The ACT II Study:
A Report of Initial Findings for
New Hampshire and Vermont Schools
and Communities

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The Hood Center for Children & Families

The Hood Center for Children and Families was established at Dartmouth in 1990 with support from the Charles H. Hood Foundation. The Hood Center is dedicated to improving the health and well-being of children, adolescents, and families in Northern New England. Through health promotion research and family-centered support, we strive to create healthy environments that promote the development and well-being of children and their families. We address a variety of child and adolescent health issues, ranging from the management of chronic illness to the prevention of adolescent obesity. In collaboration with families, schools, and communities, we are committed to developing and implementing innovative approaches to improve and maintain child health.

The Community Health Research Program at Dartmouth Medical School

The Community Health Research Program (CHRP) within the Hood Center for Children and Families focuses on the prevention of obesity and adolescent health risk behaviors, including tobacco and alcohol use. All of our studies examine adolescent health behavior in the context of broader environments in order to gain a better understanding of how families, schools, and communities might work together to improve child health.

CHRPs Funding Sources

- National Institute of Environmental Health Sciences
- National Cancer Institute
- Robert Wood Johnson Foundation
- Dartmouth Center for Clinical & Translational Research

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The ACT II Study

The ACT II Study is a longitudinal, 5-year project funded by the National Institute of Environmental Health Sciences to examine risk factors related to adolescent overweight, physical activity, and diet in three environments - the family, the school, and the community - with a specific focus on rural settings located in Northern New England.

Study Aims

- Evaluate the impact of community characteristics and the built environment on adolescent overweight, physical activity, & diet.
- Evaluate the impact of family and individual characteristics on the relationship between the built environment and adolescent overweight.
- Identify modifiable risk factors at the community and family level that could be targeted through specific interventions to prevent adolescent overweight.

Why Study Adolescent Obesity?

The growing epidemic of adolescent obesity represents one of the foremost public health issues in the U.S. today. Overweight adolescents experience multiple physical and psychosocial health problems, and they are likely to stay overweight as adults. The dramatic increase in obesity over the past two decades suggests that individual differences are unlikely to account for the rise, and mounting evidence suggests that environmental factors may be important contributors to obesity. Although this presents a challenge for prevention, it also offers an opportunity in that community-wide interventions or modifications to the environment have the potential to impact a large number of people.1-4

What is the Built Environment?

The built environment “encompasses all buildings, spaces and products that are created, or modified, by people. It includes homes, schools, workplaces, parks/recreation areas, greenways, business areas, and transportation systems.” 5

Ecological model of selected family, school and community factors related to adolescent overweight

Theoretical Framework

The theoretical framework for ACT II is guided by Bronfenbrenner’s Ecological Theory of Development.6,7 Ecological Theory posits that development, health and well-being are situated within and shaped by the interactions that occur between the individual and the biological, psychological, social and physical environments. For adolescents, these environments include immediate contexts of development such as family and school, as well as more distal contexts such as the community and built environment.
The ACT II Study: Components

**Study Components**  To assess multi-level influences on adolescent overweight, we gathered data from a variety of sources and used multiple data collection methods, including: written questionnaires and interviews with school personnel; onsite observations of school settings; telephone surveys with students and their parents; onsite assessments of community food outlets and recreation facilities; and downloading townwide population data from publicly available sources.

**School Assessments**

School assessments were conducted at 32 schools to assess and describe the context and practices surrounding physical activity and dietary practices within Northern New England middle and high schools. The 32 schools represent a majority (60%) of the 53 schools attended by students in the telephone survey sample.

**Community Assessments**

Community environments were assessed by conducting onsite visits to 38 towns in NH and VT. During onsite visits, we assessed the availability and access to recreational areas, and availability and access to a variety of food outlets, including fast food restaurants, convenience stores, supermarkets, and farmers’ markets. Using GPS technology, we geolocated all schools attended by students in the telephone survey sample, food outlets, recreation facilities, and student residences.

We also collected townwide data on population, intersection and building density, and measures of urban-rural status, using publicly available data sources.

**Telephone Survey Sample**

Family assessments were completed by conducting annual telephone surveys with approximately 1,600 students and parents participating in the study. Students attended 53 schools in 29 different communities in New Hampshire and Vermont.

**Dissemination Activities**

An important goal of this study is to translate our research findings into educational materials, and disseminate them to schools, communities, and public health organizations. We hope these materials will assist in the development of interventions for the built environment that will promote healthy eating and physical activity among adolescents. In addition to this report, we are also sponsoring a conference, “Keeping students healthy: Promoting physical activity and healthy eating in NH & VT schools” on May 8, 2009.

Our public health partners include:

- Foundation for Healthy Communities (NH)
- Healthy New Hampshire Foundation
- Dr. Susan Lynch, First Lady of NH
- Vermont Department of Health
Description of School Assessments

Overview
The school setting has been identified as a key environment for addressing adolescent overweight, nutrition, and physical activity. We conducted school assessments during the 2007-2008 school year as a component of ACT II to assess and describe the context and practices surrounding physical activity and dietary practices within the majority (60%) of schools attended by our telephone survey sample.

School Assessment Components

School Questionnaires
Administrators and staff at each school completed written questionnaires describing five school programs:
- Food service
- Health education
- Interscholastic athletics
- Physical education
- Transportation

Onsite Observations
We visited each school and conducted observations of food and beverage options in the following school locations:
- Cafeteria
- School stores
- Snack bars
- Vending machines

Wellness Interviews
We conducted in-depth, open-ended telephone interviews with school personnel involved in addressing the federally mandated Local Wellness Policy at their school.

School Participation & Demographics

Participation
32 schools participated in the study:
- 38 were invited;
- 6 refused, citing other obligations.

Location
- 59.4% of participating schools were located in VT;
- 40.6% were located in NH.

School Type
- 62.5% of schools were high schools;
- 18.8% were middle/high combined;
- 18.8% were middle school only or elementary/middle combined.

VT had a higher proportion of combined school types; NH had a higher proportion of high schools.

School Size
- VT schools were fairly evenly distributed between enrollment sizes; the majority (62%) of NH schools were of the largest enrollment group (>950 students).

School Size - Enrollment Groups

<table>
<thead>
<tr>
<th>Enrollment Group</th>
<th>% of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=350</td>
<td>15%</td>
</tr>
<tr>
<td>351-600</td>
<td>22%</td>
</tr>
<tr>
<td>601-950</td>
<td>19%</td>
</tr>
<tr>
<td>&gt;950</td>
<td>43%</td>
</tr>
</tbody>
</table>

# of students
The National Center for Educational Statistics is the primary federal entity for collecting and analyzing data related to education. NCES uses locale codes as a measure of the geographic location of schools in relation to the nearest urban area. Each school is assigned a locale code of “city,” “suburb,” “town,” or “rural” based on their physical geocoded address. See www.nces.gov for more information.

In VT, the vast majority (95%) of schools were located in town or rural locations.

In NH, schools were fairly evenly divided between city/suburb (54%) or town/rural (46%) locations.

- Overall, three fourths of participating schools were located in town or rural locations.

### Population Size*

- Participating schools were located in 10 NH and 15 VT towns.
- Towns were about evenly divided between overall population categories.
- 60% of NH towns vs. only 13% of VT towns had an overall population >13,000.

* Overall town population from 2007 U.S. Census estimates.

### Median Household Income§

- Overall, slightly more than half (56%) of towns had median incomes >$42,000, and slightly less than half (44%) of towns had median incomes <= $42,000.
- In VT, towns were about evenly divided between income categories.
- In NH, 70% of towns had a median household income of > $42,000.

§ Median household income from 2000 U.S. Census.

### A Note About Confidentiality

To protect the identity of participating schools, we do not name any participating schools or the towns in which schools are located. We similarly do not identify telephone survey participants by name, town of residence, or schools attended.
Description of Telephone Survey Sample

**Overview** Our cohort of approximately 2000 adolescents and their parents was recruited in 2002-2003 through school surveys conducted in grades 4-6 at public elementary schools within 26 largely rural communities throughout NH and VT. These schools were stratified by state and number of children enrolled and then randomly selected to participate in ACT II. By identifying the district associated schools containing the upper grades, we were able to track the majority of our cohort through schools that they now attend.

We conducted longitudinal, annual telephone surveys with the cohort of adolescents and parents. The first 3 telephone surveys were about media and smoking behaviors. The 4th survey, completed last year, focused on physical activity and diet, and provides the data for the current report. Below we present some characteristics that describe the telephone survey cohort at the time of the 4th survey.

We asked participants questions about the following behaviors:

- Active travel
- Physical and sedentary activities
- Barriers to physical activity
- Participation in team sports
- Media use
- Dietary and meal patterns
- Fast food consumption
- Fruit and vegetable consumption

### Selected Characteristics: Student Survey Sample

#### Student Information

- **Sample size**
  1,609 students from NH and VT completed the 4th telephone survey.

- **Gender**
  Students were equally distributed by gender (50.4% female; 49.6% male).

- **Age**
  Students’ ages ranged from 12-18 years.

#### School Information

- **Type of school attended by student survey sample**
  - Middle: 23.8%
  - High: 50.8%
  - Middle/High combined: 22.3%
  - Other format: 3.1%

- **Students attended schools located in 29 NH & VT towns:**
  - 37.7% attended a NH school;
  - 62.3% attended a VT school.

#### Grades

The majority (86.1%) of the students were in grades 8 through 10.

- **Grades of Student Survey Sample**
  - 7th: 6.6%
  - 8th: 25.7%
  - 9th: 22.6%
  - 10th: 37.9%
  - 11th: 7.3%
Adolescent Overweight

Overview
The growing epidemic of adolescent obesity represents one of the foremost public health concerns in the U.S. today. The most recent prevalence data demonstrate a threefold increase in overweight among children and adolescents over the past 30 years, with approximately 18% of 6-19 year olds currently obese, and another one third overweight. If current trends continue, the projected life expectancy of today’s children may be less than that of their parents.1,2,12

Definitions of Overweight and Obesity in Children and Adolescents
The Centers for Disease Control and Prevention uses Body Mass Index (BMI) to define childhood and adolescent overweight. The BMI growth charts for children and adolescents take into consideration age and gender, in addition to height and weight.

Overweight: BMI >= 85th percentile
Obese: BMI >= 95th percentile

Prevalence of Childhood and Adolescent Overweight in NH, VT, and the U.S.13

<table>
<thead>
<tr>
<th>2007 Youth Risk Behavior Surveillance Data</th>
<th>NH</th>
<th>VT</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of high school students with BMI between 85th - 94th percentile</td>
<td>14.4%</td>
<td>14.5%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Percentage of high school students with BMI &gt;=95th percentile</td>
<td>11.7%</td>
<td>11.8%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Total Percent Overweight</td>
<td>26.1%</td>
<td>26.3%</td>
<td>28.8%</td>
</tr>
</tbody>
</table>

Prevalence of Overweight in the Student Survey Sample (Wave 4)
Based on self-reported height and weight:

• 15.8% had a BMI between 85th - 94th percentile
• 13.1% had a BMI >=95th percentile
• 28.9% Total Percent Overweight

Findings

▪ Grade in school and state of residence were not associated with overweight status.

▪ Males were more likely to be overweight than females (33.5% vs. 24.4%).

▪ Prevalence of overweight varied considerably by town (range: 17.0% to 40.6%).

<table>
<thead>
<tr>
<th>Prevalence of adolescent overweight</th>
<th>% of towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20%</td>
<td>20.7</td>
</tr>
<tr>
<td>20 - 25%</td>
<td>24.1</td>
</tr>
<tr>
<td>26 - 30%</td>
<td>27.6</td>
</tr>
<tr>
<td>31 - 35%</td>
<td>6.9</td>
</tr>
<tr>
<td>36 - 40%</td>
<td>20.7</td>
</tr>
</tbody>
</table>
Health Education

Research Context  The Institute of Medicine, Healthy People 2010, and the National Association of State Boards of Education recognize that a comprehensive school health education program plays a critical role in educating children about the importance of a healthy diet and physically active lifestyle. Continuing professional development for health educators is considered essential for maintaining high quality, effective instruction.8,9,14-16

School Health Education Questionnaire & Data

We asked schools to report on the percent of students who take Health Education at their school, whether the health educator received professional development about nutrition or physical activity, and to indicate which nutrition and physical activity topics are taught in a required course.

Summary of Findings

Profile of Schools
29 schools returned the Health Education Questionnaire. Respondents included:

Health Education Questionnaire Respondents

- Health Educator 75.9%
- Chair/Coordinator for Health & PE 13.8%
- Other (i.e., school nurse) 10.3%

Students taking Health Education
The majority of schools (87.5%) indicated that at least 90% of students at their school take health education.

Professional Development
71.4% of respondents indicated that they had received professional development in the past 2 years on nutrition/dietary behavior and the importance/benefits of physical activity and fitness.

Health Education Questionnaire: Respondent Comments

Challenges
“We have gone through many health educators which has led to no set curriculum. I am trying to develop one now.”

“Kids are all over the board, and that is our challenge.”

Strengths & Opportunities
“I believe that our Health and PE programs work together to address concerns and issues that our students face on a daily basis.”

“(Cafeteria) menus feature healthful locally produced foods, arranged in attractive, appropriately sized portions. We have a small garden that students plant and harvest.”
We asked schools to indicate whether they taught a range of nutrition and physical activity topics in a required course. In the table below, we present our data and compare it to state data from the School Health Profiles (SHP), collected two years prior. The School Health Profiles are biennial national surveys conducted by the Center for Disease Control and Prevention that assess a range of middle and high school health issues. State SHP data represent aggregated averages from all NH & VT schools who participated in SHP.17

### Percent of schools that teach about selected nutrition and physical activity topics in a required course.

<table>
<thead>
<tr>
<th>Health Education Topic</th>
<th>2007-2008 ACT II data N=29</th>
<th>2005-2006 School Health Profile Results NH N=165 VT N=114</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrition / Dietary Patterns</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of healthy eating</td>
<td>96.4%</td>
<td>81.7%</td>
</tr>
<tr>
<td>Balancing food intake and physical activity</td>
<td>96.4%</td>
<td>79.7%</td>
</tr>
<tr>
<td>Eating more fruits, vegetables, and whole grains products</td>
<td>96.4%</td>
<td>79.9%</td>
</tr>
<tr>
<td>Choosing foods that are low in fat, saturated fat, and cholesterol</td>
<td>96.4%</td>
<td>79.3%</td>
</tr>
<tr>
<td>Preparing healthy meals and snacks</td>
<td>96.4%</td>
<td>69.3%</td>
</tr>
<tr>
<td>Risks of unhealthy weight control practices</td>
<td>92.9%</td>
<td>78.2%</td>
</tr>
<tr>
<td><strong>Physical Activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much physical activity is enough</td>
<td>88.9%</td>
<td>62.5%</td>
</tr>
<tr>
<td>Developing an individualized physical activity plan</td>
<td>71.4%</td>
<td>52.2%</td>
</tr>
<tr>
<td>Monitoring progress toward reaching goals in an individualized physical activity plan</td>
<td>64.3%</td>
<td>49.8%</td>
</tr>
<tr>
<td>Overcoming barriers to physical activity</td>
<td>78.6%</td>
<td>59.6%</td>
</tr>
<tr>
<td>Decreasing sedentary activities</td>
<td>82.1%</td>
<td>73.5%</td>
</tr>
<tr>
<td>Opportunities for physical activity in the community</td>
<td>71.4%</td>
<td>63.2%</td>
</tr>
</tbody>
</table>

### Take-home messages

- NH and VT schools in our study are addressing important nutrition topics in required courses.
- About one third of schools in our study reported that they did not provide instruction on certain important physical education topics, in particular how to develop and monitor progress toward an individual exercise plan.
- There is an opportunity for communities and schools to partner to inform students of opportunities for physical activity in their neighborhoods.
Physical Education & Physical Activity

School Assessment Data

Research Context Regular physical activity is essential to the maintenance of a healthy weight among adolescents. Current recommendations state that young people aged 6-19 should participate in at least 60 minutes of moderate to vigorous physical activity on most, if not all, days of the week.

School physical education programs and intramural activities have been identified as an important opportunity for providing children with regular physical activity.

School Physical Education Questionnaire & Data

Profile of Schools

31 schools returned the Physical Education Questionnaire. Respondents included:

Physical Education Questionnaire Respondents

- 33.3% PE Teacher
- 66.7% PE Dept. Chair

PE Indoor & Outdoor Facilities

We asked schools whether they had access to 22 different indoor and outdoor facilities for physical education.

- Schools reported that, overall, they had access to an average of 8.4 PE facilities (range 2-15).
- Over 85% of schools had access to the following PE facilities: indoor gymnasium, soccer/lacrosse field, general use field, baseball/softball field, & weight room.
- High schools reported access to about 4 more PE facilities than middle schools, 9.2 vs. 5.5, respectively.
- Larger high schools (enrollment >950) reported access to about 2 more PE facilities than smaller high schools (enrollment <=950), 10.1 vs. 8.3, respectively.

PE Requirements & Electives (High School Data Only, N=25)

Requirements

- NH requires 1 credit of PE for high school graduation; VT requires 1.5 credits.
- 25% of NH schools in the ACT II study indicated that they require more PE than NH state requires.
- 23.1% of VT schools in the ACT II study indicated that they require more PE than VT state requires.

Courses & Electives Offered

- High Schools reported offering between 1 and 17 different PE courses or electives.
- Examples of electives included: yoga, pilates, dance, self-defense, sports conditioning, archery & snowshoeing.

Participation in PE Electives

- 68% of high schools in our study reported offering PE electives beyond what is required for graduation.
- However, few students take advantage of these additional PE opportunities: schools indicated an average of 25% of boys and 11% of girls take PE electives beyond their graduation requirements.
### Physical Education & Physical Activity

#### School Assessment Data

**Length of PE Class & Time Spent Moving**
- Length of PE classes among our study schools ranged from 35-120 minutes for high schools, and 40-50 minutes for middle schools.
- PE leaders estimate that students spent about 70% of time in PE class moving or being physically active.

**Intramurals & Physical Activity Clubs**
- Overall, 79.3% of schools in our study offered intramural sports or physical activity clubs at their school. This is higher than the national average of 49% of middle schools & 45% of high schools offering intramurals.\(^{21}\)
- The most common intramural offerings among our study schools were: skiing, snowboarding, frisbee, dance & basketball.

**Characteristics of schools that offer intramurals**
- The majority (92.3%) of larger schools (enrollment >950) offered intramurals, compared to 68.8% of smaller schools (enrollment <=950).
- All schools located in city/suburb locations offered intramurals; 72.7% of schools located in town/rural areas offered intramural sports.
- 68.4% of schools indicated that they do not charge fees for intramurals.
- Schools indicated that, on average, about 20% of students at their school participate in at least 1 intramural sport.

### Physical Education Questionnaire: Respondent Comments

**Challenges**
- “We are a school with 450+ students using one gymnasium for athletics at all levels. No time or space for intramurals.”
- “Large class sizes and lack of outdoor facility hinder our promotion of physical activity, particularly in what we do outside the classroom.”
- “There are students that would like other clubs like golf, fencing, volleyball; but not enough money or gym space to accommodate all.”

**Strengths & Opportunities**
- “In the past two years two new courses have been created and offered as electives – Yoga and Sports Conditioning. Both of these electives have attracted students who may not have taken electives in PE beyond the required courses.”
- “We have a fabulous history of adding activities based on student interest - not all interscholastics (freeride ski/board club, disc golf course, walking club).”
**Participation in PE Classes**

We asked students about their participation in PE classes during the 7 days prior to the survey.

- Nearly half of all students did not participate in any PE classes during the 7 days preceding the survey.
- 20.3% of students had participated in PE classes at least 5 days during the week prior to the survey.

*Recreational Physical Activity*

*Description*

We asked participants about their *recreational physical activity* in the past 7 days. Recreational physical activity includes sports, games, aerobic exercise and other physical activity.

*Findings*

- Participants spent an average of 12.8 hours in recreational physical activity during the 7 days prior to the survey.
- We did not find a statistically significant association between adolescent overweight and time spent in recreational physical activity. This could be because we did not assess the degree of intensity associated with the activity.

**PE Participation & Recreational Physical Activity**

We found that student participation in PE classes was positively associated with hours spent in recreational physical activity during the 7 days prior to the survey.

*Association between PE participation and hours spent in recreational physical activity*

*PE Participation and Academic Achievement*

Many schools have cut back PE programs to make time for more academic coursework. However, a growing body of research suggests:

- Daily PE does not negatively impact students’ academic performance.
- Students’ participation in physical activity is associated with improved academic performance.
- A review of this research is available at: www.activelivingresearch.org/files/Active_Ed.pdf
Current Recommendations

Current physical activity recommendations for adolescents are defined as: doing any physical activity that increases your heart rate and makes you breathe hard some of the time for a total of at least 60 minutes/day on 5 or more days per week.22

To assess whether students were meeting current physical activity recommendations, we asked survey participants the following question:

“On how many of the past 7 days were you physically active for at least 60 minutes/day (i.e., involved in physical activity that increased your heart rate and made you breathe hard some of the time)?”

Findings

- About half (51.5%) of students in the ACT II study met current physical activity guidelines by engaging in moderate-to-vigorous physical activity at least 5 of the 7 days preceding the survey.
- Only 4.4% of participants did not participate in 60 or more minutes of physical activity on any day of the week prior to the survey.

2007 Youth Risk Behavior Survey

Nationwide results:
- Nationwide, only 34.7% of high school students met recommended levels of physical activity.
- Girls were less likely to meet recommended physical activity levels than boys (25.6% of females vs. 43.7% of males).

State Results:
- 47% of NH and 48% of VT high school students met recommended levels of physical activity.
- Girls had lower levels of physical activity than boys (NH: 41% of females, 52.5% of males; VT: 40.5% of females, 55% of males).

Take Home Message: NH & VT youth are meeting recommended levels of physical activity at higher rates than youth nationwide.
Interscholastic Athletics & Team Sports Participation

Research Context  Participation in organized, team sports like those provided through school interscholastic athletics programs provide adolescents with the type of moderate-to-vigorous physical activity recommended by obesity prevention experts. The Institute of Medicine recommends that schools and communities expand opportunities for team sports, through interscholastic or intramural teams, to better accommodate all students’ interests and ability levels.

School Athletics Questionnaire & Data
We asked schools a variety of questions about their interscholastic athletics program offerings, participation rates, fees, and factors that limit participation.

Profile of Schools
30 schools returned the Interscholastic Athletics Questionnaire. The vast majority of respondents (96.7%) were Athletic Directors or Coordinators.

Summary of Findings

- 100% of schools offered interscholastic athletics to both male and female students.
- Schools offered an average of 10.3 sports for boys (range: 4-17) and 10.8 sports for girls (range: 4-18).
- On average, high schools offered nearly twice the number of total sports than middle schools, 23.2 vs. 12.5, respectively.
- Among high schools, larger schools (enrollment >950) offered about ⅓ more sports than smaller schools (enrollment <=950), 27.5 vs. 18.9, respectively.
- On average, the number of sports offered by high schools in towns with median incomes above or below $42K were similar, 24.4 vs. 21.8, respectively.
- 16.7% of schools reported charging a fee to participate on at least one team sport. Fees ranged from $35-$450. Most schools that charge a fee waive the fee if a student cannot afford to pay.

Comparison to National Data: Interscholastic Athletics Offerings
- Nationwide, 77.0% of middle schools and 91.3% of high schools offer interscholastic sports.
- The top 5 most common interscholastic athletics offerings in the U.S. are: basketball, baseball, softball, cheerleading, and track & field.
- 33.2% of schools nationwide require a fee to participate; but 86.1% of those waive fees if a student cannot afford to pay.
Interscholastic Athletics & Team Sports Participation

Participation Rates

- Schools indicated that, on average, 49% of boys and 49% of girls at their school participate in at least one interscholastic athletic sport.
- High schools and middle schools reported similar participation rates in athletics, 50.6% vs. 44.8%, respectively.
- Smaller schools reported a higher rate of student participation in interscholastic athletics than larger schools.

Comparison to National Data: Participation in School-Based Interscholastic or Varsity Sports

About ⅓ of secondary school students nationwide (33.3% of girls and 37.4% of boys) participate in school-based varsity or interscholastic sports.

Limits on Team Sports

We asked schools several questions about limits they place on team sports participation.

- 23.3% of schools indicated that every student who wants to play sports makes a team.
- 73.3% of schools indicated that most of the students who want to play make a team.
- 3.3% of schools indicated that about half of students who want to play make a team.
- None of the larger schools (enrollment >950) indicated that every student who wants to play sports makes a team, compared to 41.2% of smaller schools (enrollment <=950).
- The sports most often cited as needing limits on participation were: basketball, soccer, baseball, and softball.

Reasons for Limits on Team Sports

We asked schools to indicate which factors cause them to limit the number of sports offered and/or the number of students who are able to play each sport.

- A greater proportion of city/suburb schools compared to town/rural schools reported that field space and indoor facilities limited their team sports.
- “Lack of student interest” was reported as a limiting factor more often by schools located in town/rural settings.
In the student telephone survey, we asked students about their team sports participation (including sports teams run by their school, work, or community groups) during the 12 months prior to the survey.

**Findings**

- Overall, 74.2% of students (72.4% of girls; 76.0% of boys) participated on at least 1 team sport during the 12 months prior to the survey.

Team sports participation varied widely by school community, from 53% - 93%.

<table>
<thead>
<tr>
<th>Student participation in team sports</th>
<th>% of towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-74%</td>
<td>48.3</td>
</tr>
<tr>
<td>75-84%</td>
<td>31.0</td>
</tr>
<tr>
<td>&gt;=85%</td>
<td>20.7</td>
</tr>
</tbody>
</table>

**Comparison to National and Statewide Data:**

**Team Sports Participation**

- 56.3% of high school students nationwide had played on at least one sports team (run by their school or community groups) during the 12 months before the survey.

- In NH: 55.9% of girls and 58.3% of boys in grades 9-12 played team sports.

*Note: Team sports participation data for VT not available.*

**Team sports participation and overweight**

We found an inverse relationship between team sports participation and adolescent overweight. Adolescents who played on at least 1 sports team in the past year were significantly less likely to be overweight compared to teens who had not played on any sports team.
Research Context  Active travel to school – that is, walking or biking – is one way to introduce more physical activity into students’ daily lives. Walking or biking to school can add up to 24 extra minutes of physical activity every day; further, students who walk to school expend about 40 additional calories/day. However, the percent of students who walk or bike to school has decreased sharply, from 42% in 1969 to 16% in 2001. Schools and communities can facilitate more active travel by mapping safe routes to school, adding or improving pedestrian and bike paths, slowing traffic, and providing storage facilities for bicycles.

School Transportation Questionnaire & Data

School Profile
29 schools returned the Transportation Questionnaire. Respondents included:

- 50.0% of respondents were Senior Administration
- 30.8% were Transportation Supervisor
- 7.7% were Busing Co. School Affiliate
- 11.5% were Other

Support of Walking & Biking to School
We asked schools to indicate whether they participated in three different activities that support student walking or biking to school: Safe Routes to School, National Walk to School Day, and providing bike racks and storage for helmets.

- Middle schools reported higher levels of participation in each activity than high schools.
- Schools located in town/rural locations reported higher levels of participation in each activity than city/suburb schools.

School Bus Transportation
We asked schools to indicate the % of students at their school who ride the district-provided bus to and/or from school.

- On average, schools reported that 47% of students ride the district bus to or from school (range: 3% - 96%).

- Schools in city/suburb areas reported a lower percentage of students (39%) riding the district bus compared to town/rural areas (49%).
We also asked our telephone survey participants whether they walked or biked to school during the 12 months prior to the survey.

- Overall, 39.2% either walked or biked to school.
- Walking or biking to school varied greatly by school community, from 4% - 83%.
- Walking or biking also varied by season: 30.4% walked or biked at least 1 day per week in the Fall; 15.7% in the Winter; and 32.5% in the Spring.

**Walking/Biking to School Every Day**

- Only 5.1% of students reported that they usually walk or bike to school every day in all 3 seasons.
- Another 11.3% indicated that they usually walk or bike every day in 1 or 2 seasons.

**Safe Routes to School**

Safe Routes to School is a national program that assists schools and communities in enabling and encouraging students to safely walk and bike to and from their homes. For more information, see www.saferoutesinfo.org.

**Walk New Hampshire**

Walk NH is a program designed to promote walking in New Hampshire. The goal is to engage children and adults in walking and raise awareness of walking as a part of a healthy lifestyle. See www.walknh.org.

**Association between Active Travel and Adolescent Overweight**

In preliminary analyses, we did not find an association between walking/biking to school and adolescent overweight. This could be due to several factors, including:

- We have not yet adjusted for how far students were walking or biking. It could be that students were not traveling far enough to have an effect on overweight.
- We also did not assess the intensity of the activity. It could be that walking/biking to school is primarily a low-intensity activity, and therefore not vigorous enough to impact weight status.
Media Use & Sedentary Behavior

**Research Context** High amounts of media use have been associated with many negative outcomes, including poor diet quality, lower levels of physical activity, higher BMI, poor scholastic performance, and sleep deprivation. The American Academy of Pediatrics recommends that total screen time be limited to no more than 2 hours per day.

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**Student Survey Data**

We asked students to report how many hours they spent on different activities during the 7 days preceding the survey. We calculated screen time by adding up the hours they spent watching TV, DVDs or videos, playing video games, and/or using the computer for things other than their homework.

### Student Report of Screen Time

- Screen time varied widely; participants reported spending 0 to more than 60 hours of screen time during the week prior to the survey.
- On average, students reported 11.3 hours of screen time, which is just a little over 1½ hrs per day.
- In comparison, students spent an average of 5.9 hours reading or doing homework, which is about 50 minutes per day.
- Only 20% of the students reported spending more than 2 hours per day on screen time.

![Bar graph showing average hours of screen time in past week]

Males reported more screen time than females.

---

**TV in the Bedroom**

57.6% of students have a TV in their bedroom, which is slightly less than the national average of 68%.

Students who had a TV in their bedroom were more likely to be overweight than students who did not.

![Bar graph showing association between overweight and having a TV in the bedroom]
School Food Environment

**Research Context**  Because children consume a significant proportion of their calories at school, the school environment is an ideal place to promote healthy eating practices. All foods and beverages offered on the school campus contribute to the potential eating environment, including school food service and competitive foods such as a la carte, school stores and vending machines.

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**School Food Service Questionnaire, Onsite Observations & Data**

We asked school personnel questions about their food service program, participation in school lunch programs, and types of foods offered. We also conducted onsite observations of food and beverage offerings in the school cafeteria, school stores/snack bars, and vending machines.

**Profile of Schools**

31 schools returned the Food Service Questionnaire. The vast majority of respondents (90.3%) were Food Service Directors or Cafeteria Managers.

**Characteristics of School Lunch**

- School personnel estimate that 80.5% of the students buy lunch at school each day.
- Schools estimate that almost two thirds (63.5%) of students who buy lunch at school typically buy entrée lunch, and one third (36.5%) buy a la carte lunch.
- Almost all (93.6%) of the schools in our study participate in the USDA reimbursable National School Lunch Program.

**Healthy Lunch Choices**

**Fresh Fruits & Vegetables**

- All the schools offered at least one fresh fruit or fresh or steamed vegetable choice each day.
- The number of fresh fruit choices ranged from 1-6.
- The number of fresh or steamed vegetable choices ranged from 0-12. Salad bars accounted for the wide range in the number of vegetable choices offered.

**Whole Grains & Low-Fat Milk**

- 83% of the schools offered foods containing whole grains every day.
- 96.9% of schools offered skim or 1% milk. However, 78.1% of schools also offer 2% or whole milk.

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**Fruit and Vegetable Offerings**

![Bar chart showing the number of fruit and vegetable choices per day for schools.](chart)

**Participation in USDA Reimbursable National School Lunch Programs**

![Bar chart showing the percentage of students eligible and receiving free/reduced price lunch.](chart)
Fried Food
We asked schools about their fried or pre-fried food offerings. Schools varied considerably in the frequency with which they offered fried or pre-fried foods.
- 20% of schools did not offer any fried entrées or à la carte foods.
- 20% of schools offered a fried entrée and a fried à la carte item every day.

À La Carte Offerings
We conducted on-site observations of à la carte food offerings in the cafeteria.

<table>
<thead>
<tr>
<th>Type of à la carte food offered</th>
<th>% of schools offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits and Veggies</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>90.6</td>
</tr>
<tr>
<td>Fruit</td>
<td>96.9</td>
</tr>
<tr>
<td>Pre-made salads</td>
<td>65.6</td>
</tr>
<tr>
<td>Salad bar</td>
<td>56.3</td>
</tr>
<tr>
<td>Fruit smoothies</td>
<td>9.4</td>
</tr>
<tr>
<td>Prepared Foods</td>
<td></td>
</tr>
<tr>
<td>Pizza bar</td>
<td>84.4</td>
</tr>
<tr>
<td>Grill station</td>
<td>78.1</td>
</tr>
<tr>
<td>Made-to-order sandwiches</td>
<td>78.1</td>
</tr>
<tr>
<td>Soup bar</td>
<td>50.0</td>
</tr>
<tr>
<td>Pre-made sandwiches</td>
<td>53.1</td>
</tr>
<tr>
<td>Sweet &amp; Salty Snack Foods</td>
<td></td>
</tr>
<tr>
<td>Chips or popcorn</td>
<td>96.9</td>
</tr>
<tr>
<td>Cookies or brownies</td>
<td>84.4</td>
</tr>
<tr>
<td>Ice cream or frozen yogurt</td>
<td>81.3</td>
</tr>
<tr>
<td>Crackers</td>
<td>75.0</td>
</tr>
<tr>
<td>Donuts, muffins, pop-tarts</td>
<td>31.3</td>
</tr>
<tr>
<td>Candy or chocolate</td>
<td>6.25</td>
</tr>
</tbody>
</table>

School Stores & Snack Bars
Twelve of the schools in our study had snack bars or stores selling food outside of the cafeteria. Among schools with store/snack bars:
- The most commonly offered beverages were water, flavored water, and sugar-sweetened beverages, each offered by 83.3% of school stores/snack bars.
- The most commonly offered foods were cookies, chips and crackers, offered by 83.3%, 83.3%, and 66.7% of school stores/snack bars, respectively.
- Fruit was offered in 16.7% of school stores/snack bars.
- 41.7% of stores had coffee available for students.

Vending Machines
31 out of 32 schools who participated in the school assessments had vending machines containing beverages and/or food. Among schools with vending machines:
- All schools sold plain water in their vending machines, and 96.7% sold flavored water.
- 90.3% sold sports drinks or other sugar-sweetened beverages.
- 58% of schools sold chips or popcorn.
- 54.8% sold cookies or brownies.
- 51.6% sold crackers.
- Slightly more than one third sold candy or chocolate (38.7%); another one third sold donuts, muffins or pop-tarts (35.5%).
School Food Environment

**Open-Campus Policies**
Allowing students to leave the school campus for lunch has sometimes been a controversial practice. Research has demonstrated a link between open-campus policies and increased consumption of fast food among students.\(^{35,36}\)

In our study, among schools with grades 9-12:

- 61.5% had some type of open-campus policy that permitted students to leave campus for lunch or breaks.

**Among schools with open-campus policy, who may leave for lunch or breaks**

<table>
<thead>
<tr>
<th></th>
<th>All students</th>
<th>11th &amp; 12th graders</th>
<th>12th graders</th>
<th>12th graders on Honor Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6%</td>
<td>19%</td>
<td>19%</td>
<td>56%</td>
</tr>
</tbody>
</table>

**School Gardens**
School gardens have traditionally been used for academic instruction. Recent research examining gardens in the school environment shows that garden based nutrition education increased fruit and vegetable consumption in school children.\(^{37}\)

- Despite the short growing season, nearly one quarter of schools in our sample (23.3%) reported receiving USDA funding or technical assistance to improve access to local farm produce or to create a school garden.

**Reasons for Food Purchases**
School personnel rated, from “not at all important” to “very important,” a variety of factors that determine food purchases at the school.

- Overall, the reasons **most often** endorsed by schools as “very important” were “meeting minimum food guidelines” (96.7%), followed by “offering students a choice/variety of foods” (87.1%).
- The reason **least often** endorsed as “very important” was “space for food preparation” (54.8%).
- 71% of schools indicated that “meeting healthier food guidelines” was “very important.”

**Food purchase reason rated as "very important"**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Enrollment &lt;=950</th>
<th>Enrollment &gt;950</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain participation in NSLP</td>
<td>80</td>
<td>93</td>
</tr>
<tr>
<td>Avoidance of food prep equipment</td>
<td>73</td>
<td>86</td>
</tr>
<tr>
<td>Food sales</td>
<td>64</td>
<td>87</td>
</tr>
<tr>
<td>Meeting healthier food guidelines</td>
<td>52</td>
<td>64</td>
</tr>
<tr>
<td>Minimize food waste</td>
<td>52</td>
<td>64</td>
</tr>
<tr>
<td>Student preferences</td>
<td>44</td>
<td>57</td>
</tr>
<tr>
<td>Offering students a variety of foods</td>
<td>42</td>
<td>55</td>
</tr>
<tr>
<td>Meeting minimum food guidelines</td>
<td>30</td>
<td>43</td>
</tr>
</tbody>
</table>
Research Context Over a span of two decades (from 1977 to 1998), there was a 48% increase in sodas obtained from vending machines by youth. In girls, the increase was 82%. This dramatic rise in soft drink consumption obtained from vending machines is a public health concern because many research studies have found a strong positive association between sugar-sweetened beverage consumption and body-mass index (BMI) among children.

Beverages in School Vending Machines

We conducted onsite observations at each school participating in the school assessments of all vending machines on the school campus available to students. For each machine, trained coders recorded the number of number of slots, type, and quantity of beverages available.

Findings

In the 32 schools assessed, there were 123 working beverage vending machines. The number of beverage vending machines at the schools ranged from 0 to 13. We found:

- An average of 4.6 beverage vending machines per school.
- All schools with beverage vending machines sold plain water.
- Only 6.5% of schools sold regular soda and 12.9% sold diet soda in beverage vending machines; all of these schools were high schools.

Percent of filled beverage vending slots by type of beverage

![Pie Chart]

Examples of Sugar-Sweetened Beverages
- Sports drinks
- Fruit drinks
- Non-diet sodas
- Non-diet iced teas
- Lemonade
- Other sweetened drinks

Take-Home Messages

- School vending machines dispense a variety of beverage options, including healthier options such as plain or zero-calorie waters and 100% juice.
- Regular soda is rarely offered in school vending machines. However, most schools (9 out of 10) offer sugar-sweetened beverages, such as sports drinks, in their vending machines. On average, nearly 1 in 4 beverage vending machine slots contain sugar-sweetened beverages.
- Slightly more than 1 in 3 beverage vending machine slots contain flavored or vitamin waters. Although some of these waters contain no or low calories, others may contain a significant caloric content.
Student Dietary Patterns

Research Context  Studies show that children who eat breakfast have improved cognitive function, better test scores, and better attendance rates than children who do not eat breakfast. Also, evidence suggests that children who participate in the School Breakfast Program have significantly lower body mass indexes than children who do not. Similarly, there is evidence that eating frequently throughout the day decreases the risk of obesity in adults.

Student Survey Data

We asked students to report how often they usually eat 3 meals per day, how often they eat breakfast, and how often they buy or get breakfast or lunch at school.

Eating 3 Meals per Day
- Overall, 70.7% of the students reported eating 3 meals per day in the past week; 20.5% reported eating 2 meals per day.
- Students who eat 3 or more meals per day are at lower risk of being overweight, compared to children who eat less than 3 meals per day.

Eating Breakfast
- Only half of the students ate breakfast everyday during the week before the survey.
- Nearly 1 in 5 students (18.5%) ate breakfast less than 3 days per week.

School Meals
- One quarter (24.0%) of students reported that they buy or get breakfast at school one or more days per week.
- 8 of 10 students in the study (82.3%) buy or get lunch at school one or more days per week.
- 63.1% of the students buy or get lunch at school every day.

Eating Breakfast and Overweight
Students who ate breakfast on 5 or more days per week were at lower risk of being overweight.
Research Context  Most diets of U.S. school-age children do not meet current Dietary Guidelines, with higher than recommended intakes of total fat, saturated fat, and sodium, and lower than recommended intakes of fiber. This is because the diets of school-age children tend to be inadequate in fruits, vegetables, whole grains, and low-fat dairy products, and high in foods with added fat and sugar. Current Dietary Guidelines encourage daily consumption of 1-2 servings of fruit, 1½-3 servings of vegetables, 2-4 servings of whole grains, and 2-3 servings of low-fat dairy products.

Student Survey Data

We asked students how many times they ate different foods during the week preceding the survey:

- On average, students ate fruit, vegetables or drank 100% fruit juice 10.9 times during the week before the survey, which is 1.6 times per day.
- On average, students ate salty snacks, sweets, or drank soda/sweetened beverages 15.4 times during the week before the survey, which is 2.2 times per day.

Average number of times students ate different foods in past week

- Soda/sweetened beverage
- Chips/crackers/nachos
- Desserts/sweets
- High-fat meats
- French fries/fried food
- Whole grains
- 100% fruit juice
- Fruit
- Vegetables

Fruits, Vegetables and Whole Grains

- The more often students ate supper with their family, the more likely they were to eat fruits, vegetables and whole grains.
- Students who ate 3 or more meals per day were more likely to eat fruits, vegetables and whole grains.
- The more often students got lunch and breakfast from school, the less likely they were to eat fruits, vegetables and whole grains.
Student Dietary Patterns:
Fast Food Consumption

Research Context  In a recent national study of school age children, 30% consumed fast food on a typical day. Fast food consumption was associated with higher calorie, fat and added sugar, and lower fiber consumption. Fast food consumption was also associated with poor diet quality (low fruit, vegetable, and dairy consumption) in children and increased risk of obesity.45 Many school lunch programs now compete with fast foods in their school cafeterias, as well as restaurants within close proximity to schools.

Student Survey Data

To estimate frequency of fast food consumption, we asked students: “In the past 7 days how many times did you eat fast food, for example food from McDonald’s, Burger King, KFC, or Dunkin Donuts?”

Overall, 55% of the students reported that they ate fast food in the 7 days prior to the survey.

Students who attended schools in more densely populated towns were more likely to eat fast food.

Males were slightly more likely than females to eat fast food. However, fast food consumption was associated with a greater risk of overweight only among females; this association was not found among males.
Research Context  The Child Nutrition and WIC Reauthorization Act of 2004 mandated a new requirement that all school districts with a federally-funded school meals program develop and implement a Local Wellness Policy that promotes student health and addresses the issue of childhood obesity. This policy included goals in each of the following areas: nutrition education, physical activity, nutrition guidelines for all foods on the school campus during the school day, an evaluation component, and involvement of parents, students, the school board, and the public in its development.

School Wellness Policy Interviews

We selected 34% of schools who completed school assessments to participate in qualitative, in-depth telephone interviews about their school’s Local Wellness Policy. Schools were selected to represent a diversity of school locations, size and type. When possible, we interviewed the person at each school who was most involved in the response and implementation of the wellness policy. For several schools, we interviewed two different people at the school.

Participants

- School or District Senior Administration 14%
- School Nurse 28%
- PE/Athletics Director 29%
- Food Services Director 29%

We analyzed transcripts for four different theme areas:

- **Key Issues** are common factors we heard or observed among most or all schools that influence the overall success in making wellness changes in any area of school programming.

- **Challenges & Barriers** are factors that make wellness changes difficult, and that identify areas for improvement.

- **Successes & Improvements** are positive steps schools have taken as a result of the Local Wellness Policy.

Topics identified in Challenges / Barriers & Successes / Improvements were each mentioned by about ¼ - ½ of interviewees. We list them by area of school programming on pages 30-31.
Support for wellness initiatives is needed at multiple levels within the school, including:
- A primary school-based wellness advocate;
- Key school staff members and program areas;
- Senior administration at the school and/or the district levels.

Lack of funding is a challenge across the board in making wellness changes.
- There is a lack of funding for specific wellness projects, and for staff salary to coordinate efforts.

Need for an improved evaluation plan.
- Lack of communication between staff who are implementing wellness changes and administrators responsible for evaluation.
- This identifies one area where schools may need assistance.

Illustrative Quotes

“I think in this particular school we have support. But then I believe it sort of hits a wall on the next level.”

“The levels of approval that you need to go through in order to make change. You know, you need the administrative support, you need the faculty support, student support. And then, Superintendent and School Board. There’s lots of levels that need to be considered.”

“You’re always balancing the money issues: what takes money, what doesn’t take money, and how do we balance that with the healthiest choices for students.”

“People feel like they’re burnt out and they’re doing enough as it is.”

“Schools can’t solve obesity by themselves. Parents have to be aware and provide healthy choices at home too.”

“I get the concern from the food services that our à la carte is where we make all our money, and so we have to offer certain snacks that kids want to have because without them we wouldn’t be able to afford the nicer foods.”

“There’s somewhat of a disconnect between wellness and the commodities we get.”

“Physical Activity
- If the school already meets state PE guidelines, it becomes difficult to argue for more PE time when they are also trying to maintain or improve their academic standing.
- Availability of indoor and outdoor facilities limit opportunities for physical activity.

Food
- Food service department needs to be self-sustaining.
- School cafeteria facility unable to accommodate all students.
- Schools in less wealthy districts need to rely more on federal food commodities, even though these commodities were generally viewed as less healthy options.

Challenges & Barriers

Across wellness program areas
- Level of time and commitment required by staff.
- Staff turnover.
- Competing with lifestyle choices outside of school.

“People feel like they’re burnt out and they’re doing enough as it is.”

“Schools can’t solve obesity by themselves. Parents have to be aware and provide healthy choices at home too.”

“I get the concern from the food services that our à la carte is where we make all our money, and so we have to offer certain snacks that kids want to have because without them we wouldn’t be able to afford the nicer foods.”

“There’s somewhat of a disconnect between wellness and the commodities we get.”

“Physical Activity
- If the school already meets state PE guidelines, it becomes difficult to argue for more PE time when they are also trying to maintain or improve their academic standing.
- Availability of indoor and outdoor facilities limit opportunities for physical activity.
# Local Wellness Policy Issues

## Successes & Improvements

### Across Wellness Program Areas
- Legitimized having student wellness as a priority issue for schools.

### Food
- Soda is out of the vast majority of schools.
- Food service will still offer students a choice of offerings, but the choices will be healthier.

### Physical Activity
- PE programs are being modified to be more inclusive of all students and to emphasize lifetime fitness.
- Schools offer physical activity clubs based on student interest.

### Illustrative Quotes

- "The Wellness Policy has brought the conversation into the open. It’s made itself well known and it’s causing us to tackle it.”

- "There are other brands of flavored waters that have 10 calories or less, and because we offer those I think the students are much more accepting of the fact that they can’t have lemonade, they can’t have soda, they can’t have Gatorade.”

- "We’ve modified a lot of our curriculum to accommodate more choices for kids who tend to be less active or less willing to participate...more individualized activities, like walking.”

- "We have increased the clubs that we have, and offered stuff to students that are of interest to them. We’ve started a skateboarding club, hiking club, & dance club.”

## Unique Ideas

### Overall
- Link student wellness ideas with improved academic performance to obtain staff, administrator, or School Board support (e.g., providing school breakfast or protecting PE time improves academic performance).

### Food Environment
- Make pre-portioned salad and dressing portions for salad bars to help control costs, reduce waste, and teach students about appropriate portion sizes.
- Partner with a registered dietician at the local hospital to advise on cafeteria menu offerings.
- Partner with area farms & food-related businesses to obtain local fruits, veggies, and other foods.
- Hire food service directors from non-traditional backgrounds (e.g., former restaurant chef).
- Make opportunities to involve concerned community members. One school is working with a community member to build a greenhouse.

### Physical Activity Environment
- Partner with local fitness centers: students can earn PE credits and get complementary memberships.
- Obtain used nautilus equipment donated from local gym.
- Work physical activity into non-traditional settings. For example, have “walking meetings” between teachers and students.
- Apply for small grants for PE improvements and ask local businesses to match funds.
Summary of Findings

We hope that the data presented in this report will assist schools and communities in their efforts to promote healthy eating and active living among middle and high school students in Vermont and New Hampshire. The information is intended to provide a starting point from which we can move forward and continue to identify new and creative ways to incorporate physical activity and better nutrition into students’ daily routines. Below we highlight some of the main findings for each area.

Health Education. Health education programs in the school have a broad reach and cover a wide range of topics. Our respondents indicated that almost all students at their school take health education, and the majority of health educators have recent training in nutrition/dietary behavior and physical activity. Nearly all schools indicated they address important nutrition topics in their curriculum, and about three-fourths address important physical activity topics in their required courses. Additional instruction and focus on physical activity topics may be beneficial for students.

Physical Activity. Schools in our study offer a wide range of options for students to be physically active, including a variety of team sports, intramurals, and creative PE electives. Although all schools met state guidelines for PE requirements, only a quarter required additional PE credits for graduation. Students who participated in PE classes reported more hours of physical activity. However, most students are not taking advantage of the additional PE opportunities at school. Some schools have been successful in attracting students to take additional PE classes by offering nontraditional electives such as yoga, conditioning programs, and walking.

Three-fourths of our schools offer intramural sports or physical activity clubs, which is higher than the national average of less than half of middle and high schools. All of the schools in our study offer interscholastic athletics, with an equal number of sports offered for boys and girls. Most schools do not charge a fee to participate. The student survey data indicate that students who participate on at least one team sport are less likely to be overweight, which demonstrates that team sports are important for maintaining a healthy weight.

Similarly, students who engaged in moderate-to-vigorous activity were also less likely to be overweight. Schools reported that, on average, about half the students participate in an interscholastic sport. However, only one-quarter of the schools are able to offer a spot on a team for every child who wants to play. Facilities and financial constraints are the most common reasons why schools have to limit sports offerings and participation. Additional funding, low-cost alternatives, and options for students with limited athletic ability may be needed to achieve 100% student participation in school athletic programs.
Healthy Eating. Schools in our study offer a variety of healthy foods and beverages, including fresh fruits, vegetables, whole grains, plain water and low-fat milk. More than half the schools have a salad bar and one-quarter of the schools offer 8 or more choices of fresh fruits and vegetables each day. However, many schools also offer a large variety of less healthy items. Four out of five schools offer fried/pre-fried foods for lunch. Although non-diet soda is rarely offered, other types of sugar-sweetened beverages are sold at almost all the schools. Sweet and salty snacks are easily accessible in the cafeterias, school stores and snack bars.

Most school respondents indicated that offering students a variety of food and beverage options was very important to their food purchase decisions. Notably, many also indicated that meeting healthier food guidelines was also important. Almost two-thirds of the students who participated in the telephone survey indicated that they buy or get lunch at school every day, which suggests that increasing the healthfulness of food options at school could have a large impact students’ diet. Fast food, which is typically high in fat and sodium, was eaten by half the students during the week prior to the survey. Students who attend school in more densely populated towns were most likely to eat fast food. Students who have three meals a day and eat supper with their family have a higher intake of healthy foods, including fruits, vegetables, and whole grains. In addition, students who eat three meals a day and who regularly eat breakfast are less likely to be overweight.

These data indicate that it is important to promote healthy eating habits at home and school. Reducing the availability of less healthy items and finding ways to make healthy foods more appealing may encourage students to make healthier choices.

The Local Wellness Policy. During the Wellness Policy Interviews, schools reported an impressive number of positive changes made in just the few years since the enactment of the mandate. These changes are even more commendable in light of significant challenges, including a notable lack of funding. Schools described many innovative ways they are working to make their school environment healthier for students – such as partnering with local farms and businesses, using the lunch service as a learning environment to teach about portion sizes while also controlling costs, and emphasizing lifetime fitness activities in physical education curriculum that tries to engage all students in activity. We hope these ideas can stimulate creative thinking and partnerships for other schools.

These interviews also helped identify areas where public health organizations can assist schools, such as with developing a wellness evaluation plan and helping to connect schools with financial and other resources, to ensure that schools are given the necessary tools to make their environment as healthy as possible.
Resources

Our Community Partners

**Foundation for Healthy Communities** is a partnership involving hospitals, physicians, health plans, home care agencies and other organizations concerned about improving health in New Hampshire. http://www.healthynh.com

**New Hampshire Healthy Eating Active Living (HEAL) Initiative Action Plan for New Hampshire.** This is a Healthy New Hampshire Foundation initiative. The goal of this plan is to improve health and quality of life for all New Hampshire residents through implementation of healthy eating and active living interventions. http://www.hnhfoundation.org/

**Susan Lynch, MD, First Lady of New Hampshire.** Dr. Lynch is a pediatrician who has worked statewide to draw attention to the problem of childhood obesity. She also serves as spokesperson for the physical activity program “Walk NH.” http://www.governor.nh.gov/susanlynch/index.htm

**Vermont Department of Health** has many programs and information about initiatives to help Vermonters live fuller, healthier lives from birth through old age. http://healthvermont.gov

### National

**Action for Healthy Kids** a national nonprofit organization dedicated to addressing the epidemic of overweight, undernourished and sedentary youth by focusing on changes in schools. http://www.actionforhealthykids.org

**Alliance for a Healthier Generation** is a partnership between the American Heart Association and the William J. Clinton Foundation. The Alliance offers **The Healthy Schools Program**, which aims to improve schools in the areas of nutrition, physical activity, and staff wellness, to any school in the country. The web-based Healthy Schools Program supports schools around the nation in their efforts to create school environments where there are consistent and clear messages that physical activity and healthy eating are important and encouraged – in the classroom, cafeteria, gym, hallway, and schoolyard. Schools can enroll in the online program and receive electronic and telephonic support and access to implementation resources at no cost. http://www.healthiergeneration.org

**Behavioral Risk Factor Surveillance Survey (BRFSS)** is a state-based system of health surveys that generate information about health risks, clinical preventive practices, and health care access. Adults 18 years or older take part in the cross-sectional national telephone survey conducted by the Centers for Disease Control and Prevention. All data are self-reported. http://www.cdc.gov/BRFSS/faqs.htm#1

**Connecticut’s Healthy Eating and Active Living (HEAL)** a Toolkit that includes a self-assessment instrument and planning guide to identify baseline in terms of policies, practices, and environmental factors. www.cadh.org/CADHResources/HealthyEatingActiveLivingToolkit/tabid/61/Default.aspx

**F as in Fat: How Obesity Policies are Failing in America** is a report produced by the Trust for America’s Health and the Robert Wood Johnson Foundation. This publication tracks trends in obesity related rates and policies, and provides facts about obesity on national and state levels. http://healthyamericans.org/reports/obesity2008/

**New England Dairy Council** provides guidelines, resources and classroom activities for educators and school nutrition professionals to develop an integrated approach to nutrition education and school wellness. www.newenglanddairycouncil.org
Resources

**Safe Routes to School** program designed to facilitate increased physical activity by addressing barriers to walking or riding to school. [http://www.saferoutesinfo.org/](http://www.saferoutesinfo.org/)

**School Health Policies and Programs Study (SHPPS)** is a national survey periodically conducted to assess school health policies and practices at the state, district, school, and classroom levels. SHPPS was most recently conducted in 2006. SHPPS also was conducted in 2000 and 1994; the next SHPPS is planned for 2012. [http://www.cdc.gov/HealthyYouth/shpps/index.htm](http://www.cdc.gov/HealthyYouth/shpps/index.htm)


**Small Farms/School Meals Initiative: A Step-by-Step Guide on How to Bring Small Farms and Local Schools Together** A comprehensive approach to connecting small farms to the school meal programs began in the summer of 1997. This initiative—which is based on the cooperation of federal, state and local governments, as well as local farm and educational organizations—encourages small farmers to sell fresh fruits and vegetables to schools and schools to buy this wholesome produce from small farmers. [http://www.fns.usda.gov/cnd/lunch/Downloadable/small.pdf](http://www.fns.usda.gov/cnd/lunch/Downloadable/small.pdf)

**Sports, Play & Active Recreation for Kids (SPARK)** is the SPARK High School Physical Education Program. This program is targeted to grades 9-12 PE specialists. [http://www.sparkpe.org](http://www.sparkpe.org)

**Strategies for promoting physical activity and healthy eating in after school settings** The Child Care and Development Fund (CCDF) provides Federal resources for child care that support both direct services and quality enhancements. [www.nccic.org/afterschool/fitness_nutrition.html](http://www.nccic.org/afterschool/fitness_nutrition.html)

**Team Nutrition** is an initiative of the USDA Food and Nutrition Service to support the Child Nutrition Programs through training and technical assistance for food service, nutrition education for children and their caregivers, and school and community support for healthy eating and physical activity. [www.fns.usda.gov/tn/Default.htm](http://www.fns.usda.gov/tn/Default.htm)

**The Environmental Nutrition and Activity Community Tool (ENACT)** presents useful information based on current research and practice and includes model policies and programs, hands-on tools, publications, and resources. [www.preventioninstitute.org/sa/enact/members/index.php](http://www.preventioninstitute.org/sa/enact/members/index.php)

**The Robert Wood Johnson Foundation** the Foundation's major research efforts in the area of childhood obesity are: *Active Living Research*, *Healthy Eating Research* and *Bridging the Gap*. RWJ’s research efforts are contributing to the nation's collective knowledge about the changes to policies and to community and school environments that are most effective in increasing physical activity and improving nutrition for kids. Publications, funding opportunities, and research information is available at: [http://www.rwjf.org](http://www.rwjf.org)

**The Youth Risk Behavior Surveillance System (YRBSS)** monitors priority health-risk behaviors and the prevalence of obesity and asthma among youth and young adults. The YRBSS includes a national school-based survey conducted by the Centers for Disease Control and Prevention (CDC) and state, territorial, tribal, and local surveys conducted by state, territorial, and local education and health agencies and tribal governments. All data are self-reported. [http://www.cdc.gov/HealthYouth/yrbs/index.htm](http://www.cdc.gov/HealthYouth/yrbs/index.htm)
Resources

Tipping the Scales in Favor of Children a report by Harvard Pilgrim Health Care Foundation. The Harvard Pilgrim Health Care Foundation commissioned the Friedman School of Nutrition Science and Policy at Tufts University to survey existing data on childhood overweight and obesity, as well as programs that address weight and lifestyle; collect and evaluate school wellness policies and summaries of legislative action over the past five years; and speak with leaders from the business, government, media, advocacy, and education sectors.
https://www.harvardpilgrim.org/foundation

NEW HAMPSHIRE

Changing the Scene - Improving the School Nutrition Environment is a USDA and UNH Cooperative Extension program that addresses the entire school nutrition environment.

Granite State FitKids is an educational program to teach how to care for one’s own health and encourage participation at any level -- group or individual -- in both aerobic and non-aerobic activity that promotes movement. The program focuses on teaching children ages 9-12, in an age-appropriate fashion, about their bodies and how one’s individual choices and actions affects its workings. This program promote the 5 E’s -- Excitement, Enthusiasm, Energy, Exercise and Education at home, school, and in the community. For more information go to: http://www.granitestatefitkids.org/

5–2–1–0 Goes To School provides display materials, tools and tip sheets available from the Foundation for Healthy Communities. www.healthynh.com/fhc/initiatives/ch_obesity/5210gts.php#

KidPower! a NH program, works with schools and other organizations to help children be more physically active. www.dhhs.state.nh.us/DHHS/NHP/children.htm

LiveFIT NH initiative demonstrate -- through television segments, educational and outreach activities, and online resources -- how individuals, families, schools and communities can combat obesity trends.
www.nhptv.org/livefitnh

NH Department of Education Bureau of Nutrition Programs & Services provides information on the National School Lunch Program, Child & Adult Care Food Program, Summer Food Service Program, Special Milk Program, and NH Local Wellness Policy Toolkit. www.ed.state.nh.us/nutrition

The NH Farm to School Program is a project to connect NH farms and schools with the goal of developing a healthy, community-based, community-supported school food system in New Hampshire schools.
www.nhfarmtoschool.org

VERMONT

Center for Health and Learning promotes safe and healthy schools and communities through strategic health initiatives. Offers professional development, trainings and resources, technical assistance and project management. For more information, visit http://www.healthandlearning.org/ or call 802.254.6590.

Eat for Health this website is designed to help you and your family to make healthy eating decisions. http://healthvermont.gov/eatforhealth/index.aspx

Fit & Healthy Kids is a broad program for addressing issues of childhood obesity, nutrition, and physical activity. http://healthvermont.gov/family/fit_healthykids.aspx
**Resources**

**Fit & Healthy Vermonters** an initiative that focuses on prevention, with ways to increase physical activity and improve healthy eating for Vermonters of all ages. [http://healthvermont.gov/fitandhealthy.aspx](http://healthvermont.gov/fitandhealthy.aspx)

**Linking Health & Learning (Health Education Bulletin)** produced by the Vermont Department of Education. This monthly, electronic resource is intended to keep Vermont educators and youth-serving professionals up-to-date on resources, professional development and grant/funding opportunities, and other issues related to healthy and safe schools. [http://education.vermont.gov/new/html/pgm_health_ed/publications_resources/bulletin.html](http://education.vermont.gov/new/html/pgm_health_ed/publications_resources/bulletin.html)

**Vermont Department of Education: Safe & Healthy Schools** provides professional development, technical assistance and resources for schools to develop and implement a comprehensive physical activity program. [http://education.vermont.gov/new/html/pgm_physical_activity.html](http://education.vermont.gov/new/html/pgm_physical_activity.html)

**Vermont Department of Education Safe & Healthy Schools: Child Nutrition Programs & Services** provides information on the National School Lunch Program, Child & Adult Care Food Program, Summer Food Service Program, and After School Snack Program. [http://education.vermont.gov/new/html/pgm_nutrition.html](http://education.vermont.gov/new/html/pgm_nutrition.html)


**Vermont Food Education Every Day (VT FEED) A community-based approach to school food system change in Vermont.** VTFEED works with schools and communities to raise awareness about healthy food, the role of Vermont farms and farmers, and good nutrition. Acts as a catalyst for rebuilding healthy food systems, and to cultivate links between the classrooms, cafeterias, local farms, and communities. Further information available at: [http://www.vtfeed.org/](http://www.vtfeed.org/)

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References

**The ACT II Study**

**Description of School Assessments**

**Adolescent Obesity**

**Health Education**

**Physical Education**
References


School Transportation & Active Travel


Media Use & Sedentary Behavior


School Food Environment


Beverage Vending Machine Content

References


Student Dietary Patterns


Local Wellness Policy

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