



The Health of our Children: *Who's Paying Attention?*

A survey, report and recommendations on
the nutritional and fitness status of
Massachusetts youth
by the
Massachusetts Public Health Association

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Introduction

According to the 1998 *Advance Data-Deaths Report* published by the Massachusetts Department of Public Health, more than half of all 55,204 deaths in Massachusetts could have been prevented. Of these, smoking accounted for 17% of deaths, while poor diets and lack of exercise caused nearly 20% of deaths.¹ It is estimated that over 300,000 people a year in the United States die from overweight-related causes.² Poor nutrition and lack of exercise are putting our residents, including our children, at increasing risk of developing a host of chronic diseases such as hypertension, diabetes, cancer, osteoarthritis, asthma, and cardiovascular disease.

As a result of our increasingly unhealthy lifestyles, over 61 percent of adults in the US and in Massachusetts are now considered overweight. Further, since 1980, the prevalence of overweight children has more than doubled, and that of overweight adolescents has almost tripled. The most recent studies show that overweight in children continues to increase rapidly³. This trend is observed among children of all ages, races, ethnicities, and socioeconomic backgrounds, although some Massachusetts and national data show that poorer children, especially African Americans and Latinos, are at particular risk. Obesity in children is of particular concern because of the likelihood that this condition will continue into adulthood.^{4,5} and because of the associated risks of developing premature chronic diseases in adult life.⁶ For example, type 2 diabetes, known as adult onset diabetes and usually found most often in that population, is a very rapidly growing childhood disease in the country.⁷

In Massachusetts, 16% of children between the ages of 2 and 5, who participate in the WIC program, are overweight⁸, **15% of high school students are at risk of becoming overweight (their weight to height ratio is notably high) and 7% are deemed overweight.**⁹ In addition, according to data in the 1999 MA Youth Risk Behavior Survey, self-reported overweight among MA teens has grown from 28% to 33% between 1995 and 1999.¹⁰

The dramatic decline in the nutritional and fitness health of children in the U.S. is in large part the result of societal and environmental pressures that include:

- the proliferation of unhealthy food and beverage advertising, including commercialism in public schools;
- increased television and computer usage;
- an abundance of fast food outlets and an increase in portion sizes;
- a growing trend toward eating meals away from home;
- increased consumption of sugar-sweetened beverages such as sodas;
- a reliance on automobiles;
- a decline in adults' and childrens' engagement in physical activity; and
- a lack of safe and affordable physical activity opportunities.

These pressures exist in our schools as well as our homes. Schools make unhealthy foods continually available in vending machines, as well as on a la carte lines and in their after-school and fund-raising programs. Simultaneously, as a result of financial and academic pressures stemming from Student Learning Time Regulations under Mass. Education

Reform, schools have decreased their physical education/activity opportunities as well as their time for lunch and recess.

Preventing obesity in our children is one of the most important public health issues facing the nation today. The Surgeon General, in his Call to Action to Prevent and Decrease Overweight and Obesity (December 13, 2001) reports that in 2000, the “total (direct and indirect) costs attributable to obesity was estimated to be \$117 billion (\$61 billion direct and \$56 billion indirect).”¹¹ Obesity and its related economic and health consequences require immediate action, both nationally and locally.

Unhealthy Diets: An Overview

A recent report, published by the American Dietetic Association (ADA), emphasizes the importance of a healthy balanced diet for children, as well as their participation in regular physical activity, "to promote optimal physical and cognitive development, attain a healthful weight, and reduce the risk of chronic disease."¹² Yet studies have shown that U.S. children and adolescents consume only two and a half servings of fruits and vegetables daily, far short of the recommended daily consumption of 5 fruits and vegetables.^{6,8} And, because restaurants are offering larger and larger portion sizes, and people are eating out more often, they are getting bigger portions of unhealthy foods.

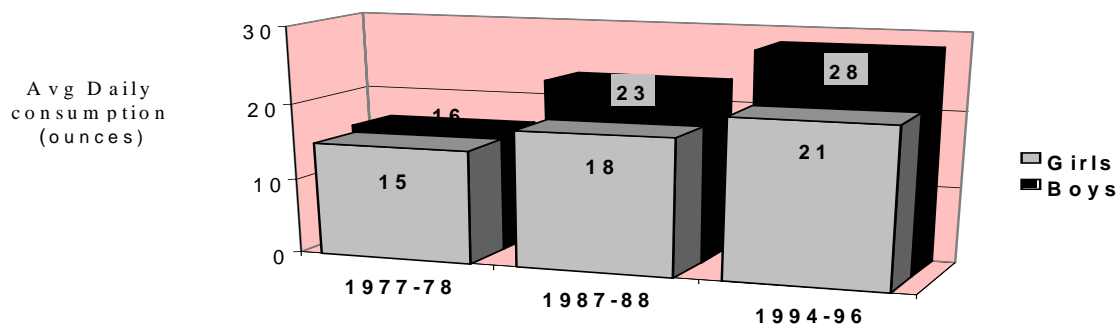
In Massachusetts, only 14% of adolescents met the dietary guidelines for fruits and vegetables in 1999, down from 21% in 1997.⁶

Unfortunately, there is a paucity of statewide surveillance systems tracking trends in the nutrition, growth and physical activity status of children here in Massachusetts, especially in the elementary years. Without this information, it is difficult to know how and where to target our efforts at preventing obesity in children.

"Liquid Candy" consumption is on the increase (Figure1)

Another disturbing trend is that U.S. adolescents are consuming more drinks that are high in sugar and low in nutritional value (dubbed “liquid candy” by the Center for Science in the Public Interest). A recent study published in a February 17, 2001 issue of the journal *Lancet*, conducted by Children’s Hospital-Boston and Harvard School of Public Health, found that increased consumption of sugar-sweetened beverages promotes childhood obesity. Soft drink companies market aggressively to children, and are now targeting schools, offering financial incentives for exclusive pouring rights.

Figure 1: Average Daily Consumption, in Ounces, by US Children 12 to 19, of Regular and Diet Soft Drinks



Source: Jacobson, Michael. "Liquid Candy: How Soft Drinks are Harming American's Health". Center for Science in the Public Interest, Washington, DC. 1998

Soda and juice drinks (90% sugar) are quickly replacing milk and other calcium-rich beverages. Calcium is essential to bone growth and strength, and is especially needed during adolescence when most bone mass development occurs. Low calcium consumption increases the likelihood of developing osteoporosis, bone fractures and dental caries. Girls and certain minority populations appear to be particularly vulnerable. By a biological mechanism still under investigation, the consumption of carbonated beverages by teenage girls seems to increase their risk of bone fractures threefold over teenage girls who do not consume carbonated beverages.¹³ Asian, Black and Hispanic youth are also at risk of osteoporosis because of higher rates of lactose intolerance.⁶ This means efforts must also focus on making non-dairy, calcium-fortified, healthful drinks available to those children who are lactose-intolerant.

Physical Inactivity: An Overview

In a 1996 report, the Surgeon General recommended that people of all ages should participate in moderate daily physical activity.¹⁴ The benefits of physical activity can include:

- Increased muscle and bone strength
- Decreased body fat
- Improved weight control
- Enhanced psychological well-being and reduction in the symptoms of depression and anxiety
- Improved intellectual performance. Dr. John J. Ratey, clinical associate professor of psychiatry at Harvard Medical School, stresses the importance of activity to brain development and function. According to Ratey, "It's helpful to think of the brain as a muscle...One of the best ways to maximize the brain is through exercise, movement..."¹⁵

The Surgeon General's report showed that nearly half of American youths aged 12-21 years are not vigorously active on a regular basis. Participation in all types of physical activity declines remarkably as age or grade in school increases. Most states' public schools don't fulfill the widely dispersed physical education recommendations requiring daily physical education for all students in kindergarten through 12th grade.¹⁶

The trend in Massachusetts schools is toward decreasing time for physical activity, recess and lunch, in an effort to meet the new Student Learning Time Regulations.¹⁷

It is unfortunate that steps to improve education have set academic courses against healthful physical activity. High school physical education, in particular, has diminished significantly following the elimination in 1996 of mandates dictating a minimum number of hours yearly to be spent on physical education instruction.

- As many as 37% of Massachusetts high school students are not engaging in the recommended levels of weekly physical activity.⁶
- In 1997, not being enrolled in physical education classes was reported by 40% of blacks, compared with 25% of whites¹⁸
- In 1999, only 61% of high school students in Massachusetts participated in physical education classes at least once weekly, down from 80% in 1993 (see Figure 2).
- In Boston, only 54% of high school students participated in physical education classes at least once weekly in 1999.⁶

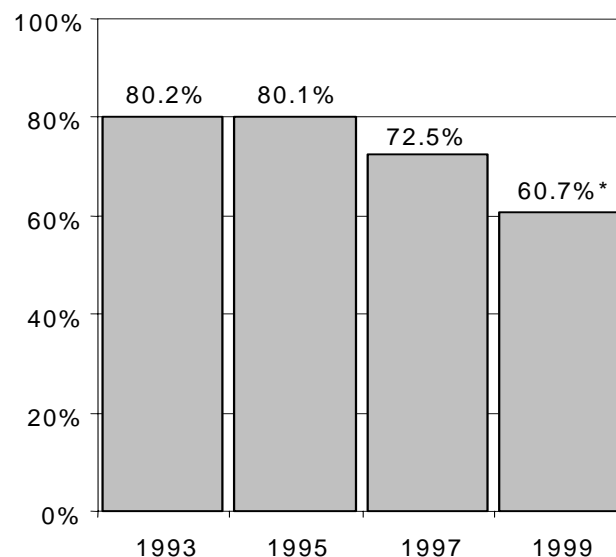
Besides the school environment, lack of exercise is also a matter of the home

environment due to:

- increased TV-watching and computer usage: children average close to 3 hours per day of TV watching;
- a lack of safe, affordable community physical activity resources, especially in urban areas; and
- a lack of good role modeling due to decreasing activity levels in adults.

Massachusetts state law requires that both health education and physical education be taught as subjects in schools. Prior to 1996, schools were required to provide students with at least 60 hours annually of physical education. In 1996 this mandate was eliminated by the Massachusetts Department of Education, thereby leaving the decision of how often and for how long students should partake in physical education classes to school committees. Because of growing mandates to increase in-class academic learning in schools, and in after-school programs, and because of a lack of financial resources at local levels, physical education requirements have been reduced in many communities, removing an important source of structured and safe daily physical activity.

Figure 2: Percentage of Massachusetts High School Students Attending Physical Education Class Once or More in a School Week



* statistically significant decrease from 1993 to 1999, $p < 0.05$

Source: 1999 Massachusetts Youth Risk Behavior Survey

Vending Machines and Physical Activity Opportunities in Massachusetts Schools: *Results from a Survey Conducted by MPHA*

In an effort to learn more about children's access to foods of low nutritional value and exercise opportunities in Massachusetts public schools, the Massachusetts Public Health Association (MPHA), with support from Blue Cross/Blue Shield of Massachusetts, surveyed public schools in the Commonwealth. Questionnaires were sent to the school nurses at 1798 public elementary, middle and high schools in Massachusetts, of which 1004 (56%) responded. The purpose of the survey was to collect preliminary information

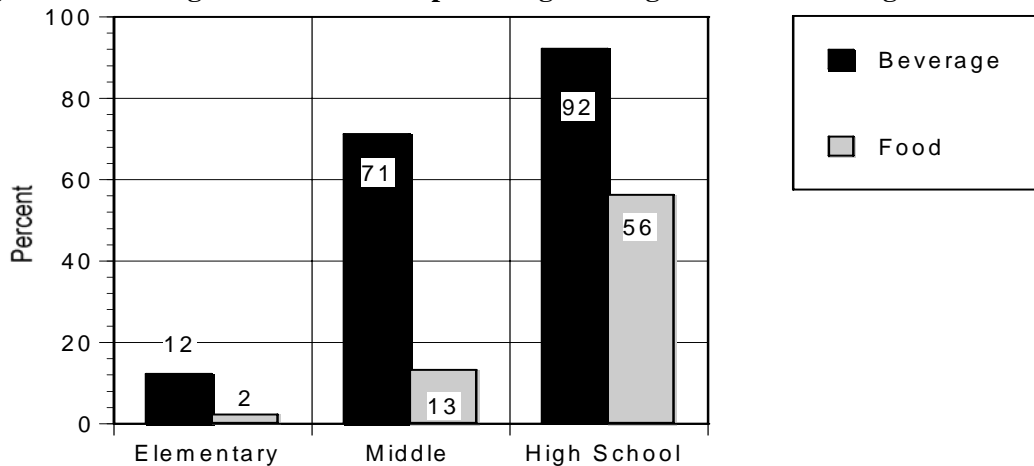
that would identify potential problem areas. Schools categorized themselves by income (upper, middle, low, or mixed) and location (urban, rural or suburban). The survey asked for specific information on the presence of food and beverage vending machines and availability of exercise facilities on school grounds.

Vending Machines in Massachusetts Schools

Many students in Massachusetts public schools have regular access to unhealthy food and beverage vending machines during school hours. For instance, according to our survey, 12% of Massachusetts elementary schools, over 50% of middle schools, and over 90% of high schools have beverage vending machines that students may access. Most contain sodas and high-sugar fruit drinks and many are available during school hours. Additionally, 56% of high schools and 13% of middle schools have food vending machines. Schools in suburban settings were significantly more likely to offer access to food vending machines, in comparison to urban and rural schools.

The majority of schools with food vending machines report that more than three-quarters of the selections would be considered unhealthy (defined as high fat and/or high sugar). Of those schools that offer vending machine access, 19% allow all-day unrestricted access. Many vending machines (food and beverage) are available to students at lunch time, so students can select items from the machines for meals instead of (or in addition to) food provided by the school.

Figure 3: Percentage of Mass. schools providing beverage and food vending machines



Source: MPHA survey conducted in Spring 2000

Laws Governing Foods in Schools

Federal Law 7CFR 210.11 Competitive Food Services states:

(B) State agencies and school food authorities shall establish such rules or regulations as are necessary to control the sale of foods in competition with lunches served under the USDA breakfast and lunch program. Such regulations shall prohibit the sale of foods of minimal nutritional value in the food service areas during the lunch periods...

Despite the fact that 7CFR 210.11 requires the state to enact regulations to prohibit the sale of junk foods during lunch periods, Massachusetts does not currently have any regulations governing such "competitive foods" sold in schools. "Competitive foods" are any foods sold concurrently with school breakfast and lunch, and include

foods of minimal nutritional value. (The USDA regulations do not, however, restrict the sale of non-carbonated drinks, chips and most candy bars.)

Massachusetts regulation 603 CMR 29.05:M.G.L. c. 15 Competitive Foods, established in obedience of 7CFR 210.11, prohibited the sale of candy and carbonated beverages during lunch periods, but it was sunsetted in July of 1997.

Exercise Facilities in Massachusetts Schools

MPHA's survey requested information on which types of the following school recreational facilities are available: playground, sports field or gymnasium. As a whole, 61% had a sports field, 67% had a playground (including middle & high schools), and 89% had a gym. Schools from higher income communities are better-equipped with exercise facilities. For example:

- Schools serving lower income communities were significantly less likely to have a playground, gym, or sports field compared to schools serving middle, mixed and upper income communities (73% of self reported upper income schools have playgrounds while only 55 % of lower income schools do.)
- Significantly fewer urban schools have a gymnasium, compared to rural and suburban schools (75% vs. 88% and 95%, respectively.)

Indoor gyms and safe playgrounds are especially important in urban schools since there are fewer opportunities for children in the inner city to access safe play areas and supervised physical activity.

Recommendations for Policy and Programmatic Change

The Massachusetts Public Health Association (MPHA), a non-profit statewide membership organization, works to improve the health status of Massachusetts residents through education, advocacy and leadership. MPHA has chosen to focus its advocacy efforts on poor diet and physical inactivity among children, because of the long-term physical and mental health impact these issues have on the health of our society. Given the current social environment children face, programs aimed at changing individual behavior are not sufficient to affect change. "In an environment so antagonistic to healthful lifestyles, no quick and easy solution to the problem of obesity should be expected," concludes a recent article in *Public Health Reports*. Policy changes must occur through a coordinated effort from national, state and local governments, in cooperation with families, the private sector, schools and non-profit organizations, to ensure the health and fitness of our children.

The following 9 recommendations propose realistic measures to improve children's nutritional intake and physical fitness:

1. Develop an advertising campaign promoting healthy eating and physical activity

It is not enough to teach children in school about the benefits of healthy eating and physical fitness. Everyday, children are bombarded with images encouraging unhealthy eating behaviors. The food industry spends \$11 billion annually on advertising, in comparison to the \$1 million spent by the National Cancer Institute on promoting its 5-A-Day campaign to increase consumption of fruits and vegetables in the U.S.

Massachusetts has been at the forefront in the national fight against smoking and tobacco. Much of our success has come from a widespread media campaign to change attitudes about tobacco use. Why not use this success as an example? Since the health impacts of poor diet and fitness are as critical as smoking, let us devote more prevention resources to tackling this issue. This could be funded by the Multi-State Tobacco Settlement, or from a proposed Snack Tax.

2. Augment safe physical fitness opportunities for children at schools and in communities by creating more playgrounds, playing fields, gymnasiums, sidewalks, bike trails, swimming pools, and skating rinks.

Grants should be made available to schools and communities, based on demonstrated innovation and need, or on school size. These funds should be supported either through the Tobacco Settlement or from a proposed Snack Tax.

3. Tax junk foods and sodas (“Snack tax”)

A 1999 opinion poll conducted by Bruskin-Goldring Research found that nearly half of U.S. adults would support placing a 1-cent tax on soft drinks, potato chips, or butter, if revenues from such a tax were to benefit health education programs. While this form of tax may not be sufficient to deter consumers from purchasing junk foods and sodas, it would serve as a source of income for Massachusetts health promotion programs, media campaigns and grant projects to improve fitness opportunities. Eighteen states have already implemented special taxes for sodas, candies, and snack foods. (See appendix). Revenues from a one-cent tax on junk foods and sodas in Massachusetts would generate millions of dollars, which then could be earmarked for promoting physical activity and healthy eating. (Please note: While in most jurisdictions the snack tax revenues go to the general treasury, MPHA strongly advocates that these revenues exclusively support health promotion activities.)

4. Reenact Massachusetts Regulation 603 CMR 29.05 Competitive Foods

Schools should be encouraged to provide students with a wide variety of healthful foods and drinks at lunchtime. This could be accomplished by limiting the sale of junk food and soda during lunch periods through the reenactment of this regulation, sunsetted in 1997, or similar legislation. We may even want to go further, as in California, where legislators are proposing a bill that would regulate the amount of unhealthy foods and drinks offered for sale in school vending machines. Vending machines in schools could carry healthier alternatives to junk foods and drinks, such as dried or fresh fruits, calcium fortified 100% juices, skim or low-fat milk, yogurt, pure fruit popsicles, granola bars, trail mix, or even plain popcorn. We recognize that vending machines often bring in much-needed revenues to extracurricular school programs, and we want to be cognizant of this dilemma when addressing this issue. After school programs should have guidelines as well.

5. Reenact mandates governing a minimum number of in-school and after-school program hours annually that must be spent on physical education/activity in Massachusetts schools, as well as lunch periods.

Massachusetts children are not getting the physical activity necessary for healthy growth and development. We must have a more “holistic” view of successful childhood development, recognizing that learning is influenced by exercise, not just classroom time. A survey by the American Obesity Association shows that 80% of parents do not want reductions in physical education or recreation activities in schools. Although physical education is mandated in Massachusetts schools, it is left to school committees to decide how much and how often students take physical education classes. With recent changes in the educational requirements, many schools are cutting back on physical education, as well as lunch and recreation times. This has a direct impact on our students. By enacting mandates governing minimum hours of physical education and lunch periods in schools, we can ensure that the health and physical fitness of our children does not get pushed

aside. Some attention should also be paid to offering healthy after-school snacks.

6. Mandate labeling and advertising of calories, fat, and sugar content of foods sold in fast-food restaurants.

With many more families eating dinner out at restaurants, especially at fast food establishments, let us help them make wiser decisions about their family's meal choices. Prominently displayed signs with key nutrition information can help in this regard, and may serve to indirectly influence restaurants to offer healthier food choices. We should also examine the trend of bringing in fast food lunches to school cafeterias.

7. Develop surveillance and monitoring systems that track the growth rates and physical fitness status of school age children.

While isolated groups of school children have been surveyed in the past for a variety of health studies, a comprehensive statewide system for monitoring eating habits, growth and physical fitness of Massachusetts youth does not exist. In Cambridge, MA, measures of physical fitness, heights, and weights are collected by school personnel from children in grades k-8 at 14 different public schools. Surveillance systems such as this must be expanded and improved upon. Surveillance is essential to establish baseline statistics, which allow us to identify those at greatest risk, to efficiently target our prevention programs, and to monitor our progress.

8. Encourage communities to develop a comprehensive policy on food and beverage brand advertising in schools

The U.S. Government Accounting Office (GAO) recently reported that there is a growing trend toward commercial advertising in many public schools and concluded that most districts are lacking adequate policies to deal with this situation. Schools are entering into financial contracts with companies to supplement their non-funded school activities. Commercial interests should not be part of the public school environment and educational process. Advertising foods of low nutritional quality is not an acceptable way to fund our educational and sports programs. Sample *School Board Policies on Commercialism* should be available to schools to help them define what is and isn't acceptable with regard to promoting soft drinks and unhealthy foods to our children.

9. Establish a coordinated infrastructure of governmental agencies, professional organizations, academia, research entities, and advocates to define and develop a program for improved nutritional and physical activity.

A comprehensive and culturally sensitive work plan should be developed to prioritize the most appropriate steps to tackling one of our state's most concerning public health problems. Currently, there is no coordinated statewide effort to examine which approaches would work best to improve the health and fitness of Massachusetts children.

These nine recommendations represent a realistic approach to curbing an increasingly dangerous epidemic of inactivity and poor diet in our children. It is only through such an effort that we can help to assure that our youth will grow into healthy adults.

-END-

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References

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- ¹ Massachusetts Dept. of Public Health (2000, January). Advance Data Deaths 1998. [Http://www.state.ma.us/dph/pdf/add.pdf](http://www.state.ma.us/dph/pdf/add.pdf).
- ² Allison, DB, Fontaine KR, Manson, JE, Stevens, J., VanItallie TB. Annual deaths attributable to obesity in the United States. *JAMA* 1999 Oct 27;282(16):1530-8.
- ³ Strauss, Richard, MD, Pollack, Harold, PhD; Epidemic increase in childhood overweight. 1986-1998. *JAMA* 2001 Dec 12;286(22):2845-8.
- ⁴ Srinivasan SR, Bao W, Wattigney WA, Berenson GS. Adolescent overweight is associated with adult overweight and related multiple cardiovascular risk factors: the Bogalusa heart study. *Metabolism* 1996 45(2): 235-240.
- ⁵ Whitaker RC, Wright JA, Pepe MS, Seidel KD, Dietz WH. Predicting obesity in young adulthood from childhood and parental obesity. *New England Journal of Medicine* 1997 Sep 25;337(13):869-73.
- ⁶ Must A, Spandano J, Coakley EH, Field AE, Colditz G, Dietz WH. The disease burden associated with overweight and obesity. *JAMA*. 1999 Oct 27;282(16):1523-9.
- ⁷ American Diabetes Association. Type 2 diabetes in children and adolescents. Consensus Statement *Diabetes Care*. 2000 March; 23 (3): 381-9.
- ⁸ Pediatric Nutrition Surveillance System, data collected during year 2000, published in MA Department of Public Health 5-2-1 Go newsletter, Overweight Prevention Initiative, vol.1, January 2002.
- ⁹ Massachusetts Dept. of Education. 1999 Massachusetts Youth Risk Behavior Survey. Retrieved July 4, 2000 from the World Wide Web. [Http://www.doe.mass.edu/lss/yrebs99/execsum.html](http://www.doe.mass.edu/lss/yrebs99/execsum.html).
- ¹⁰ Centers for Disease Control, Behavior Youth Risk Surveillance, United States, 1999. <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss4905a1.htm>.
- ¹¹ U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent and decrease overweight and obesity. [Rockville, MD]: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; [2001].
- ¹² Position of the American Dietetic Association; dietary guidance for healthy children aged 2 to 11 years. *J Am Diet Assoc*. 1999; 99: 93-101.
- ¹³ Wyshak G. Teenaged Girls, carbonated beverage consumption, and bone fractures. *Arch Pediatr Adolesc Med*. 2000 Jun; 154(6): 610-3.
- ¹⁴ A Report of the Surgeon General: Physical Activity and Health: Adolescents and Young Adults. U.S. Dept. of Health and Human Services. Retrieved July 16, 2000 from the World Wide Web: <http://www.cdc.gov/nccdphp/sgr/adoles.htm>.
- ¹⁵ King D. "Exercise Seen Boosting Children's Brain Function." Boston Globe. November 9, 1999. Retrieved July 18, 2000 on the World Wide Web: <http://www.pelinks4u.org/news/bgbrain.htm>.
- ¹⁶ The 2000 Shape of the Nation Report, National Association for Sport and Physical Education 2001.
- ¹⁷ Massachusetts Department of Education. Time and Learning: Results of a Self-reported Survey for Principals 1997-1998 School Year. November 1998. Retrieved July 17, 2000 on the World Wide Web: <http://www.doe.mass.edu/mailings/1198tlsurv.html>.
- ¹⁸ U.S. Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance System, 1997.