

Youth Chef Academy: Results from a cooking and nutrition literacy program for middle-school students piloted in an urban, public school system

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YOUTH CHEF ACADEMY PROGRAM

- Youth Chef Academy (YCA) is a twelve-unit curriculum which may be divided into a six-unit basic curriculum with an optional continuing six-unit advanced curriculum. YCA:
 - teaches basic knife and culinary skills through hands-on cooking.
 - targets nutrition knowledge and food system awareness.
 - focuses on plant-based foods--vegetables, legumes and whole grains.
 - incorporates lessons in math, reading, and social studies.
 - requires 2-hours to complete each unit
 - is taught once a week for 6 or 12 consecutive weeks

- YCA occurred during the school day, in the classroom. Sessions were led by trained project staff.

- Parents were engaged in each unit through a parent newsletter and by a homework lesson that involved a shared experience between parent and youth cooking at home.

SAMPLE

- YCA was piloted in a large, urban public school system.
- We recruited 6th and 7th grade classrooms.
- We piloted the 6-unit basic curriculum in 4 intervention and 4 control classrooms. Each classroom was in a different school. Control classrooms received their standard curriculum.
- Three of the intervention classrooms also received the 6-unit advanced curriculum for a total of 12 YCA lessons.

Table 1: Classroom Characteristics by Classroom and Study Condition for Youth Enrolled in the Youth Chef Academy Program (N=248)

	Intervention Classroom Average (n=125)	Control Classroom Average (n=123)
Free/reduced lunch	88 %	80 %
Race/ethnicity:		
White	12 %	39 %
Afr. American	47 %	24 %
Hispanic	40 %	26 %
Other	1 %	11 %
	Intervention School Average (n=4)	Control School Average (n=4)
School mobility rate	12.6%	8.8%

Chi-square comparison for % of students receiving free/reduced lunch between groups: p=0.1034
 Chi-square comparison for race/ethnicity distribution between groups: p<0.0001



DATA COLLECTION

- Data were collected at baseline, 6-weeks, and 12-weeks (if applicable) through paper-and-pencil surveys administered in the classroom.
- Primary outcomes: fruit, vegetable and whole grain consumption and food preferences.
- Secondary outcomes: nutrition knowledge, self-efficacy for cooking and eating healthy, readiness to change, and classroom engagement.
- Cooking skills were assessed individually at 6-weeks and 12-weeks through one-on-one direct observation of each student though not at baseline due to classroom time constraints.



RESULTS

- At baseline, the intervention and control groups were significantly different on one variable: Self-efficacy for cooking (p=0.04 using independent samples t-test).

Table 2: Univariate Change in Outcome Measures from Baseline to 6-Weeks by Study Condition, Full Cohort (N=248)

	Intervention Mean (std) change	Control Mean (std) change	p-value*
Fruit and vegetable consumption (Servings/day)	0.5 (3.0)	-0.6 (3.1)	0.0148
Whole grain consumption (Servings per day)	-0.9 (3.5)	-0.6 (3.1)	0.5140
Vegetable preferences	0.2 (0.3)	0.1 (0.3)	0.0002
Whole grain preferences	0.9 (2.1)	0.1 (1.6)	0.0102
Self-efficacy: Cooking	0.8 (4.1)	0.9 (4.9)	0.8220
Self-efficacy: Tasting new foods	0.1 (2.5)	0.04 (2.0)	0.9239
Self-efficacy: Eating 5 servings of fruit and vegetable per day	0.5 (3.5)	-0.1 (3.4)	0.2933
Student engagement	2.6 (6.1)	0.5 (5.7)	0.0299
Readiness to increase fruit consumption	0.01 (1.0)	-0.1 (1.1)	0.3910
Readiness to increase vegetable consumption	-0.05 (1.1)	-0.04 (1.2)	0.9491
Nutrition knowledge	2.4 (2.0)	0.5 (2.2)	<.0001

* Independent sample t-test for the difference between groups

Table 3: Univariate Change in Outcome Measures from Time 1 to Time 3 by Time Point, 12-Week Cohort (n=94)

	Baseline Mean (std)	6-weeks Mean (std)	12-weeks Mean (std)	p-value*
Fruit and vegetable consumption (Servings per day)	4.5 (3.3)	4.7 (3.1)	4.5 (3.9)	0.4755
Whole grain consumption (Servings per day)	4.4 (4.6)	3.9 (4.2)	3.9 (4.7)	0.0935
Vegetable preferences	2.6 (0.5)	2.8 (0.5)	2.9 (0.6)	<.0001
Whole grain preferences	3.2 (1.7)	4.0 (2.1)	4.3 (2.0)	0.0001
Self-efficacy: Cooking	17.0 (4.4)	17.6 (3.9)	17.9 (4.4)	0.1544
Self-efficacy: Tasting new foods	4.6 (2.2)	4.5 (2.3)	5.8 (1.8)	<.0001
Self-efficacy: Eating 5 servings of fruit and vegetable per day	9.1 (3.6)	9.9 (3.2)	10.8 (2.8)	0.0002
Student engagement	41.8 (9.2)	44.4 (9.4)	46.3 (9.6)	<.0001
Readiness to increase fruit consumption	2.1 (0.7)	2.1 (0.9)	2.3 (0.8)	0.1298
Readiness to increase vegetable consumption	1.5 (1.0)	1.7 (0.9)	1.8 (0.9)	0.0070
Nutrition knowledge	9.3 (2.3)	11.8 (2.3)	12.3 (2.6)	<.0001

* Repeated measures ANOVA to test for change across time

- In the multivariable analyses (mixed linear models) of the full 6-week cohort, intervention group was not a significant predictor of change in fruit and vegetable or whole grain consumption. There was a trend toward increase in fruit and vegetable consumption among the intervention group compared to the control that did not reach significance.

CONCLUSION

- YCA has clear potential to impact diet quality among 6th and 7th graders:
 - Positive trend towards increased fruit and vegetable consumption
 - Significant increases in plant food preferences and nutrition knowledge
 - Significant increases in self-efficacy and readiness to increase vegetable consumption in the 12-week cohort
 - Significant increases in student engagement in both the 6-week and 12-week cohorts.
- Measuring cooking skills is time and resource intensive. Measurement warrants thoughtful consideration for cooking curricula.
- The 6-week YCA format may not offer sufficient intervention exposure to achieve targeted behavior changes.
- The 12-week YCA format holds particular promise and should be evaluated in a quasi-experimental pilot study.