

# Benefits of Gardening for Children

Gardening provides different forms of engagement for children, including designing, planting, and maintaining gardens; harvesting, preparing, and sharing food; working cooperatively in groups; learning about science and nutrition; and creating art and stories inspired by gardens. The studies summarized below have been selected because they include control groups, pre- and post-measures, well controlled correlations, or in-depth qualitative analyses. For more studies and an analysis of this research, see reviews by Ozer (2006), Blair (2009) and Robinson-O'Brien, Story and Heim (2009).

## Key Studies

### *Lifelong Benefits*

In a nationwide telephone survey of 2,004 respondents, people who reported picking flowers, fruits or vegetables, planting trees, taking care of plants, or living next to a garden in childhood were more likely to show an interest in gardening as they aged and to form lasting positive relationships with gardens and trees (Lohr & Pearson-Mims, 2005). In two interview studies with adult gardeners (sample sizes of 18 and more than 100), most respondents recalled

vivid positive memories of play and exploration in childhood gardens, which inspired garden ideas and a desire to garden later in life (Francis, 1995; Gross & Lane, 2007).

### *Positive Social and Emotional Skills*

When third to fifth grade students who participated in a one-year gardening program filled out a survey of life skills, they showed a significant increase in self-understanding and the ability to work in groups compared to nonparticipating students (Robinson & Zajicek, 2005). Youth interns in community gardens reported increases in maturity, responsibility and interpersonal skills (Hung, 2004). In a community garden program in San Antonio, qualitative interviews of teachers, parents, a principal and 52 second and third grade students revealed that children were likely to have positive bonding experiences with their parents and other adults (Alexander, North, & Hendren, 1995). Adoles-

cents report calm and happy feelings and ease in connecting with their peers and adult mentors while gardening (Pevcek, 2011).

### *Healthy Eating and Nutrition*

Children who grow their own food are more likely to eat fresh fruits and vegetables (Canaris, 1995; Hermann et al., 2006; Libman, 2007; McAleese & Rankin, 2007; Pothukuchi, 2004) or express a preference for these foods (Lineberger & Zajicek, 2000; Morris & Zidenberg-Cherr, 2002). Garden programs often include lessons on nutrition, resulting in greater knowledge about healthy eating (Koch, Waliczek & Zajicek, 2006; Morris & Zidenberg-Cherr, 2002) Pothukuchi, 2004).

### *Science Achievement and Attitudes Towards Learning*

Fifth grade students who participated in school gardening activities scored significantly higher on science achievement tests than students who had a curriculum without garden experiences (Klemmer, Waliczek, & Zajicek, 2005). Evaluations of the Junior Master Gardener program in Indiana (Dirks & Orvis, 2005) and Louisiana (Smith & Motsenbocker, 2005) also found greater science achievement gains among gardening students compared to control groups. Gardening activities can be integrated into all areas of the school curriculum, making learning more meaningful (Canaris, 1995). Parent involvement, shown to enhance student achievement (Henderson & Mapp, 2002), increases at schools with garden programs (Alexander, North, & Hendren, 1995).

### *Design Skills and Environmental Stewardship*

Even young children can contribute to designs that make gardens enjoyable places (Whiren, 1995) and older children can competently design and create gardens and garden programs with a range of elements and themes (Canaris, 1995; Heffernan, 1994; Lekies et al., 2006). Second and fourth grade students in a school gardening program in



Texas showed significantly more gains in proenvironmental attitudes than students in a control group, and the more outdoor experiences they had, the more positive their attitudes (Skelly & Zajicek, 1998). In a qualitative assessment of an intergenerational gardening project, students expressed an increased understanding of ecology, interconnections in nature, and responsibility to care for the environment (Mayer-Smith, Bartosh & Peterat, 2007).

### Special Populations

According to observations, interviews and journals, a multicultural school gardens program for recent immigrants provided a space where children could share their cultural heritages, feel a sense of belonging, and form connections to the local environment (Cutter-Mackenzie, 2009). When juvenile offenders assessed their participation in a horticultural training program, most believed that it sparked their interest in further education, gave them ideas for green careers and improved their job skills (Flagler, 1995). Pre-

and post-tests of juvenile offenders in a Green Brigades program that involved learning horticultural techniques and working on community landscaping found that participants increased their levels of self-esteem (Cammack, Waliczek & Zajicek, 2002a), horticultural knowledge and proenvironmental attitudes (Cammack, Waliczek & Zajicek, 2002b). Gardening has long been recognized as a therapeutic healing activity which can positively impact mental health and well-being (Ulrich, 1999).



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