



Giving children better access to healthy choices

Since the 1970s the percentage of obese children 6 to 11 years old has tripled. Obesity has doubled among preschool children and adolescents. Turning these statistics around means increasing children's physical activity and improving what they eat. Much research has focused on educating children and changing their behavior, but these approaches have had limited success.¹ Changing the environments in which children eat and play is now seen as an essential strategy in fighting the obesity epidemic.

This research summary gives a synopsis of the current state of peer-reviewed research into what environmental factors may be related to young people's eating and physical activity patterns. Two companion research summaries outline findings on the environments that support physical activity among adults.

RESEARCH SUMMARY

Environmental barriers to healthy eating and activity

A panel of experts convened by the Institute of Medicine recently identified five factors in the environment that are barriers to healthy eating and physical activity for children:²

1. Pressures on families to minimize food costs and preparation time, resulting in frequent consumption of convenience foods high in calories and fat
2. Reduced access to and affordability of fruits, vegetables, and other nutritious foods
3. Urban and suburban designs that discourage walking and other physical activities
4. Decreased opportunities for physical activity at school, after school, and reduced walking or biking to and from school
5. Competition for leisure time that was once spent playing outdoors with sedentary screen time.

Each of the following sections summarizes research that points the way to changing these five environmental factors to help solve the childhood obesity epidemic.

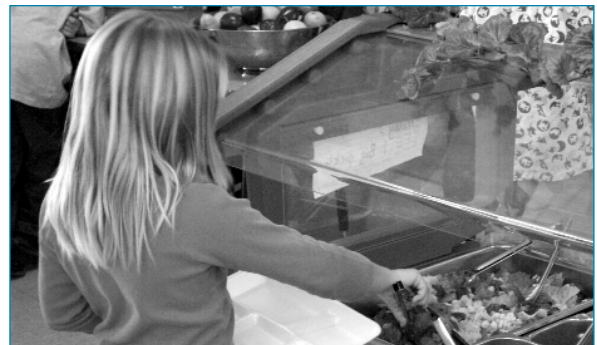


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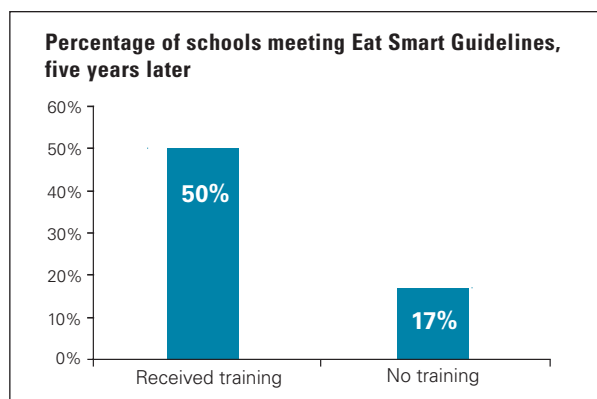
Changing the environment to improve children's nutrition

More access to healthy foods can lead to better choices

Both children and adults have an inborn preference for sweet and fatty foods.³ Such foods are widely available to children from fast-food restaurants, in school, and at home.⁴ As much as 85 percent of snacks in school vending machines are of poor nutritional quality,⁵ and food and beverage companies spend \$10 to \$12 billion a year to persuade children and youth to buy their products.⁶ Easy access to these low-nutrition foods have an impact: children who regularly eat fast food consume more calories overall and eat fewer fruits and vegetables than children who do not go to fast food restaurants as often.^{7,8}

A limited number of studies show that increasing the availability of healthful foods can be effective, particularly in school. Such interventions require a high level of effort. One experiment in middle schools tried to change the fat content of cafeteria, school store, and brown-bag lunches but had little impact, in part because the schools had a financial incentive to offer popular high-fat foods.⁹ However, other studies show promise:

- Food service workers were trained to change food purchasing and preparation practices to lower fat and salt content in the meals offered at two boarding high schools. In this controlled environment, students consumed 15-20 percent less salt, and 20 percent less saturated fat. The change led to lower blood pressure and cholesterol among the students.^{10,11}
- Promoting and increasing the availability of lower-fat foods in secondary-school cafeterias increased sales of low-fat foods by 34 percent.¹²
- Providing materials, training and follow-up to school cafeteria workers on meeting healthier school nutritional standards can result in sustained changes in cafeteria menus. In one large study, five years after such training, menus from 50 percent of former intervention cafeterias met the Eat Smart guidelines for fat, compared to 17 percent of school cafeterias that did not receive the training.¹³



- A 50 percent reduction in the price of low-fat foods in vending machines in secondary schools increased the proportion of low-fat snacks sold by 93 percent over a one-year period.¹⁴
- Children whose parents kept fruits and vegetables at home typically ate more of these nutritious foods than did children who could not get them at home.^{15,16}

Changing the environment to increase children's physical activity

Safe places to walk and play help children to be more active

Many children and youth lack opportunities to be physically active. Walking or bicycling to school is increasingly uncommon and daily physical education has been cut from most schools (only 6 percent of middle schools provide it).¹⁷ More than one-third of high-school students nationwide are not getting recommended levels of moderate or vigorous physical activity.¹⁸



Children need safe and accessible places where they can be active. Special attention may be needed for lower-income and minority communities, which tend to have fewer parks, sports facilities, bike paths, pools, and other places to be active.¹⁹

- There is strong evidence that access to facilities, like parks, and activity programs is associated with more activity for both children and adolescents.²⁰
- Three studies of preschool children found that the more time spent outdoors, the higher the activity level.²¹⁻²³

Active living for children: the trip to school

Children can get regular, sustained physical activity walking, bicycling, or skateboarding between home and school, but distance, traffic, and crime are all barriers.² Research shows environmental changes can help.

- More children walked to school where there were sidewalks.²⁴
- A Safe Routes to School program in Marin County, California, that included both safety improvements and encouragement, increased the number of children walking to school by 64 percent in two years.²⁵
- Children whose route to school passed a completed Safe Routes to School safety project at 10 elementary schools in California were more likely to increase walking to school (15%) than children whose route did not pass the improvement (4%).²⁶

www.pedbikeimages.org/Dan_Burden



Creating activity-friendly environments at school

Once at school, research shows the environment influences children's activity levels. This environment includes the presence of effective PE classes and opportunities to be active during recess and the lunch break.

- A Centers for Disease Control review of 14 studies found that enhancing PE classes by increasing their length, or having students be more active throughout the class, consistently improved students' physical fitness.²⁷

- Five- to seven-year-old British students spent 18 additional minutes per day in active play after the pavement on school grounds was marked for play.²⁸ Providing balls and other equipment to ten- and eleven-year olds increased their active play during recess by 24 percent.²⁹
- Middle school students were more active throughout the school day if school activity areas had more facilities and if equipment and supervision were provided.³⁰



Photo by Jim Sallis

Improving safety to increase activity

In at least one study, adolescent girls were less active outdoors when they lived in high-crime neighborhoods.³¹ Parental concerns about traffic and 'stranger danger' are clearly linked to children's activity levels.^{32,33}

- A Chicago study found children were physically active for an extra 49 minutes a week in safer neighborhoods than in unsafe neighborhoods.³⁴
- Traffic safety is critical: pedestrian injuries are a leading cause of injury death for children five years and older.³⁵ Several studies show that specific street improvements can improve child pedestrian safety.
- Speed humps reduce the chance of child injury.³⁶ Children were about half as likely to be injured by a car in their neighborhood if they lived within a block of a speed hump.³⁷

- It is more important to reduce speed than to reduce traffic volume to improve child safety.³⁸

- If children must ride a stationary bicycle to activate the TV at home (1 min. pedaling = 2 min. viewing) TV viewing drops dramatically. At the end of one study the children were watching 1.6 hours of TV weekly, compared to 21 hours for a control group.⁴⁴

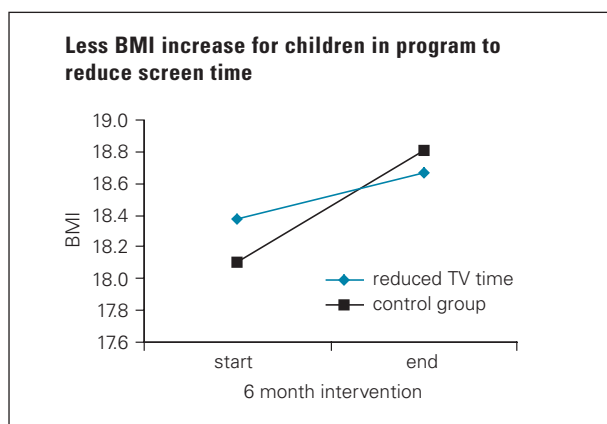
Changing the environment to reduce screen time

Kids spend more time watching TV than in school.³⁹ While the results are somewhat mixed, studies show that TV and video time may encourage obesity both by displacing time that might be spent being physically active and through exposure to advertisements that encourage children to eat high-calorie, low-nutrition foods.⁴⁰ The American Academy of Pediatrics and Healthy People 2010 recommend no more than 2 hours per day of TV.

- Interventions aimed at decreasing sedentary behavior can increase physical activity and reduce body mass index.^{41,42}
- Eliminating screen time for 10 days, and then restricting it to 7 hours a week was linked to lower body mass indexes for 3rd and 4th graders who also took classroom lessons and had a “TV budget” device to use at home.⁴³

Conclusion

The research to define healthier food and physical activity environments for children and adolescents is starting to suggest some fruitful strategies. Studies have shown correlations between environmental factors and physical activity levels or eating habits, and several have demonstrated that changing the environment can change behavior. Few studies show a direct link between environments, or environmental changes, and reduced obesity.⁴⁵ Nonetheless, the limited research to date does point to environmental change as a promising strategy in fighting childhood obesity.



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