

GARDEN-BASED LEARNING WORKING GROUP - RESEARCH “BRIEFS” NUTRITION AND HEALTH — For Teachers and Administrators

*“By attracting student to eating vegetables and salads at an early age, we can help nutritious eating be part of their diets as they continue into their teen and adult years.”
--- Colleen Underwood, Principal Brightwood Elementary, Alhambra USD, CA*

“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. --- Mary Pat Horn, Teacher, Bayside Elementary, Sausalito, CA

Children who are hungry or poorly nourished do less well in school, both academically and behaviorally. Our current crisis in the rising rates of obesity and related diseases among children is now well known. The proliferation of unhealthy fast foods and the limited intake by children of fresh fruits and vegetables, both of which reflect a variety of underlying factors, contribute to this sorry state. As concern rises, policy makers and teachers in the classroom are searching for ways to improve the health and well being of their students. (Domel 1993a; Liu 2000; Krebs-Smith 2001)

Eating habits and preferences are established early, and although home influences are strong, school is a valuable venue for teaching good nutrition, balanced diets and proper serving amounts. 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 (Kirby 1995). Studies show that if established before 6th grade, positive habits are more likely to persist into adulthood.

Studies have shown that when children have a hand in growing food, their understanding of food and its relationship to their health increases. Recent studies have looked to combinations of direct instruction and hands-on school gardening activities as a very effective way to influence students' attitudes about fruits and vegetables. These innovative educational delivery methods have shown a positive result in increasing children's knowledge of and preference for fruits and vegetables (Morris, et al. 2002; McAleese, 2007). Furthermore, they have shown that these preferences persist longer when nutrition education is accompanied by gardening activities as compared to nutrition education alone (Morris 2002).

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 1993a; 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-based 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).
- Participants in the California Instructional School Garden Program identified Nutrition as the second most common subject that they intended to teach in school gardens (Personal Communication, 2007: Deborah Beale, CA Department of Education, Nutrition Services Division).

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For information on assessment of garden-based learning programs visit

www.hort.cornell.edu/gbl/reaping/index.html and <http://datadorksunite.ning.com>