

Evaluating the Impact of Common Ground High School, Urban Farm, and Environmental Education Center on Student Health Behaviors and Outcomes

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COMMON GROUND
HIGH SCHOOL, URBAN FARM, AND
ENVIRONMENTAL EDUCATION CENTER

Yale SCHOOL OF PUBLIC HEALTH

BACKGROUND

(1) Common Ground is a community-based organization that is comprised of an environmental charter high school, an urban farm, and an environmental education center. Common Ground serves students and families from New Haven, CT and surrounding communities, with a mission that includes encouraging habits of healthy living by increasing access to fresh produce and exposure to outdoor activity.

(2) About one-third or less of American youth are currently fulfilling national dietary and physical activity guidelines:

	U.S. Recommendations for Adolescents ¹⁻²	Proportion of U.S. Adolescents Meeting Recommendation ³
Fruit Intake*	2 cups per day	33.2%
Vegetable Intake*	3 cups per day	15.7%
Physical Activity	60 minutes per day	27.1%

Table 1 *Fruit (including 100% fruit juice) and vegetable intake recommendations vary by sex and physical activity level

OBJECTIVES

1. Assess the health impact of Common Ground high school
2. Determine influences on student health behaviors, with a focus on fruit and vegetable intake, physical activity levels, and outdoor engagement
3. Describe student and parent perspectives on their health-related experiences at Common Ground
4. Provide feedback on how Common Ground can grow the health impact of its programs

METHODS

Survey: 140 of the 169 high school students (grades 9-12) completed an online survey that asked about participation levels in Common Ground programs and activities, eating habits, physical and outdoor activity, and other aspects of health. Analyses were conducted using SAS 9.3 and SPSS 21.

Focus Groups: Two focus groups were conducted; one with high school students from all grade levels (n=9), and another with parents involved in the Vegetable Share program (n=5). Open-ended questions were asked related to diet, physical activity, and experiences in Common Ground programs. Focus groups were transcribed and coded using a thematic approach, then analyzed using Atlas.Ti.

RESULTS: Online Survey

Overview of Student Health Behaviors

Daily averages:

- ❖ Fruit and 100% fruit juice: 1.78 servings
- ❖ Vegetables: 1.15 servings
- ❖ Vigorous physical activity: 19.8 min.



Students' Perceived Health Impact of Common Ground Experiences

- ❖ 72% of students agreed to some extent that they are more aware of what they eat
- ❖ 53% agreed they are more likely to choose healthy foods when offered
- ❖ 52% agreed they have increased time spent being physically active
- ❖ 69% agreed they are more likely to spend time outdoors

Common Ground Programs with Positive Health Impact

- ❖ **School lunch:** students who have school lunch every day eat significantly more fruits and vegetables (Fruit: 2.04 vs. 1.38 servings/day, $p=0.013$; Vegetables: 1.33 vs. 0.85 servings/day, $p=0.004$) compared to those who do not eat school lunch every day.
- ❖ **Community programs and the Food & Environment class:** participants in these programs report consuming higher amounts of fruits and vegetables per day. Students who participate in Green Job Corps and the PE class have higher physical activity levels and more time spent outdoors. See Figure 1.

Figure 1. Impact of Common Ground Programs

	Fruit & Fruit Juice Intake (Avg servings/day)	Vegetable Intake (Avg servings/day)	Physical Activity (Avg mins per day)	Outdoor Activity (Avg mins per day)
Green Jobs Corps	1.53 vs. 1.90	1.08 vs. 1.18	24.04 vs. 17.63	7.64 vs. 6.35
Community Programs	1.85 vs. 1.74	1.31 vs. 1.07	17.65 vs. 20.86	7.24 vs. 6.55
PE Class	1.58 vs 1.95	1.09 vs 1.19	24.16 vs. 16.20 *	6.94 vs. 6.70
Food & The Environment Class	1.86 vs. 1.78	1.32 vs. 1.13	17.06 vs. 20.32	8.58 vs. 6.60

FIGURE 1: This table compares students who did vs. did not report participating in the listed activities/courses for at least one year. The bolded cells indicate results which are better for those who participated in the activities versus those who did not participate in the activities.

*Indicates a significant association at the 0.05 level.



RESULTS: Focus Group Themes

Changes in Preferences or Behavior

“I didn’t even want to come here at first. And the first time my farm crew job I was mainly in it for the money. ‘Cause I was given the job to like plant kale and stuff so I had to take care of that for weeks so that it actually grew. And like watching like that whole process happen knowing that I made it happen it made me feel like really happy. So my experience there made me want to do it again.” [student]

“(Y)es, less sugar. Yeah he’s really against it [laughs]. And so he’s trying like, “mom, I can only have sugar on the weekends. One day on the weekends. He’s into that, yeah. So he encourages me to watch my sugar intake.” [mother]

“I like being in the woods now...I came here and they took me on a trip, the adventure club program took me on a trip. Now I like being in the woods.” [student]

Sharing with Others

“(S)ince I’ve been working here at Common Ground for like 3.5 years, I’ve definitely learned how to run, maintain, and sponsor gardens in different ways. And so, if I were to put time and effort towards it I could turn not only my backyard but like, front yards and other vacant lots in my city. ‘Cause I don’t live in New Haven I live down in [town], in the valley. So, I could turn vacant lots or parts of people’s yards into gardens or community gardens, if space permitted.” [student]

Sustaining Changes

“I feel like I won’t go back. Just because, I kind of, but not really, but I’m kind of scared to go back. Because, now I feel like my mind is going on the correct path to success. Because if I, I feel like if my body is healthy, then my mind is healthy and I’ll make healthy decisions and won’t go in a different route.” [student]

Challenges

“I don’t think I would be able to because, like most of the people in my community have low-income and they’re not really going to pay attention to me telling them that the food that they’re buying isn’t healthy when it’s just cheaper and they’re going to keep buying cheap stuff.” [student]

“(A) person can be just so arrogant or just so stuck in their views that they don’t want to hear things that would contradict or attempt to change their views.” [student]



CONCLUSIONS

- ❖ In-school (coursework / school lunch) and after-school (clubs/jobs) programs and experiences may impact changes in student knowledge, preferences, and behaviors related to fruit and vegetable consumption and outdoor physical activity, as supported by survey and focus group data.
- ❖ Students expressed feelings of greater confidence in their abilities to eat healthier and influence the eating habits of family members. Parents commented on their children asking them for healthier food.
- ❖ Students felt less ability to influence habits of peers and community members, though some still cited examples of sharing, or the desire to share, knowledge and skills learned at Common Ground with their community.

Student and Parent Suggestions

- ❖ Outdoor lunch
- ❖ Hiking opportunities
- ❖ More structured volunteer opportunities for parents

RECOMMENDATIONS

- ❖ Continue to conduct the health behavior survey to determine the health status and behaviors of Common Ground students over time.
- ❖ Conduct further focus groups with student and parent participants who represent a wider range of engagement in Common Ground programs.
- ❖ Consider ways to incorporate more opportunities for physical activity.



LIMITATIONS

- ❖ Diet and physical activity are difficult to measure quantitatively; student responses may not be accurate. There were adaptations in some questions on our survey from Youth Risk Behavior Surveillance³ questions, making it difficult to compare Common Ground students to peers nationally.
- ❖ Focus groups had small sample sizes, and participants appeared to be involved in similar programs. Therefore, their views and experiences may not be representative of all students and parents at Common Ground.

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References and Resources:

1. US Department of Agriculture. *Food Groups - ChooseMyPlate.gov*. Available at: <http://www.choosemyplate.gov/food-groups/>
2. US Department of Health and Human Services, *2008 Physical Activity Guidelines for Americans*. 2008. Available at: <http://www.health.gov/paguidelines/guidelines/>
3. Centers for Disease Control and Prevention. *Youth Risk Behavior Surveillance- United States, 2013.*; 2014. Available at: <http://www.cdc.gov/HealthyYouth/yrbs/index/>
4. YRBS Questionnaires, Data & Statistics, Reports: <http://www.cdc.gov/healthyyouth/yrbs/index.htm>
5. School Health Index: <http://www.cdc.gov/healthyyouth/shi/index.htm>
6. National Farm to School Network, Evaluation Framework Resources: <http://www.farmtoschool.org/resources-main/evaluation-framework>