

The Impact of Garden-Based Learning on Student Health and Nutrition

Introduction by Whitney Cohen - Education Director, Life Lab Science Program

"Mom! Try this! Can we bring some of these home?!" Parents are often astounded as their children greet them after a day at Life Lab Summer Camp, asking for more fresh carrots, cherry tomatoes, or beets. After 30 years of gardening with children, however, we've become accustomed to it. As we've seen time and again, and as research is now documenting, children who plant, grow, harvest, and prepare fresh fruits and vegetables can't wait to eat them!

With childhood diabetes and obesity rates on a rapid rise, many parents, teachers, and concerned citizens feel a moral imperative to support children in developing healthy eating habits. In addition to the grave health implications of a poor diet, children who are hungry or poorly nourished do less well in school, both academically and behaviorally. As concern rises, policy makers and teachers in the classroom are searching for the most effective ways to improve the health and wellbeing of their students.

Schools provide us with a great place to start tackling this challenge. Eating habits and preferences are established early. The most effective way to increase children's intake of fruits and vegetables and encourage lifelong healthful eating habits is to teach them about healthy choices and nutrition concepts in the elementary years. Studies show that if established before 6th grade, positive habits are more likely to persist into adulthood.

Further studies show that garden-enhanced nutrition education is a profoundly engaging and effective way to establish healthy eating habits with youth. It is now well documented that, when children have a hand in growing food, their understanding of food and its relationship to their health increases. Recent studies have shown a combination of direct instruction and hands-on school gardening activities to be a very effective way to influence students' attitudes about fruits and vegetables. These innovative educational methods have yielded positive results in increasing children's long-term knowledge of and preference for fruits and vegetables, and have ultimately resulted in increased consumption of fresh fruits and vegetables by children. Mary Pat Horn, a teacher in Sausalito, California, noticed this in her school:

My students clearly have an increased knowledge of where their food comes from and how it is grown. They now have the ability to grow some of the food at their own homes. The garden-based nutrition program has greatly increased their knowledge and desire to eat healthy food and to be physically active every day.

The following is a compilation of research demonstrating the impact of garden-based learning on students' nutrition, health, and wellbeing. These articles were reviewed and catalogued by the University of California's Garden-Based Learning Workgroup along with members of the California School Garden Network. These articles, along with information on assessment of garden-based learning programs, are available at www.csgn.org/research.php

It is critical to the long-term health and wellbeing of children that we find ways to increase their consumption of fresh fruits and vegetables.

- Fruit and vegetable consumption plays an important role in the prevention of cancer and heart disease, and decreases risk factors for many other chronic diseases. (Liu 2000; Domel 1993; Kirby 1995; Bazzano 2002)

- There is currently an epidemic of overweight and obesity in the United States caused by poor dietary patterns, sedentary lifestyles, and other unhealthful behaviors. (CDC 2002; Lund 2004; NCHS 2004)
- Research shows that eating patterns, and especially food choices relating to the consumption of fruits and vegetables, are developed at an early age. (Kirby 1995)
- Proper adolescent nutrition can reduce the risk of overweight, obesity, and diet-related diseases later in life. Therefore, it is essential for the health and wellbeing of children that we find a way to encourage their consumption of fresh fruits and vegetables. (McAleese and Rankin 2007)

Studies have shown that garden-enhanced nutrition education can significantly increase children's consumption of fresh fruits and vegetables.

- Sixth-grade students involved in a garden-based nutrition education program increased their fruit and vegetable consumption by 2.5 servings per day, more than doubling their overall fruit and vegetable consumption. This study demonstrated the importance of combining nutrition education with hands-on gardening activities to influence nutrition-related behaviors. (McAleese and Rankin 2007)
- Fourth-grade students who received garden-based nutrition education were more willing to try vegetables than students who received nutrition education without gardening activities. This changed behavior continued for at least six months after the nutrition education program. (Morris 2002)
- Fourth-grade students who received garden-based nutrition education had improved knowledge of, preferences for, and attitudes toward fresh fruits and vegetables (Morris, Briggs and Zidenberg-Cherr 2002).

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