

# CATCH Kids Club in Oklahoma 3-Year Pilot Summary

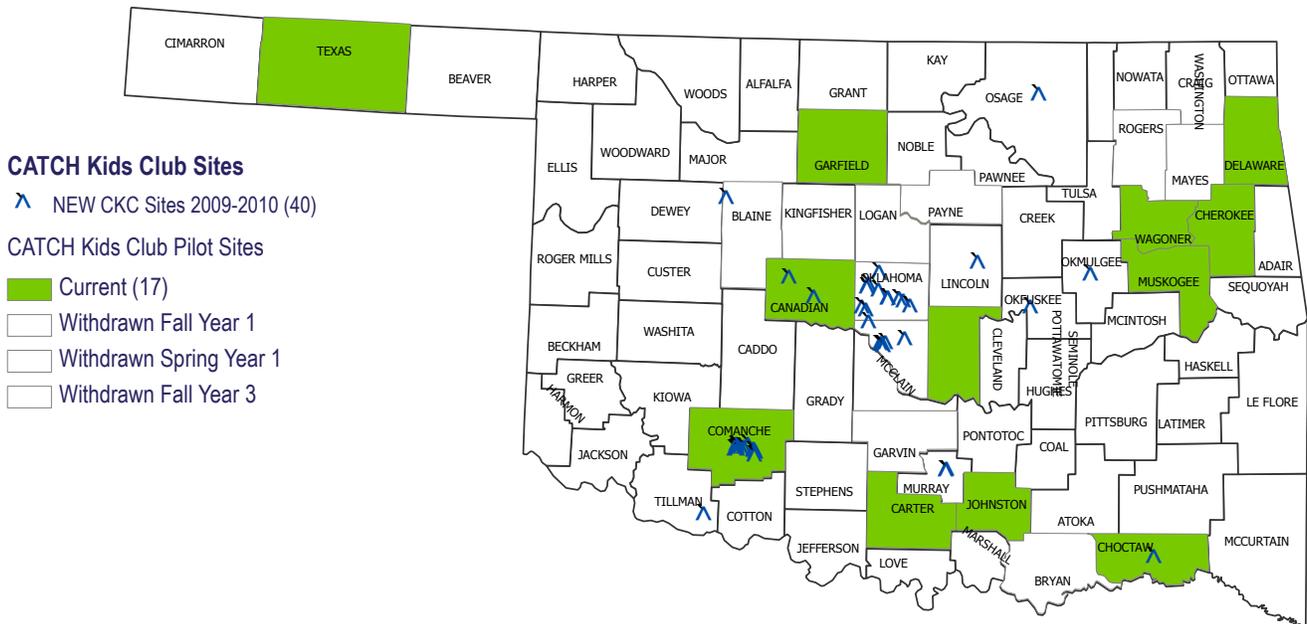
## Primary Goal:

Reduce childhood obesity among participating children

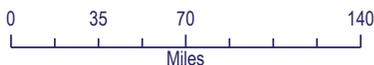
- Increasing fruit and vegetable consumption
- Encouraging children to become more physically active
- Promoting environmental change within the after-school programs

## CATCH Kids Club Sites

### Coordinated Approach to Child Health (CATCH) Kids Club After-School Program Sites, 2009-2010

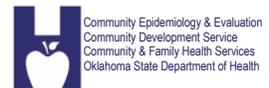


**Data Source:** Community Development Service  
**Projection/Coordinate System:** USGS Albers Equal Area Conic  
**Created:** 06.23.2010



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**Disclaimer:** This map is a compilation of records, information and data from various city, county and State offices and other sources, affecting the area shown, and is the best representation of the data available at the time. The map and data are to be used for reference purposes only. The user acknowledges and accepts all inherent limitations of the map, including the fact that the data are dynamic and in a constant state of maintenance.



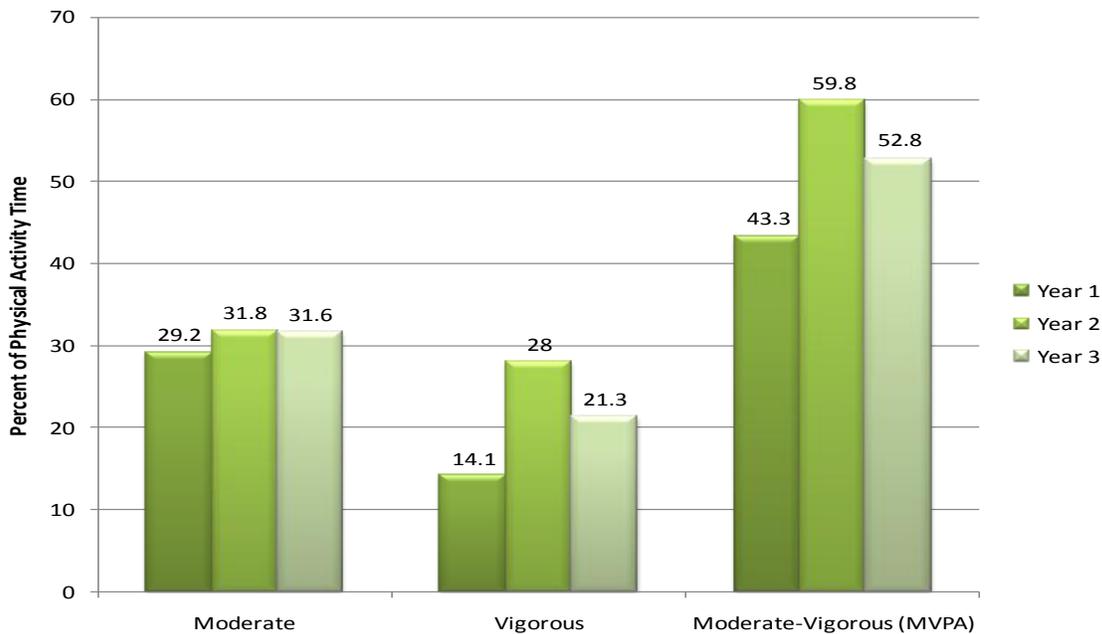
## CKC Participation

Table 1: CATCH Kids Club Participation

Year	Semester	Number of Sites	Number of K-5th graders (Average per Site)	% in 3rd-5th grade
Year 1	Fall	20	611 (31)	55%
	Spring	21	748 (36)	51%
Year 2	Fall	20	757 (38)	49%
	Spring	19	580 (31)	58%
Year 3	Fall	16	491 (31)	52%
	Spring*	12	328 (27)	54%

\*Note: Not all sites reported end of year numbers to date.

### Physical Activity Results (SOFIT)



- There was a significant increase in moderate to vigorous physical activity (MVPA) among participants between Year 1 and Year 2 (p-value = .016).
- The decrease in MVPA during Year 3 was not statistically significant (p-value = .32).
- Efforts will be implemented to increase MVPA to 60% of the physical activity time during the 2010-2011 program year across all sites.

## Student Survey

CATCH Kids Club programs began with 20 sites as a pilot project in Fall 2007. Evaluation components (student survey and height/weight data collection) were collected before the implementation of the program and at the conclusion of the school year. This process was repeated each year for a 3-year pilot period, through the 2009-2010 school year.

The following report reveals the Student Survey data that was collected from each student present on survey days. There were 54 questions regarding nutrition and physical activity. Results were calculated using student t-tests comparing pre- and post-data for each year ( $\alpha \leq 0.05$  for significance). Individual questions were grouped into five categories: Food Behavior, Food Knowledge, Food Preference, Physical Activity Behavior, and Self Efficacy. Individual question and composite scores are presented below. Participant demographics by time period are displayed in Table 2. demographics Composite scores are in Table 3. Composite and individual question results are found in Table 4.

Limitations do occur with this data. This not a matched student analysis but representative of general change within the environment. If student ids were available to match the surveys across time points, more detailed information could be obtained. This information does indicate where changes are occurring in general and should be considered when planning future lessons.

Table 2: Demographics of Surveyed Participants (3<sup>rd</sup>-5<sup>th</sup> grade only)

	Year 1				Year 2				Year 3			
	Fall		Spring		Fall		Spring		Fall		Spring	
	N	Percent										
<b>Total</b>	263	100	240	100	296	100	197	100	207	100	236	100
<b>GRADE</b>												
<b>3rd</b>	87	33.08	90	37.5	100	33.78	84	42.64	60	28.99	99	41.95
<b>4th</b>	106	40.3	89	37.08	118	39.86	71	36.04	89	43	61	25.85
<b>5th</b>	47	17.87	37	15.42	58	19.59	37	18.78	52	25.12	69	29.24
<b>Other</b>	23	8.75	24	10	20	6.76	5	2.54	6	2.9	6	2.54
<b>Missing</b>	0	0	0	0	0	0	0	0	0	0	1	0.42
<b>AGE</b>												
<b>8 and Under</b>	63	23.95	38	15.83	91	30.74	29	14.72	46	22.22	36	15.25
<b>9</b>	90	34.22	79	32.92	99	33.45	59	29.95	73	35.27	76	32.2
<b>10</b>	71	27	69	28.75	75	25.34	69	35.03	63	30.43	66	27.97
<b>11</b>	23	8.75	42	17.5	22	7.43	34	17.26	19	9.18	51	21.61
<b>12 and older</b>	16	6.08	12	5	9	3.04	6	3.05	6	2.9	6	2.54
<b>Missing</b>	0	0	0	0	0	0	0	0	0	0	1	0.42
<b>GENDER</b>												
<b>Male</b>	115	43.73	124	51.67	141	47.64	94	47.72	104	50.24	123	52.12
<b>Female</b>	147	55.89	116	48.33	152	51.35	103	52.28	103	49.76	111	47.03

Missing	1	0.38	0	0	3	1.01	0	0	0	0	2	0.85
RACE												
White	132	50.19	138	57.5	137	46.28	92	46.7	104	50.24	142	60.17
Black	19	7.22	23	9.58	37	12.5	26	13.2	24	11.59	35	14.83
Hispanic	14	5.32	9	3.75	15	5.07	10	5.08	5	2.42	12	5.08
Asian/ PI	1	0.38	1	0.42	3	1.01	2	1.02	2	0.97	0	0
American Indian	56	21.29	46	19.17	52	17.57	46	23.35	34	16.43	26	11.02
Other	41	15.59	21	8.75	47	15.88	21	10.66	34	16.43	18	7.63
Missing	0	0	2	0.83	5	1.69	0	0	4	1.93	3	1.27

Table 3: Mean Composite Scores by Time Point

Time Point	Food Behavior (score: 14-48)	Physical Activity Behavior (score: 6-24)	Food Knowledge (score: 0-14)	Food Preference (score: 0-8)	Self Efficacy (score: 12-36)
Fall Year 2007	38.7	14.5	7.8	3.4	26.2
Spring Year 2008	38.8	14.7	9.1	4.4	26.8
Fall Year 2008	38.2	14.4	7.9	3.8	26.2
Spring Year 2009	40.4	14.8	9.4	5.1	27.8
Fall Year 2009	38.4	14.9	7.5	4.2	25.9
Spring Year 2010	37.7	13.9	7.7	4.1	25.2

Note: Higher composite scores are desired. Stars denote a significant change with a t-test p-value  $\leq 0.05$ . A green star (★) indicates a positive change and a red star (★) indicates a negative change.

Table 4: Summary of Student Survey Results by Year for Individual Questions and Composite Scores

#	Question Content	Year 1			Year 2			Year 3		
		P-value	Direction of Change	Stat. Sign.	P-value	Direction of Change	Stat. Sign.	P-value	Direction of Change	Stat. Sign.
	Food Behavior	<b>0.7316</b>	<b>positive</b>		<b>&lt;.0001</b>	<b>positive</b>	<b>*</b>	<b>0.1286</b>	<b>negative</b>	
5	FRIES	0.539	negative		0.8548	positive		0.8628	negative	
6	VEGGIES	0.3574	positive		0.0162	positive	<b>*</b>	0.3708	positive	
7	BEANS	0.7505	positive		0.0438	positive	<b>*</b>	0.3041	negative	
8	FRUIT	0.0803	positive		0.0133	positive	<b>*</b>	0.6587	negative	
9	FRUITJUICE	0.2807	positive		0.0182	positive	<b>*</b>	0.3341	negative	
10	SWEETS	0.4055	positive		0.909	negative		0.5273	positive	
17	NUTR_LABEL	0.0902	positive		0.5581	positive		0.9478	positive	
22	FOOD_HEALTHY	0.4273	positive		0.7457	negative		0.1125	negative	
23	NEWFOOD	0.3832	positive		0.7297	positive		0.2134	negative	
24	HIGH_FIBER	0.1031	positive		0.1567	positive		0.0997	positive	
25	WHOLE_WHEAT	0.0382	positive	<b>*</b>	0.4241	positive		0.3868	positive	
26	DRINK_FJUICE	0.0115	positive	<b>*</b>	0.6876	positive		0.9348	negative	

Question		Year 1			Year 2			Year 3		
#	Content	P-value	Direction of Change	Stat. Sign.	P-value	Direction of Change	Stat. Sign.	P-value	Direction of Change	Stat. Sign.
27	FRUIT_LUNCH	0.2879	positive		0.7777	negative		0.5818	negative	
28	VEGGIES_DINNER	0.354	positive		0.7362	positive		0.7555	negative	
	Food Knowledge	<b>&lt;.0001</b>	<b>positive</b>	<b>*</b>	<b>&lt;.0001</b>	<b>positive</b>	<b>*</b>	<b>0.7951</b>	<b>positive</b>	
		% correct			% correct			% correct		
18	FOOD_MOST*	16.35	24.58	*	15.88	25.38	*	15.46	20.34	
19	FOOD_FEWEST*	50.57	63.33	*	53.38	66.5	*	47.34	53.39	
20	FRVEG_TOTAL*	26.62	42.92	*	26.35	44.16	*	28.99	38.98	*
21	EAT_DIFFER*	52.85	62.5	*	48.65	65.99	*	56.04	57.2	
		P-value	Direction of Change		P-value	Direction of Change		P-value	Direction of Change	
37	BREAD_HEALTH	0.0004	positive	*	0.2945	positive		0.3555	positive	
38	PROTEIN_HEALTH	0.0657	positive		0.0115	positive	*	0.9688	negative	
39	BREAKFAST_HEALTH	0.1681	positive		0.2521	positive		0.1989	positive	
40	PROTEIN2_HEALTH	0.0004	positive	*	<.0001	positive		0.2553	negative	
41	PROTEIN3_HEALTH	<.0001	positive		0.8956	negative		0.4658	negative	
42	MILK_HEALTH	0.0052	positive	*	<.0001	positive		0.5422	positive	
43	ICRM_YOG_HEALTH	0.005	positive	*	0.2984	positive		0.8872	positive	
44	VEGGIE_HEALTH	0.1973	positive		0.467	positive		0.3764	positive	
45	POTATO_HEALTH	0.591	positive		0.1739	positive		0.6778	negative	
46	JUICE_HEALTH	0.4182	positive		0.0455	negative	*	0.0771	positive	
	Food Preference	<b>&lt;.0001</b>	<b>positive</b>	<b>*</b>	<b>&lt;.0001</b>	<b>positive</b>	<b>*</b>	<b>0.9358</b>	<b>positive</b>	
29	POPCORN	0.0004	positive	*	<.0001	positive		0.2062	positive	
30	MILK	0.0001	positive	*	<.0001	positive		0.3735	positive	
31	SNACK	0.3057	positive		0.0044	positive	*	0.5828	positive	
32	CHICKEN	0.0064	positive	*	<.0001	positive		0.1139	negative	
33	ICCCRM_YOG	0.0026	positive	*	0.0137	positive	*	0.3114	positive	
34	POTATO	0.59	positive		0.0074	positive	*	0.1003	negative	
35	BUTTER_VEGGIE	0.0261	positive	*	0.4119	positive		0.3309	negative	
36	FAST_FOOD	0.0065	positive	*	0.0031	positive	*	0.9787	negative	
	Physical Activity Behavior	<b>0.5603</b>	<b>positive</b>		<b>0.2902</b>	<b>positive</b>		<b>0.0109</b>	<b>negative</b>	<b>*</b>
11	PHYSACT	0.3303	positive		0.3108	positive		0.0067	positive	*
12	TV_WEEK	0.0767	positive		0.559	positive		0.841	negative	
13	TV_WEEKEND	0.1438	positive		0.7514	negative		0.602	negative	
14	VG_WEEK	0.7495	positive		0.4826	negative		0.0197	negative	*
15	VG_WEEKEND	0.8527	negative		0.8129	negative		0.0322	negative	*
16	SP_TEAMS	0.4769	negative		0.1684	positive		0.7252	positive	
	Self Efficacy	<b>0.3642</b>	<b>positive</b>		<b>0.0091</b>	<b>positive</b>	<b>*</b>	<b>0.3458</b>	<b>negative</b>	
47	LFSK_MILK_SURE	0.3218	positive		<.0001	positive		0.4195	positive	

#	Question Content	Year 1			Year 2			Year 3		
		P-value	Direction of Change	Stat. Sign.	P-value	Direction of Change	Stat. Sign.	P-value	Direction of Change	Stat. Sign.
48	HF_CEREAL_SURE	0.4735	positive		0.0071	positive	*	0.1125	positive	
49	FRESH_FRUIT_SURE	0.522	positive		0.5819	positive		0.0242	negative	*
50	SKINOFF_CHX_SURE	0.0887	positive		0.4796	positive		0.5726	negative	
51	FROZ_YOG_SURE	0.1536	positive		0.0373	positive	*	0.1403	negative	
52	POTATO_SURE	0.9586	positive		0.3057	positive		0.1716	negative	
53	FR_JUICE_SURE	0.7864	positive		0.9018	negative		0.1087	negative	
54	GRCHXSAND_SURE	0.9613	negative		0.3551	positive		0.7934	negative	
55	PA35_SURE	0.2952	positive		0.0003	positive	*	0.8195	negative	
56	PA_ASP_SURE	0.8642	negative		0.082	positive		0.622	negative	
57	RUNBIKE_SURE	0.3928	positive		0.2569	positive		0.222	negative	
58	STEADYPACE_SURE	0.9735	negative		0.0434	positive	*	0.7876	negative	
			Total Number	Stat. Sign.			Total Number	Stat. Sign.	Total Number	Stat. Sign.
Positive Changes			53	18			50	21	25	2
Negative Changes			6	0			9	1	34	4

*Note: Full survey questions can be found in Appendix A.*

## Body Mass Index

CATCH Kids Club programs began in 20 sites for a pilot program in Fall 2007. Evaluation components (student survey and height/weight data collection) were collected before the implementation of the program and at the conclusion of the school year. This process was repeated each year for a 3-year pilot period, through the 2009-2010 school year.

The following report reveals the Body Mass Index (BMI) data that was calculated from each student's height and weight. All BMI data was normalized to the Centers for Disease Control and Prevention (CDC) height and weight growth charts based on age and gender resulting in the BMI percentile ranking (scores 0 to 100). This percentile is an indicator of a child's size and growth pattern and indicates the relative position of the child's BMI number among children of the same sex and age. BMI percentiles are further categorized into Underweight (less than the 5<sup>th</sup> percentile), Healthy weight (5<sup>th</sup> percentile to less than the 85<sup>th</sup> percentile), Overweight (85<sup>th</sup> to less than the 95<sup>th</sup> percentile), and Obese (equal to or greater than the 95<sup>th</sup> percentile). All data points that were considered inaccurate (biologically implausible) were filtered from analysis. Data was further matched by student id to allow for the most accurate analysis possible.

- During the 3-year pilot, 3,018 BMI data points were collected.
- Of those, 78% (2,349) were considered usable or biologically plausible. This accounted for 1,468 students.
- 658 children (44.8%) had at least two usable BMI points throughout the 3 year period (1,539 data points) that were used for matched data analysis.

Table 5: Number of Students by Count Plausible BMI Data Points

Count of BMI Data Points per Student	Number of Students (N)	Percent	Cumulative N	Cumulative Percent
1	810	55.18	810	55.18
2	509	34.67	1319	89.85
3	92	6.27	1411	96.12
4	44	3.00	1455	99.11
5	9	0.61	1464	99.73
6	4	0.27	1468	100.00

Matched Analysis: (658 students; 1,539 data points)

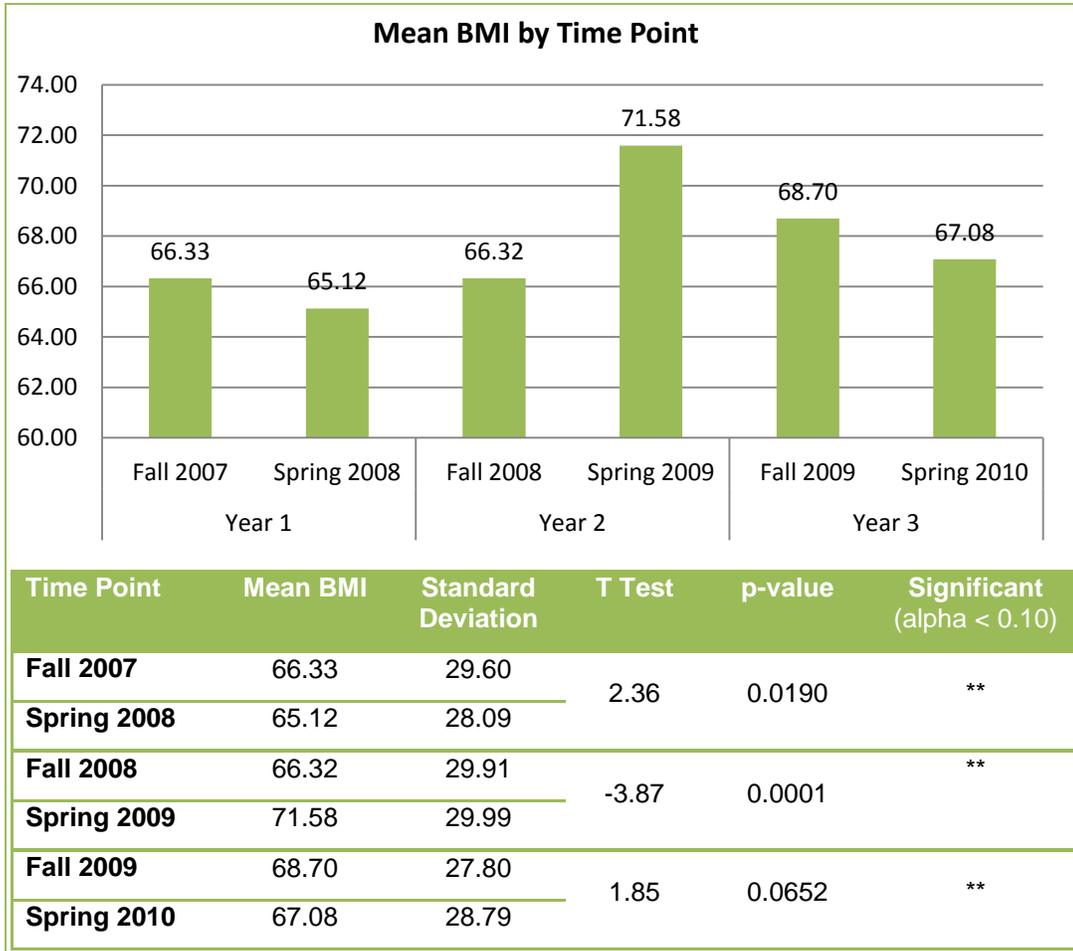
Table 6: Demographic Distribution of Students at Time of Entry into CATCH Program

Age	Count of Students	Percent
5 and under	84	12.8%
6	84	12.8%
7	88	13.4%
8	123	18.7%
9	142	21.6%
10	103	15.7%
11 and over	34	5.2%
Total	658	100.0%
Average Age	7.9 years	
Gender	Count of Students	Percent
Male	314	47.7%
Female	344	52.3%

Table 7: Weight Category at Time of Entry and Exit into CATCH Program

Weight Category	N	Percent	Cumulative N	Cumulative Percent
<b>Entry</b>				
<b>Underweight</b>	17	2.6%	17	2.6%
<b>Healthy Weight</b>	372	56.5%	389	59.1%
<b>Overweight</b>	134	20.4%	523	79.5%
<b>Obese</b>	135	20.5%	658	100%
<b>Exit</b>				
<b>Underweight</b>	18	2.7%	18	2.7%
<b>Healthy Weight</b>	366	55.6%	384	58.4%
<b>Overweight</b>	97	14.7%	481	73.1%
<b>Obese</b>	177	26.9%	658	100%

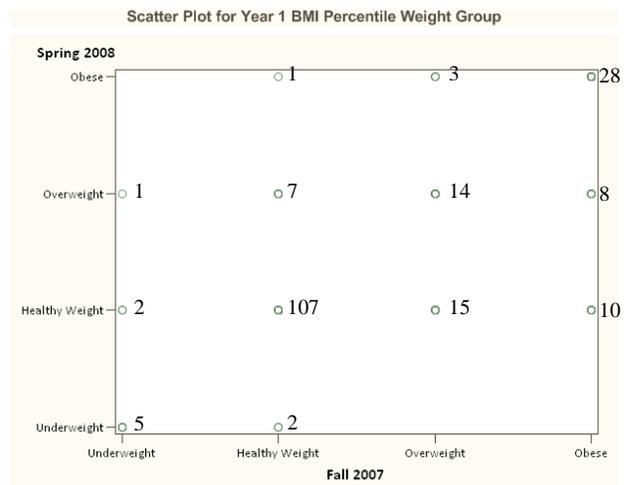
Table 8: Changes in Matched BMI



- Significant changes did occur among participants during the CKC program.
- Age of participant was a confounding factor and is explored further. See Appendix B.

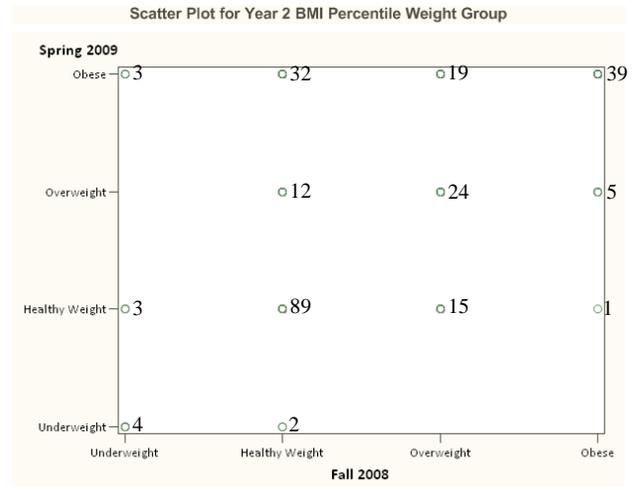
Year 1

- There were 203 students who had matched BMI scores between Fall 2007 and Spring 2008.
- A significant decrease occurred in BMI percentile scores (t-test = 2.36, p-value = 0.0190)
- Even when grouped into weight categories, a statistical significance was found (t-test = 3.22, p-value = 0.0015)
- The scatter plot to the right shows the number of students by weight category.



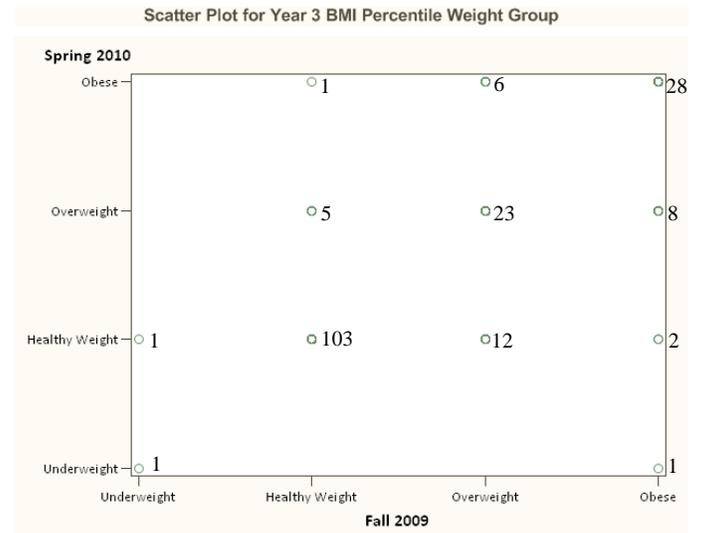
## Year 2

- There were 248 students who had matched BMI scores between Fall 2008 and Spring 2009.
- A statistically significant increase occurred in BMI percentile scores during Year 2 (t-test = -3.87, p-value = 0.0001).
- However, when grouped into weight categories, no statistical significance was found (t-test = 1.37, p-value = 0.1872)
- The scatter plot to the right shows the number of students by weight category.



## Year 3

- There were 191 students who had matched BMI scores between Fall 2009 and Spring 2010.
- A statistically significant decrease did occur in BMI percentile scores during Year 3 (t-test = 1.85, p-value = 0.0652).
- When grouped into weight categories, a statistical significance was not found (t-test = -1.80, p-value = 0.0741)
- The scatter plot to the right shows the number of students by weight category.



## Results

- ☺ Primary Goal: Reduce childhood obesity among participating children – Data has shown a significant decrease in student BMI. Because of the lack of a control group, we cannot say that the decrease is completely dependent upon the program. This effect could be due to external program influences. Further studies need to be conducted.
- ☺ Increasing fruit and vegetable consumption – Data suggests that more positive changes occurred in Year 1 and Year 2 of the program in regards to food knowledge, behavior and preference. A lack of significant change in Year 3 could mean that renewed efforts need to be placed in nutritional education to make the lessons more engaging for students.
- ☺ Encouraging children to become more physically active – While children are being more physically active during the after-school program, translating this to the home environment has shown to be difficult. Efforts need to be placed on encouraging at-home physical activity in the coming years of the CATCH Kids Club program.
- ☺ Promoting environmental change within the after-school programs – Observational studies have shown an increase in physical activity within the after-school programs. Kids are moving more and more vigorously while they are engaged in physical activity. CATCH Kids Club program staff will continue to provide fun and engaging games and activities for students while looking for ways to translate this success to the external environment.

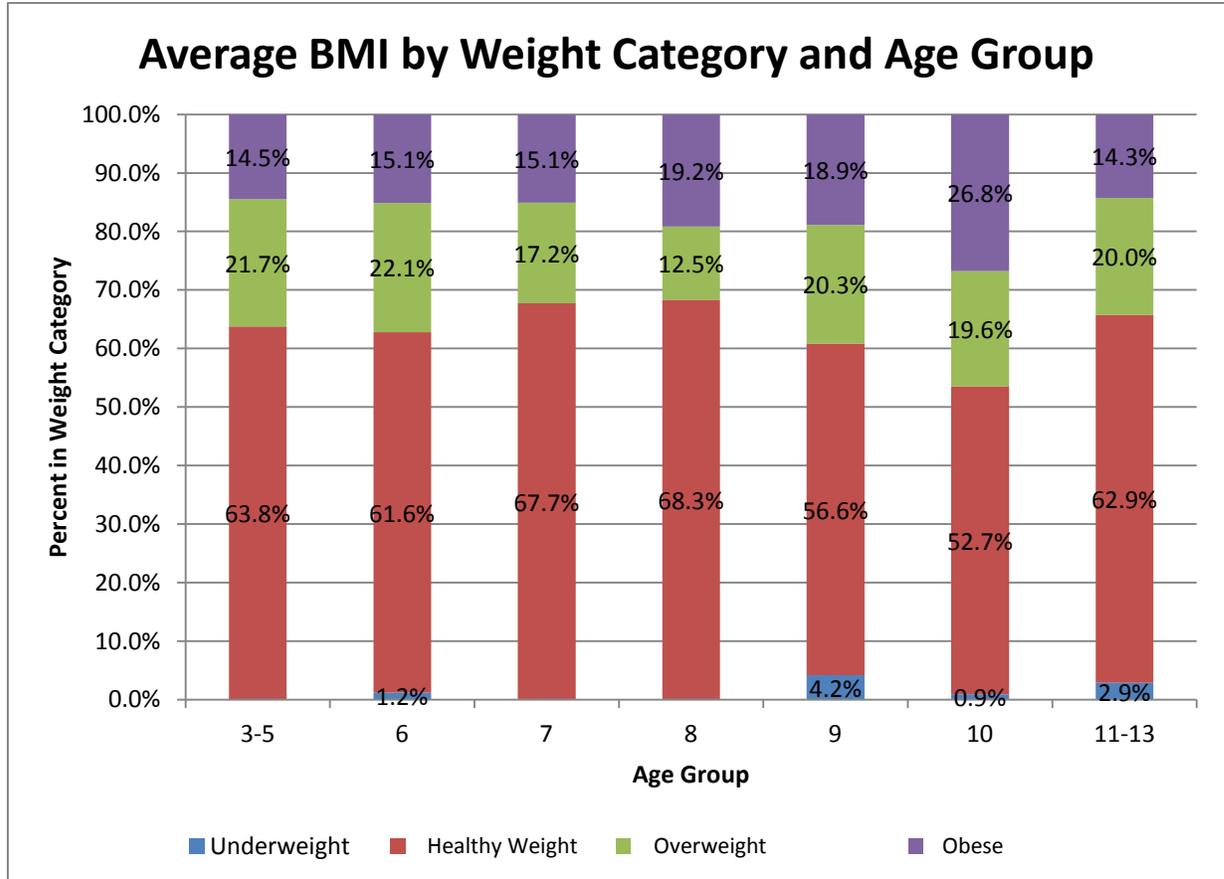
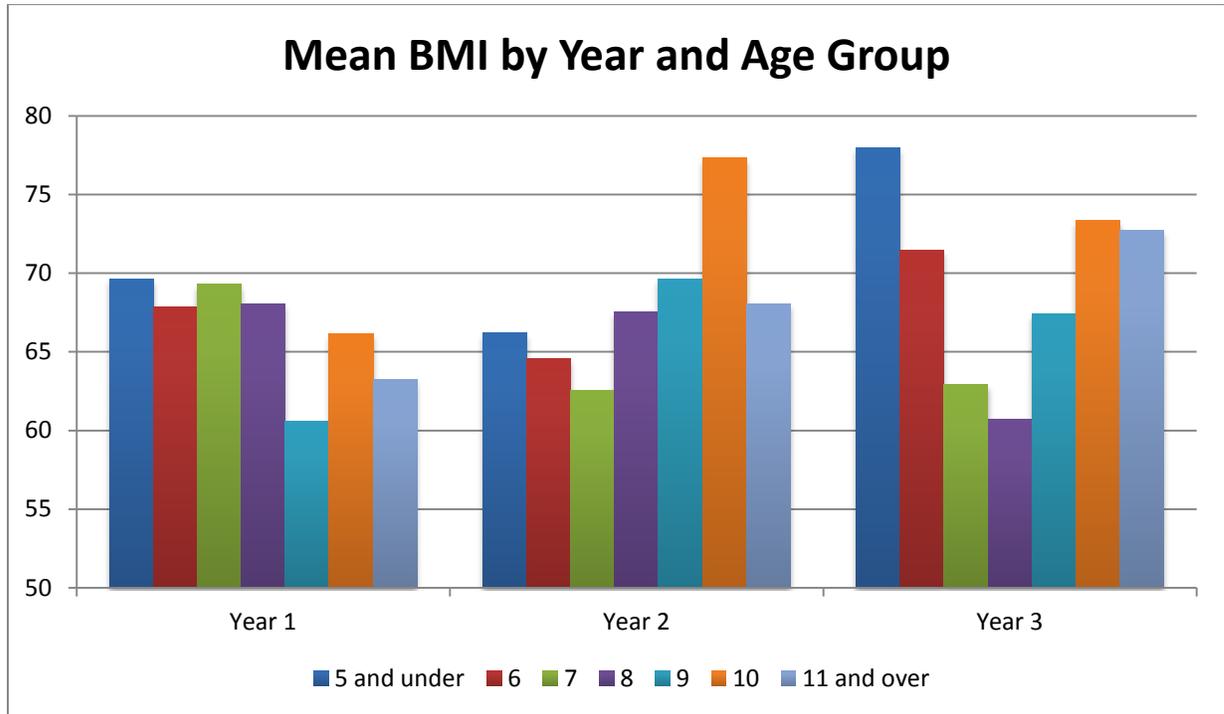
## Appendix A

### Full Student Survey Questions

Question Number	Content	Question
5	FRIES	Yesterday, did you eat French fries or chips?
6	VEGGIES	Yesterday, did you eat any vegetables?
7	BEANS	Yesterday, did you eat beans such as pinto beans, baked beans, kidney beans, refried beans, or pork and beans?
8	FRUIT	Yesterday, did you eat fruit?
9	FRUITJUICE	Yesterday, did you drink fruit juice?
10	SWEETS	Yesterday, did you eat sweet rolls, doughnuts, cookies, brownies, pies, or cake?
11	PHYSACT	Yesterday, did you exercise or participate in sports activities that made your heart beat fast and made you breathe hard for at least 20 minutes.
12	TV_WEEK	How many TV shows or videos do you watch during the week?
13	TV_WEEKEND	How many TV shows or videos do you watch during the weekend?
14	VG_WEEK	During the week, how many hours per day do you usually play video games or use the computer to surf the internet?
15	VG_WEEKEND	During the weekend, how many hours per day do you usually play video games or use the computer to surf the internet?
16	SP_TEAMS	During the past 12 months, on how many sports teams did you play?
17	NUTR_LABEL	Do you ever read the nutrition labels on food packages?
18	FOOD_MOST	From which food group should you eat the most servings each day?
19	FOOD_FEWEST	From which food group should you eat the fewest servings each day?
20	FRVEG_TOTAL	How many total servings of fruits and vegetables should you eat each day?
21	EAT_DIFFER	What you eat can make a difference in your chances of getting heart disease or cancer?
22	FOOD_HEALTHY	The foods that I eat and drink now are healthy?
23	NEWFOOD	I like to try new foods.
24	HIGH_FIBER	Do you ever eat high fiber cereal?
25	WHOLE_WHEAT	Do you ever eat whole wheat bread?
26	DRINK_FJUICE	Do you ever drink 100% fruit juice?
27	FRUIT_LUNCH	Do you ever eat fruit for lunch?
28	VEGGIES_DINNER	Do you ever eat vegetables for dinner?
29	POPCORN	If you were at the movies, which one would you pick?
30	MILK	Which would you pick to drink?
31	SNACK	Which food would you eat for a snack?
32	CHICKEN	Which would you do if you were going to eat a piece of chicken?
33	ICCCRM_YOG	Which would you ask for?
34	POTATO	Which would you choose to cook if you were going to help make dinner?
35	BUTTER_VEGGIE	Which would you do if you were going to eat cooked vegetables?
36	FAST_FOOD	Which would you order if you were going to eat at a fast food restaurant?
37	BREAD_HEALTH	Which is better for your health? whole wheat bread or white bread?
38	PROTEIN_HEALTH	Which is better for your health? broiled beef or broiled fish?
39	BREAKFAST_HEALTH	Which is better for your health? cereal or eggs and bacon?

Question Number	Content	Question
40	PROTEIN2_HEALTH	Which is better for your health? beef or beans?
41	PROTEIN3_HEALTH	Which is better for your health? chicken or regular hamburger?
42	MILK_HEALTH	Which is better for your health? regular milk or low fat/ skim milk?
43	ICRM_YOG_HEALTH	Which is better for your health? frozen yogurt or ice cream?
44	VEGGIE_HEALTH	Which is better for your health? green salad or fries?
45	POTATO_HEALTH	Which is better for your health? fries or baked potato?
46	JUICE_HEALTH	Which is better for your health? fruit juice or fruit punch?
47	LFSK_MILK_SURE	How sure are you that you can drink low fat or skim milk instead of regular white milk?
48	HF_CEREAL_SURE	How sure are you that you can eat high fiber cereal instead of a donut?
49	FRESH_FRUIT_SURE	How sure are you that you can eat fresh fruit instead of a candy bar?
50	SKINOFF_CHX_SURE	How sure are you that you can take the skin off of chicken (and not eat the skin)?
51	FROZ_YOG_SURE	How sure are you that you can ask for frozen yogurt instead of ice cream?
52	POTATO_SURE	How sure are you that you can eat a baked potato instead of french fries?
53	FR_JUICE_SURE	How sure are you that you can drink fruit juice instead of a soft drink (a soda pop)?
54	GRCHXSAND_SURE	How sure are you that you can order a grilled chicken sandwich at a fast food restaurant instead of ordering a hamburger?
55	PA35_SURE	How sure are you that you can be physically active 3-5 times a week?
56	PA_ASP_SURE	How sure are you that you can exercise and keep moving for most of the time in your after school program?
57	RUNBIKE_SURE	How sure are you that you can improve your physical fitness by running or biking 3-5 times a week?
58	STEADYPACE_SURE	How sure are you that you can keep up a steady pace without stopping for 15-20 minutes when you are physically active?

## Appendix B Graphs for BMI by Age Group



Note: Average BMI for Individuals was not significant by age group.