

# Children and Adolescents

## Nutrition and Physical Activity in Children and Adolescents

### Size of the Problem

Lack of physical activity, combined with poor diet, is the second leading underlying cause of premature death in the U.S. with deaths from tobacco use being the leading cause of premature death. However, lack of physical activity and poor diet may soon overtake tobacco as the leading cause of death.<sup>1</sup> Physical inactivity rates are escalating in children and adolescents. Children and youth are at risk for obesity and for future development of Type II diabetes, cancer, heart disease and osteoporosis.

### *Nutrition*

Children's intake of calcium is too low, increasing their risk for osteoporosis. Only 13% of girls and 36% of boys ages 12 to 19 have adequate calcium intakes.<sup>2</sup> The 2001 Minnesota Student Survey shows that a majority of students do not drink the daily recommended 3 to 4 servings of milk.<sup>3</sup> Adequate calcium intake is essential for developing peak bone mass.

Children's intake of fruits and vegetables is too low, increasing risk for cancer, heart disease, stroke, diabetes and obesity. Nationally, only 23.9% of students eat the recommended 5 or more servings of fruits and vegetables each day.<sup>2</sup> According to the Minnesota Student Survey, few students (22% or less) eat 5 or more servings of fruits and vegetables daily.<sup>3</sup>

Children and youth eat large quantities of foods

high in fat, sugar and salt and eat many foods that are low in nutrients, increasing their risk for obesity and poor health.

- Over 38% of Minnesota's students ate more than 2 servings of high fat foods (hamburgers or hot dogs; French fries or potato chips; and cookies, doughnuts, pie or cake) during the previous day.<sup>2</sup>
- Youth also drink twice as much carbonated soft drink as they do milk with girls drinking an average of 14 oz of carbonated beverages daily, and boys, 21 oz. Over 62% of girls and nearly 70% of boys drink at least 1 carbonated soft drink daily.<sup>4</sup>

### *Physical Activity*

#### *National Data*

Nearly half of American youth ages 12-21 years are not vigorously active on a regular basis.<sup>2</sup> Inactivity is more common in girls (14%) than boys (7%) and in African American girls (21%) than white girls (12%).<sup>5</sup>

Participation in all types of physical activity declines strikingly as age or grade in school increases.<sup>5</sup> In 2001, only 32% of high school students participated in daily physical education classes compared with 42% of students in 1991.<sup>6</sup>

Nationwide, 38% of students watch television more than 3 hours during an average school day. Overall, White students, 31%, were less likely than Hispanic, 48%, or African American students, 69%, to watch television three or more hours per school day.<sup>6</sup>



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### Minnesota Data

- Percentage of students reporting being active 5 or more days per week for at least 30 min/day (moderate physical activity):<sup>3</sup>

|       | <u>Grade 6</u> | <u>Grade 9</u> | <u>Grade 12</u> |
|-------|----------------|----------------|-----------------|
| Boys  | 50%            | 56%            | 47%             |
| Girls | 39%            | 45%            | 28%             |

- Percentage of students participating in an activity that made them sweat or breathe hard 3 or more days per week for at least 20 min/day (vigorous physical activity):<sup>3</sup>

|       | <u>Grade 6</u> | <u>Grade 9</u> | <u>Grade 12</u> |
|-------|----------------|----------------|-----------------|
| Boys  | 46%            | 46%            | 38%             |
| Girls | 37%            | 37%            | 22%             |

- More than 90% of Minnesota schools did not meet the number of minutes per week for physical education classes recommended by the Centers for Disease Control and Prevention (CDC) and the National Association for Sport and Physical Education (NASPE).<sup>7</sup>

### Seriousness

Good nutrition is essential for good health, for healthy growth and development, and for feeling well. People who develop poor eating patterns in childhood often continue these patterns into adulthood, increasing their risk for poor health and for developing chronic diseases. Poor diet increases risk for heart disease, some types of cancer, stroke, Type II diabetes and osteoporosis. A poor diet also can promote the development of disease risk factors such as obesity, high blood pressure and high cholesterol. Under-nutrition in children can cause illness, anemia and growth problems.

Physical activity has a positive impact on nearly every aspect of health. Regular physical activity is important for normal growth and development in children and adolescents. It can help to prevent or manage a variety of diseases and conditions including obesity,

diabetes, heart disease, osteoporosis, hypertension, depression and anxiety.<sup>8</sup>

Overweight is a serious and growing problem in our children and youth. The prevalence of overweight among children aged 6–11 has more than doubled in the past 20 years, increasing from 7% in 1980 to 15% in 2000. Overweight among adolescents aged 12–19 has tripled in the same time period, rising from 5% to 15%.<sup>9</sup>

In Minnesota, the prevalence of overweight in children under age 5 years is 13% compared to 14 percent nationally.<sup>10</sup>

Type 2 Diabetes in children and adolescents is a sizable and growing problem in the US. Children and adolescents diagnosed with Type 2 Diabetes are generally between 10 and 19 years old, obese, have a strong family history for Type 2 Diabetes, and have insulin resistance.<sup>11</sup>

Nationally, 9% of girls age 12 to 15 years and 11% of girls 16 to 19 years have iron deficiency anemia.<sup>12</sup>

Although hunger is decreasing nationally, it is increasing in Minnesota's inner-city young children. In 2001, 34% of children under the age of 3 reported hunger at Hennepin County Medical Center.<sup>13</sup>

Hunger is associated with poorer health status.<sup>14</sup> Preschoolers who are hungry have more colds, ear infections and other health problems.<sup>15</sup>

Only 75% of girls and 78% of boys report eating breakfast.<sup>4</sup> A nutritional breakfast is important as healthy youth make better students.

### Racial/Ethnic Disparities

- During 1988-1994, adolescent boys were more likely than girls to be overweight;

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11.3% compared to 9.7%. African American girls had the highest prevalence of overweight, 16.3%, compared with 9.0% for White girls. Among White boys, 12.0% were overweight compared to 10.4% of African American boys.<sup>16</sup>

- The national prevalence rate of overweight in children aged 2 to 5 years was 14.3%. The highest rates were among Hispanic (19.0%) and American Indian or Alaska Native (17.7%) children; the lowest (11.8%) were among both black and white children.<sup>7</sup>
- Of particular concern is that the prevalence of overweight in children aged 2 to 5 has steadily increased from 10.7% in 1993 to 14.3% in 2002. This is a relative increase in overweight of 34% between 1993 and 2002. Overweight has increased among all racial and ethnic groups; however, the greatest increase occurred among white children.<sup>10</sup>
- Of children and adolescents, American Indian youth age 15 – 19 have the highest prevalence of type 2 diabetes.<sup>17</sup>

### Interventions

#### *Nutrition*

Schools provide opportunities to reach thousands of children and youth through nutrition interventions in the classroom, food services systems and through parental involvement.

The classroom can be used to educate students about healthful eating patterns with an emphasis on developing the behavioral skills needed for planning, preparing and selecting healthy foods, and on creating social support for choosing and eating healthy food. The food service environment supports healthy eating patterns by offering healthy, balanced meals and limiting access to less healthy choices, and serves as a learning laboratory for the classroom. Parent involvement supports and reinforces messages learned at school in the home environment.

With funding from the National Institutes of Health, nutrition interventions have been developed, tested and proven effective in helping children and adolescents develop and maintain healthy eating patterns. These nutrition education programs, developed at the Minnesota Department of Health, the University of Minnesota School of Public Health and elsewhere, include:

- The 5 A Day Power Plus programs, including the High 5 (fourth grade) and 5 FOR 5 (5<sup>th</sup> grade) curricula
- The 5 A Day Cafeteria Power Plus Program, for promoting fruit and vegetable consumption through environmental changes in school cafeterias (targeting grades 2-5)
- The Work Out Low Fat (WOLF) program, including curricula targeting American Indian children in grades 1-4
- The Child and Adolescent Trial for Community Health (CATCH) Program (for middle school students)
- The Teens Eating for Energy and Nutrition at School (TEENS) Program (for middle school students)

#### *Physical Activity*

The National Association for Sport and Physical Education (NASPE) recommends that children accumulate at least 60 minutes, and up to several hours, of age appropriate physical activity on all or most days of the week.<sup>6</sup>

A number of recommended interventions have proven effective at increasing the amount of physical activity for children and adolescents. These are outlined in The Guide to Community Preventive Services and are listed below.<sup>18</sup>

- School-based physical education – Physical education classes taught in schools that enhance the length or activity levels are effective in improving both physical

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activity levels and physical fitness among school-aged children.

- Community-wide campaigns – Large-scale, intense, highly visible community-wide campaigns with messages directed to large audiences through different types of media including television, radio, newspapers, movie theaters, billboards, and mailings are effective at getting people to be more physically active. An example of this type of campaign would be the VERB Youth Physical Activity Campaign being implemented through the Centers for Disease Control and Prevention ([www.cdc.gov/youthcampaign](http://www.cdc.gov/youthcampaign))
- Creating or improving access to places for physical activity – People become more physically active in response to the creation of or improved access to places for physical activity, combined with the distribution of information. This intervention would be demonstrated in communities that provide access to facilities. Two examples are communities 1) having sidewalks and paths in close proximity to residential areas and connected to recreational areas; and 2) offering access to recreation spaces such as indoor facilities (community center, fitness club, school gymnasium) and outdoor recreation grounds.

The Nutrition and Physical Activity Unit at the Minnesota Department of Health can provide more information about these and other proven nutrition and physical education programs for children and youth and may provide support for program implementation. More information can be found at [www.health.state.mn.us/divs/hpcd/chp/nutrition/](http://www.health.state.mn.us/divs/hpcd/chp/nutrition/)

### Status

Recent changes in the education and graduation standards for Minnesota schools have decreased the requirements for health education including nutrition education. Financial challenges for schools increase the pressure to

allocate health education resources to other areas.

Many communities had directed funding from their Youth Risk Behavior grants from the tobacco settlement to efforts to improve youth physical activity and dietary behaviors and were making considerable progress in developing community partnerships and implementing interventions. Loss of that funding has significantly decreased the programmatic efforts in this area across the state.

*Health Care Costs of inactivity:* In the 2000, Minnesota spent an estimated \$495 million treating disease and conditions that would be avoided if all Minnesotans were physically active.<sup>19</sup> The estimate was based on Minnesota adults with the escalating rates of inactivity in Minnesota children and adolescents, these costs will only increase over time.

*Physical Education and Nutrition in Minnesota Schools:* Minnesota legislation requires that all students ages 7-16 years must receive instruction in physical education. The extent of the instructional time is determined at the local school district level. Standards and assessment for physical education must be developed at the local level. Instruction must be provided by Minnesota certified, licensed, or endorsed physical education teachers.

Legislation has been introduced in Minnesota in the past two sessions that would have provided direction and oversight for school vending options. This legislation was supported by a coalition of health professionals including the Minnesota Dental Association, Dietetic Association and Medical Association, but did not pass out of committee in either session. Similar legislation has been introduced in a number of other states and passed in California. Though legislative policy change has not been achieved in most states, there have been increasing local changes in policy related to school foods in Minnesota and across the

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nation. Many schools and districts are removing vending machines from their schools or developing policies that provide healthy options to students.

*Public Health Priority:* The Minnesota public health system is identifying obesity prevention as a priority public health issue. Many local health public health agencies are beginning to dedicate resources to address the issue, as is the Minnesota Department of Health. Obesity prevention occurs through the promotion of regular physical activity and healthy eating.

*Disparities in Physical Activity:* Lack of physical activity among certain sub-populations is more common than the general population. These sub-population groups include older adults, women, people with lower incomes and less education, racial and ethnic minorities, and people with physical disabilities. These facts strongly support the importance of targeting messages and efforts to better reach people within these sub-populations. Focusing on children and/or families may be effective for reaching these groups.

*Be Active Minnesota:* Be Active Minnesota is a non-profit organization with the mission of improving the well-being of people in Minnesota through the support and promotion of physical activity. Be Active Minnesota has developed an emphasis on youth physical activity and will be enhancing these efforts in the near future. To view the Be Active Kids information, visit [www.beactiveminnesota.org](http://www.beactiveminnesota.org).

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