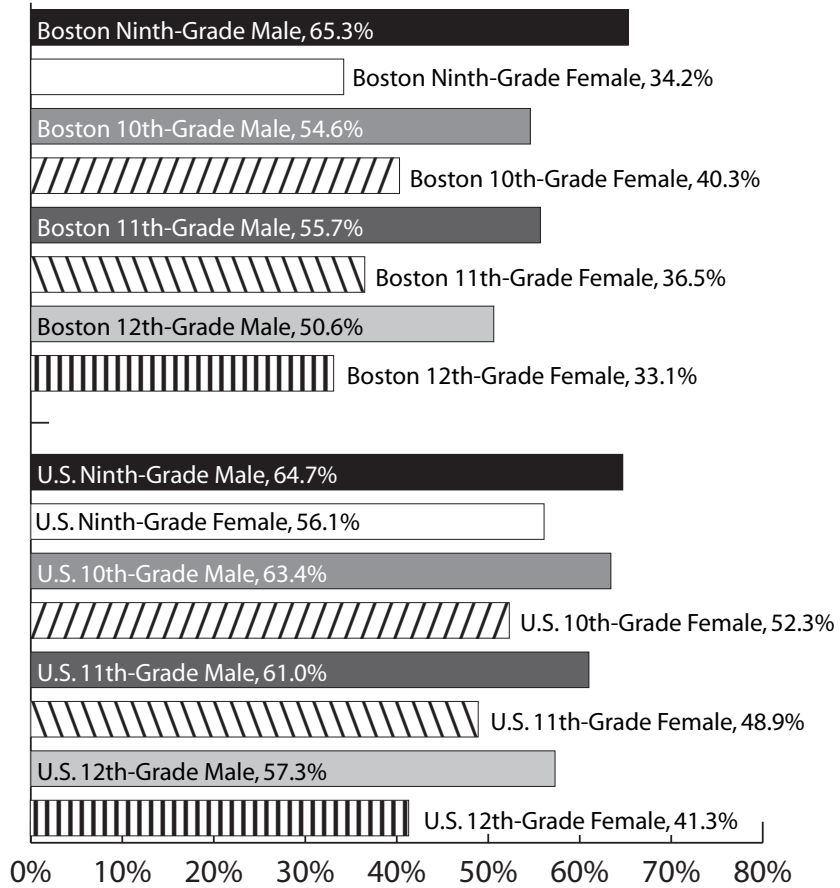


Figure 11: Percentage of High School Students Who Played on One or More Sports Teams During the Past 12 Months by Gender and Race/Ethnicity



A 2004 report issued by the National Women’s Law Center (NWLC) and the Harvard Prevention Research Center on Nutrition and Physical Activity (HPRCNPA) included a review of complaints filed during the previous five years with the U.S. Department of Education’s Office for Civil Rights and interviews with athletes, parents, coaches, administrators and advocates in Massachusetts. The report provided qualitative evidence “that sex discrimination continues to affect girls’ opportunities in Massachusetts high school sports programs” and concluded that “both discrimination and institutional barriers to physical activity can spawn a self-perpetuating cycle in which girls feel less skilled in, and less enjoyment of, participation in athletics” (NWLC and HPRCNPA, 2004).

Figure 12: Percentage of High School Students Who Played on One or More Sports Teams During the Past 12 Months by Gender and Grade



Data Source: 2005 CDC-Youth Risk Behavior Survey

A 2004 Boston Youth Survey undertaken by the City of Boston examined the reasons why one-third of the respondents in this study did not participate in after-school programs. Of these respondents, 38% gave lack of interest in available programs as their reason for non-participation, 32% reported that they worked after school (with only 19% saying this was a barrier to participation in after-school activities) and 17% gave parents wanting them to go home after school as the reason for non-participation. Survey respondents, both those who participated and those who didn’t, were also asked about barriers to participation in sports and physical activity and reported that proximity of activity to their homes and conditions in their neighborhood were most relevant. (The Harvard Youth Violence Prevention Center, 2005)

Vigorous Physical Activity Participation

The current CDC “recommended level of physical activity” is “doing any kind of physical activity that increases the individual’s heart rate and makes the individual breathe hard some of the time for a total of at least 60 minutes per day on five or more of the seven days preceding the survey.” This data was not used because while U.S. data was available, no Massachusetts or Boston data was available. Instead, the previously recommended CDC level was used, for which current and previous comparative data was available:

...at least 20 minutes of vigorous physical activity (i.e., physical activity that made them sweat and breathe hard) on three or more of the seven days preceding the survey and/or at least 30 minutes

of moderate physical activity (i.e., physical activity that did not make them sweat and breathe hard) on five or more of the seven days preceding the survey (CDC-YRBS, 2005).

While CDC-YRBS data examines sports participation over the previous 12 months, CDC physical activity data examines vigorous physical activity participation on one or more days in the seven days prior to the survey. Thus, it is not possible to assume that this data represents regularized physical activity over time. For instance, among those Boston females who indicated that they participated on one or more sports teams, 32.9% reported that they did not participate in any vigorous physical activity and 43% indicated they participated in no moderate physical activity in the past seven days. These athletes were probably not in their sports season. Similarly, those individuals that indicate a particular physical activity level over the past seven days may or may not engage in that activity level regularly.

According to the most recent data collected by the CDC, Boston female adolescents are significantly less likely to meet recommended physical activity levels than male adolescents in Boston and females nationally and in the state of Massachusetts (see Figure 13) (CDC-YRBS, 2005).

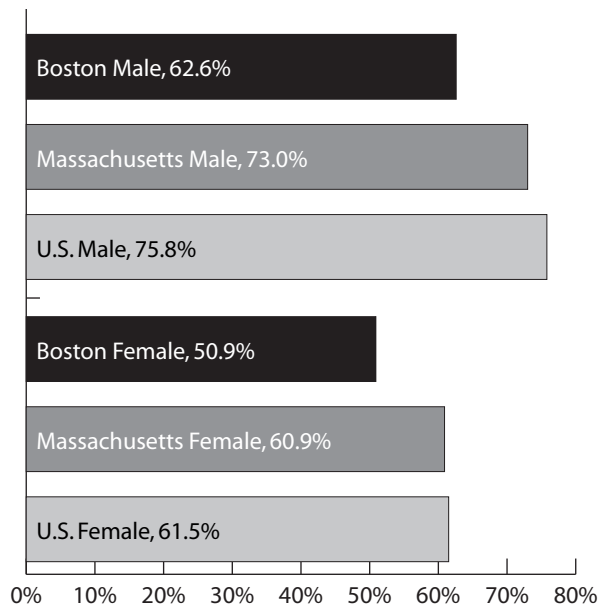
Black, non-Hispanic and Hispanic females in Boston are less likely to meet the previously recommended level of physical activity than all female race/ethnic categories nationally (see Figure 14).

The percent of Boston females who meet the previously recommended level of physical activity declines as they get older. Just over half, 52.2%, of Boston girls meet the activity standard in the ninth grade while only 47.6% do so in the 12th grade (CDC-YRBS, 2005).

Physical Education Class Attendance

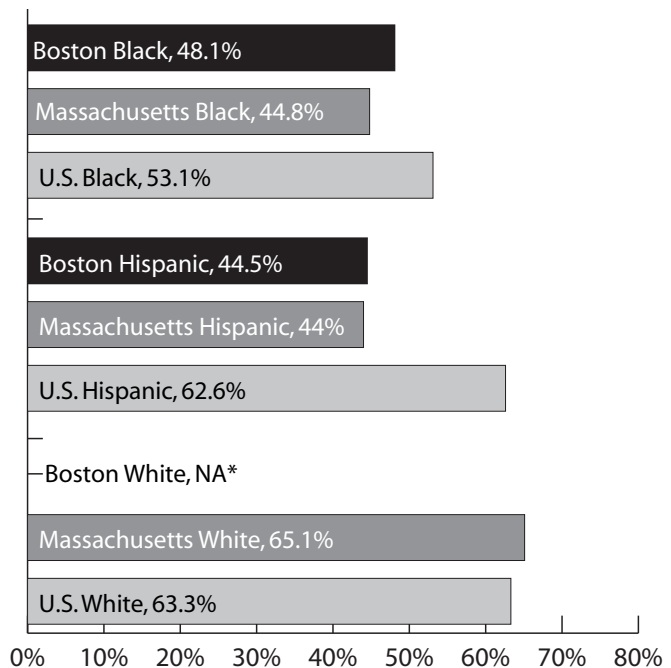
Nationwide 60% of male and 48.3% of female students are enrolled in physical education (PE) class for one or more days during the average school week with only one-third participating in daily physical education (CDC-YRBS, 2005). In Boston, only 34.5% of female students participate in physical education one or more days a week, compared to 42.3% of Boston male students

Figure 13: Percentage of High School Students Who Met Previously Recommended Level of Physical Activity by Gender



Data Source: 2005 CDC-Youth Risk Behavior Survey

Figure 14: Percentage of Female High School Students Who Met Previously Recommended Level of Physical Activity by Race/Ethnicity



*Sample size was less than 100, therefore no result was available.
Data Source: 2005 CDC-Youth Risk Behavior Survey

and 59.5% of Massachusetts female students (CDC-YRBS, 2005) (see Figure 15).

Male students are more likely than female students to have attended physical education classes in 10th through 12th grades with the physical education participation gap increasing as they get older (see Figure 16). These physical education participation declines are mirrored in Boston with males significantly more likely than female students to attend PE classes in all high school grade levels and 12th-grade females participating at the dismally low level of 23.2% (CDC-YRBS, 2005) (see Figure 16).

Figure 15: Percentage of High School Students Who Attended PE Class One or More Days During an Average Week by Gender

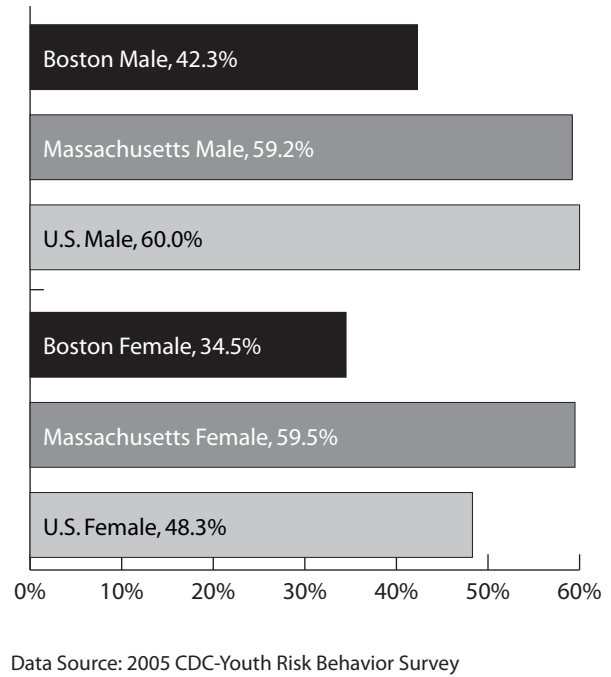


Figure 16: Percentage of High School Students Who Attended Physical Education Classes by Gender and Grade

	National		Boston	
	Female	Male	Female	Male
9	70.3%	72.8%	47.8%	54.2%
10	53.0%	65.4%	32.4%	40.4%
11	32.9%	51.1%	29.9%	37.0%
12	32.0%	45.9%	23.2%	31.3%

Data Source: 2005 CDC-Youth Risk Behavior Survey

II. Health Status

Methodology

Six CDC health indicators positively affected by increased physical activity were examined: being overweight, obesity, disordered eating patterns, asthma, the existence of a physical disability and depression. Unless otherwise indicated, all statistics are from CDC-YRBS, 2005. Comparisons were made between U.S., Massachusetts and Boston female students, and differences by grade level and race/ethnicity were also examined. When race/ethnicity data are presented, only the three largest subgroups, white, black non-Hispanic and Hispanic are presented with the only remaining category, "Other," omitted. Indicators are defined as follows:

- ◆ Overweight, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who are between the 85th and 95th percentile for body mass index, by age and sex, based on reference data
- ◆ Obesity, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who are at or over the 95th percentile for body mass index, by age and sex, based on reference data
- ◆ Engaged in Unhealthy Weight Control
 - ◇ 24-Hour Fasting, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who went without eating for 24 hours or more to lose weight or keep from gaining weight during the 30 days immediately preceding the survey
 - ◇ Used Diet Products, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who took diet pills, powders or liquids without a doctor's advice to lose weight or keep from gaining weight during the 30 days immediately preceding the survey
 - ◇ Vomiting/Laxatives, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who vomited or took laxatives to lose weight or keep from gaining weight during the 30 days preceding the survey
- ◆ Asthma, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who were ever told by a doctor or nurse that they had asthma
- ◆ Physical Disability, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who had any physical disabilities or long-term health problems that lasted longer than six months
- ◆ Depression
 - ◇ Sad or Hopeless (Depressed), specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who almost every day for more than two weeks in a row, occurring during the 12 months preceding the survey, felt so sad or hopeless that they stopped doing some usual activities
 - ◇ Made A Suicide Plan, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who made a suicide plan during the 12 months preceding the survey
 - ◇ Attempted Suicide, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who actually attempted a suicide during the 12 months preceding the survey

The relationship of involvement in physical activity to the above variables was also examined by statistically determining (chi square @ .05 level of significance or better) the correlation between sports participation and level of vigorous exercise respectively, and by grade and race/ethnicity within each of these two variables. A

more detailed description of this can be found in Appendix A. The levels of sports participation and vigorous exercise examined were:

- ◆ Athlete
 - ◇ Highly Involved Athlete, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who participated on three or more sports teams run by their school or community groups during the 12 months preceding the survey
 - ◇ Moderately Involved Athlete, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who participated on one or two sports teams run by their school or community groups during the 12 months preceding the survey
 - ◇ Non-Athlete, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 statistic that represents the number of students who did not participate on any sports teams run by their school or community groups during the 12 months preceding the survey
- ◆ Level of Vigorous Exercise
 - ◇ Very Active Exerciser, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance 2005 statistic that represents the number of students who participated in at least 20 minutes of vigorous physical activity (i.e., physical activity that made them sweat and breathe hard such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing or similar aerobic activities) on four or more of the seven days preceding the survey
 - ◇ Moderately Active Exerciser, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance 2005 statistic that represents the number of students who participated in at least 20 minutes of vigorous physical activity (i.e., physical activity that made them sweat and breathe hard such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing or similar aerobic activities) on one, two or three of the seven days preceding the survey
 - ◇ Less Active Exerciser, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance 2005 statistic that represents the number of students who participated in no vigorous physical activity during the seven days preceding the survey

Examining the level of vigorous exercise as a variable recognizes that there are many girls, especially in urban and lower socio-economic level environments, who may be exercising vigorously (participating in dance, double-dutch, etc.) but not participating in organized sports inside or outside of school. Athletes may or may not be included as vigorous exercisers. The CDC sport participation variable specifies participation in one or more sports in the last 12 months while the vigorous activity variable looks at participation in the seven days previous to the survey. Thus, an athlete not in a sports season who is not working out might fall in the Less Active Exerciser category, as might non-athletes engaging in physical activity that did not make them sweat or breathe hard, such as fast walking, slow bicycling, skating, pushing a lawn mower or mopping floors.

It is also important to note that body mass index (BMI) is only an estimate of total body fat (calculated by dividing weight in kilograms by height in meters squared). While differences in BMI between people of the same age and sex are usually due to body fat, there are exceptions to this rule, which means a BMI figure may not be accurate. BMI calculations will overestimate the amount of body fat for athletes and body builders with highly dense and heavy musculature and for pregnant women and underestimate the amount for the elderly and individuals with physical disabilities who are unable to walk and may have muscle wasting. BMI is also not an accurate indicator for people with eating disorders like anorexia nervosa or people with extreme obesity (Better Health Channel, 2006).

Overweight

Defining overweight youth is different than for adults. For adults, body mass index (BMI) is used (a value derived from height and weight) and is generally consistent throughout adulthood. For children, who are continuing to grow, BMI is not an accurate measurement tool. Instead, CDC growth charts are utilized, and percentile cut-offs are set; children are classified as “overweight” when they reach between the 85th and 95th percentile. More Boston female high school students are overweight (20.6%) than the Massachusetts (14.6%) and national (15.5%) averages (see Figure 17).

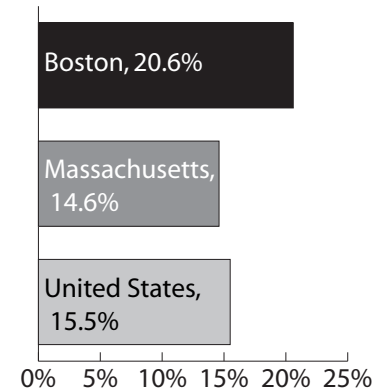
Black and Hispanic female high school students are more likely to be overweight than white female students, with black females at highest risk for being overweight in the United States, Massachusetts and Boston (see Figure 18).

Among the 20.6% of Boston female high school students who were overweight and responded to the sports participation or exerciser queries respectively, there were no significant differences between all Non-Athletes, Moderately Involved and Highly Involved Athletes with regard to being overweight. Compared to Less Active Exercisers (21.8%) more Moderately Active (38.9%) and Very Active (39.2%) Exercisers were overweight and this relationship (Lower percentages of Less Active compared to Moderate or Very Active) was also true across all race/ethnicity categories. Given the fact that body mass index (BMI) may overestimate the body fat of highly muscular individuals who may be present in athlete or high exercise populations, this factor may be in play.

However, when race/ethnicity within the overweight athlete group was examined, differences emerged between blacks, Hispanics and whites.

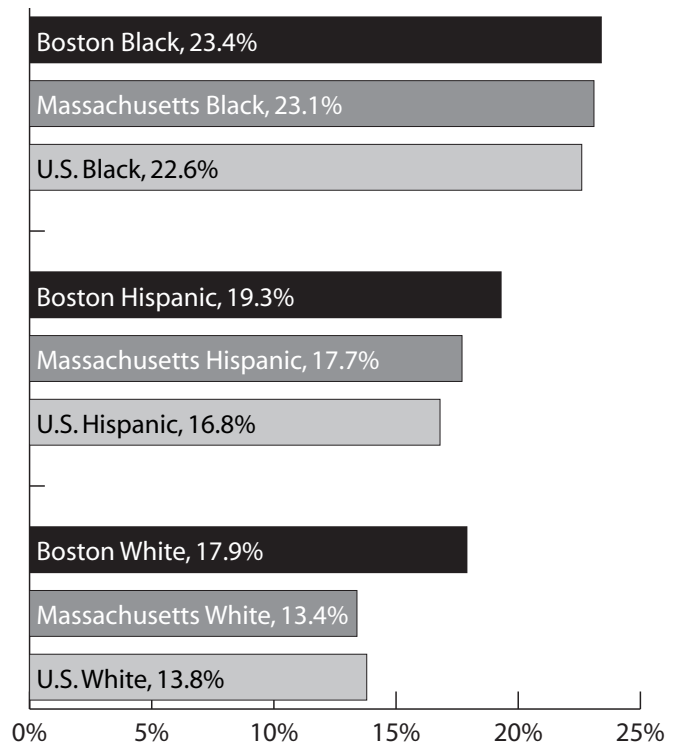
- ◆ While 57.2% of black Non-Athletes were overweight, 34.5% of black Moderately Involved Athletes and only 8.3% of black Highly Involved Athletes were overweight.
- ◆ While two-thirds (66.4%) of Hispanic Non-Athletes were overweight, only 26.9% of Hispanic Moderately Involved Athletes and 6.7% of Hispanic Highly Involved Athletes were overweight.
- ◆ More white Non-Athletes (35.2%) were overweight than white Highly Involved Athletes (16.5%), but more white Moderately Involved Athletes were overweight (48.3%) than either white Non-Athletes or white Highly Involved Athletes.

Figure 17: Percentage of Female Students Who Are Overweight (85th-95th Percentile BMI)



Data Source: 2005 CDC-Youth Risk Behavior Survey

Figure 18: Percentage of Female Students Who Are Overweight by Race/Ethnicity (85th-95th Percentile BMI)



Data Source: 2005 CDC-Youth Risk Behavior Survey

Obesity

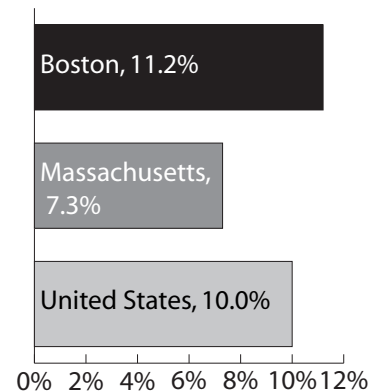
Defining obese youth is different than for adults. For adults, body mass index (BMI) is used (a value derived from height and weight) and is generally consistent throughout adulthood. For adults, obesity is defined as body mass index (BMI) of 30.0 or more. For children, who are continuing to grow, BMI is not an accurate measurement tool. Instead, CDC growth charts are utilized, and percentile cut-offs are set; children are classified as “obese” when they reach above the 95th percentile.

Findings among the 11.2% of Boston female high school students who were obese and responded to the sports participation or exerciser queries, respectively, were identical to the overweight variable. More Boston female high school students are obese (11.2%) than the Massachusetts (7.3%) and national (10%) averages (see Figure 19). There were no significant differences between all Non-Athletes, Moderately Involved and Highly Involved Athletes with regard to being obese. Fewer Less Active Exercisers (21.6%) were obese than Moderately Active (40.5%) and Very Active (37.9%) Exercisers, and this relationship (lower percentages of Less Active compared to Moderate or Very Active) was also true across all race/ethnicity categories except there were no significant differences for Hispanic Exercisers.

However, when race/ethnicity within the obese athlete group was examined, differences emerged between the white and Hispanic Moderately and Highly Involved Athletes and the white and Hispanic Non-Athletes.

- ◆ A larger percentage of Hispanic Non-Athletes (53.1%) than Hispanic Moderately Involved Athletes (32.1%) and Hispanic Highly Involved Athletes (14.8%) were obese.
- ◆ A larger percentage of white Non-Athletes (50.3%) were obese than white Moderately Involved Athletes (40.9%) and white Highly Involved Athletes (8.8%).
- ◆ There were no significant differences among black Athletes and Non-Athletes with regard to obesity.

Figure 19: Percentage of Female Students Who Are Obese (>95th Percentile BMI)



Data Source: 2005 CDC-Youth Risk Behavior Survey

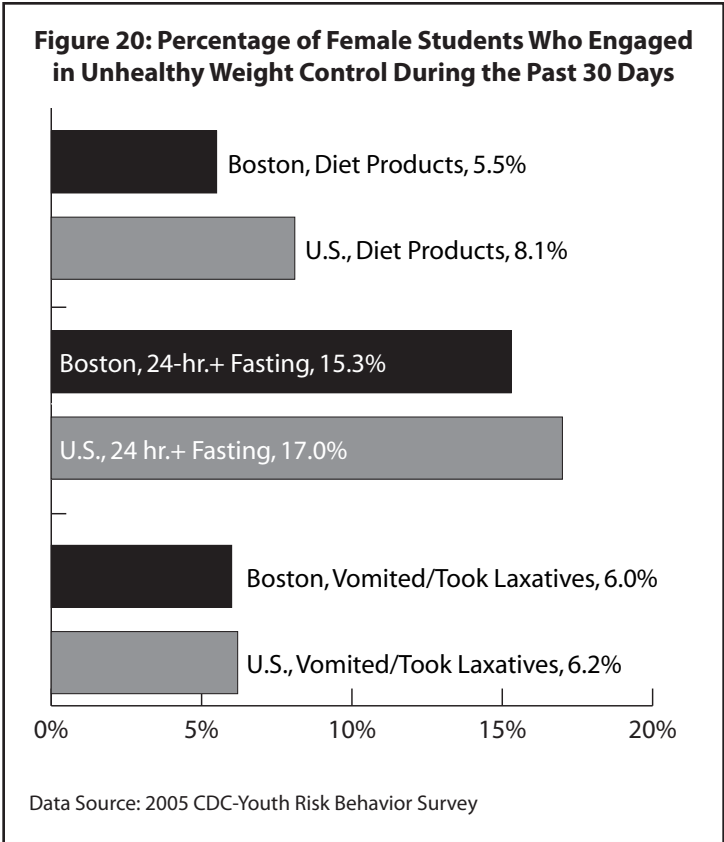
Unhealthy Weight Control

Eating disorders are on the rise in the United States, and the highest risk category is adolescent and young adult women (Taub and Blinde, 1992). More than 90% of victims are female, and 86% report onset by age 20 (National Association of Anorexia Nervosa and Associated Disorders, 2004). About 0.5%–1% of adolescent girls suffer from anorexia nervosa, a condition in which a distorted body image and an intense fear of gaining weight lead to voluntary starvation. Bulimia nervosa, a pattern of binge eating and purging, affects 1-3% of adolescent girls (American Psychiatric Association, 1994). However, a far higher proportion of girls do not meet the formal criteria for a clinical eating disorder but nevertheless engage in unhealthy weight-control techniques, including self-induced vomiting, fasting, use of laxatives, diuretics or diet pills and excessive exercise (Thompson and Sherman, 1999). Unhealthy weight-loss behavior is associated with nutritional deficiencies, chronic fatigue, decreased bone density, erosion of tooth enamel, menstrual and reproductive abnormalities, in addition to lowered self-esteem, anxiety and depression (Beals, Brey and Gonyou, 1999).

Fewer Boston-area female high school students engage in the unhealthy weight-control techniques of the use of diet or weight-loss products (5.5%) and fasting (15.3%) than the national averages (8.1% and 17.0%, respectively) but they are just as likely to engage in vomiting or taking laxatives (6.0% Boston vs. 6.2% nationally) (see Figure 20 on following page).

With regard to unhealthy weight-control activities:

- ◆ Fasting – Among the 15.3% of Boston female high school students who fasted to lose weight and responded to the sports participation or exerciser queries, respectively, fewer black and Hispanic athletes and Very Active exercisers engaged in fasting.
 - ◇ More black Non-athletes (49.7%) than black Moderately Involved Athletes (45.9%) and black Highly Involved Athletes (4.4%) engaged in fasting.
 - ◇ More Hispanic Non-athletes (72.8%) than Hispanic Moderately Involved Athletes (12.3%) and Hispanic Highly Involved Athletes (14.9%) engaged in fasting.
 - ◇ There were no significant differences among white Athletes and white Non-Athletes with regard to fasting.
 - ◇ Fewer Less Active Exercisers (30.4%) than Moderately Active (38.1%) and Very Active (31.5%) Exercisers engaged in fasting.
 - ◇ Compared to black Less Active Exercisers (30.1%) more black Moderately Active Exercisers (43.9%) but fewer black Very Active Exercisers (25.9%) engaged in fasting.
 - ◇ Compared to Hispanic Less Active Exercisers (35.6%), more Hispanic Moderately Active (38.4%) but fewer Hispanic Very Active Exercisers (26%) engaged in fasting.
 - ◇ Fewer white Less Active Exercisers (24.2%) than white Moderately Active (26%) and white Very Active Exercisers (49.9%) engaged in fasting.
- ◆ Vomiting/Use of Laxatives – Among the 6% of Boston female high school students who vomited or took laxatives to lose weight and responded to the sports participation or exerciser queries, respectively, more Non-Athletes than Athletes engaged in this behavior. Compared to Less Active Exercisers, more Moderate Exercisers but fewer Very Active Exercisers vomited or took laxatives to lose weight. With regard to race/ethnicity, differences emerged between black and Hispanic Athletes and black Very Active Exercisers.
 - ◇ More Non-athletes (58.9%) than Moderately Involved Athletes (36.4%) and Highly Involved Athletes (4.7%) vomited or took laxatives to lose weight.
 - ◇ More black Non-athletes (60%) than black Moderately Involved Athletes (40%) or black Highly Involved Athletes (0%) vomited or took laxatives to lose weight.
 - ◇ There were no significant differences among Hispanic or white Non-Athletes and Athletes with regard to vomiting or taking laxatives to lose weight.
 - ◇ Compared to Less Active Exercisers (26.3%), more Moderately Active (50.4%) and fewer Very Active (23.3%) Exercisers vomited or took laxatives to lose weight.
 - ◇ Compared to black Less Active Exercisers (36.2%), more black Moderately Active (55.7%) and fewer black Very Active (8.1%) Exercisers vomited or took laxatives to lose weight.

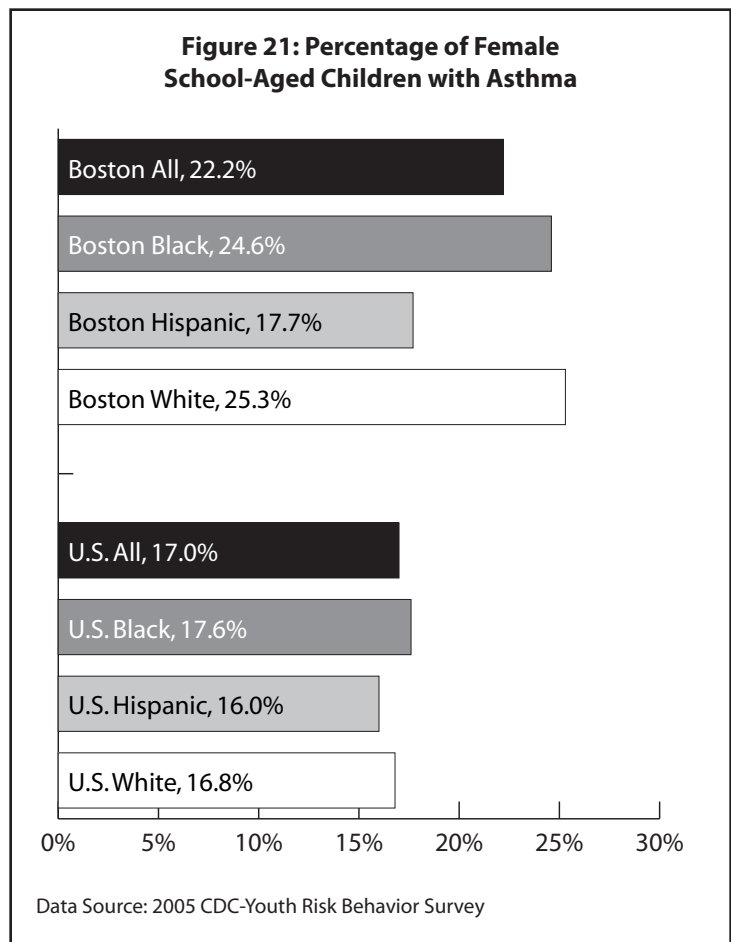


- ◇ Fewer Hispanic Less Active Exercisers (17%) than Hispanic Moderately Active (46.9%) and Hispanic Very Active (36.2%) Exercisers vomited or took laxatives to lose weight.
- ◇ Fewer white Less Active Exercisers (15.3%) than white Moderately Active (42%) and white Very Active (42.7%) Exercisers vomited or took laxatives to lose weight.
- ◆ Use of Diet Products – Among the 5.5% of Boston female high school students who used diet products to lose weight and responded to the sports participation or exerciser queries, respectively, there were no significant differences between athletes and non-athletes or levels of Exercisers. However, there were differences by race/ethnicity.
 - ◇ More black Non-athletes (61.5%) than black Moderately Involved Athletes (30.6%) and black Highly Involved Athletes (7.9%) used diet products to lose weight.
 - ◇ There were no significant differences among white Athletes and Non-Athletes with regard to using diet products to lose weight.
 - ◇ More Hispanic Less Active Exercisers (39.8%) than Hispanic Moderately Active (34.1%) and Hispanic Very Active (26.1%) Exercisers used diet products to lose weight.
 - ◇ Fewer white Less Active Exercisers (11%) than white Moderately Active (41.8%) and white Very Active (47.3%) Exercisers used diet products to lose weight.
 - ◇ There were no significant differences among black Exercisers with regard to using diet products to lose weight.

Asthma

Physical activity is especially important for individuals with asthma. Activities such as running and swimming are associated with improved fitness and decreased severity of asthma symptoms. Regular exercise and level of physical conditioning are major determinants of exercise tolerance in children with controlled asthma. Recent studies indicate a co-morbidity of asthma and obesity in urban children; however, the direction of the association is uncertain (Lang et al, 2004). Regardless of the cause and effect, physical activity is an important contributor to fitness in children with asthma. Black children are more likely to suffer from asthma (2006, CDC) and the rates of asthma-related hospitalization and mortality are higher for black children than white children (Gupta, 2006).

Massachusetts data was unavailable. Asthma among Boston female high school students (22.2%) is higher than the U.S. average (17%). More Boston black Non-Hispanic females than black female high school students nationally have asthma (24.6% vs. 17.6%) (see Figure 21).



Among Boston females with asthma (22.2% of all females) who responded to the sports participation or exerciser queries, respectively:

- ◆ More Non-athletes (51.6%) than Moderately Involved Athletes (39.9%) and Highly Involved Athletes (8.4%) had asthma, except
- ◆ Compared to white Non-Athletes (36.6%), more white Moderately Involved Athletes (55.5%) while fewer white Highly Involved Athletes (7.9%) had asthma; and
- ◆ There were no significant differences between black and Hispanic athletes and Non-Athletes; and
- ◆ Fewer Less Active Exercisers (23.1%) than Moderately Active (40.9%) and Very Active (36%) Exercisers had asthma, and this relationship (fewer Less Active compared to Moderate or Very Active) was also true across all race/ethnicity categories.

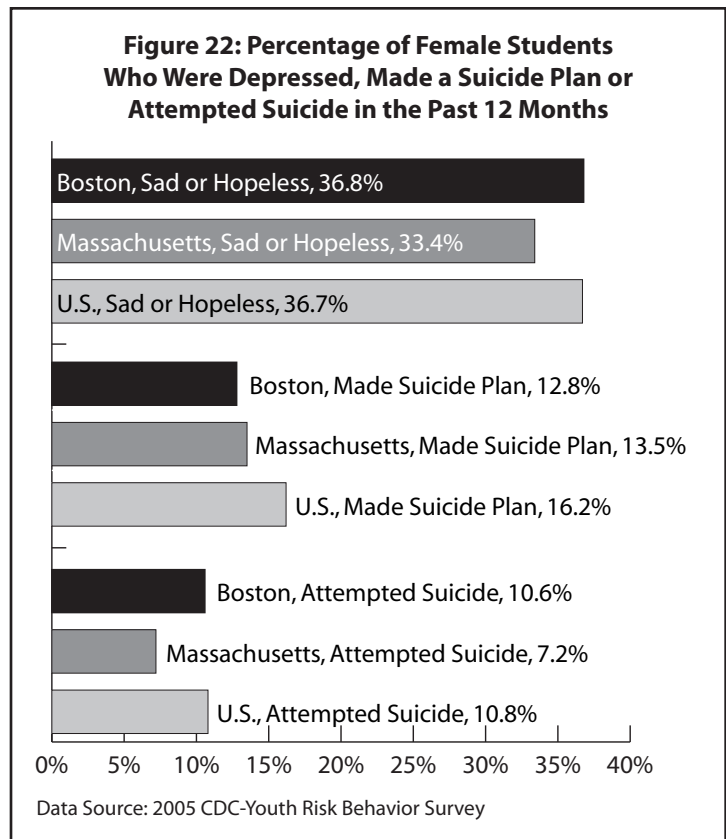
Individuals with Disabilities or Long-Term Health Problems

Approximately 41 million (one in six) people in the United States have documented disabilities (United States Census Bureau, 2006; American Association of People with Disabilities, 2005). More than half (56%) of people with disabilities do not engage in any physical activity, and only 23% of people with disabilities are active for 30 minutes three or more times per week (Office of Disease Prevention and Health Promotions, 2004). Nationwide, 10.3% of all high school students have physical disabilities or long-term health problems. Overall, the prevalence of physical disabilities or long-term health problems is higher among female (12.4%) than male (8.3%) students; higher among white females (13.5%) and black females (12.3%). Overall, the prevalence of physical disabilities or long-term health problems is higher among white (10.8%) than Hispanic (8.6%) students and higher among white female (13.5%) than Hispanic female (8.7%) students (CDC-YRBS, 2005). Individuals with disabilities are almost three times as likely to be sedentary as individuals without disabilities (29% vs. 10%) (Longmuir and Bar-Or, 1994).

CDC disability data on individuals with disabilities was unavailable for Boston and Massachusetts. Nationally, 12.4% of female high school students have a physical disability or long term health problem. As of 2007, the NCAA did not officially sanction any intercollegiate program, event or competition for individuals with disabilities. Similarly, the National Federation of State High School Athletic Associations does not officially sanction any interscholastic program, event or competition for individuals with disabilities. Both organizations allow the participation of individuals with minimal disabilities that permit them to compete with athletes without disabilities. Unfortunately there has been little conversation about the need for physical activity among this large group of adolescents who would most benefit. Further research about the nature of this subpopulation and the physical activity barriers they face is required.

Depression and Youth Suicide

Similar percentages of Boston-area female high school students were depressed (feel sad or hopeless) (36.8%) or attempted a suicide (10.6%) as female high school students nationally (36.7% and 10.8%, respectively), but fewer Boston-area female



high school students have made a suicide plan (12.8%) compared to female high school students nationally (16.2%) (see Figure 22 on previous page).

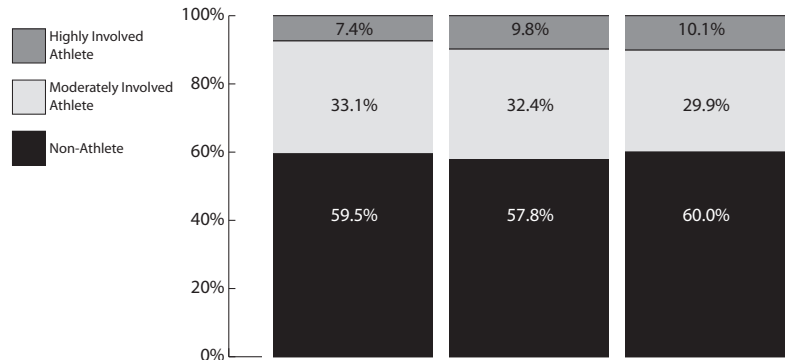
Sabo found that female high school athletes, especially those participating on three or more teams, were less likely to consider or plan a suicide attempt (Sabo et al, 2005). Among Boston female high school students who experienced depression, made a suicide plan or attempted suicide and who responded to sports participation queries, fewer Athletes (Moderately Involved and Highly Involved) felt depressed or planned/attempted a suicide (see Figure 23). This relationship (fewer Athletes than Non-Athletes) was also true across all race/ethnicity categories for depression and for black and Hispanic females with regard to making a suicide plan or attempting a suicide. There were no differences between white Athletes and Non-Athletes for making a suicide plan or attempting suicide.

Among Boston female high school students who experienced depression, made a suicide plan or attempted suicide and who responded to exercise participation queries, compared to Less Active Exercisers (29.3%), more Moderate (39.7%) or Very Active Exercisers (31%) were depressed. Compared to Less Active Exercisers (32.6%), more Very Active Exercisers (36.6%) but fewer Moderately Active Exercisers (30.7%) made a suicide plan. Fewer Less Active Exercisers (25.6%) than Moderately Active (26.3%) and Very Active (38.2%) Exercisers attempted suicide (see Figure 24).

Figure 23: Among Boston High School Females Who Experience Depression, Make a Suicide Plan or Attempt a Suicide by Level of Sports Involvement

	Depression; Sad/Hopeless	Made Suicide Plan	Attempted Suicide
% of All Boston H.S. Females who experienced or did...	36.8%	12.8%	10.6%

Of these, % who were:

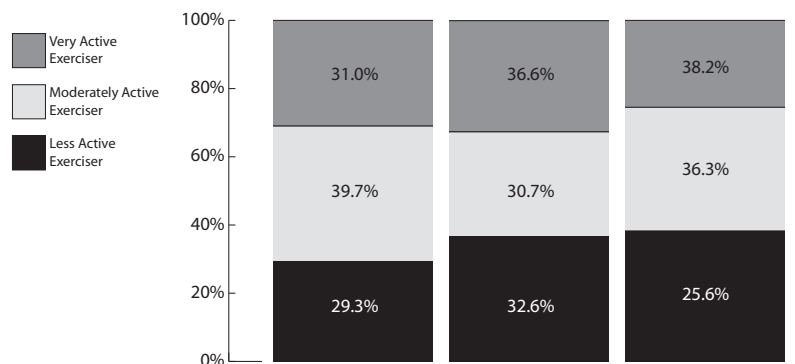


Data Source: 2005 CDC-Youth Risk Behavior Survey

Figure 24: Among Boston High School Females Who Experience Depression, Make a Suicide Plan or Attempt a Suicide by Level of Exercise

	Depression; Sad/Hopeless	Made Suicide Plan	Attempted Suicide
% of All Boston H.S. Females who experienced or did...	36.8%	12.7%	10.8%

Of these, % who were:



Data Source: 2005 CDC-Youth Risk Behavior Survey

Examining differences by race/ethnicity:

- ◆ Depression/Sad/Hopeless – Among female high school students (36.8%) who experienced depression and responded to exercise participation queries:
 - ◇ Compared to black Less Active Exercisers (29.9%), more black Moderately Active (43.9%) but fewer black Very Active (26.2%) Exercisers experienced depression;
 - ◇ Compared to Hispanic Less Active Exercisers (33.6%), more Hispanic Moderately Active (37.6%) and fewer Hispanic Very Active (28.8%) Exercisers experienced depression; and
 - ◇ Fewer white Less Active Exercisers (18.9%) than white Moderately Active (36.3%) and white Very Active (44.7%) Exercisers experienced depression.
- ◆ Made a Suicide Plan – Among female high school students who made a suicide plan (12.7%) and responded to sports participation queries, fewer black, Hispanic and white Less Active Exercisers than Moderately Active and Very Active Exercisers had made a suicide plan, except that fewer Hispanic Very Active Exercisers made a plan than both Less Active and Moderately Active Exercisers.
 - ◇ More black Less Active Exercisers (37.1%) than black Moderately Active (29.3%) and black Very Active (33.6%) Exercisers made a suicide plan.
 - ◇ More Hispanic Less Active Exercisers (51.1%) than Hispanic Moderately Active (33.5%) and fewer Hispanic Very Active (15.4%) Exercisers made a suicide plan.
 - ◇ Fewer white Less Active Exercisers (22.1%) than white Moderately Active (27.6%) and white Very Active (50.3%) Exercisers made a suicide plan.
- ◆ Attempted Suicide – Among female high school students (10.8%) who attempted suicide and responded to exercise participation queries:
 - ◇ More black Less Active Exercisers (40.6%) than black Moderately Active (22.8%) and black Very Active (36.6%) Exercisers had attempted suicide;
 - ◇ Compared to Hispanic Less Active Exercisers (37.5%), more Hispanic Moderately Active (47%) and fewer Hispanic Very Active (15.5%) Exercisers had attempted suicide; and
 - ◇ Compared to white Less Active Exercisers (36.3%), more white Moderately Active (43.7%) and fewer Very Active (20%) Exercisers had attempted suicide.

III. Health-Risk Behaviors

Methodology

Six selected adolescence health-risk indicators positively affected by increased physical activity were examined: television viewing time, cigarette smoking, engaging in sex, alcohol use, illegal drug use and dietary behaviors. Comparisons were made between U.S., Massachusetts and Boston female students as well as between students who were “very active” or “athletes” and those who were less active (did not engage in physical activity or only engaged in moderate physical activity). Differences by grade level and race/ethnicity were also examined. When race/ethnicity data are presented, only the three largest subgroups, white, black Non-Hispanic and Hispanic are presented with the category “Other” omitted. Indicators are defined as follows:

- ◆ Television Viewing Time, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who watched three or more hours of television on an average school day
- ◆ Cigarette Smoking, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who smoked one or more cigarettes during the 30 days preceding the survey (current cigarette use)
- ◆ Sexual Intercourse
 - ◇ Ever Had Sexual Intercourse, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of female students who ever had sexual intercourse
 - ◇ Ever Been Pregnant, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of female students who had ever been pregnant
- ◆ Alcohol Use
 - ◇ Current Alcohol Use, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who have had one or more drinks in the past 30 days preceding the survey
 - ◇ Episodic Heavy Drinking, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who have had five or more drinks of alcohol in a row on one or more of the 30 days preceding the survey
- ◆ Illegal Drug Use
 - ◇ Marijuana, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who used marijuana one or more times in the last 30 days preceding the survey
 - ◇ Cocaine, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who used any form of cocaine (powder, crack or free base) one or more times in their lives
 - ◇ Steroids, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who took steroid pills or shots without a doctor’s prescription one or more times during their lives
- ◆ Dietary Behaviors
 - ◇ Fruit/Fruit Juice, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who ate fruit/drank fruit juice one or more times in the seven days preceding the survey
 - ◇ Vegetables, specifically the Centers for Disease Control and Prevention Youth Risk Behavior Surveillance Survey 2005 (CDC-YRBS, 2005) statistic that represents the number of students who ate vegetables one or more times in the seven days preceding the survey

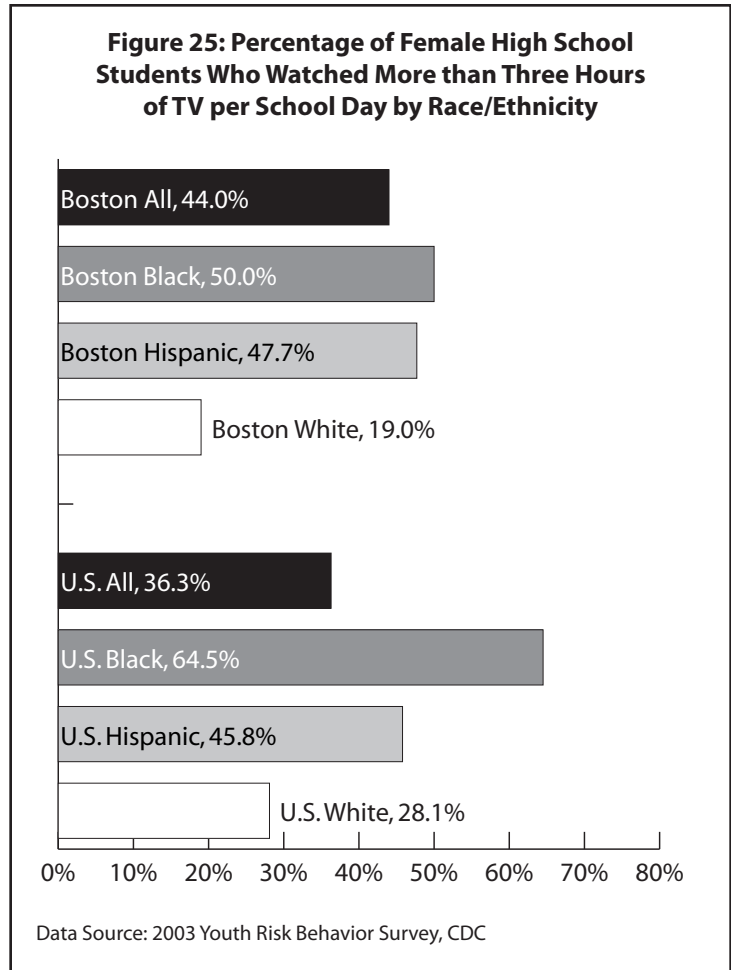
For each of the above variables, differences in health status were examined by sex, race/ethnicity, sports participation and vigorous exercise as in Section II using identical methodology and acknowledging the same limitations.

Television Viewing

The amount of television that children view has a direct effect on activity rates and obesity. Children who watch more television tend to exercise less, and low-income children spend more time in front of televisions than their higher-income counterparts (Anderson et al, 1998). Watching television and playing video games are often associated with consuming high-calorie snacks. Additionally, children watching television are more exposed to advertising for fast food, sugared breakfast cereals and snacks (Georgia Department of Human Resources, 2000).

A greater proportion of black and Hispanic high school students in Boston and the United States watch three or more hours of television than white female high school students (see Figure 25).

Among Boston females who watch more than three hours of television (44%) who responded to the sports participation or exerciser queries, more Non-Athletes than Athletes watched excessive amounts of television. There were no significant differences among exercisers except fewer black and Hispanic Less Active Exercisers than more active exercisers watched excessive amounts of television.



- ◆ More Non-Athletes (56.3%) than Moderately Involved Athletes (35.4) and Highly Involved Athletes (8.4%) watched an excessive amount of television, and this relationship (more Non-Athletes watched TV than Moderately or Highly Involved Athletes) was also true across all race/ethnicity categories.
- ◆ Fewer black Less Active Exercisers (22.4%) than black Moderately Active (43.7%) and black Very Active (33.9%) Exercisers watched an excessive amount of television.
- ◆ Fewer Hispanic Less Active Exercisers (28%) than Hispanic Moderately Active (34.7%) and Hispanic Very Active (37.4%) Exercisers watched an excessive amount of television.
- ◆ There were no significant differences between levels of white exercisers with regard to watching an excessive amount of television.

Cigarette Smoking

Approximately 80% of adult smokers began smoking before the age of 18. The earlier tobacco use begins, the more likely a lifestyle pattern will develop that includes tobacco use, resulting in increased risk for tobacco-related illnesses. Each day, more than 5,000 youth under the age of 18 try their first cigarette and more than 2,000

become daily smokers (Substance Abuse and Mental Health Services Administration, 2001).

Boston-area female high school students are less likely to have smoked cigarettes in the past 30 days (15%) than the national average of 23.0% (see Figure 26).

Among Boston females who smoked in the last 30 days and responded to the sports participation or exerciser queries, more Non-Athletes than Athletes smoked, both overall and within all racial/ethnic groups. More Less Active Exercisers overall than more active exercisers smoked, except for white Less Active Exercisers, who smoked less than more active exercisers.

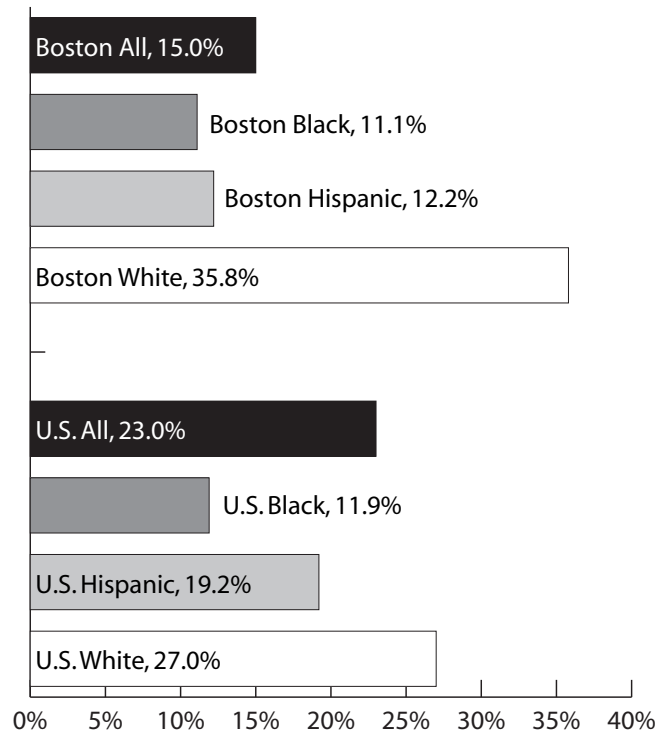
- ◆ More Non-Athletes (58.3%) than Moderately Involved Athletes (30.5) and Highly Involved Athletes (11.2%) smoked, and this relationship (Non-Athletes smoked more than Moderately or Highly Involved Athletes) was also true across all race/ethnicity categories.
- ◆ Fewer Less Active Exercisers (27.6%) than Moderately Active (37.7%) and Very Active (34.7%) Exercisers smoked.
- ◆ Fewer white Less Active Exercisers (23.4%) than white Moderately Active (39.7%) and white Very Active (36.9%) Exercisers smoked.
- ◆ More black Less Active Exercisers (35.3%) than Moderately Active (32%) and Very Active (32.7%) Exercisers smoked.
- ◆ There were no significant differences among Hispanic exercisers with regard to smoking.

Sexual Behavior and Teen Pregnancy

About 31% of American females become pregnant before the age of 20 (Suellentrop and Flanigan, 2006). Nationally, 45.7% of female high school students have had sex, compared to 46.5% in Boston and 42.9% in Massachusetts. Nationally, 4.1% of female high school students have had a pregnancy compared to 6.1% in Boston and 2.2% in Massachusetts (Martin et al, 2006; CDC-YRBS 2005) (see Figure 27).

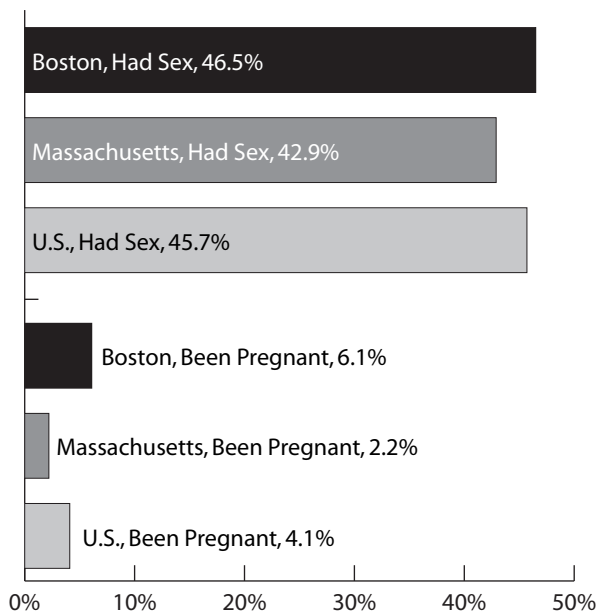
The teen birth rate has declined 31% between 1991 and 2002, and some suggest that this is related to the increase in girls playing sports, as young women's participation in high school athletics increased by 47% over approximately the

Figure 26: Percentage of Female Students Who Smoked Cigarettes on One or More Days of the Past 30 Days by Race/Ethnicity



Data Source: 2005 CDC-Youth Risk Behavior Survey

Figure 27: Percentage of Female Students Who Had Sex or Have Been Pregnant



Data Source: 2005 CDC-Youth Risk Behavior Survey; Martin et al, 2006

same time period (National Campaign to Prevent Teen Pregnancy, 2003). A growing body of research suggests a strong inverse link between teen pregnancy and sports participation.

- ◆ Female athletes in grades 9 through 12 are less than half as likely to get pregnant as their non-athlete peers (Sabo et al, 1998).
- ◆ Female athletes are less likely to be sexually active, in part because they tend to be more concerned about getting pregnant than female non-athletes (Dodge and Jaccard, 2002).
- ◆ Girls who play sports are more likely to be virgins than those who don't, and they wait longer before having sex for the first time (Erkut and Tracy, 2000).
- ◆ Athletics participation encourages girls to see themselves as strong, smart and confident, and discourages risky sexual behavior that can lead to premature sex and pregnancy (National Campaign to Prevent Teen Pregnancy, 2003).

Among those Boston high school female students who have had sex or been pregnant and responded to the sports participation queries, more Non-Athletes than Moderately Involved or Highly Involved Athletes experienced sex and had been pregnant (see Figure 28), and this relationship (more Non-Athletes than Moderately or Highly Involved Athletes) was also true across all race/ethnicity categories except white females on the had sex variable, for which no significance differences were found.

Among those Boston high school female students who have had sex or been pregnant and responded to the exercise participation queries, while fewer Less Active Exercisers than both Moderately Active or Very Active Exercisers experienced sex, more Less Active Exercisers experienced a pregnancy than Moderately Active and Very Active Exercisers (see Figure 29).

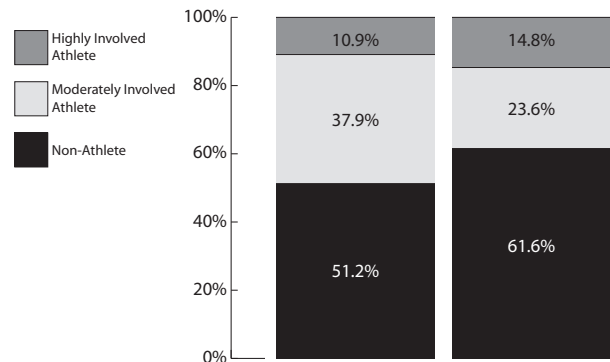
However, when race/ethnicity differences among Exercisers were examined, results were mixed.

- ◆ Across all race/ethnic groups, fewer Less Active Exercisers had sex than Moderately or Very Active Exercisers.
- ◆ More black Less Active Exercisers (48.9%) than black Moderately Active (32.6%) and black Very Active (18.5%) Exercisers had been pregnant.
- ◆ Compared to Hispanic Less Active Exercisers (30.7%), more Hispanic Moderately Active (48.5%) and fewer Hispanic Very Active (20.9%) Exercisers had been pregnant.

Figure 28: Differences Between Female Boston High School Athletes and Non-Athletes, Percentage of Those Who Had Sex or Have Been Pregnant

	Had Sex	Had Been Pregnant
% of All Boston H.S. Females who...	46.5%	6.1%

Of these, % who were:

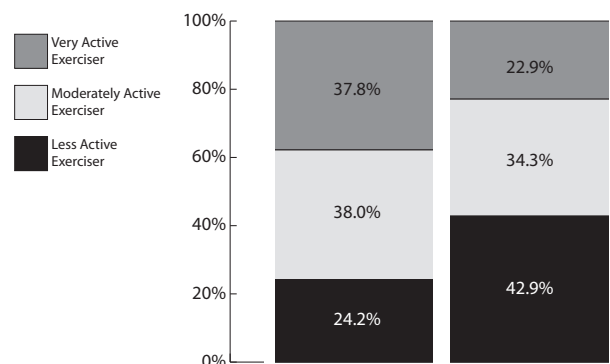


Data Source: 2005 CDC-Youth Risk Behavior Survey

Figure 29: Differences Between Female Boston High School Exercisers, Percentage of Those Who Had Sex or Have Been Pregnant

	Had Sex	Had Been Pregnant
% of All Boston H.S. Females who...	46.5%	6.1%

Of these, % who were:



Data Source: 2005 CDC-Youth Risk Behavior Survey

- ◆ No significance differences were found for white Exercisers with regard to having had sex or been pregnant.

Alcohol Use

For most U.S. adolescents and young adults, alcohol is the drug of choice. Nearly half of all eighth graders, two-thirds of 10th-graders, more than three-quarters of high school seniors and 86% of college students have tried alcohol (Johnston, O'Malley and Bachman, 2003). One in five sexually active young people (age 15-24) report having had unprotected sex while intoxicated (Henry J. Kaiser Family Foundation, 2003).

Fewer Boston female high school students report alcohol use (one drink in last 30 days) or episodic heavy drinking (five or more drinks in a row within a couple of hours during the last 30 days) than female high school students nationally or in Massachusetts (Figure 30).

When examining the relationship between sports participation and drinking, it is important to acknowledge that research on the relationship between youth sports and drinking is mixed. Some studies find that high school or college female sports participation is associated with increased alcohol consumption (Aaron et al, 1995; Hildebrand, Johnson and Bogle, 2001; Leichliter et al, 1998; Nelson and Wechsler, 2001; Rainey et al, 1996; Thombs, 2000; Wechsler et al, 1997), while others do not (Baumert, Henderson and Thompson, 1998; Carr, Kennedy and Dimick, 1996; Higgs, McKelvie and Standing, 2001; Overman and Terry, 1991; Page et al, 1998; Pate et al, 2000). Several prominent theories have been advanced to explain athlete alcohol use, including the idea that athletes drink to self-medicate or reduce the stress of competition and injuries (Heyman, 1996; Leichliter et al, 1998; Miller et al, 2002), that the advertising industry reinforces the cultural tradition of drinking to celebrate a win or console a loss (Heyman, 1996; Holman et al, 1997; Madden and Grube, 1994; Slater et al, 1996) or that athletes are exposed to subcultures that are tolerant of, and exaggerate perceived norms of, drinking (Nelson and Wechsler, 2001; Thombs, 2000).

Among those Boston high school female students who used alcohol or engaged in heavy drinking and responded to the sports participation queries, more Non-Athletes than Moderately Involved or Highly Involved Athletes engaged in alcohol use and episodic heavy drinking (see Figure 31). This relationship (more Non-Athletes than Moderately or Highly Involved Athletes) was also true across all race/ethnicity categories, except that no significance differences were found for black females on the episodic heavy drinking variable.

Figure 30: Percentage of Female Students Who Reported Alcohol Use or Episodic Heavy Drinking

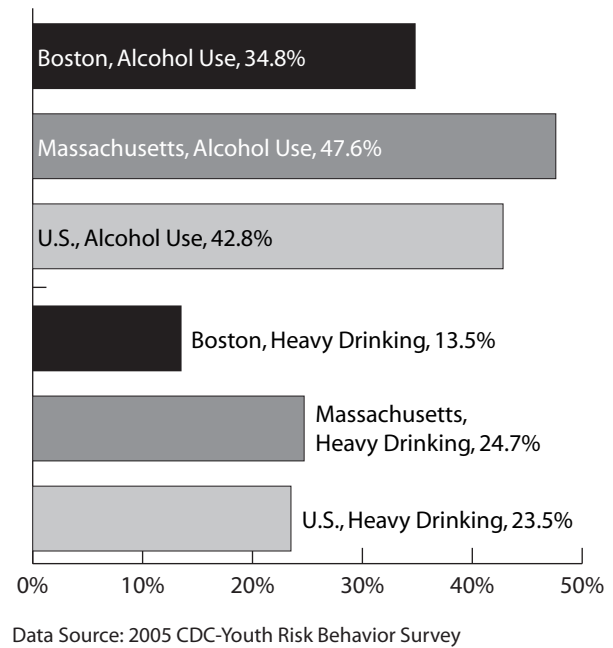
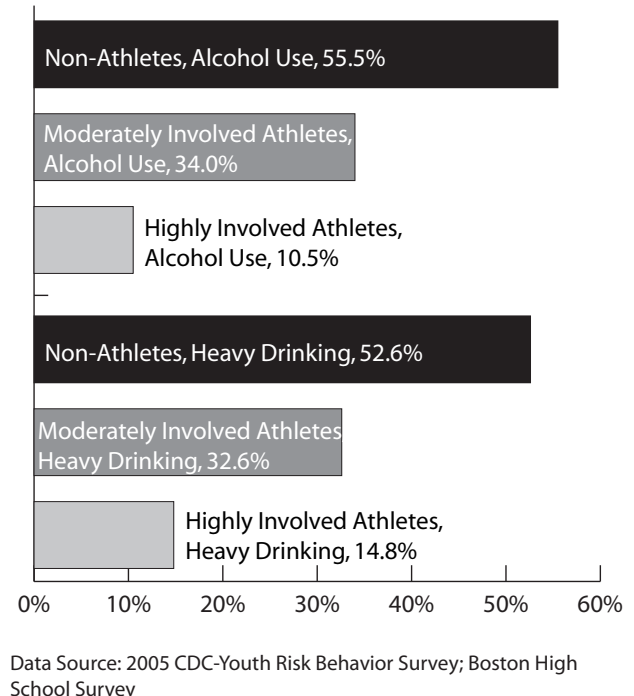


Figure 31: Percentage of Boston Female Students Who Reported Alcohol Use or Episodic Heavy Drinking During the Past Month by Sports Participation



Among those Boston high school female students who used alcohol or engaged in heavy drinking and responded to the exercise participation queries, fewer Less Active Exercisers than Moderately Active or Very Active Exercisers engaged in alcohol use and episodic heavy drinking (see Figure 32). This relationship (fewer Less Active than Moderately Active or Very Active Exercisers) was also true across all race/ethnicity categories for both the alcohol use and episodic heavy drinking variables.

Illegal Drug Use

Two nationwide studies found that female teen athletes are significantly less likely to use drugs, including marijuana, cocaine, heroin and hallucinogens, than non-athletes (Miller et al, 2000; Pate et al, 2000). This protective effect of sports was especially true for white girls (Pate et al, 2000).

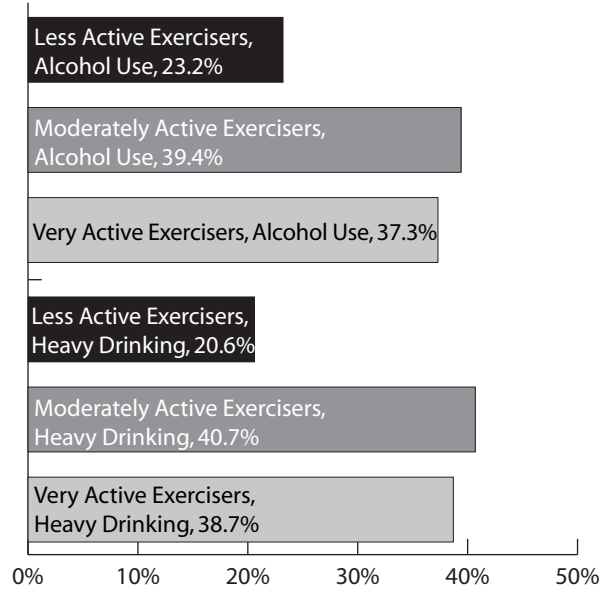
Boston female high school students are less likely, compared to U.S. and Massachusetts female high school students, to use steroids or cocaine and are slightly more likely than the U.S. average to use marijuana but less likely than other female high school students in Massachusetts to do so (see Figure 33).

Among those Boston high school female students who used steroids, marijuana or cocaine and responded to the sports participation queries, more Non-Athletes than Moderately Involved or Highly Involved Athletes used each of these drugs (see Figure 34 on following page). This relationship (more Non-Athletes than Moderately or Highly Involved Athletes) was true across all race/ethnicity categories, except that more black Non-Athletes (30.7%) than Highly Involved Athletes (20.5%) used steroids.

Among those Boston high school female students who used steroids, marijuana or cocaine and responded to the exercise participation queries, results were mixed.

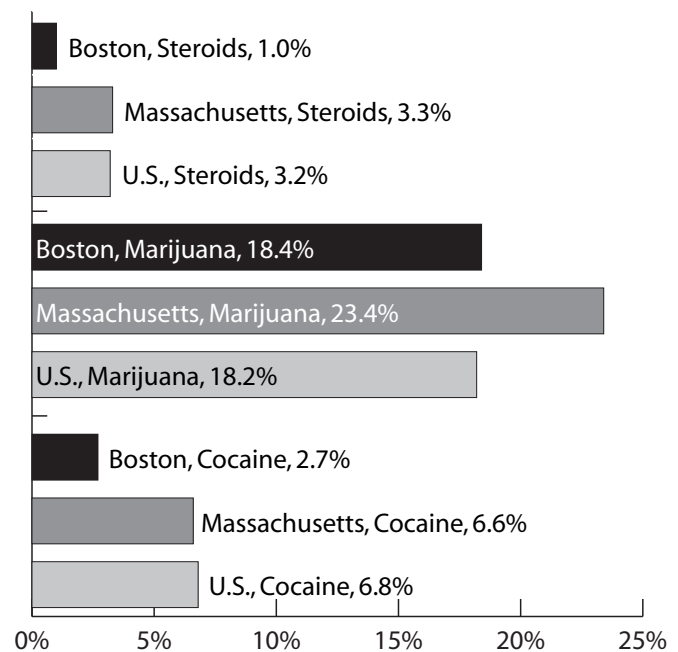
- ◆ Steroids
 - ◇ Compared to Less Active Exercisers (35.4%), a similar percentage of Moderately Active (35.2%) and fewer Very Active Exercisers (29.4%) had used steroids.
 - ◇ Compared to black Less Active Exercisers (34.1%), more black Moderately Active (39.9%) and fewer

Figure 32: Percentage of Boston Female Students Who Reported Alcohol Use or Episodic Heavy Drinking During the Past Month by Level of Exercise



Data Source: 2005 CDC-Youth Risk Behavior Survey; Boston High School Survey

Figure 33: Percentage of Female Students Who Used Selected Drugs* During the Past Month



*Steroids (took steroid pills or shots without a doctor's prescription one or more times during their lives); Marijuana (used marijuana one or more times within the last 30 days); Cocaine (used powder, crack or freebase one or more times during their lives)

Data Source: 2005 CDC-Youth Risk Behavior Survey

black Very Active (26%) Exercisers had used steroids.

◇ More white Less Active Exercisers (50%) than white Moderately Active (12.2%) and white Very Active (37.8%) Exercisers had used steroids.

◇ There were no significant differences among Hispanic exercisers with regard to steroids.

◆ Marijuana

◇ Fewer Less Active Exercisers (26.2%) than Moderately Active (38.2%) and Very Active (35.6%) Exercisers had used marijuana, and this relationship (fewer Less Active Exercisers than Moderately Active or Very Active Exercisers) was true across all race/ethnicity categories, except there were no significant differences among Hispanic exercisers with regard to marijuana.

◆ Cocaine

◇ Compared to Less Active Exercisers (37.6%), the same percentage as Moderately Active (37.6%) and more than Very Active Exercisers (24.9%) had used cocaine.

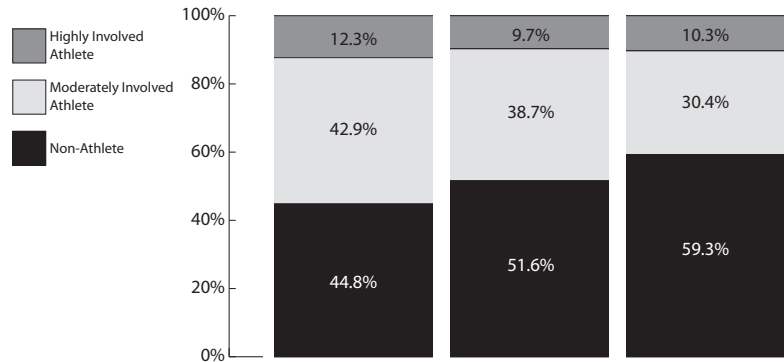
◇ Among racial/ethnicity categories, results were mixed.

- Compared to black Less Active Exercisers (38.6%), more black Moderately Active (61.4%) and fewer black Very Active (0%) Exercisers had used cocaine.
- Compared to Hispanic Less Active Exercisers (31.4%), fewer Hispanic Moderately Active (28.6%) and more Hispanic Very Active (40%) Exercisers had used cocaine.
- More white Less Active Exercisers (48.8%) than white Moderately Active (19.2%) and Very Active (32%) Exercisers had used cocaine.

Figure 34: Percentage of Female Students Who Used Selected Drugs* During the Past Month, by Level of Sports Involvement

	Steroids	Marijuana	Cocaine
% of All Boston H.S. Females who used...	1.0%	18.5%	2.7%

Of these, % who were:



*Steroids (took steroid pills or shots without a doctor's prescription one or more times during their lives); Marijuana (used marijuana one or more times within the last 30 days); Cocaine (used powder, crack or freebase one or more times during their lives)

Data Source: 2005 CDC-Youth Risk Behavior Survey

Dietary Behaviors

Healthy eating in childhood and adolescence is required for proper growth and development. Good nutrition can prevent health problems such as obesity, dental caries, and iron deficiency anemia in children. Later in life, healthy eating reduces risk for many diseases, including the three leading causes of death: heart disease, cancer, and stroke (U.S. Dept. of Health and Human Services, 2001).

Among Boston female high school students, 52.2% ate fruit or drank fruit juice and 53.5% ate vegetables one or more times in the previous seven days (see Figure 35).

Among those Boston high school female students who ate fruit or vegetables and responded to the sports participation queries, more Non-Athletes than Moderately Involved or Highly Involved Athletes had eaten fruit/drank fruit juice in the last seven days and eaten vegetables in the last seven days (see Figure 36). This relationship (more Non-Athletes than Moderately or Highly Involved Athletes) was also true across all race/ethnicity categories.

Among those Boston high school female students who ate fruit or vegetables and responded to the exercise participation queries, fewer Less Active Exercisers than Moderately Active Exercisers or Very Active Exercisers had eaten fruit/drank fruit juice or eaten vegetables in the last seven days (see Figure 37). This relationship (fewer Less Active Exerciser than Moderately Active or Very Active Exerciser) was also true across all race/ethnicity categories.

Figure 35: Percentage of Female Students Who Reported Eating One or More Servings of Fruit/Fruit Juice or Vegetables

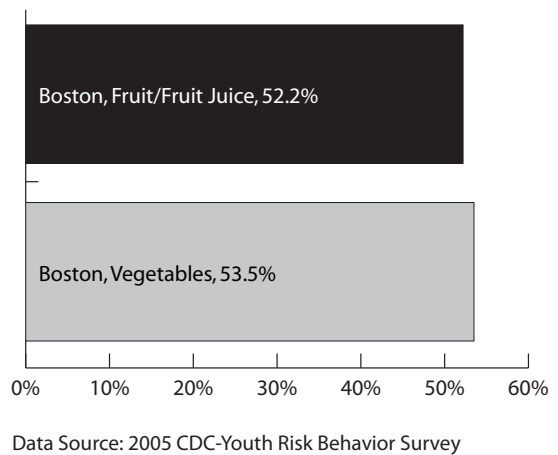


Figure 36: Percentage of Boston Female Students Who Reported Eating Fruit/Fruit Juice or Vegetables During the Past Seven Days by Level of Sports Participation

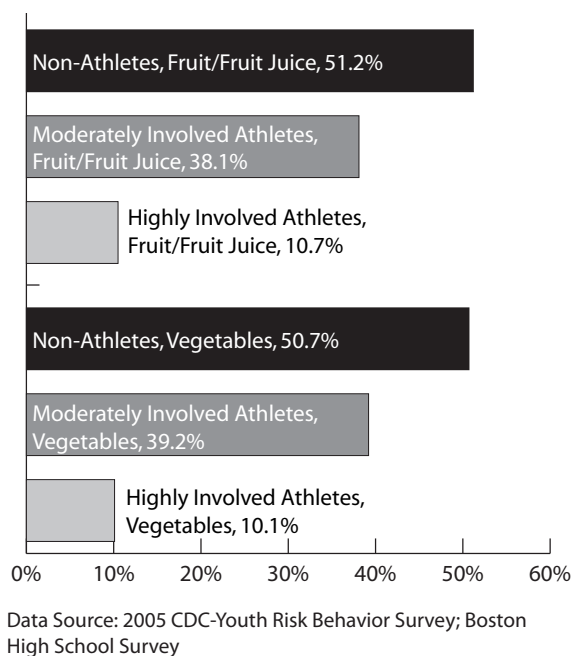
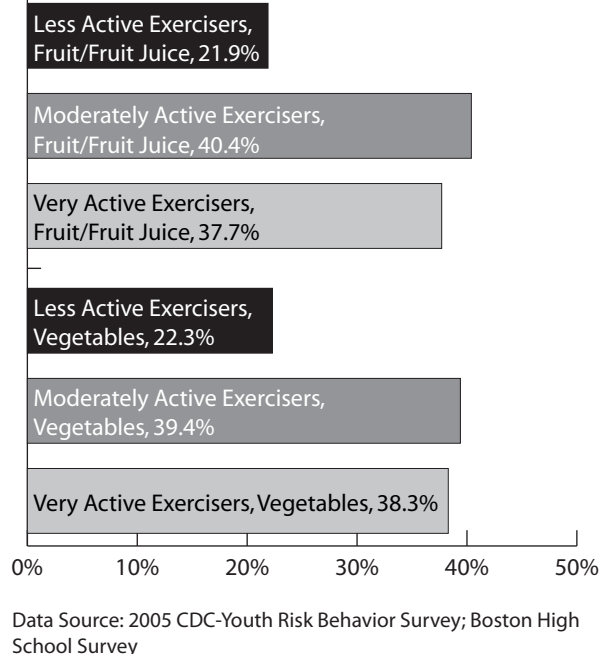


Figure 37: Percentage of Boston Female Students Who Reported Eating Fruit/Fruit Juice or Vegetables During the Past Seven Days by Level of Exercise



IV. Public Policy

Importance of Education Laws and Policies

Public policy has a significant impact on the availability of sports and physical activity and other educational programs to females. Thirty-five years ago our society openly discriminated against women, denying equal access to law, medicine and education programs training students for economically lucrative professions. Similarly, competitive athletic programs, which trained males to compete in high-pressure environments, taught team-building and yielded physical and psychological health benefits, were virtually closed to females a short 35 years ago. Laws prohibiting such discrimination have significantly changed the social landscape of the United States.

Title IX of the Education Amendments of 1972, the federal law that prohibits sex discrimination in federally funded education programs and activities has resulted in a 928% increase in female high school athletic participation since it was adopted (Male high school participation grew by 18% during this same period) (NFHS, 2007). While school intramural and club sports participation growth has not been extensively examined, growth of female participation in those programs has also occurred. For instance, in the decade following the passage of Title IX, female intramural participation doubled (NCAA, 2003).

Massachusetts provides public policy protections in addition to Title IX with The Equal Rights Amendment to the Massachusetts Constitution and the Equal Opportunity Regulations, which implement the Massachusetts Anti-Discrimination Law, both of which prohibit discrimination on the basis of sex in all educational programs, including athletics. In addition, state education regulations make physical education mandatory for all grades.

Public Policy Deficiencies

Sports Participation in Schools. Despite the existence of these laws and school education policies, equal opportunity and participation has not been realized. There are three primary reasons for this failure: (1) the absence of monitoring and enforcement mechanisms, (2) the financial and practical difficulties of individuals using the courts to gain access, and, (3) in the case of physical education requirements, weak and insufficient policies made more challenging by school priorities focusing on the academic testing and programming required to meet the mandates of No Child Left Behind. Data in Section I of this report makes it clear that there is work to be done on the public policy front.

Athletic program gender equity has not been realized. In a 2004 report by the National Women's Law Center (NWLC) and the Harvard Prevention Research Center on Physical Activity and Nutrition (HPRCPAN), the most common complaints regarding treatment inequities in Massachusetts competitive sports programs included "poor quality of facilities for female athletes, the lack of adequate uniforms, the scheduling of games during non-prime-time hours and discrimination faced by female coaches. Massachusetts high school girls additionally reported that they suffered from misperceptions and stereotypes about their interests and abilities; from discrepancies in scheduling of seasons, equipment, publicity and quality of game officials; and from discrimination against female athletic directors" (NWLC and HPRCPAN, 2004). Previously cited participation data (see Section I) clearly indicate that female sports participation in Boston (36% female vs. 58% male) is far from equitable.

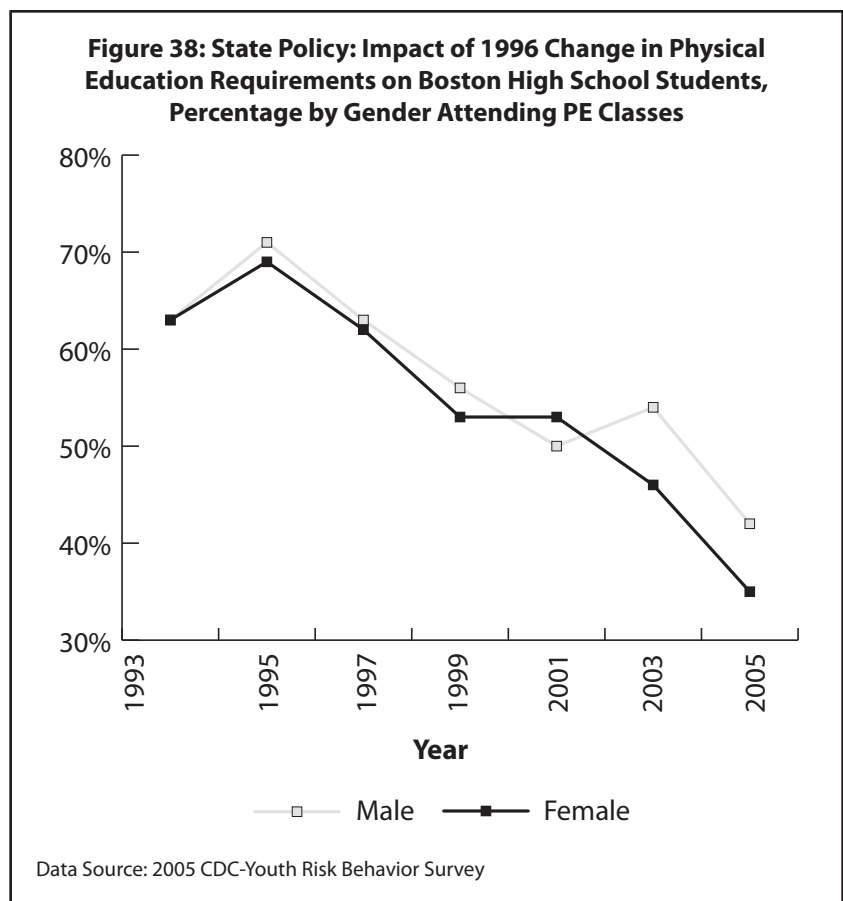
Physical Education

While physical education is a required subject in all grades in Massachusetts, in 1996, the State Board of Education repealed regulations that had mandated 90 minutes of physical education per week to 90 hours per year (Driscoll, 2000). Even this pre-1996 standard was far below nationally recommended standards of 150 minutes (2½ hours) per week for elementary schools and 225 minutes (three hours and 45 minutes) per week for middle and secondary schools (NASPE, 2004). Before the Massachusetts physical education requirements were relaxed, girls' participation in high school physical education classes was relatively similar to that of boys (69% and 71%, respectively). Significant gender differences now exist (see Figure 38 on following page). Boys' participation in Massachusetts and Boston dropped to 59% and 42%, respectively, while girls' participation dropped to 59% in Massachusetts and plummeted to 35% in Boston (CDC-YRBS, 2005). As girls get older, they

are less likely to attend physical education classes, and Hispanic and black girls attend at lower rates than white girls in Boston (CDC-YRBS, 2005).

Formal physical education classes are required to meet the “Boston Public Schools Wellness Policy,” which includes the state standard:

“The current Physical Education policy of 90 hours per school year should be incorporated into the school day and into after-school programming to the extent possible. The district and schools should identify, where appropriate, opportunities for programs such as structured recess, walk-to-school initiatives, support of TV moratoriums, etc., and opportunities to work with community organizations to provide nutrition education, physical activity, and other options to promote student wellness.” (Boston Public Schools, 2007)



The wellness policy became effective on June 30, 2006, and requires district monitoring and an annual evaluation plan. Some schools are currently in compliance with the 90-hour requirement, and others are not. Significant challenges face many schools that are without gymnasias or full-time physical education instructors. According to Boston School District personnel, some schools have developed an annual evaluation plan and monitoring system, and others are still working on them. For the latter, the school district provides technical assistance (Boston Public Schools, 2007). Therefore, the results of the policy’s monitoring and evaluation requirements are not yet available.

Metro Boston public schools represent a critical delivery system reaching the largest number of students at highest risk for inactivity. While after-school programs play a role in the sports and physical activity paradigm, tax-paying citizens have a right to expect that the responsibility for educating our children, physically as well as intellectually, rests primarily with our public school system. Practically, however, given the pressures of No Child Left Behind and financial challenges facing urban cities, every sport and physical activity delivery system should be enhanced to the extent possible.

Public Sports Facilities

It should also be noted that the city of Boston has 60% of the sports and recreation facilities of middle- and upper-income suburbs (Siegal, 2003), a situation common in major urban cities that have high concentrations of poverty and persons of color (who are over-represented in lower socio-economic classes). High-poverty areas (10% poverty rate) have half the availability of outdoor places to play and engage in physical activity, compared to low-poverty areas (1% poverty rate) (Powell, et.al, 2004). The City of Boston has a poverty rate of 18.5% and the 128 Loop, which will be the focus of GoGirlGo! Boston, has a poverty rate of 12.3% (U.S. Census, 2000). Public policy initiatives, such as appropriations for capital expenditures, are required to remedy sports facility deficiencies.

Absence of Equality for Individuals With Disabilities

Unlike Title IX of the Education Amendments of 1972, which has specific regulations defining gender equality in physical education, intramural and athletic programs, the federal Americans With Disabilities and Rehabilitation Acts do not have similar specific clear guidelines that specify equal treatment of individuals with disabilities in school and college physical activity settings, including physical education, school recess and in club, intramural and varsity sports programs. While laws require that special education students receive individualized plans to meet their needs, not all individuals with physical disabilities are considered special education students, a classification used more frequently for learning impaired students. Efforts to adopt state and federal legislation with such assurances are necessary.

V. Support of Girl-Serving After-School Sport and Physical Activity Programs

Need to Support Nonprofit Organizations Delivering After-School Sport and Physical Activity Programs

After-school nonprofit programs are being forced to carry the girls' physical activity delivery system burden because of three primary factors: (1) neighborhood safety is a serious concern that limits the free play (not adult-supervised) of girls, (2) in-school physical education requirements have been weakened and (3) the growth of school-sponsored athletic programs for girls has slowed. Seigal (2003) reports that Boston nonprofits contribute 77% of youth sport participation days, public schools 15%, non-public schools 6% and for-profits 2%. Sixty-seven percent of the participants in these programs are boys. These nonprofit programs serve the important functions of advancing girls' physical activity and keeping girls positively occupied during critical after-school hours when risky health behaviors are most frequently encountered.

This is especially significant in light of the changing family structure, and a culture which promotes, and often requires, both parents to be wage earners. Indeed, it has been estimated that nearly 80% of women with children between the ages of 6 and 17 work outside the home, leaving nearly 4 million children unsupervised before and after school. Unfortunately, the after-school hours are a time when 47% of juvenile crime occurs, with the crime rate tripling in the first hour after school (Davis, 2001). Unstructured free time has also been associated with an increase in dropping out of school, teen pregnancies, drug and alcohol abuse and gang involvement (Clark, 1992). As well, evidence suggests that children who tend to be responsible for their own care are more lonely (Quay, 1992), anxious, headstrong and likely to have peer conflicts (Vandell and Ramanan, 1991), less likely to complete their homework (Long and Long, 1989) and more likely to have poorer emotional well-being (Vandell et al., 1995) than children who either have adult care after school or attend structured, supervised after-school programs. Unfortunately, these findings appear to be magnified for children living in areas characterized by high levels of unemployment and poverty (Egeland et al., 1993)

— Siegal (2003)

Yet, these programs do not enjoy the public's financial support, easy access to use of school or park facilities or highly qualified professional expertise in the execution and evaluation of their programs.

Siegal's 2003 report examined the role of after-school sports on youth development, the properties within programs that were most likely to contribute to the health and well-being of children, strategies to promote and support such programs and program evaluation. The review of research and literature supported after-school sport programming characterized by:

- ◆ "educational sport" models – programs combined physical activity with developmental education;
- ◆ an emphasis on physical fitness of every body type rather than use of physical activity as a weight-reduction strategy;
- ◆ recognition that such programs fill the need for constructive use of after-school time;
- ◆ more frequent and intense involvement each week and over the school year and summer and from year to year, noting that participant days for Boston youth were insufficient and much lower than communities surrounding the city or adolescents statewide;
- ◆ caring adult leadership and supervision;
- ◆ emphasis on pro-social participant relationships;
- ◆ involvement of parents;
- ◆ participant diversity – gender, disability, race/ethnicity;

- ◆ support infrastructure that enables coordination between programs to facilitate facility use, solve transportation challenges and enhance resource acquisition; and
- ◆ special effort to involve girls, especially black girls who were significantly underserved and at risk.

Unlike public and private schools and public parks and recreation, sport and other nonprofit delivery systems face the larger problems of sustainability and scalability. To meet this challenge, Siegal called for the creation of an “enduring infrastructure” that is more of a decentralized eco-system characterized by and responsive to program leader communication of needs rather than the dictates of a more centralized bureaucracy, to help these nonprofit programs. The infrastructure would be a network of third-party agencies available to provide technical assistance on:

- ◆ coaching education;
- ◆ identifying and attracting sources of sustainable funding (e.g., government);
- ◆ coordinated programming to increase intensity of involvement;
- ◆ advocacy for developing and expanding facilities;
- ◆ transportation;
- ◆ research and evaluation; and
- ◆ building bridges to other institutions that might support the enterprise (e.g., hospitals interested in public health issues such as obesity control) (Seigal, 2003).

Seigal’s analysis is instructive for philanthropists, government agencies and other third parties who wish to intercede to help strengthen metro Boston’s nonprofit delivery system, suggesting a set of test questions for those who wish to help:

Does the proposed program or service:

- ◆ Strengthen the connectedness among constituents for the purpose of sharing and allocating resources?
- ◆ Better connect the local system of providers and intermediaries to regional and national entities that support various program themes?
- ◆ Increase overall awareness of who is doing what, where, and how?
- ◆ Develop the infrastructures of constituent organizations for the purpose of strengthening their survival apparatus?
- ◆ Provide more accurate knowledge about which groups are struggling to survive and which of these are worth saving?
- ◆ Implement a means of assessing the relationships between various stimuli and their effects on scaling the system, enhancing the quality of offerings, and developing survival mechanisms?

In fact, the central purpose of GoGirlGo! Boston is to fulfill these needs for girl-serving sports and physical activity programs.

Addressing the Needs of Girls as an Underserved Population

Most GSOs are coed and male-dominated in terms of participants and adult leadership. As a result, many girls feel marginalized and are often the subject of ridicule when participating in sports or physical activity. For instance, it is not uncommon for a Boys and Girls Club to have 50-50 female/male club membership but only 18-20% female participation in sports and physical activity programs. GSOs need specialized knowledge to create programs that appeal to girls who want to play and how to capture sedentary girls who need special outreach and programming environments.

The Women’s Sports Foundation’s 2003-2007 Boston Girls’ Sports and Physical Activity Project (BGSPAP) examined in-depth 12 girls’ sports and physical activity programs. The focus of the BGSPAP was to find out (1)

what Boston and urban GSOs need most to become more effective and reach more girls, (2) how urban GSOs might form partnerships with each other and third-party agencies to increase access to resources and become more successful, and (3) what evaluation tools and mechanisms are best suited for use by urban GSOs (Women's Sports Foundation, 2007).

BGSPAP results added the following insights to meeting the needs of Boston girls with after-school programming, with many findings consistent with the 2003 Siegal report:

- ◆ Those GSOs conducting developmental physical activity programs experienced the most success in participation and retention compared to drop-in programs that focus on physical activity alone.
- ◆ High staff turnover in GSOs creates continuity challenges.
- ◆ Creating a collaborative organizational network appears to require sustenance from a consistently available third party dedicated to injecting motivation, promotion, information sharing and proactive communication among GSOs.
- ◆ The mechanisms of building a vibrant interactive GSO community will require clustering of more homogeneous organizations.
- ◆ Identification of needs should be grassroots, GSO leader and participant driven.
- ◆ Numerous third-party service providers already exist to help GSOs. Key is helping GSOs to assess their needs and connect to such technical assistance.
- ◆ GSO leaders are simply overwhelmed with performing their basic responsibilities of administering, teaching and supervising physical activity programs and activities. To expect these leaders to engage in fundraising, collaboration and evaluation initiatives above and beyond their efforts to directly serve girls requires outside encouragement, expert technical assistance and incentives.
- ◆ Focus on body esteem is important and correlates with level of interest in sports and exercise, the extent to which girls identify as athletes, their athletic ability, the encouragement they received from adults, and the degree that their peers were also involved with sports and exercise.
- ◆ Listening to girls' expressing their needs is important. Girl focus groups found that:
 - ◇ Making new friends and sustaining friendships is extremely important to the BGSPAP girls.
 - ◇ Many girls really enjoy it when they can participate in discussion groups and opportunities to talk or chat amongst themselves. They want to express themselves, and they want to be heard.
 - ◇ BGSPAP girls look to other girls in their program for social and emotional support.
 - ◇ The girls want to be "fit" and "healthy" so that they can get better at sports and exercise, but also, so they can better cope with the stress in their lives.
 - ◇ Sports and exercise programs help girls "fight boredom" and to "feel better" about themselves.
 - ◇ Many girls learned from their relationships with staff and the older girls in the program (if older girls were part of the program). These relationships helped them feel more self-confident and to pursue higher goals in school.
 - ◇ Girls' immersion in the culture of sports and exercise influences their thoughts and feelings surrounding "feminine" identity and how girls and women are expected to think and act. Some program settings help girls construct effective ways to be "girls" within the wider culture.
 - ◇ The girls are aware of the realities and potential for violence in their communities and, in varying degrees, they look to their BGSPAP program as a safe place in their lives. Moreover, the program offers them a space where they not only feel physically safe, but also emotionally safe (i.e., an environment where they can explore new interests and take emotional risks trying new tasks or forging new relationships).
 - ◇ Girls are especially attentive when they have the opportunity to interact with older peer leaders.

- ◇ Many girls want to “look good,” and they like the idea of uniforms and “cool” jerseys and outfits (even though uniforms are not available in most BGSPAP programs).
- ◇ The emotional needs, social goals and attitudes toward sports and exercise vary a good deal between preteen girls (12-year-olds and under) and teenage girls (13 and older).
- ◇ BGSPAP girls are receptive to talking about culture and racial/ethnic issues when given the right opportunity to do so.

(Women’s Sports Foundation, 2007)

Advancing Gender Balance in Sport and Physical Activity Programming

Funders and youth sports professionals should be cognizant of when it is appropriate and advantageous for boys and girls to participate with and against each other and when single-sex programs may be more beneficial in sports and physical activity settings. When separate-sex programming occurs, it is female programming that is typically under-supported compared to programming for males (Girls’ Coalition of Greater Boston, 2005; NWLC and HPRCNPA, 2004); and there exists a valid concern that such programming might perpetuate sex-role stereotyping about appropriate behaviors and activities for boys and girls (Girls’ Coalition of Greater Boston, 2005).

The literature provides good guidelines regarding when separate- and single-sex programming is appropriate.

Separate-sex programming is appropriate:

- ◆ After puberty, in competitive athletics and open amateur sports leagues, because males have a hormone advantage in building muscle mass. In other words, if you match boys and girls by size and weight, boys will have a larger percentage of muscle mass and, therefore, be stronger. Since most sports involve overcoming the resistance of a mass or propelling a mass through space, strength is an important variable and males have a natural advantage. For instance, offering both men’s and women’s basketball teams gives women an equal chance to play and is similar to having weight classes in boxing or wrestling, ensuring fair competition among participants. This is the sound justification for girls-only after-school travel teams and other competitive sports leagues. However, boys’ and girls’ teams should be equally offered and equally supported with quality coaches, facilities and equipment (Women’s Sports Foundation, 1999).
- ◆ Pre- or post-puberty for sedentary girls not confident in their bodies or movement skills and sensitive to the inevitable criticism of adolescent males who dominate co-ed physical activity programs, and girls in need of physical and emotional safety.
- ◆ When physical activity programs are designed to include developmental education about risky health behaviors from sexual activity to drug use, frank discourse about an overbearing media culture putting great pressure on girls to meet stereotypical body types they will never achieve and other sensitive topics.

Co-ed programming is appropriate in:

- ◆ Physical education (required by law under Title IX).
- ◆ Pre-puberty organized sports and physical activity programming when boys and girls are confident in their physical abilities and a positive sports environment is ensured by appropriate adult supervision. Research demonstrates that girls who participate in mainly male or co-ed sports program or “masculine” sports (i.e., dodgeball, basketball or football) at a young age are more likely to participate in sports later in life and be comfortable in this oftentimes still masculine sports environment (Giuliano, Popp and Knight, 2000, Women’s Sports Foundation, 1988).
- ◆ Post-puberty non-competitive sports and physical activity programs or competitive programming in which strength does not provide an unfair advantage where safe and respectful environments are ensured.

Single-sex environments can be important tools that should be used to remedy participation opportunities and encourage the participation of previously underserved girls who may be less confident, self-conscious about their bodies, less skilled or more sedentary. Nonprofit organizations serving girls only or boys and girls should

deliver such programming to this underserved girl population in emotionally safe and supportive single-sex environments when possible.

Gender-sensitive programming and the collaboration of girl-focused organizations that have such expertise will be required to address the need to remedy the sports and physical activity levels of girls. Unfortunately, funding for girl-specific programming in the metro Boston area has diminished over the last five years (Girls' Coalition of Greater Boston, 2005). In a 1999 study, Mead reported that 92% of foundation dollars went to coed programs; 6% to programs for women and girls; and 2% to programs for men and boys in the greater Boston area (Mead, 2000). In the sports and physical activity environment specifically, boys predominate as the participants in coed programming (Mead, 2000). According to a 2005 report by the Girls' Coalition of Greater Boston, financial support to both girls only and coed sports and physical activity programming should be conditioned on the existence of gender-sensitive training for practitioners, demonstration that the program contains gender sensitive elements and segregation of participation and evaluation data by gender in order to address the need to balance what is now a male focused sport and physical activity culture. The elements of a gender-sensitive girls' program include:

1. Needs assessment
2. Safe, supportive space
3. Shared responsibility and power
4. Mentoring relationships
5. Family and community involvement
6. Cultural appreciation and critique
7. Opportunities for new learning
8. Collaboration with other gender-sensitive programs
9. Gender sensitivity and diversity training for staff and youth
10. Adequate funding for program implementation and evaluation

(Girls' Coalition of Greater Boston, 2005)

Collaborations with girl-focused organizations like the members of the Girls' Coalition of Greater Boston and the Boston Girls' Sports and Physical Activity Coalition should be sought, and funders should also work with experienced girl-focused program grant makers such as the United Way's Today's Girls... Tomorrow's Leaders. Most important, the effort to increase girls' physical activity participation will require persistent effort and sustained funding over time by numerous agencies.

The need for the provision of technical assistance to co-ed girl-serving organizations is evident. Not so evident is the need for training of staff at coed and girl-focused organizations in how to attract, retain and sustain the participation of sedentary girls in sports and physical activities. Sedentary girls may not respond to sports or physical activity program promotions because they don't think they can succeed or have fun in such programs. Capturing these girls may require a "bait and switch" approach that invites girls to join other girls just like them in discussing issues important to them and then inserting non-competitive physical activity as a main component of such programs. The emphasis on initial physical activity experiences must be on (1) having fun, (2) experiencing success and (3) enjoying high levels of support and encouragement from peers and activity leaders. Dance, double-dutch, walking, yoga and similar entry-level activities, as opposed to competitive sports, should be the focus of offerings.

VI. Adult Knowledge and Influence

Role of Parent Encouragement

Barriers to physical activity participation in urban environments include cost, transportation and the absence of encouragement of parents, peers and key influencer adults. Thus, public education and promotion of girls' sports and physical activity programming is an important component in getting girls active (Women's Sports Foundation, 2007).

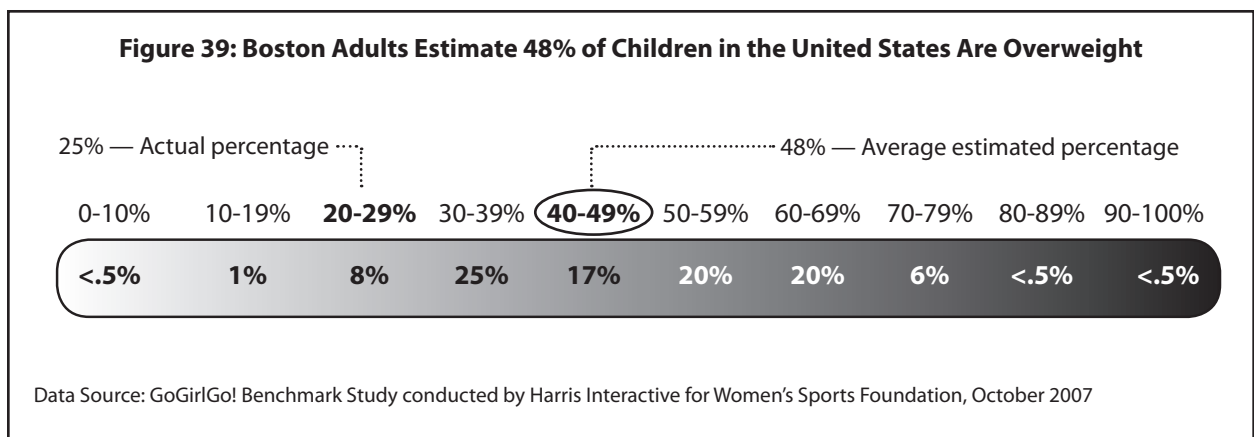
Almost any kind of encouragement on the part of parents is effective in increasing their daughters' physical activity. A national survey of preadolescent and adolescent girls showed that girls who are most active report being encouraged by their parents. Girls who were active at the highest levels also had parents who were currently physically active and/or shared an interest in their daughters' sport (Jaffee and Rex, 2000; Biddle and Goudas, 1996).

Knowledge about the importance of physical activity, coupled with an understanding of steps to take, is key to generating adult encouragement of girls' participation in sports and other physical activities.

Benchmark Boston Public Awareness Survey

A Women's Sports Foundation "benchmark" survey was conducted to assess the current state of Boston adult awareness, knowledge and benefits of girls' sports and physical activity participation (Harris Interactive, 2007). Harris Interactive conducted 548 interviews among a sample of adult residents (18+) in the Boston area within the Route 128 Loop. The surveys were conducted online between September 27 and October 15, 2007. The sample was drawn from the Harris Poll Online panel, a multi-million-member database of respondents. Data were weighted by gender, age, race/ethnicity, education and income to be representative of the adult population of the Boston area inside the Route 128 Loop. Where appropriate, significant differences at the 95% confidence level between subgroups are indicated.

On average, Loop 128 metro Boston residents believe that nearly half of children in the United States are overweight (actual is 25%) (see Figure 39) and that physical activity, nutrition and a healthy weight are important (see Figure 40 on the following page).



Women (69%) more so than men (56%) place more importance on girls being a healthy weight as do older men and women aged 40+ (69% vs. 57% ages 18-39).

Loop 128 Boston residents also believe that healthy eating and physical activity are equally important for girls (see Figure 41).

While metro Boston residents recognize the many benefits of physical activity to girls (decreased risk for disease, increased image, confidence and self-esteem, lower likelihood of smoking, decreased chance of depression) (see Figure 42 on following page), males, blacks and Hispanics, and younger residents ages 18-39 were less knowledgeable about the benefits of physical activity for girls (see Figure 43 on following page).

Many metro Boston residents believe that when it comes to sports, girls in Boston are not offered the same opportunities or attention as boys. (see Figure 44 on page 47).

Older residents were more likely than younger residents to agree that Boston offers girls fewer opportunities to get involved with sports compared to boys (34% ages 40+ vs. 21% ages 18-39).

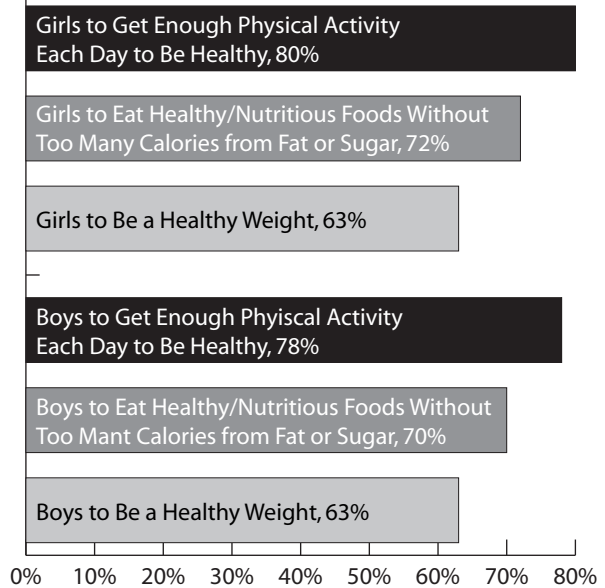
Many Loop 128 metro Boston residents are unaware of how to provide greater sports and physical activity opportunities even if they wanted to (see Figure 45 on page 47).

Those who feel less equipped to help a girl get more physically active are more likely to be males (40%) rather than females (24%), younger residents aged 18-39 (37%) rather than older residents aged 40+ (26%) and those who have less interaction (38%) with girls than those who have more interaction (24%).

However, Boston residents appear motivated to join in the cause to get girls physically fit and are already heading in the right direction, with many saying they are likely to participate in a mentoring activity aimed at encouraging physical activity among girls over the next year. Specifically, Boston adults can be most expected to participate in a physical activity with a girl (39%), speak to a girl about the

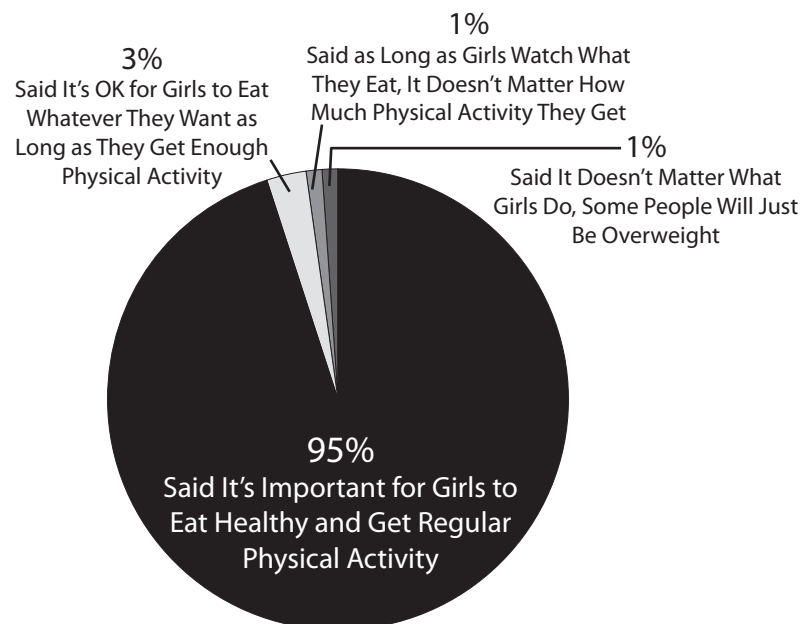
Figure 40: Physical Activity and Nutrition Are Important Regardless of Gender

Percentage Who Said It is "Absolutely Essential/Very Important" for...



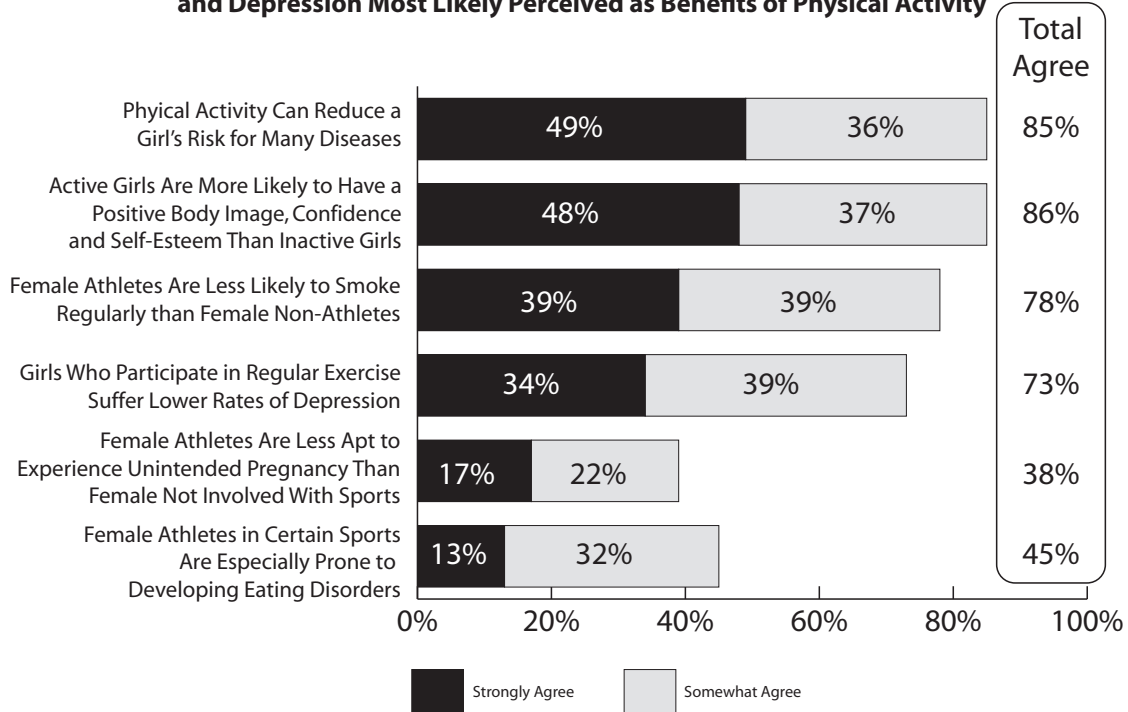
Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

Figure 41: Physical Activity Considered Equally Important as Healthy Eating for Girls



Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

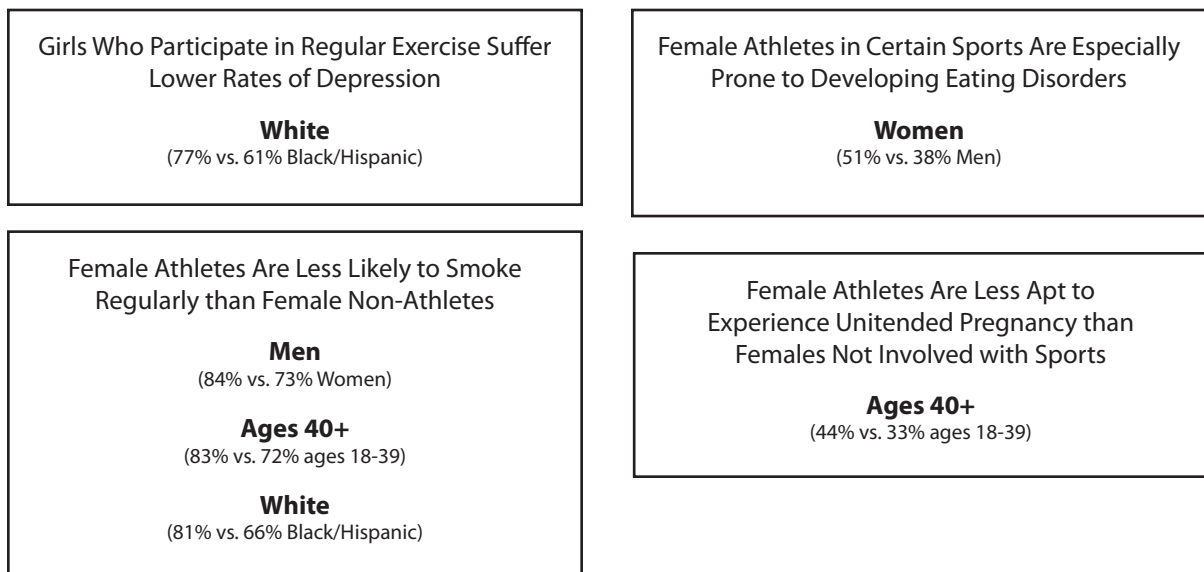
Figure 42: Improved Self-Image and Decreased Likelihood of Disease, Smoking and Depression Most Likely Perceived as Benefits of Physical Activity



Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

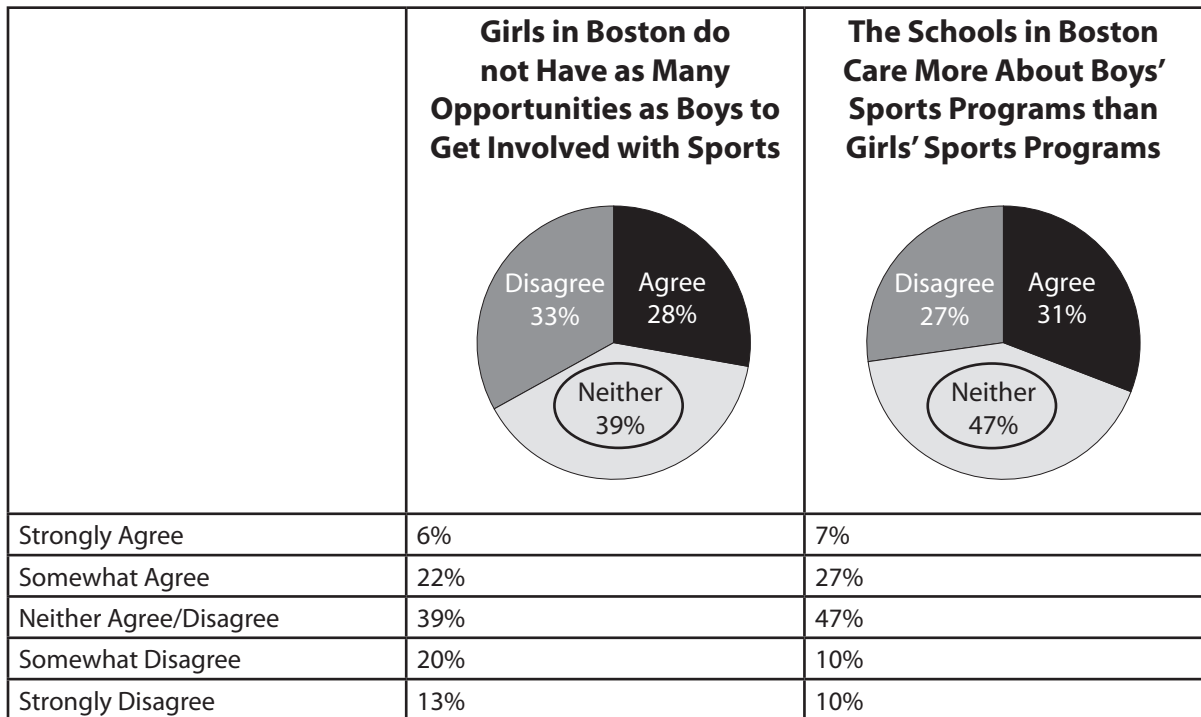
Figure 43: Age, Gender and Race Distinguish Perception of the Effects of Physical Activity on Girls

Those Who Are More Likely to "Strongly/Somewhat Agree" to Statements Tend to Be...



Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

Figure 44: Pluralities Are Uncertain Whether Girls Are Given Same Opportunities as Boys



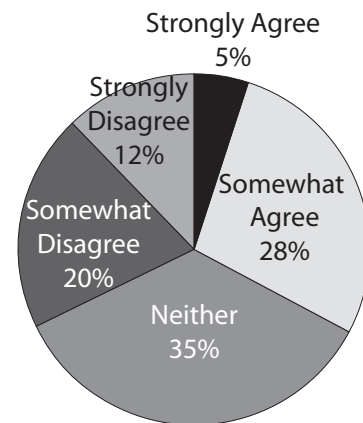
Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

importance of physical activity (39%) and/or make a commitment to get one or more girls they know involved in physical activity (30%) (see Figure 46 on following page).

Many people can be willing to make a commitment to this cause, but they need to know how to get started. There appears to be a strong opportunity to educate Boston residents, especially men, younger residents and those who have less interaction with girls, on the programs that they can help and empower them to affect change.

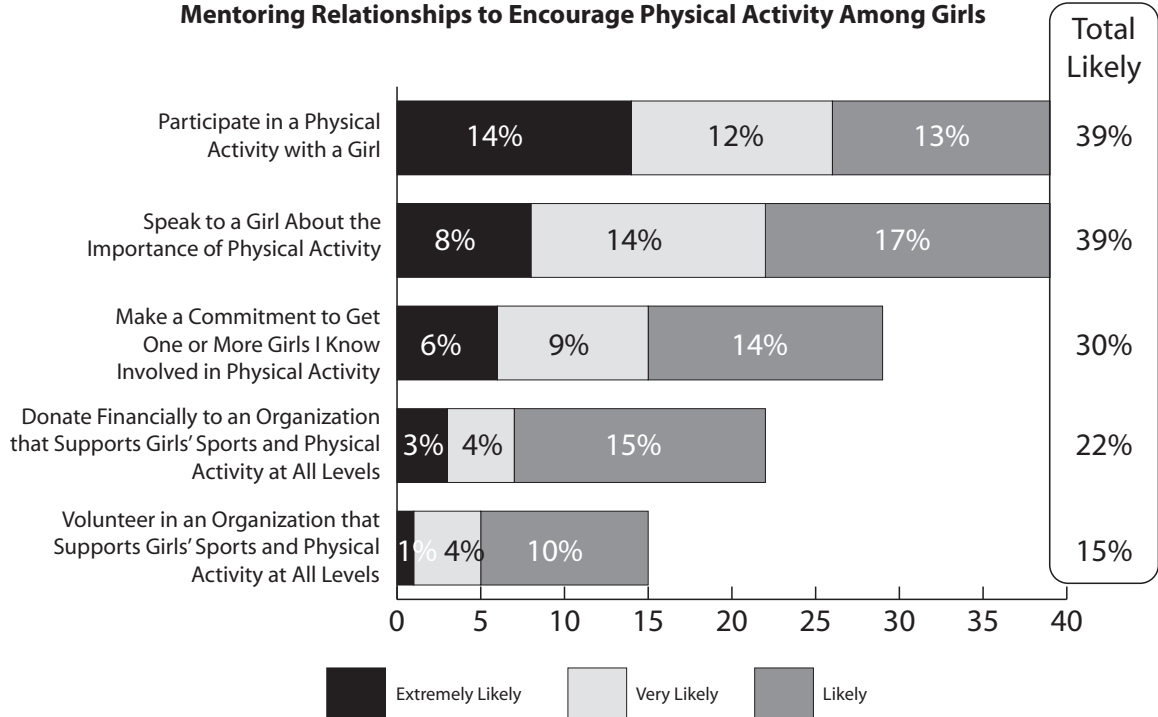
The findings of this study indicate a pressing need for public education around the importance of girls' participation in physical activity, the disparities between boys' and girls' participation in athletics, girls' right to equality in school-sponsored athletics, and the available avenues for enforcement of these rights. Because girls of color participate in physical activity at consistently lower rates than their white peers, it is critical that these public educational efforts contain a specific focus on girls of color that highlight their particularly low participation rates. All educational materials must be culturally sensitive, and specific outreach should be targeted at communities of color. These educational efforts should reach all relevant constituencies, including students, parents, advocates, health providers, and sports providers (NWLC and HPRCNPA, 2004).

Figure 45: Percentage of Metro Boston Residents Who Are Unaware of How to Provide Greater Sports Opportunities for Girls Even if They Wanted to



Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

Figure 46: Percentage of Metro Boston Residents Motivated to Develop Mentoring Relationships to Encourage Physical Activity Among Girls



Data Source: GoGirlGo! Benchmark Study conducted by Harris Interactive for Women's Sports Foundation, October 2007

Addressing Barriers to Participation

In a 2006 study, Market Street Research surveyed a total of 612 parents from the Boston public school system. Interviews were conducted from June 5 through June 18, 2006 (Boston After School and Beyond, 2006). Among the findings about after-school programs were:

- ◆ Two-thirds (66.1%) of parents and 69% of kids who participated in after-school programs were very satisfied with those programs;
- ◆ Parents of Boston school children identified four primary barriers to participation in after-school programs: cost, safety, transportation and information;
- ◆ Half of respondents' children did not participate in after-school programs:
 - ◇ Half of these parents did not want their child to participate for the following reasons in rank order: (1) does not perceive a need (23%), (2) concerned about the quality of the program (14%), (3) child has other commitments (13%) and (4) child does not want to participate (6%);
 - ◇ One-third (32%) of these parents said that there were barriers to their child's participation: (1) insufficient number of programs or participation slots (14%), (2) cost (11%), (3) transportation or program location (8%) and (4) not aware of programs (3%); and
- ◆ Parents learned about after-school programs through school teachers (23.6%), school notices (22.1%), word of mouth from friends (16.8%) and from their children (10.6%), but say that where they would look for such information is from school/teachers (32.8%) and the Internet (31.4%).

Publicly accessible information about the location, cost and location of programs increases parents' confidence about their quality, safety and adult supervision. Transportation remains a major barrier if proximate programs cannot be located. Boston organizations have done an outstanding job in compiling information about after-school programs into print and Web-based directories that fulfill this purpose (see Figure 47 on following page).

Figure 47: Metro Boston Directories of Sports and Physical Activity Programming

Name of Directory	Estimated # of orgs in directory	Do physical activity programs list availability for girls?	Are age and skill specified?	Searchable by zip or neighborhood?	Searchable by sport?	Contact information if they want to enroll?	Availability in Web or print?
Boston Youth Guide	600	Sometimes (descriptions vary)	Sometimes (descriptions vary)	No, listed by neighborhood	Yes	Yes	Print and Online searchable PDF
Boston Youth Sports Directory	114	Yes	Yes	No, Listed by neighborhood	Organized by Sport	Yes	Print and Online as PDF
BOSTnet' Guide to Boston's Before and After School Programs	500	Yes	Age, sometimes skill level	Yes, neighborhood	No	Yes	Print and Online as searchable database
Boston Navigator	More than 800 orgs and thousands of programs (ex: Tenacity is one org, with 25 locations)	Sometimes (descriptions vary)	Age	Yes, zip code	Yes	Yes	Online as searchable database
Boston Rocks	More than 550	Yes	Age	Yes, Neighborhood	No	Yes	Online as searchable database
Youth Advocacy Program (for girls)	100	Yes	Age	Listed by neighborhood	No	Yes	Online as PDF

More detailed descriptions of the directories are in Appendix B.

VII. Conclusions and Recommendations

It is clear from the current research that girls, especially black and Hispanic girls, in the Boston area do not get enough physical activity in their daily lives. This trend is highlighted by low participation rates in school and non-school sports and physical education and lack of vigorous physical activity and lower participation levels as girls get older. Efforts to address these deficiencies should focus on capturing sedentary black and Hispanic girls.

Sports participation carries significant benefits in reducing health risks. With few exceptions athletes are less likely to experience health problems or engage in risky health behaviors than non-athletes. Even when there were no significant differences between all athletes and non-athletes or levels of all exercisers on specific health or health-risk variables, in many cases, significant benefits were revealed for race/ethnicity groups. Furthermore, participation in one or more sports appears to be greater than the impact of moderate and high levels of vigorous physical activity.

Female high school students in Boston are more likely to be overweight and obese than girls nationally. Mirroring a national trend, black and Hispanic females in Boston are more likely to be overweight and obese than Boston white females. Boston females are also more likely than U.S. females to be have asthma, engage in excessive television viewing, engage in sexual intercourse, experience teen pregnancy, use alcohol, engage in heavy drinking, use marijuana or have insufficient dietary intake of fruits and vegetables. However, Boston females are less likely than U.S. females to engage in unhealthy weight control, be depressed, have made a suicide plan, use steroids or use cocaine.

With regard to public policy, Boston schools are not providing equal opportunities and treatment for female athletes, a requirement of Title IX, a federal gender equity law. More needs to be done to educate girls, their parents and their advocates about the importance of girls' participation in sports and their right to be free from discrimination. Technical assistance should be provided to schools as a means to ensure gender equity in their athletics programs.

There are serious physical education opportunity deficiencies affecting girls and the current Massachusetts PE curriculum requirement does not meet national standards. Required physical education represents the most efficient physical activity delivery system (lowest cost/greatest reach) and is being underutilized. There are no clear guidelines that specify equal treatment of individuals with disabilities in school and college physical activity settings, including physical education, school recess and in club, intramural and varsity sports programs. Boston has 60% of the sports and recreation facilities of middle- and upper-income suburbs, which limits the availability of sports and physical activity programming for boys and girls. Public officials should advance appropriations initiatives to address this deficiency.

Safety concerns, the failure of schools to meet sports and physical education needs of girls and "No Child Left Behind" mandates are consuming the focus and resources of public schools. This situation has relegated major responsibility for delivering adult-supervised sports and physical activity programs to youth sport and girl-serving organizations (GSOs) that do not enjoy the public's financial support, easy access to school or park facilities or highly qualified professional expertise in the execution and evaluation of their programs. Most GSOs are coed and male-dominated in terms of participants and adult leadership, which results in girls feeling marginalized and being underserved. All GSOs need specialized knowledge to remedy this culture and create programs that appeal to girls who want to play. Few GSOs understand how to capture sedentary girls who need special outreach and programming environments to engage in sports and physical activities. Technical assistance to GSOs is required to meet these needs.

There is a pressing need for public education around the importance of girls' participation in physical activity, the disparities between boys' and girls' participation in athletics, girls' rights to equality in school-sponsored athletics, and the available avenues for enforcement of these rights. Because girls of color participate in physical activity at consistently lower rates than their white peers, it is critical that these public educational efforts contain a specific focus on girls of color that highlight their particularly low participation rates. All educational materials must be culturally sensitive, and specific outreach should be targeted at communities of color. These educational efforts should reach all relevant constituencies, including students, parents, advocates, health providers and sports providers.

Many Boston residents may be willing to make a commitment to the cause of getting more girls physically active, but they need to know how to get started. There appears to be a strong opportunity to educate Boston residents, especially men, younger residents and those who have less interaction with girls, on the programs that they can help and empower them to affect change.

The health and economic costs of not addressing these concerns are considerable. The future health and well-being of Boston's girls will depend on a strategic and far-reaching effort to meet their needs.

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Appendix A: 2005 Youth Risk Behavior Survey, Boston Public School Survey

Description of Data

In addition to the national 2005 YRBS, many states and cities (school districts) also conducted independent YRBS of their own. The local surveys only included public schools within the locally funded school district. A two-stage cluster sample design was implemented. In the first sampling stage, schools with any of grades 9-12 “were selected with probability proportional to school enrollment size.” In the second stage, “intact classes from either a required subject or a required period were selected randomly, and all students in selected classes were eligible to participate. The Boston Public Schools had an overall response rate over 60%, which allowed the sample to be weighted. This means that the data from the survey can be considered representative of students in grades 9-12 in that jurisdiction. A weight was “applied to each record to adjust for student non-response and the distribution of students by grade, sex and race/ethnicity in each jurisdiction (CDC-YRBS, 2005).”

Because of the high overall response rate for this survey, the data were weighted to reduce any possible bias in the sample. A weight was associated with each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of non-response. For the Massachusetts data and the Boston data, in cases where the CDC had not supplied confidence intervals (as in the case of subgroups based on race/ethnicity, immigrant status, sexual orientation, kind of community, or particular risk status), comparisons were based on analyses performed in SPSS 12.0, the statistical program used by the Department of Education. Because SPSS 12.0 assumes a simple random sample rather than the multi-stage sample actually employed for the MYRBS, analyses may result in a significant finding when indeed there is none. Therefore, a more stringent level of significance ($p < .01$) was used for group analyses performed in SPSS. (<http://www.doe.mass.edu/cnp/hprograms/yrbs/05/appxB.pdf>)

All percentages were rounded to one decimal place, which occasionally resulted in combined results of slightly more than 100%.

Boston Public Schools Sample	
Total	1,1662
Response Rate	68%
Gender	
Female	51.2%
Male	48.8%
Grade	
9th	30.8%
10th	25.1%
11th	22.3%
12th	21.8%
Race/Ethnicity	
White	15.5%
Black	47.5%
Hispanic	29%
Other	8.1%

Appendix B: Descriptions of Metro Boston Youth Sports Directories

Boston Youth Guide

Created by the city of Boston and multiple nonprofits, the Boston Guide to Youth Services includes multiple interest areas (sports, arts, etc.). Both printed and PDF versions are available, consisting of a 76-page listing that is not searchable but is organized alphabetically by neighborhood. It first lists public agencies, proceeding to private nonprofit, then faith-based organizations. It also includes a calendar of events for free summer activities (plays, sporting events, etc.) and a specific teen guide. www.cityofboston.gov/bcyf/pdfs/bgys_06_07.pdf

Boston Youth Sports Directory

Created by the Boston Youth Sports Initiative, the Boston Center for Youths and Families and Boston After School and Beyond. This is a 103-page printed and PDF guide to sports programs throughout Boston and consists of approximately 120 programs that are not searchable but are organized first by sport and also by neighborhood. The programs are run through neighborhood leagues, community centers, clubs, teams and after-school programs. Occasionally the guide mentions whether programs are free. It also contains a general listing of multi-sport and recreation centers. The listings span all ages and time frames including summer, after school, before school and weekends. www.bostonbeyond.org/assets/pdf/Bbeyond_directory_color.pdf

BOSTnet

Created by the Build the Out-of-School Time Network (BOSTnet), the Guide provides parents with information on out-of-school time opportunities for children and youth. This is print-version and Web-based searchable database consisting of multiple interest areas including sports, art, leadership development, academics and technology. (The sports listings are limited – only 62 listings and many are multiple programs from the same organization.) The search criteria include neighborhood, age, primary activity and before-school or summer activities. The guide also lists disability/access information for children with special, along with programs for older youth. It also lists if the program accepts vouchers, which is something that allows a child under the age of 13 free enrollment in an after-school program. BOSTnet has been working on this directory and sharing it with the Boston community for the past 18 years. It has a wide distribution of its print directory, which goes out to libraries, schools, community health centers and housing communities. <http://webguide.bostnet.org>

Boston R.O.C.K.S

The Boston Recreational Opportunities for City Kids database is a summer programming campaign coordinated by the Boston mayor's office. It is an online searchable database that is comprised of more than 500 programs and organizations that run summer activities for kids ages 8-14. It includes multiple interest areas, including arts, sports and education. www.bostonyouthzone.com/summer

The BOSTONavigator

The Boston Navigator is working on becoming the most comprehensive of all the databases. All of the above directories are in the process of becoming part of the Boston Navigator, as are out-of-school-time programs in Boston schools. It will also include information from the Boston Public schools "summer stuff." Created through collaboration between the City of Boston, BOSTnet and Boston After School and Beyond, this searchable directory covers multiple interest areas and is attempting to centralize Boston youth program listings for any out-of-school time periods. It is a self-reporting database, so not all organizations are listed yet. It is fairly new, having come online in July 2007, and it listed 559 programs for the summer. School programs, community centers, boys and girls clubs, sports groups and faith-based groups comprise the majority of its listings, and its partners include BOSTnet, Youthline, Youthguide, BYSI and Boston Rocks Summer Programs. The programs are for children ages 5-18, and search criteria include age, activity type, zip code, organization and program name. It is accompanied by the mayor's youth line, which is a peer resource where high school students are available on a hotline to help callers find the program they are looking for. It is the goal of the city that this becomes the one database and directory people use when searching for out-of-school-time programming for their children. www.bostonnavigator.org/search.aspx

Boston Youth Advocacy Program

This guide is aimed at girls in the Boston Juvenile Justice System. It is available online as a PDF and includes multiple interest area programs and organizations, including advocacy, sports, arts, health, skill-building and academics. The guide lists the programs alphabetically by name and also by their focus. www.youthadvocacyproject.org/JDN%20girls.htm



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