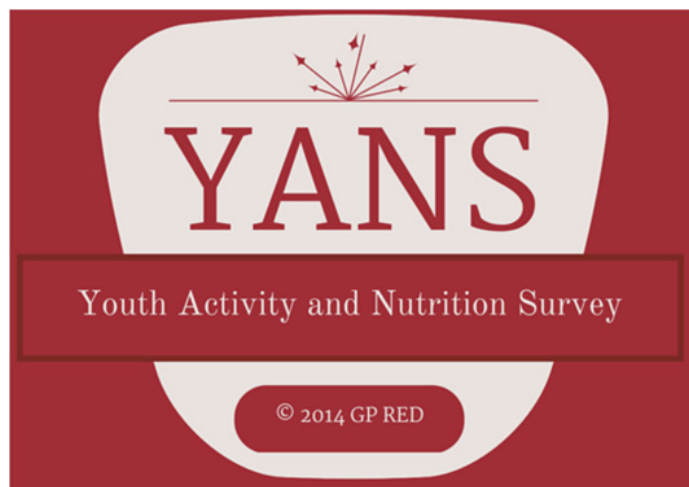




2014 Liberty Middle Schools Liberty, Missouri Youth Activities and Nutrition Survey (YANS) Analysis & Findings Report March 2015

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Table of Contents

Executive Summary.....	1
Introduction	3
Study Results.....	5
Study Participant Profile	5
YANS survey (Version 1.1) Completion Time.....	5
Racial/Ethnic Composition.....	6
Grade Level Distribution	6
Height & Weight Profile	7
Body Mass Index (BMI) Profile.....	9
Summary of the Study Population.....	11
Nutrition Profile.....	13
Consumption of Vegetables and Fruits.....	18
Summary of Nutrition Behavior.....	20
After School Profile.....	23
Participation in After-School Activities	23
Summary of After School Activity Engagement.....	34
Parent/Guardian Role in Youth Participation	35
Summary of Findings	37
Study Challenges and Limitations.....	41
Recommendations for Future Actions.....	43
Appendix A – Survey Instrument	45

Table of Tables

Table 1: Racial/Ethnic composition (n=2,490; Missing=12 students)	6
Table 2: Grade Level Distribution	6
Table 3: Height & Weight of Study Population	7
Table 4: CDCP Weight Categories by Age and Gender	9
Table 5: Percentage of Middle School Students' BMI by CDCP Weight Categories (N=2652)	11
Table 6: Comparison of Female and Male Students' Breakfast Options	15
Table 7: Lunch Meals Skipped Meals during the School Week (n=2,457; missing=207)	16
Table 8: Comparison of Female and Male Lunch Options During School Days (n=2,502)	16
Table 9: Comparison of Female and Male Lunch Options During Weekend Days (n=2457)	17
Table 10: Frequency of Skipping Dinner in A Week by Study Participants (n=2,410; Missing=254)	17
Table 11: Type of Dinner Meal Consumed by Female and Male Students Over a Week	18
Table 12: Consumption of vegetables, fruits, and fast food by study participants	18
Table 13: The Number of Drinks Consumed by Study Participants in a Day	19
Table 14: Type of After-School Activity in Which Study Participants Engaged Per Week (n=2,323)	23
Table 15: Average Number (SD) of Friends Participating (Female = 1,126; Male = 1,089)	24
Table 16: Average Minutes Spent In After-School Activities (Female = 1,183; Male = 1,152)	25
Table 17: Weighted Ranks of Influence on Out-Of-School Activity Participation	26
Table 18: Weighted Ranks of Influence on Out-Of-School Activity Participation by Grade	26
Table 19: Reasons for Not Participating in Out-Of-School Activities	27
Table 20: Reasons for Not Participating in Out-Of-School Activities Rated by Grade Level	27
Table 21: Average Hours Spent During Week Days and Weekends	28
Table 22: Hours Spent After School during Week Days and Weekends by Grade Level	28
Table 23: Preferred After-School Activities (n=2,664)	29
Table 24: Cronbach's Alphas for Each Construct and Corresponding Question Items	30
Table 25: The Average Values of Reasons for Participating in After-School Activities	31
Table 26: Percentage of Students Who Participated in Selected Sports by Gender	33
Table 27: Inter-Item Reliability Coefficients of Four Constructs Asking Healthy Behaviors of Study Participants' Parents /Guardians.	35
Table 28: Parent/Guardian Support for Student Engagement in Out-of-School Activities	36

Table of Figures

Figure 1: Changes in Average Height of Study Participants by Grade Level (Lbs)	8
Figure 2: Changes in Average Weight of Study Participants by Grade Level	8
Figure 3: Average BMI of Study Participants by Gender over Three Grade Levels	10
Figure 4: Distribution of Breakfast Options by Study Participants	13
Figure 5: Comparison of Percentage of Female and Male Students Who Skipped Breakfast	14
Figure 6: Comparisons of Breakfast Options Chosen by Female and Male Students	15
Figure 7: The Amount of Drinks Consumed by Gender	20
Figure 8: The Average Number of Friends Participating in After-School Activities	24
Figure 9: Importance of Reasons for Participating in an Activity by Gender	30
Figure 10: Total Number of Sport Activities by Age of Student's Participation	32
Figure 11: Number of Study Participants in Sports by age at Participation (n=2,377)	32

Executive Summary

In May 2014, the Liberty School District participated in a study of Middle School Youth as part of Year One of GP RED's Healthy Communities Research Group's *Surveillance and Management Toolkit (SMT)* project, in alliance with the Liberty Community Health in Action Team (L-CHAT). This study was first conducted in 2013 with 245 students using the Youth Activity and Nutrition Survey (YANS 1.0). The results of that survey were helpful in establishing a baseline test of the survey instrument, yet the limited number of students completing the survey narrowed the level of analysis that could be undertaken as a representative sample for Liberty.

As a follow-up to that initial 2013 Year One Survey, the School District participated in a second, larger online survey for this study in Year Two of the SMT, which involved all four middle schools in Liberty and 2,502 students. This study was conducted online in late October 2014 under the supervision of Ms. Becky Gossett of Liberty School District, along with participating teachers. The students completed the survey anonymously, and the survey instrument was approved for human use by the Institutional Review Board (IRB) of East Carolina University (who hosted the survey online for the project). The results of the study provide school and community planners with information on the extent of physical activity, nutritional regimen, and relationship with their family and friends. The calculated Body Mass Index (BMI) of female and male middle school students at each grade level are considered in the "overweight" category. These data suggest that there is a significant issue with weight management that should be addressed in the immediate future.

The YANS (Version 1.1) online survey asks students to report on their nutrition regimen during the previous week and weekend days. During weekdays, breakfast was skipped by nearly 22 percent of students. Forty-four percent (44%) ate “quick or cold” foods, and 23 percent ate hot food for breakfast. During school days, the lunch meal was skipped by 4.4 percent, and 7.4 percent skipped it during weekend days. Approximately 26 percent ate lunch that they brought to school. The majority of “full” dinner meals (68%) were prepared and eaten at home. Overall, it appears that students are consuming soft drinks and energy drinks at an expected level. Conversely, many consumed water daily, yet not at a high level.

Students were also asked to report on their engagement in after school activities during the previous week. Study participants reported the highest number of hours in organized sports, outdoor, and hobby activities. From the data, it is clear that while a number of students are engaged in after school activities, the level of engagement drops off over the three year period. Many students report having “no interest” or being “too busy” to participate in after school activities, yet the percentage of time spent on electronic devices increases significantly as they move through grade levels. It appears as though 33 percent of that time on weekdays is spent on academic tasks, while the majority (67%) is spent on watching TV, playing video games, or social networking. Students report that they primarily participate to “have fun” and “be with friends.”

The results of the YANS (1.1) survey appear to provide a clearer community-specific picture of the physical activity patterns, nutritional choices for meals throughout the week, and the role of social interaction as they pertain to the daily lives of middle school students. This information can help inform decision makers, teachers, and parents/guardians in the Liberty community to make healthier choices.

Introduction

Following an initial study of the YANS in Year One in 2013, Liberty Middle Schools administration sought to conduct a more comprehensive study of middle school students in the Fall of 2014, as part of Year Two of the GP RED Healthy Communities Research Group's *Surveillance and Management Toolkit (SMT)* (See <http://gpred.org/healthy-communities-research-group/> for more information). This study was conducted in alliance with the Liberty Community Health Action Team (L-CHAT).

The intent of this Year Two YANS 1.1 study was to better comprehend middle school students' patterns of physical activity, nutrition regimen, and social interaction. Each student from four schools was invited to voluntarily participate in the study. Youth participants were provided a form that their parents/guardians were asked to complete if they did not want their student to participate in the study, under an "Opt-Out" protocol.

Survey Administration, Methodology, and Analysis

Under the leadership of GP RED team members and Ms. Becky Gossett, Director of Special Programs, Liberty School District, and through the supervision of Liberty School personnel, students from Discovery Middle School, Heritage Middle School, Liberty Middle School, and South Valley Middle School participated in the online YANS (see **Appendix A** for a printed copy of the survey instrument). Prior to the administration of the instrument, YANS (Version1.0) was revised, and YANS (Version1.1) created. The electronic survey was administered by East Carolina University for the October 2014 data collection process. Full raw data, statistical methodology, and coding structure is available from the GP RED team.

Note: The GP RED HCRG Research Team is well aware of the potential accuracy challenges of relying upon self-reported data from youth. Given the available resources, and as this information is collected anonymously in an age appropriate format, this method appears to be the best available method to gather large amounts of community-specific youth data of this type at this time.

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Study Results

Study Participant Profile

A total of 2,895 Middle School students participated in the 2014 October YANS (Version 1.1) data collection in October, 2014. Each student was required to obtain parent/guardian consent prior to participation in the study. In addition, each student was to read and sign an assent form prior to their participation. Data for 391 students were eliminated before initiating data analysis. Of these, 172 surveys were omitted, as participants did not indicate either height (n=114) or weight (n=58), which required to calculate study participants' BMI (Body Mass Index). Calculated BMI scores of 10 or below (n=11) and 50 or above (n=6) were considered outliers and omitted. In addition, another 40 students did not complete most items requesting their demographic information and did not complete the core questions. The total number of useable student responses for this analysis was 2,664. Of these 1,356 (50.9%) were female and 1,308 (49.1% male).

YANS survey (Version 1.1) Completion Time

The mean time to complete the survey was 23 minutes (SD=16.45) (Mode=15). The maximum time to complete survey was 101 minutes, while the minimum was five minutes. The wide range of time required to complete the survey may be due to several factors, including, but not limited to, the following: 1) inclusion of students with learning disabilities (increased time required); 2) student motivation (or lack thereof) to give a sincere effort at task accomplishment (minimal time & effort); 3) varying script of instructions to students; and 4) level of supervision/assistance in the computer lab by faculty/staff. The mean time for completion of the survey (23 minutes) is within the instrument designer's estimates for time completion. Surveys that reflected minimal effort, those with obvious errors, and others determined to be incomplete were also omitted.

Racial/Ethnic Composition

The majority of study participants were White/Caucasian (75.4%), while others were evenly distributed across five ethnic groups. Each of these categories represented between 3.3 to 7.7 percent of the total study population (**Table 1**).

Table 1: Racial/Ethnic composition (n=2,490; Missing=12 students)

	Frequency	Percent
African American/Black	129	4.8%
Asian	89	3.3%
Latino/Hispanic	109	4.1%
Native American	112	4.2%
Mixed Race/Ethnicity	205	7.7%
White/Caucasian	2009	75.4%
Missing	11	.4%

The Liberty Middle School population remains largely White/Caucasian (75.4%). Compared to the May, 2014 ethnic profile, the October study population is nearly double the number of ethnically and racially diverse students (African American/Black; Asian; Latino/Hispanic; Native American; Mixed Race/Ethnicity) (May, 2014= 17.4% versus October, 2014= 24.6%). These data also reflect an increase in the number reported in the “Mixed Race/Ethnicity” category.

Grade Level Distribution

The study participants were evenly distributed by grade level, with those in 6th grade representing the highest percentage (34.7%). Study participants in the 7th grade represented the lowest percentage (32.0%), while 8th grade students were 33.3 percent of the total. The somewhat even distribution by grade level is important for analysis purposes (**Table 2**).

Table 2: Grade Level Distribution

Grade Level	Frequency	Percent
6 th	924	34.7%
7 th	852	32.0%
8 th	888	33.3%

Height & Weight Profile

Data was collected to determine the BMI of each study participant. It should be noted that these data were self-reported by the student. The procedure was to obtain height and weight from actual measurement by school staff. Once obtained, the height and weight were placed on an index card and handed to the student for input into the YANS (Version 1.1) survey at the computer laboratory. The mean height of the female participants was 61.99 inches (SD=4.31) with a range of 48-77 inches. The average weight was 111.91 pounds (SD=27.71). For male participants, the average height was 63.49 (SD=5.71) with the average weight of 115.34 (SD=33.00) pounds. Since several outlier values were identified, mode scores of heights and weights for each group were also calculated (**Table 3**).

Table 3: Height & Weight of Study Population

Grade	Gender		N	Max	Min	Mode	Mean	SD
6 th Grade Students	Female	Inches	458	71	48	58	60.31	4.95
		Pounds	458	220	56	87	98.87	23.38
	Male	Inches	466	82	48	61	61.02	5.17
		Pounds	466	220	52	85	98.87	24.08
7 th Grade Students	Female	Inches	440	77	51	62	62.62	3.85
		Pounds	440	220	68	100	113.37	26.38
	Male	Inches	412	83	49	61	63.24	4.85
		Pounds	412	261	62	110	116.35	32.94
8 th Grade Students	Female	Inches	458	76	49	62	63.06	3.46
		Pounds	458	250	68	120	123.54	27.43
	Male	Inches	430	83	40	65	66.41	5.71
		Pounds	430	272	68	120	132.23	32.71
All Students	Female	Inches	1,356	77	48	62	61.99	4.31
		Pounds		250	56	100	111.91	27.71
	Male	Inches	1,308	83	40	63	63.49	5.71
		Pounds		272	52	110	115.34	33.00

In addition, the average weight and height of female and male participants were compared by grades in their school years. There was a noticeable change in height between 6th and 7th grades for females, and between the 7th and 8th grades for male students (**Figure 1**). In addition, both female and male students' weight increased over the three school years (6-8th grade) (**Figure 2**).

Figure 1: Changes in Average Height of Study Participants by Grade Level (Lbs)

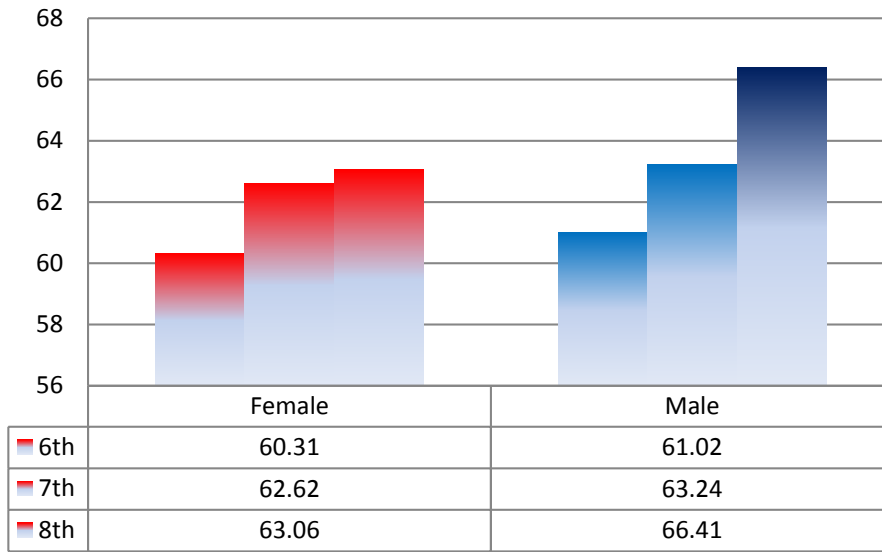
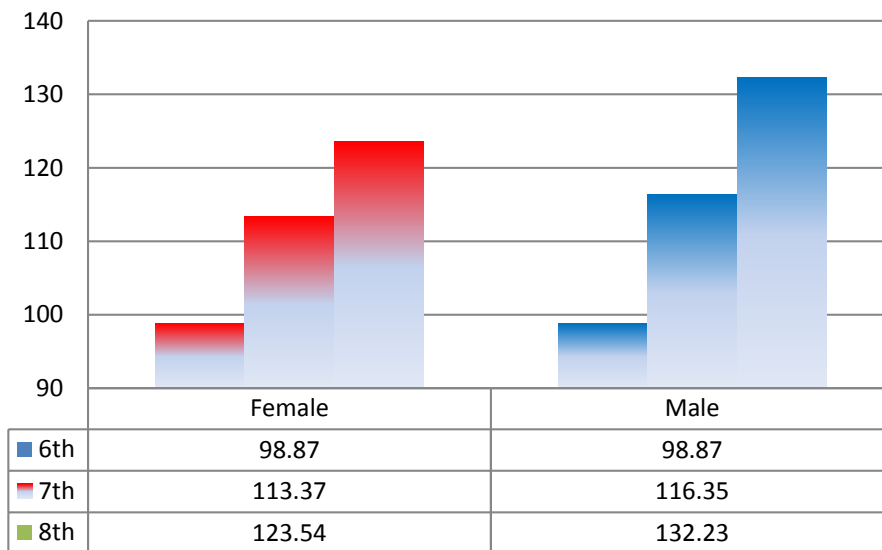


Figure 2: Changes in Average Weight of Study Participants by Grade Level



Body Mass Index (BMI) Profile

The Body Mass Index (BMI) for study participants was a key factor in this study. First, the national categories for healthy weight were employed to determine the distribution of study participants in four categories (underweight; healthy weight; overweight; and obese) as established by the Centers for Disease Control and Prevention CDCP (**Table 4**). The mean BMI at the three Liberty Middle Schools in this study was 20.49 (females) and 20.03 (males). According to growth charts provided by the CDCP¹, a healthy BMI for girls in this age range is 16.5 to 22.8; for boys it is 15.5 - 22.5. Consequently, the mean scores for Liberty Middle School youth are of concern when compared to state and national estimates of being overweight and obesity among youth. Compared to CDCP BMI parameters, the study participants appear to be of high healthy weight and/or low overweight. It is important to note that the composition of study participants may have excluded those students who were above or below the normal weight parameters. In addition, the process of collecting these data may be compromised, as allowing students to enter their own height and weight data into the computer may place in to question the accuracy of these data. Nevertheless, it would be expected that if students were to alter their height or weight, it would result in lower BMI scores.

Table 4: CDCP Weight Categories by Age and Gender

		Underweight ($< 5^{\text{th}}$ percentile)	Healthy Weight ($5^{\text{th}} \leq \text{percentile} < 85^{\text{th}}$)	Overweight ($85^{\text{th}} \leq \text{percentile} < 95^{\text{th}}$)	Obese ($\geq 95^{\text{th}}$ percentile)
10	Boys	BMI <14.22	$14.22 \leq \text{BMI} < 19.39$	$19.36 \leq \text{BMI} < 22.15$	BMI ≥ 22.15
	Girls	BMI <14.04	$14.04 \leq \text{BMI} < 19.99$	$19.99 \leq \text{BMI} < 22.98$	BMI ≥ 22.98
11	Boys	BMI <14.56	$14.56 \leq \text{BMI} < 20.20$	$20.20 \leq \text{BMI} < 23.21$	BMI ≥ 23.21
	Girls	BMI <14.40	$14.40 \leq \text{BMI} < 20.87$	$20.87 \leq \text{BMI} < 24.05$	BMI ≥ 24.05
12	Boys	BMI <14.98	$14.98 \leq \text{BMI} < 21.02$	$21.02 \leq \text{BMI} < 24.23$	BMI ≥ 24.23
	Girls	BMI <14.83	$14.83 \leq \text{BMI} < 21.74$	$21.74 \leq \text{BMI} < 25.26$	BMI ≥ 25.26
13	Boys	BMI <15.46	$15.46 \leq \text{BMI} < 21.85$	$21.85 \leq \text{BMI} < 25.18$	BMI ≥ 25.18
	Girls	BMI <15.31	$15.31 \leq \text{BMI} < 22.58$	$22.58 \leq \text{BMI} < 26.22$	BMI ≥ 26.22
14	Boys	BMI <15.99	$15.99 \leq \text{BMI} < 22.66$	$22.66 \leq \text{BMI} < 26.05$	BMI ≥ 26.05
	Girls	BMI <15.81	$15.81 \leq \text{BMI} < 23.35$	$23.35 \leq \text{BMI} < 27.18$	BMI ≥ 27.18
15	Boys	BMI <16.56	$16.56 \leq \text{BMI} < 23.45$	$23.45 \leq \text{BMI} < 26.84$	BMI ≥ 26.84

http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html#How%20is%20BMI%20calculated (http://www.cdc.gov/growthcharts/html_charts/bmiagerev.htm)

These scores are representative of students who are for the most part of healthy weight for their ages. Yet over one third of the study participants were overweight or obese. In addition, it appears that BMI increases with each grade level, and the mean BMI scores for female was higher than those for male participants (**Figure 3**). Whether this is the product of maturation, or other factors is not known. These data are indicative of potential health issues among students in the four middle schools in Liberty, Missouri. **Table 5** illustrates the CDCP weight categories for study participants aged 9 to 15 years old. The BMI ranges for each age group were calculated using standards recommended by the CDCP.² Note: A total of 12 students did not indicate their month and/or year born. Ages could not be calculated due to this survey input error (male =7; female=5).

Figure 3: Average BMI of Study Participants by Gender over Three Grade Levels

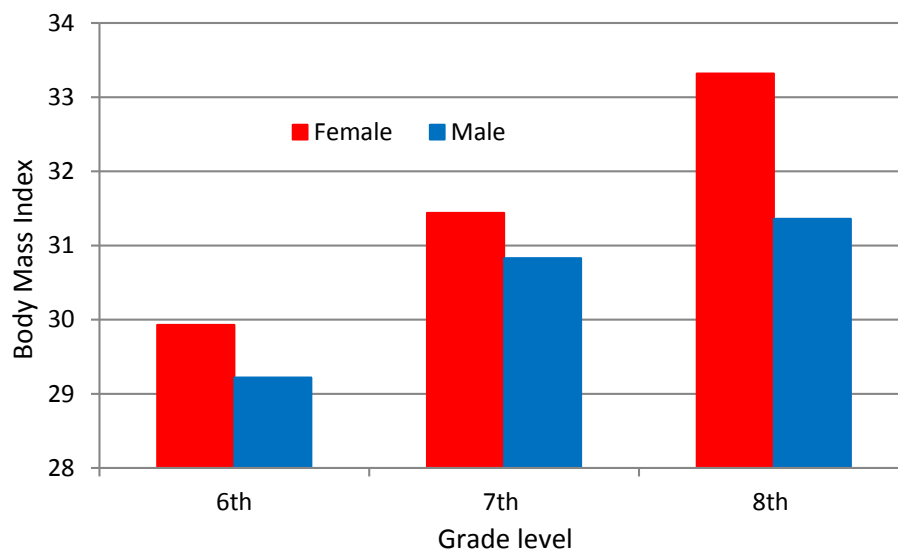


Table 5: Percentage of Middle School Students' BMI (Liberty, MO) by CDCP Weight Categories (N=2652)

		Underweight (< 5 percentile)	Healthy weight (5th $\leq$ percentile < 85)	Overweight (85th $\leq$ percentile < 95)	Obese (≥ 95 th percentile)	n
9	Boys	0	0	0	0	0
	Girls	0	1	0	0	1
10	Boys	27 (12.27%)	122 (55.45%)	41 (18.64%)	30 (13.64%)	220
	Girls	20 (8.66%)	139 (60.17%)	36 (15.58%)	36 (15.58%)	231
11	Boys	31 (8.31%)	200 (53.62%)	69 (18.50%)	73 (19.57%)	373
	Girls	27 (6.96%)	221 (56.96%)	73 (18.81%)	67 (17.27%)	388
12	Boys	23 (5.74%)	225 (56.11%)	94 (23.44%)	59 (14.71%)	401
	Girls	17 (3.78%)	263 (58.44%)	103 (22.89%)	67 (14.89%)	450
13	Boys	12 (5.15%)	148 (63.52%)	35 (15.02%)	38 (16.31%)	233
	Girls	10 (5.32%)	110 (58.51%)	30 (15.96%)	38 (20.21%)	188
14	Boys	5 (7.04%)	49 (69.01%)	14 (19.72%)	3 (4.23%)	71
	Girls	6 (6.45%)	64 (68.82%)	10 (10.75%)	13 (13.98%)	93
15	Boys	0	2	1	0	3
	Girls	0	0	0	0	0
Boy total		98 (7.53%)	746 (57.34%)	254 (19.52%)	203 (15.60%)	1,301
Girl total		80 (5.92%)	798 (59.07%)	252 (18.65%)	221 (16.36%)	1,351

Summary of the Study Population

The YANS study participants totaled 2,895. Several participants were omitted from the final analysis due to incomplete surveys, or concerns related to the total amount of time to complete the survey. The total number of data sets for this analysis was 2,664. Participants were almost equally distributed by gender and grade level. The study population was predominately Caucasian (75.4%). The average BMI for females and males were 20.03 and 20.49, respectively. While these are among the upper healthy weight parameters, it should be noted that there approximately 35 percent of the study participants are classified as overweight or obese. These data are of concern. They may be indicative of lifestyle related health issues in the immediate future.

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Nutrition Profile

Nutritional behaviors. Eating breakfast, lunch, and dinner are vital elements of a balanced caloric intake. This study provides data regarding the eating behaviors of the middle school study population. Data was collected regarding what youth ate, how often, where they ate, and the types of food/drink they ingested. Students were requested to report their nutrition intake for the previous week (five school days; two weekend days).

Options for breakfast meal. The options for eating breakfast were somewhat evenly distributed across five categories (ate hot food, ate cold food, ate quick food, did not eat, and other). The percentages shown in **Figure 4** illustrate the percentage of breakfast meal options in a week. A total of 17,793 meals for all participants (2,543 participants by seven days in a week) were reported. Study participants indicated that three major options for their breakfast meals included hot food (23.0%), cold food (25.2%), or quick food (18.7%). In addition, breakfast meal options were compared between female and male students. Results indicated that male students ate cold food as their breakfast meals more often than female students (**Figure 5**).

Figure 4: Distribution of Breakfast Options by Study Participants

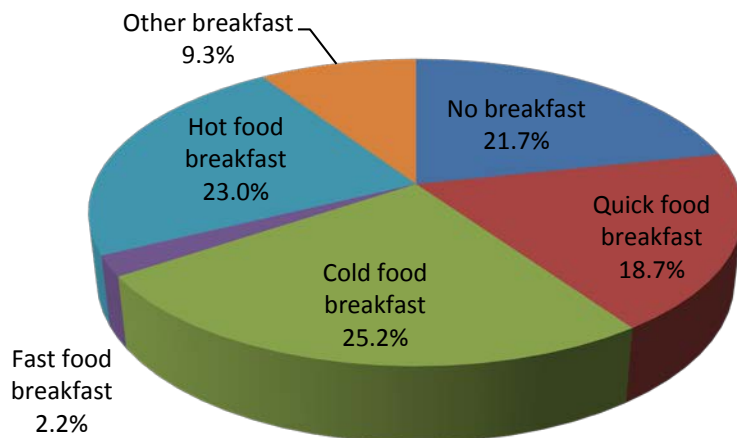
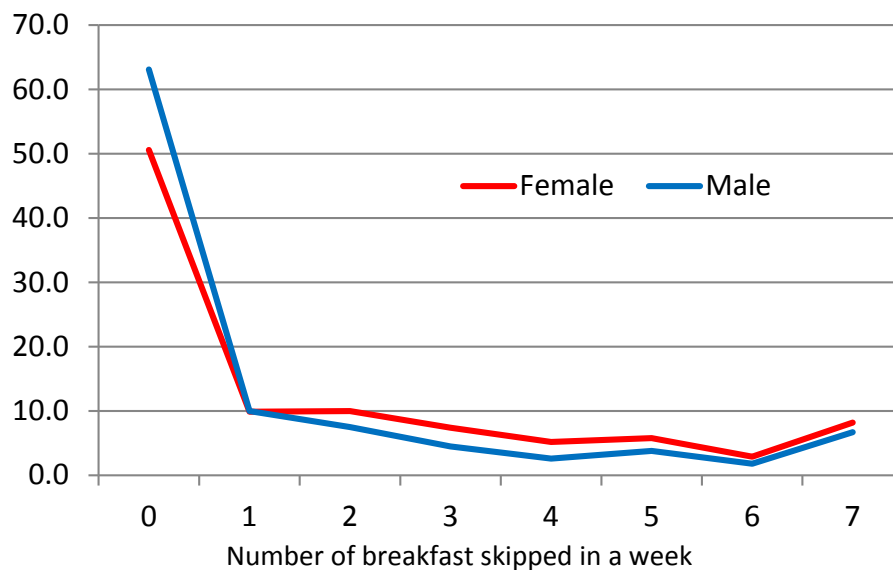
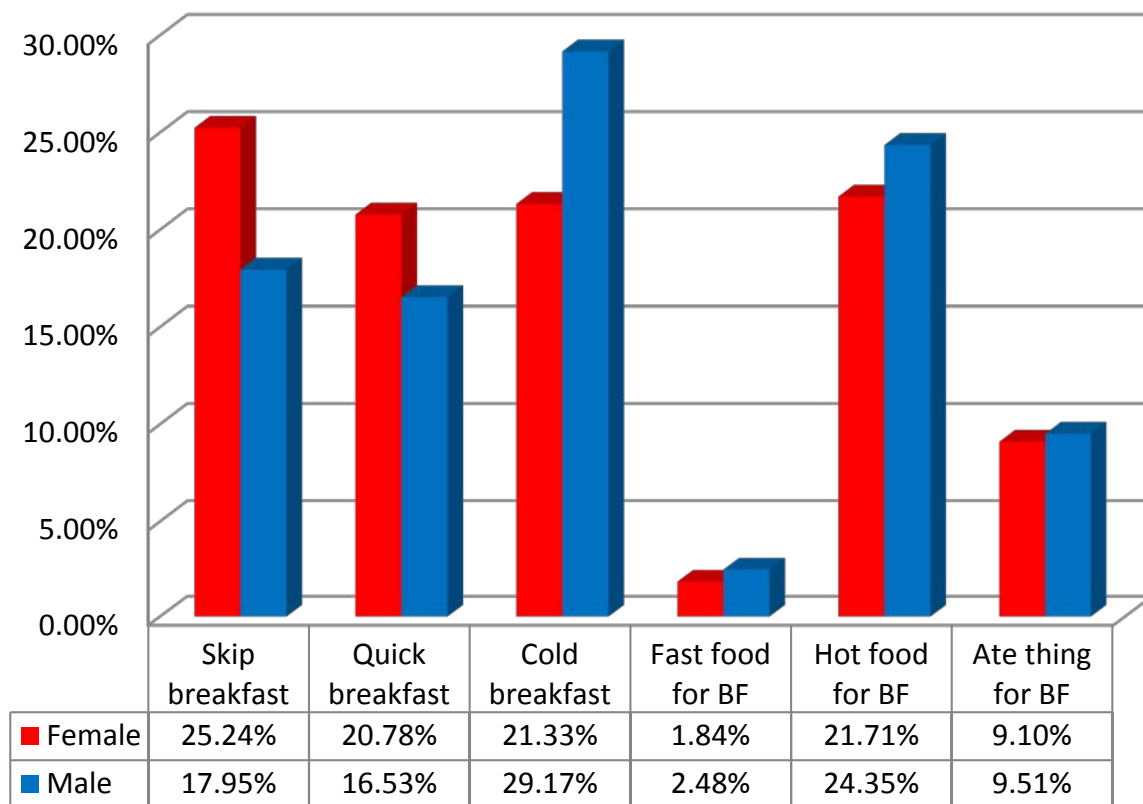


Figure 5: Comparison of Percentage of Female and Male Students Who Skipped Breakfast (Female =1297; Male=1246)



Breakfast meal options over seven days chosen by female and male study participants were also compared (a total of 9,076 meals for female participants and 8,717 meals for male participants). The results suggest that there was a similar pattern between males and females. It is important to note that over one-fifth of breakfast meals were skipped by study participants during the typical week. However, female students appeared to skip breakfast meals more than male participants (**Figure 6**). Finally, the participants were also asked to indicate place where they ate for breakfast. Results indicated that approximately 70 percent of students ate breakfast at home, while 3.4 percent of them ate at school (**Figure 7**).

Figure 6: Comparisons of Breakfast Options Chosen by Female and Male Students



(A total of 9,076 meals for female participants and 8,717 meals for male participants)

Options for lunch meal. The participants were asked to indicate their lunch habits in two questions – one related to the school week, and the following related to the weekend. Approximately 90 percent of the study participants ate lunch during the school week; 10.3% of the students skipped at least one lunch. In addition, the results of female and male students who skipped meals for lunch were compared. Basically, female students appeared to not eat meals for lunch more frequently than male students.

Table 6: Comparison of Female and Male Students' Breakfast Options

	Skipped	Quick foods	Cold foods	Hot foods	Other foods
Total	21.67%	18.70%	25.17%	23.00%	11.45%
Female	25.24%	20.78%	21.33%	21.71%	10.94%
Male	17.95%	16.53%	29.17%	24.35%	11.99%

Table 7 depicts lunch options that study participants ate during the school week. Approximately 26.2 percent of students ate lunch at school they brought from home; 60.4 percent ate lunch bought at the school; and 7.6 percent ate a free school lunch. The remaining 5.9 percent of students did not eat lunch, or ate at a location off the school grounds. It is important to note that 30.6 percent of female students brought their own lunch packed at their home compared to only 21.7 percent of male students.

Table 7: Lunch Meals Skipped Meals during the School Week (n=2,457; missing=207)

Number of lunch meals skipped	None	One	Two	Three	Four	Five
Total	89.7%	4.6%	2.0%	1.23%	0.7%	1.8%
Female	87.7%	5.3%	2.2%	2.0%	0.8%	2.0%
Male	91.8%	3.9%	1.7%	0.4%	0.5%	1.7%

Lunch options for weekends. Ninety-three percent (93%) of study participants typically ate lunch on weekend days (Saturday and Sunday) either at home or elsewhere. **Table 8** provides data on lunch behavior on weekends. During weekend days, approximately 63.9 percent of total lunch meals were consumed at the student's home. Another 28.8 percent of study participants ate elsewhere on the weekend days, while 7.4 percent did not eat lunch on weekend days.

Table 8: Comparison of Female and Male Lunch Options During School Days (n=2,502)

	Packed Lunch	School Lunch	Free School Lunch	Ate Elsewhere	Did Not Eat Lunch
Total	26.2%	60.4%	7.6%	1.5%	4.4%
Female	30.6%	55.4%	7.4%	1.3%	5.3%
Male	21.7%	65.5%	7.7%	1.6%	3.5%

Table 9: Comparison of Female and Male Lunch Options During Weekend Days (n=2457)

	Ate lunch at home	Ate lunch elsewhere	No lunch during weekend
Total	63.9%	28.8%	7.4%
Female	62.6%	29.8%	7.6%
Male	65.2%	27.7%	7.2%

Dinner options during a week. *Table 10* provides data depicting the number and percentage of dinners missed over a one week period. Nearly all study participants (91.2%) ate dinner over the course of a week. In addition, the number of meals for dinner skipped in a week was compared between female and male participants. Female students (10.7%) skipped dinner meals more often than male students (6.9%).

Table 10: Frequency of Skipping Dinner in A Week by Study Participants (n=2,410; Missing=254)

Number of dinners skipped	None	1 time	2 times	3 times	4 times	5 times	6 times	7 times
Total	91.2%	3.9%	2.1%	1.1%	.4%	.4%	.1%	.8%
Female	89.3%	4.7%	3.0%	1.3%	0.6%	0.4%	0.2%	0.6%
Male	93.1%	3.2%	1.2%	0.8%	0.3%	0.4%	0.0%	1.0%

Dinner meals of study participants over a week period of time were primarily “full” meals prepared at home. As indicated in *Table 9*, 67.98 percent of dinner meals over a one week period were a “full dinner.” Yet nearly a quarter of the dinner meals were either fast food (23.18%) or snacks from various sources (5.82%). Results suggest that study participants ate snacks or fast food two of the seven days during the week. There was no significant difference between female and male students.

Table 11: Type of Dinner Meal Consumed by Female and Male Students Over a Week

	Did not eat dinner	Snack as a dinner	Fast food as a dinner	Full dinner
Total	3.02%	5.82%	23.18%	67.98%
Female	3.42%	6.63%	22.56%	67.39%
Male	2.61%	4.99%	23.81%	68.59%

Consumption of Vegetables and Fruits

Study participants were asked how frequently they ate vegetables, fruits, and fast food over the course of a typical week. The data indicates that 48.49 percent of the participants ate vegetables more than four times a week. At the same time, about 8.53 percent of study participants did not eat any vegetables with meals during a one week period. When asked about their consumption of fruit over a one week period, approximately 37.24 percent of the survey participants ate fruit three or fewer times a week, while 29.97 percent ate fruit every day. Finally, results indicate that 22.62 percent of study participants ate fast food four or more times a week, while 9.57 percent did not eat fast food in a week. It is notable that 67.81 percent of participants ate fast food between one and three times a week (**Table 12**).

Table 12: Consumption of vegetables, fruits, and fast food by study participants

	Vegetables	Fruits	Fast Food
Never	8.53%	5.42%	9.57%
Once	11.47%	7.30%	26.44%
Twice	15.38%	11.71%	25.68%
Three times	16.13%	12.80%	15.69%
Four times	11.26%	12.85%	8.52%
Five times	10.46%	11.17%	6.67%
Six times	6.89%	8.77%	2.52%
Every day	19.87%	29.97%	4.91%
n (missing)	2,380 (284)	2,382 (282)	2,383 (281)

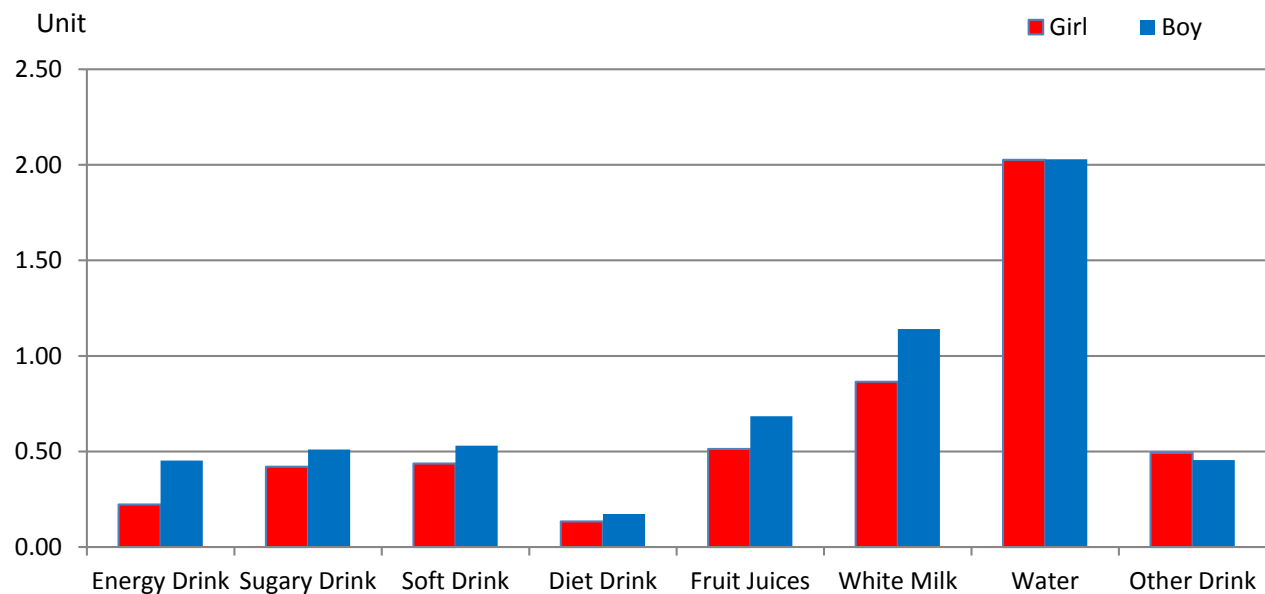
Beverage consumption. Study participants were asked to indicate the number of specific drink types they had the day prior to taking the survey. Over half of the study participants (58.44%) did not consume any soft drinks the previous day. About 68.01 percent of survey participants reported drinking water three or more times the previous day. In addition, 26.95 percent of survey participants reported drinking at least one energy drink; 37.82 percent indicated that they drank at least one sugary drink, and another 44.16 percent reported that they drank at least one fruit juice drink the previous day (**Table 13**).

Table 13: The Number of Drinks Consumed by Study Participants in a Day

Types of Drinks	0	1-2	3-4	5+	n (missing)
Energy Drink	73.05%	21.76%	3.72%	1.48%	2,367 (297)
Sugary Drink	62.18%	30.99%	5.02%	1.81%	2,372 (292)
Soft Drink	58.44%	36.67%	3.03%	1.85%	2,375 (289)
Diet Soft Drink	87.02%	11.33%	0.97%	0.68%	2,365 (299)
Fruit Juices	55.84%	32.57%	7.63%	3.96%	2,373 (291)
White Milk	34.58%	40.48%	15.21%	9.73%	2,374 (290)
Water	4.12%	27.86%	29.12%	38.89%	2,376 (288)
Other Drink	65.11%	25.62%	6.03%	3.24%	2,373 (291)

In addition, the average number of drink types consumed by female and male participants were computed and compared. Results indicate that there was no significant difference between two groups in terms of the number of all drink types consumed by female and male participants. In general, male participants appeared to consume more drinks than female participants such as soft drinks, diet drinks, energy drinks, sugary drinks, and fruit juices (**Figure 7**). Importantly, both female and male students appear to drink an adequate amount of water (approximately 3-4 bottles or glasses of water a day) on average.

Figure 7: The Amount of Drinks Consumed by Gender



Note: The value of y axes corresponds to the number of drinks consumed (0: No drink; 1: 1-2 drinks; 2: 3-4 drinks; and 3: 5 or more drinks)

Summary of Nutrition Behavior

Study participants were asked to provide information about their nutrition intake for breakfast, lunch, and dinner. In addition, they were requested to identify the amount of vegetables, fruits, and fast food they ate during the previous week. Additional information was collected regarding the location of their meals (breakfast, lunch, and dinner). It appears that 56.7 percent study participants ate breakfast daily, 89.7 percent ate lunch regularly during the school week and 92.6 percent during the weekend, and 91.2 percent ate dinner each day in a typical week. It is also important to note that nearly one-quarter (24.6%) of study participants skipped breakfast frequently (three or more times) or did not eat breakfast. Most students ate lunch at school (95.6%), while more than a half (10.4%) of those ate a lunch brought from home; only 7.6 percent reported that they ate a free lunch provided by the school. It is notable that 10.3 percent of the students skipped at least one lunch. Nine out of ten study participants ate a certain type of dinner meal, but nearly a third (29.0%) ate a dinner consisting of fast food or snack foods.

In terms of eating vegetables and fruits during a typical week, results indicate that 48.5 percent of study participants ate vegetables more than four times a week. Approximately 37.2 percent of survey participants ate fruit less than three times a week, while 30 percent ate fruit every day. Slightly more than two-thirds (67.8%) of study participants reported that the day before taking the survey, they had consumed three or more servings of water. As with drinking water, 37.8 percent of the youth reported having at least one sugary drink during the previous day. It appears that energy and sugary drinks are a significant percentage of study participants' daily consumption.

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After School Profile

Participation in After-School Activities

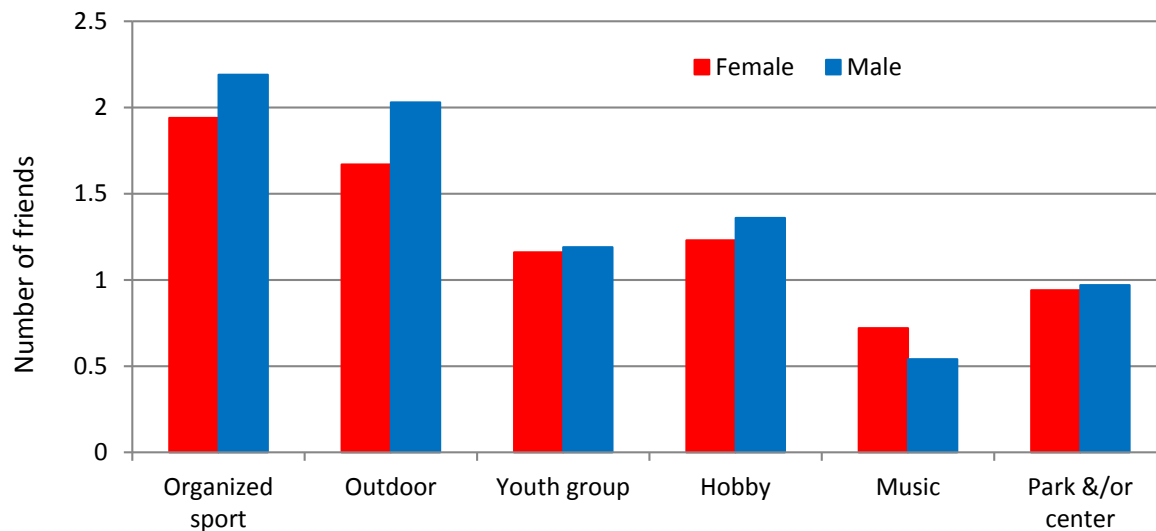
Most of study participants engage in some type of after-school activity, although 6.8 percent of them did not engage in any type of activity. Approximately 64.61 percent of the survey population indicated that they had participated in more than one after-school activity in a week (**Table 12**). The average numbers of activities that study participants engaged in were 1.98 (Mode=2.0). More specifically, male students ($X=2.00$; $SD=1.07$) participated in a higher number of activities than female students ($X=1.95$; 1.07). Results also indicated that male students appeared to prefer physical activities (organized and outdoor activities) to social activities (youth activity, park and recreation department offerings, etc.), while female students seemed to prefer the opposite.

Table 14: Type of After-School Activity in Which Study Participants Engaged Per Week (n=2,323)

	Organized Physical Activity	Outdoor Activity	Youth Group Activity	Park & Rec Center	One Or More Activities
Total	65.65%	68.83%	29.49%	33.88%	1,501 (64.61%)
Female	64.01%	65.70%	31.15%	34.55%	743 (63.07%)
Male	67.34%	72.05%	27.77%	33.19%	758 (66.20%)

Study participants were asked to identify the typical number of friends who participated with them in their activities. As shown in **Table 13**, the average number of friends of those participating in organized sport activities was 2.06 persons. Those students who reported hanging out at parks and recreation centers and participating in a music activity indicated that they did so with two fewer friends in the group ($X_{\text{Music}}= 0.63$; $X_{\text{Park\&Rec}}= 0.95$). There was no significant difference between female and male students in the pattern for the number of friends in each activity. Both female and male students have more friends in organized and outdoor activities than other types of activities (**Figure 8**).

Figure 8: The Average Number of Friends Participating in After-School Activities



Note: The results of this analysis may be skewed by the “organized sport” option as a significant number of respondents chose the last choice option (four friends or more).

Table 15: Average Number (SD) of Friends Participating (Female = 1,126; Male = 1,089)

	Female	Male	Total
Organized sports	1.94 (1.87)	2.19 (1.85)	2.06 (1.86)
Outdoor	1.67 (1.54)	2.03 (1.62)	1.85 (1.59)
Youth group	1.16 (1.72)	1.19 (1.74)	1.18 (1.73)
Hobby	1.23 (1.52)	1.36 (1.57)	1.29 (1.55)
Music	0.72 (1.33)	0.54 (1.25)	0.63 (1.29)
Park and/or Center	0.94 (1.41)	0.97 (1.50)	0.95 (1.45)

Of importance is the average number of minutes spent by study participants for each after-school activity in a typical week. Study participants reported highest number of minutes in organized sport activity (Mean=118.8 minutes) and hobby activities. The lowest number of hours spent in out of school activities included outdoor activities, organized sports, and hobbies. Interestingly, study participants spent less than one hour hanging out at parks and recreation centers or in other organized youth group activities (**Table 16**).

Table 16: Average Minutes Spent In After-School Activities (Female = 1,183; Male = 1,152)

	Organized Sports	Outdoor	Youth Group	Hobby	Music	Park and Center
Female	118.8 (116.4)	120.6 (99.0)	46.8 (75.6)	129.6 (106.2)	86.4 (101.4)	50.4 (76.8)
Male	131.4 (114.6)	156.0 (111.0)	48.6 (80.4)	135.0 (111.0)	51.6 (87.0)	51.6 (84.6)
Total	124.8 (115.8)	138.0 (106.8)	47.4 (78.0)	132.0 (108.6)	69.0 (96.0)	51.0 (80.4)

() = SD in minutes

Note: The results of this analysis may not be accurate since there were a number of missing values as well as a significant number of participants chose the last choice option (five hours and more).

Participants were asked to rank the reasons they chose to participate in activities listed in **Table 16**. Data collected from study participants were transformed to calculate averaged weighted ranks for each reason by applying a simple mathematical function (6-selected rankings). Second, the weighted points were awarded to each transformed datum (i.e., Rank 1=5 points; Rank 3=3 point; and Rank 5=1 point). Third, the weighted scores for each reason were summed, and divided by the number of responses to calculate average scores. Results indicated that “having fun” was the most important reason, while the influence of parent/s was not critical when compared to other reasons. However, the least critical reason (parental influence) would still remain as important, since its “average weighted rank” was still relatively high. In addition, these rankings, as rated by female and male students, were separated analyzed and compared. Results indicate that the rank orders between female and male were similar, but male students appear to place more weight on having fun and friendship, while female students emphasized having fun and learning skills related to the activity. **Table 17** provides the ranking average for factors that influence their activity participation by gender.

Table 17: Weighted Ranks of Influence on Out-Of-School Activity Participation

	Friends	Skills	Fun	Stress	Parents
Total	3.22 (2)	3.17 (3)	3.36 (1)	2.73 (4)	2.53 (5)
Female	3.20 (3)	3.22 (2)	3.41 (1)	2.67 (4)	2.50 (5)
Male	3.23 (2)	3.11 (3)	3.30 (1)	2.79 (4)	2.57 (5)

() Rankings

Note: The higher the weighted ranking, the stronger the influence.

An extended analysis has been conducted in order to compare the ranks of reasons to participate in out-of-school activities rated by three school grade levels. Results indicated that having fun was still the most critical reason at all grade levels, but parental influence was considered an important reason as they increased in grade level (**Table 18**).

Table 18: Weighted Ranks of Influence on Out-Of-School Activity Participation by Grade

	Friends	Skills	Fun	Stress	Parents
6 th	3.26 (2)	3.15 (3)	3.38 (1)	2.75 (4)	2.46 (5)
7 th	3.17 (3)	3.22 (2)	3.29 (1)	2.67 (4)	2.66 (5)
8 th	3.21 (2)	3.14 (3)	3.40 (1)	2.76 (4)	2.49 (5)

() = Rankings

Note: The higher the weighted ranking, the stronger the influence.

In addition to being influenced to participate in activities, study participants appear to be influenced to avoid or not participate in activities. Study participants were asked to rank reasons they did not participate in activities. Study participants indicated that they were primarily “too busy” to engage in activities, or “had no interest” in the available activity options. It appears that lack of parental support and having required skills were not critical factors shaping their intent to participate in after-school activities. The results of an analysis by gender (males and females) were not different (**Table 19**). In addition, the ranks for these reasons were examined by the grade levels (6th, 7th, and 8th grades) were analyzed. Results of three grade levels were not significantly different from each other. Yet it is important to note that the most critical reason (no interest) for 8th grade students was “no interest” to participate in activities (**Table 20**).

Table 19: Reasons for Not Participating in Out-Of-School Activities

	Am Not Allowed	Too Busy	No Interest	Social Reasons	No Skills
Total	2.74 (4)	3.35 (1)	3.28 (2)	3.05 (3)	2.59 (5)
Female	2.73 (4)	3.38 (1)	3.30 (2)	3.04 (3)	2.56 (5)
Male	2.75 (4)	3.31 (1)	3.27 (2)	3.06 (3)	2.62 (5)

() = Rankings

Note: The smaller the ranking, the stronger the influence.

Table 20: Reasons for Not Participating in Out-Of-School Activities Rated by Grade Level

Grade Level	Am not allowed	Too busy	No interest	Social reasons	No skills
6th	2.74 (4)	3.38 (1)	3.24 (2)	3.07 (3)	2.56 (5)
7th	2.76 (4)	3.32 (1)	3.23 (2)	3.08 (3)	2.62 (5)
8th	2.72 (4)	3.33 (2)	3.37 (1)	3.00 (3)	2.59 (5)

() = Rankings

Note: The smaller the ranking, the stronger the influence.

Students were asked to indicate the number of hours they spent in each of the broad activity categories listed in **Table 21**. Data collected from study participants were converted to minutes after calculating the average hours of which they engaged in activities. Students reported engaging in academic work for 150.0 minutes on average each day during weekdays, and 95.4 minutes during the weekend. Study participants also indicated that, on average, they played video games for over an hour a day both during the weekdays and weekend. Students also reported spending time connecting with social media for 133.8 minutes during week days and 157.2 minutes during the weekend. It is important to note that there were significant mean differences between female and male students. Female students reported that they engaged in academic work and social media about 30 and 45 minutes more than male students both during week days and weekend days (**Table 21**).

Table 21: Average Hours Spent During Week Days and Weekends

		Academic Work	Watching TV	Playing Video Game	Doing Social Media
Weekdays	Total	150.0	123.6	72.6	133.8
	Female	163.8	128.4	41.4	157.2
	Male	135.6	118.2	104.4	110.4
Weekend Days	Total	95.4	150.0	98.4	151.2
	Female	109.8	156.0	57.0	175.8
	Male	81.0	144.0	140.4	125.4

The number of hours spent in each of the activity categories by the three grade levels was also analyzed. The results indicate that all grade levels watched TV for two or more hours each day (ranges from 144.6 to 157.8 minutes) during weekdays, and about 90 minutes during weekend days (ranges from 89.4 to 98.4 minutes). In addition, all three groups played video games over 70 minutes during weekdays and over 95 minutes during weekend days. Interestingly, the number of hours connected to social media appeared to increase consistently by grade level (*Table 22*).

Table 22: Hours Spent After School during Week Days and Weekends by Grade Level

		Academic Work	Watching TV	Playing Video Game	Doing Social Media
Weekdays	6 th	144.6	118.2	72	111.6
	7 th	146.4	127.8	75.6	133.2
	8 th	157.8	124.8	70.2	156
Weekend Days	6 th	98.4	142.8	102.6	127.8
	7 th	89.4	154.8	95.4	147.6
	8 th	98.4	153.0	96.0	176.4

Study participants were asked to choose one specific type of after-school activity in which they preferred to participate, such as: 1) organized physical activities, 2) outdoor activities, 3) youth group activities, and 4) other. The largest percentage of students (41.3%) reported that they preferred organized physical activities. This may reflect the high level of organized sport options offered in the community. The second preferred type was outdoor activities (22%). Only 11.8 percent of students indicated “Other activities” including music, martial arts, electronic games, hanging out with their friends, etc. (**Table 23**).

Table 23: Preferred After-School Activities (n=2,664)

	Number (%)
Organized Physical Activities	1,101 (41.3%)
Outdoor Activities	585 (22.0%)
Youth Group Activities	207 (7.3%)
Other Activities	315 (11.8%)
Missing	456 (17.1%)

To identify reasons for participating in the selected activities, students were asked to indicate the level of importance for participating in the chosen activity, including social engagement (4 items), skill development (3 items), intrinsic motivation (3 items), reducing stress (3 items), and adult expectations (1 item). These 14 items and the calculated Cronbach’s alphas for each construct are provided in **Table 24**. Results indicate that “Intrinsic motivation” was the most important factor while “social engagement” and “adult expectations” were not important reasons for participating in an activity. Interestingly, female and male study participants were similar in the type of factor influencing their decision to participate in an activity (**Figure 9**).

Table 24: Cronbach's Alphas for Each Construct and Corresponding Question Items

Construct	Cronbach's alpha	Question items
Social Engagement	.66	I can meet new people
		I can hang out with my friends
		My friends want me to participate
		I like being with other people who share my interests
Skill Development	.85	I want to improve my skills
		I want to learn something new
		I can develop new skills
Intrinsic Motivation	.81	The activities are exciting
		I am happiest when doing the activity
		The activities are fun
Reducing Stress	.77	The activity is a good break from school and other responsibilities
		This activity helps reduce my stress
		The activity helps me relax me
Adult Expect	N/A	My parents/guardian really encouraged me to participate

Figure 9: Importance of Reasons for Participating in an Activity by Gender

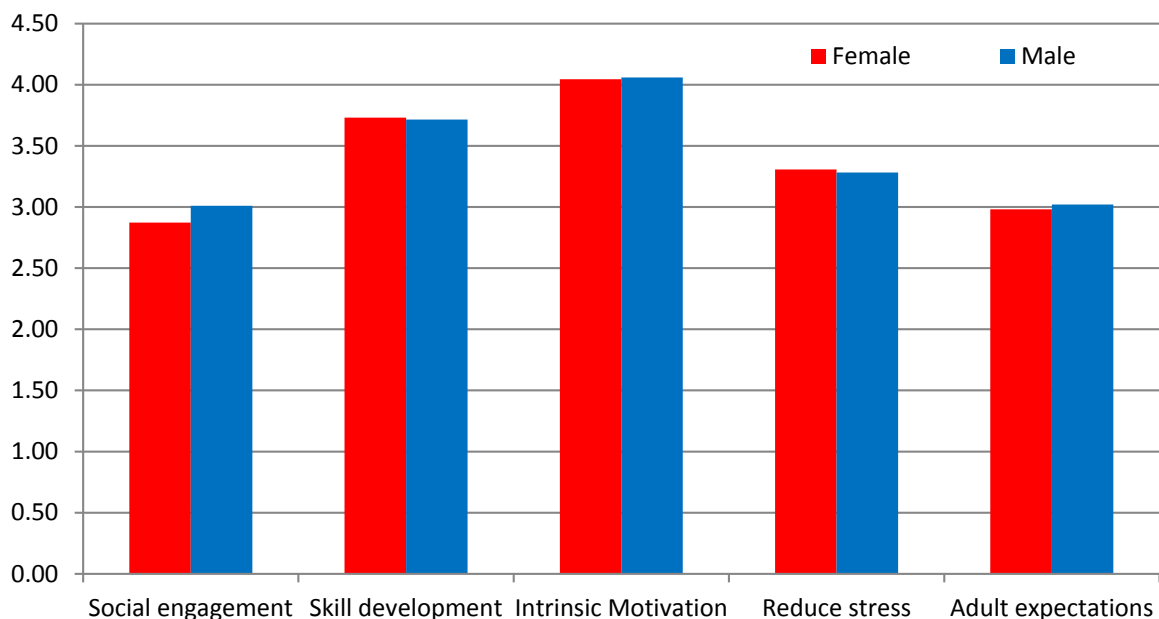


Table 25: The Average Values of Reasons for Participating in After-School Activities

Construct	Total	Female	Male
Intrinsic Motivation	4.05 (0.95)	4.05 (0.97)	4.06 (0.93)
Skill Development	3.72 (1.15)	3.73 (1.19)	3.72 (1.10)
Reduce Stress	3.30 (1.14)	3.31 (1.16)	3.28 (1.12)
Social Engagement	2.94 (0.90)	2.87 (0.90)	3.01 (0.91)
Adult Expectations	3.00 (1.39)	2.98 (1.39)	3.02 (1.38)

() = Standard Deviation

Students were asked to indicate their participation in the 17 types of activities listed by reporting their ages when they participated in each activity. The number of activities in which students participated at each age (3-15 years old) was examined in order to observe their trends. As indicated in **Figure 10**, a significant number of activities participated by study students apparently decreased by the age of 12 years old. In addition, the number of students who participated in at least one of 17 sports activities was added at each age (3-15 years old). For example, at the age of three years old, about 1,300 out of 2,377 study students participated in at least one of 17 sports activities. **Figure 11** indicates that a significant number of students apparently stop participating in sports activities when they reach 12 years of age.

Figure 10: Total Number of Sport Activities by Age of Student's Participation

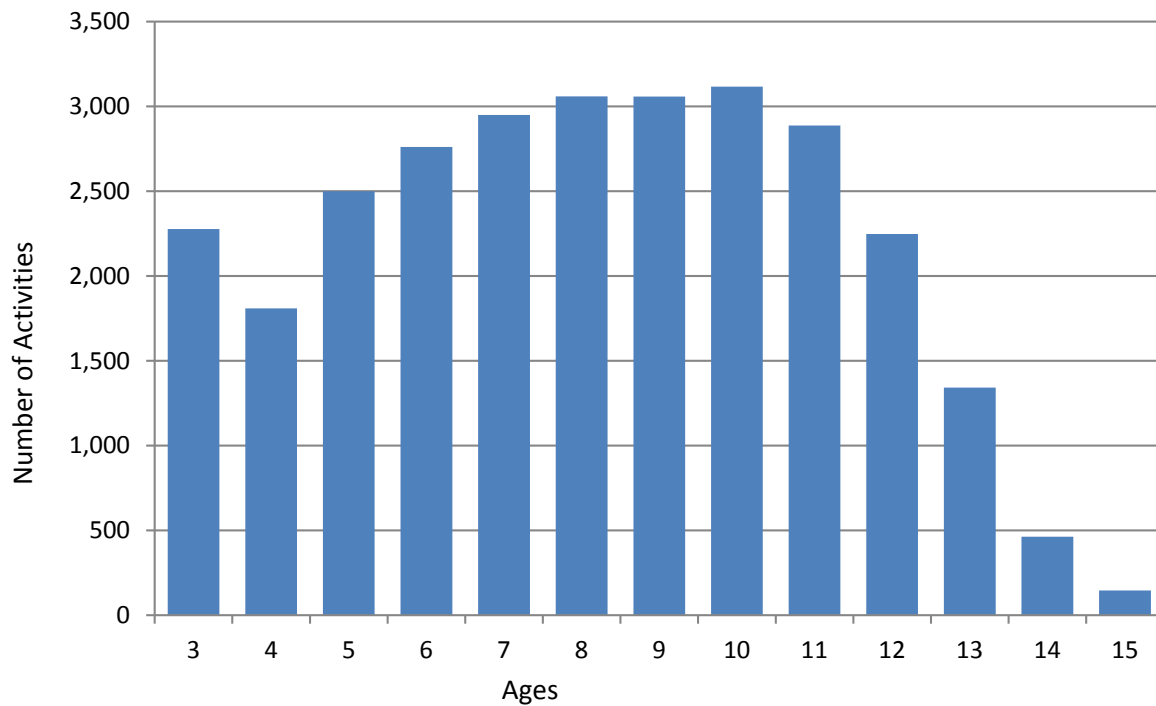
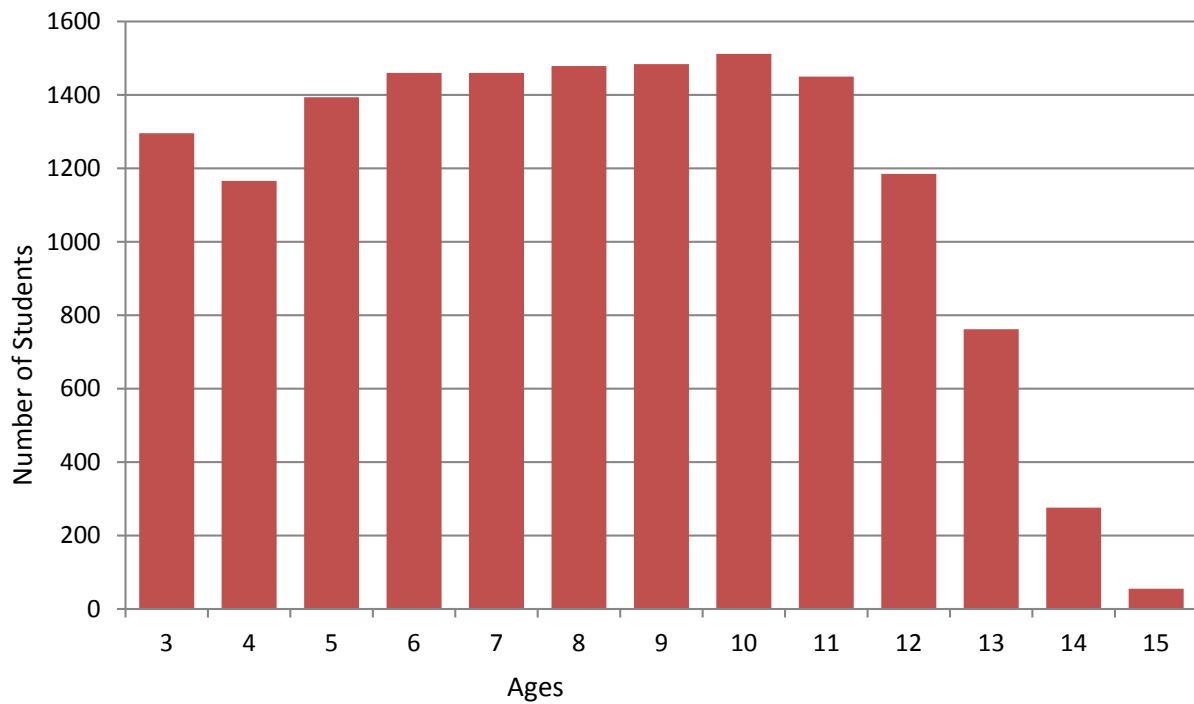


Figure 11: Number of Study Participants in Sports by age at Participation (n=2,377)



Participation in sport activities by type. Study respondents were asked to report their participation in various sport activities. A wide variety of sport activities were provide including those primarily directed at males and females As anticipated, more than half of students had participated in three major sports (e.g.) soccer, baseball (softball), and basketball. On the other hand, a significant percentage of youth indicated that they had no experience with hockey,

While the number of “friends” is highest among those in organized sports, there is concern over the lack of involvement in optional, non-consequential after school activities.

wrestling, lacrosse, tennis, golf, and track/cross country. As expected, there were significant differences in sport activities of which female and male students had participated. The percentages of students who had experience in selected sport activities were calculated separately by gender. Female students had participated in such sport activities as cheerleading, swimming, and dance. On the other hand, a higher percentage of male students had participated in such sport activities as baseball, basketball, football, and flag football. It is clear that there are obvious gender based opportunities offered to the students (**Table 26**).

Table 26: Percentage of Students Who Participated in Selected Sports by Gender

(Female = 1,356; Male =1,308)

	Sport (Major)	Soccer	Baseball (softball)	Basketball	Football	Flag football	Volleyball	Tennis	Golf	Hockey
Total	% of students	58.69%	55.47%	53.38%	27.36%	29.56%	21.68%	17.34%	16.88%	3.98%
	Missing	524	524	519	537	550	570	571	567	581
Femal	% of students	66.99%	41.66%	42.21%	5.02%	7.25%	22.36%	19.04%	13.21%	2.70%
	Missing	317	271	271	281	280	332	332	281	282
Male	% of students	50.86%	69.67%	64.81%	50.19%	52.70%	21.03%	15.72%	20.74%	5.35%
	Missing	175	253	248	256	270	238	239	286	299

	Sport (Minor)	Cheer Leading	Swimming	Wrestling	Lacrosse	Track Cross Country	Martial arts	Dance	Fitness
Total	% of students	22.48%	43.59%	9.21%	3.66%	18.35%	21.74%	35.69%	24.81%
	Missing	547	535	569	642	571	562	557	564
Femal	% of students	40.89%	45.54%	6.63%	2.86%	17.89%	19.67%	63.49%	24.81%
	Missing	258	324	331	307	333	334	263	276
Male	% of students	2.65%	41.75%	11.68%	4.52%	18.79%	23.70%	5.72%	24.80%
	Missing	289	211	238	335	238	228	294	288

Summary of After School Activity Engagement

Overall, the study participants appear to be quite engaged in activities provided in the local area. While greater than 66 percent participate in one or more activity, most chose traditional offerings such as sports (68%), and outdoor based activities (65%). Only seven percent of the study participants reported doing nothing. It appears that having friends who enroll and engage in these activities with the individual is a key factor in a young person's engagement after-school. Study participants indicated that they had approximately two friends participating with them in organized sports and outdoor activities.

In terms of what influences these youth to participate in after-school activities, "fun" was the most important reason followed by "skill development" and "stress reducing." This result corresponded with that of the expanded questionnaire which measured similar constructs. Results indicate that "intrinsic motivation" was the most critical factor to participate in extracurricular activities. In addition, two most critical reasons that study participants decided not to participate in an after-school activity were "too busy" and "no interest" in the available activities. Study participants spent significant amount of minutes watching TV and connected to social media during week days and weekend days. It also appears that a significant number of students stop participating in team and individual sport activities when they are 12 years old.

Parent/Guardian Role in Youth Participation

Finally, students were asked to indicate various factors related to healthy behaviors of their parents/guardians. Because it was hypothesized that parents' behavior significantly influences their child's healthy behaviors, study participants were asked to share views of parental influence on their decisions to engage in after-school activities. Four categories of influence were explored including: 1) physical activity support, 2) parent engagement in physical activities, 3) parent surveillance, and 4) parent dietary habits. The ranges of reliability coefficients measured from the pilot test were from .79 to .83 (**Table 25**).

Table 27: Inter-Item Reliability Coefficients of Four Constructs Asking Healthy Behaviors of Study Participants' Parents /Guardians.

Construct	Reliability coefficient (alpha)	Items
Parent surveillance	.83	They set limits on the amount of time I can be on the computer, video games, and/or watch TV
		They pay attention to or keep track of what I eat and drink
		They monitor and keep track of my physical activities when I am out of school
		They control how many snack and junk foods we have in the house
Physical activity support	.80	They encourage me to participate in physical activities when I am not in school
		They ask me about what activities I have done and how much time I spent doing them
		They encourage me play outside and be active
		They are willing to pay for me to be in physical activities
Parent engagement in physical activities	.79	They like to do physical activities with me when I am not in school
		They exercise 3 or more times a week on a regular basis
Parent dietary habits	.80	They tend to drink mostly water with meals (rather than soft drinks or wine, etc.)
		They have a nutrition plan that we all follow
		They prepare homemade meals rather than pre-packaged or frozen meals

Results indicate that parents/guardians of the study participants appeared to manage their children's health related behaviors such as supporting physical activity (mean=3.93), monitor their health related behaviors (mean=3.40), and engage in healthy dietary habits (mean=3.40). However, parents/guardians of study participants appear to not be fully engaged in physical activities themselves (mean=3.26) (**Table 28**).

Table 28: Parent/Guardian Support for Student Engagement in Out-of-School Activities

	n	Mean	SD
Parent surveillance	2058	3.40	0.99
Physical activity support	2068	3.93	0.86
Parent engagement in physical activities	1999	3.26	1.18
Parent dietary habits	2056	3.40	0.95

Note: The mean indicates the level of perceived type of support by parents. A five-point scale was used with 1 = least amount of support and 5 = most amount of support.

Summary of Findings

The results of the YANS (1.1) survey in Liberty appear to provide a clearer picture of the physical activity patterns, nutritional choices for meals throughout the week, and the role of social interaction as they pertain to the ongoing issues among middle school students.

Please note that this YANS report is just one tool provided for Liberty in the overall HCRG Surveillance and Management Toolkit (SMT) context.

Additional tools include analysis of:

- Available built and natural assets
- Options for transportation
- Safety and security
- Affordances and programs
- Providers of activities
- Policies and public funding for youth
- The role of Liberty Parks and Recreation Department as preventative health provider

Please contact GP RED or Liberty L-CHAT members for additional information and reports.

The following observations are offered to Liberty Middle School personnel and the Liberty Community Health Action Team (L-CHAT) to assist in meeting goals established for improving the health and well-being of Liberty youth.

- a) **BMI.** On average, students (male & female) at all three grade levels have mean and median BMI scores that are considered by the CDCP to be in the high “healthy weight and borderline “overweight” categories. These findings are a cause for concern. It should be noted that as a student is elevated to the next grade level, their BMI score tends to increase. While these trends may be naturally occurring occurrence, it is difficult to know if the increases in weight are associated with other factors. The primary contributing factors to this trend are undetermined but should be a priority for school personnel, public health officials, and the LCHAT members.
- b) **Nutrition regimen.** The nutritional regimen of students (male & female) at all three grade levels is in need of more attention by school officials and parents/guardians. The number of meals skipped, those consumed at fast food outlets, as well as the low consumption of fresh fruits and vegetables are of concern. While there is a good amount of water and milk consumed, it appears to be offset by the number of sodas, energy drinks, juices, etc. that are high in undesirable ingredients.
- c) **Physical activity.** The physical activity behavior of students appears to be tied to organized sports activities. Yet many of the students who appear to be involved may also belong to the same cohort that drops out of programs early. This situation is not just local, but national in scope. The study participants also appear to be deeply immersed in sedentary and solitary behaviors via electronic media (e.g.) TV, video games, tablets, etc.
- d) **Media vs academics.** Apparently only about a third of time available on week days and weekends is spent pursuing academic subjects. The choices for active engagement preferred by students appear to revolve around “being with friends” and “having fun.” Add to these activities where “skill development,” “intrinsic motivation,” “reducing stress,” and “social engagement” as core elements, and these may form the basis to engage students in meaningful activities after school.

- e) **Social dynamics.** From the current data, it appears that there is a need to further examine the social relationships among middle school students. The students who are in organized sports and outdoor activities report having more friends than those in other after school activities. Developing and sustaining social networks is critical to youth in these formative years. Social inclusion over the teen years is essential, not optional. It is incumbent upon all agencies serving youth to examine the social culture and ensure a sense of belonging, self-worth, and social capital.
- f) **Inhibitors to being active.** There are few students who walk or bicycle to and from schools. In addition, one might surmise that from the high percentage who are delivered to school by vehicles, the middle school population is not encouraged to be physically active. The Year One GP RED report cited a number of issues related to walking, bicycling, and other forms of connectivity due to major obstacles (e.g. main thoroughfares, bus routes, etc.). In addition, there appear to be a high percentage of students (male & female) who are engaged in organized sports, yet national data suggests that many of these drop out by the time they are 12-to-15 years of age. What activity alternatives are available to capture the interest, engagement, and deep immersion of youth who choose not to be active in competitive sports?

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Study Challenges and Limitations

There were several challenges in this study which should be considered in future administration of the YANS instrument. First, the process of maintaining anonymity for the student remains inviolate, yet may lead to issues related to the student self-reporting of their height and weight without verification from a school official. Second, the use of school located computing laboratories is helpful, but it varies by school site as to its location, number and type of computers, staff oversight, etc. Third, the inclusion of students with special needs who may not be able to comprehend survey questions is of concern. According to Liberty School staff, there were several special needs students in this pool. Fourth, a number of students finished the survey in few minutes, and some data was missing that would have added to the quality of the data set.

In addition, there were some limitations inherent in this study. A considerable number of student responses were deleted from the analysis, as it appears that they hastily went through the survey instrument. This appears to be an issue that should be addressed in the software design, computer laboratory supervision, and instructional materials provide to students.

Optimally, student height and weight data would be gathered by the school nurse and/or a student's personal/family physician. This data could conceivably be coded to protect the anonymity and confidentiality of the student, while being included in similar studies. The challenge of ensuring that the data is not compromised is of clear concern. In this study, while measures of height and weight were conducted by school personnel, they were placed on an index card and handed to the student. The student was asked to enter the data directly into the computer on the YANS electronic survey. In this manner, it is conceivable that there may be errors in the entry of data. While it is likely that a student would record the exact data, it is also possible that height and/or weight might be modified during entry. It seems unlikely that students would reduce their height, or increase their weight. The opposite might be more

probable. The bottom line is that the data in YANS appear to be the best estimate of height and weight the survey team could expect without compromising the students' anonymity and confidentiality.

Recommendations for Future Actions

1. The YANS survey should be administered again in the near term to determine if there are changes or emerging trends. Comparative analysis with the October 2014 data would provide the beginnings of a longitudinal study of factors influencing the healthy weight issue in middle school youth in Liberty. This may also be compared with findings from YANS reports conducted by GP RED in other communities in 2015 and beyond.
2. The use of focus groups to gain input directly from youth should be organized to hear their concerns and suggestions for addressing the issue of obesity. Further, they should be encouraged to identify factors that serve as inhibitors or barriers to an active lifestyle, healthy weight, and positive nutritional regimen. These focus groups should include a variety of students to ensure that the voices of the active, inactive, girls/boys, etc. are heard. A report of these group meetings should be prepared and shared with the school district, as well as the LCHAT to use in strategic planning.
3. A study of middle school student use of public recreation and park program services may assist in understanding what factors lead them to drop out of organized sports programs. Further, the study should examine strategies for competing with electronic “face time” at home after school.
4. The nutrition regimen of middle school students appears to be less than optimal. In order to increase the type and quality of food intake during the course of the week, and on weekends, it is recommended that the Liberty Schools, in cooperation with the Parent Teachers Association (PTA), nutritionists and health care workers, and middle school student leaders be engaged in a campaign to address: a) quality of food intake; b) reduction of “missed meals; c) replacement of “fast food” with “fresh food.”
5. Develop and sustain a community campaign to address the obesity issue head on. This campaign should be aimed at the entire community, and most importantly, should enlist student leaders from all levels to work in collaboration with Liberty Schools, Liberty Parks and Recreation, and L-CHAT to shed pounds, increase physical capacities, and cement social bonds across the community.

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Appendix A – Survey Instrument

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LIBERTY MIDDLE SCHOOLS OUT-OF-SCHOOL ACTIVITY SURVEY



Intro

Thank you for filling out this survey. It should take only 15 minutes or so to complete and will help us to learn more about young people and the activities they participate in when not in school. While all the questions are voluntary, we will get the most useful information if you answer all the questions. Be assured that when you hit SUBMIT at the end of the survey, all your answers are totally anonymous. The data are saved in a computer in North Carolina and only the researchers will be able to see the scores. You, your parents, teachers, and friends (and even the researchers) will not know who answered any of the questions. That is why we are not asking for your name or any other identifying information.

Once we have all the data, we will analyze all the answers and then write reports based on ALL the scores--not just yours. So, your honest answers are needed. Please be thoughtful and answer each question to the best of your knowledge. There are no right or wrong answers... everyone has their own levels of participation, eating habits, and family.

If you have any questions, be sure to ask your teacher or other adult who is in the room with you. They can help if you don't understand a word or question.

Ready? Click **NEXT** to get started with the survey -- and, thank you again!

Part I Demographics

PART I. First, we want to know a little bit about you...

We are comparing height and weight to the rest of the questions on this survey... you were recently measured so you should know how tall you are... We know this is personal information, so please remember that NO ONE can see your answers, and when you hit SUBMIT at the end of the survey your answers will go into a spreadsheet and no one can track who you are.

FIRST, tell us how many feet tall you are (we'll ask about the inches in the next question).

3 feet

☐

4 feet

☐

5 feet

☐

6 feet

☐

And now, tell us how many inches you are in addition to the feet you just marked in the previous question. So, if you are 4 feet 5 inches tall, you would have marked 4 feet in the previous question and now you will choose 5 inches from this list. If you are 4 feet, 5 and one half inches, just round up -- you will be 4 feet, 6 inches.

0
inches☐1
inch☐2
inches☐3
inches☐4
inches☐5
inches☐6
inches☐7
inches☐8
inches☐9
inches☐10
inches☐11
inches☐

Just like height, we would like to know how much you weigh... Again, we know this is personal information, so remember that NO ONE can see your answers, and when you hit SUBMIT at the end of the survey your answers will go into a spreadsheet and no one can track who you are.

So, please write in the number of pounds you weigh (the number should be something like 68 or 82 or 105...--no letters)

What is your zip code?

☐ 64024☐ 64080☐ 64116☐ 64151☐ 64060☐ 64081☐ 64118☐ 64156☐ 64068☐ 64089☐ 64119☐ 64157☐ 64072☐ 64106☐ 64150☐ 64158

How do you usually get to school?

- ☐ I walk to school on most days
- ☐ I ride my bike to school on most days
- ☐ Someone drives me to school on most days
- ☐ I ride the bus to school on most days

Are you a ...

- ☐ Girl
- ☐ Boy

These next two items are drop down boxes. So, click on the arrow and then choose the year you were born for the first question and the month you were born for the second question. **Please choose an answer for each item -- year and month.**

When were you born?

Year

Month

What grade are you in?

- ☐ 6th
- ☐ 7th
- ☐ 8th

How would you describe your racial/ethnic background?

- ☐ African American/Black
- ☐ Asian
- ☐ Latino/Hispanic ☐
- Native American ☐
- White/Caucasian ☐ Mixed
- race/ethnicity

This next set of questions is about your eating for THIS PAST WEEK. There are two questions for each meal. You will write in the number of days for each item--the total for each question must add up to 7.

Think about this PAST WEEK (including the weekend) and tell us the number of times you ate the types of foods listed below for BREAKFAST. Since there are seven days in the week, **the total must add up to 7.**

I did not eat breakfast	0	days this past week
I ate quick foods for breakfast, like pop tarts or bagels	0	days this past week
I ate a cold breakfast like cereal	0	days this past week
I ate fast food for breakfast, like pizza	0	days this past week
I ate a hot breakfast, like eggs, oatmeal, or waffles	0	days this past week
I ate something else for breakfast	0	days this past week
Total	0	days this past week

Okay, we're still asking about BREAKFAST... tell us the number of times you ate at each type of place listed below. Since there are seven days in the week, **the total must add up to 7.**

I did not eat breakfast	0	days this past week
I ate breakfast at home	0	days this past week
I ate breakfast at school	0	days this past week
I ate breakfast elsewhere	0	days this past week
I ate breakfast someplace not listed here	0	days this past week
Total	0	days this past week

Now about LUNCH...Think about this **PAST WEEK AT SCHOOL** and tell us the number of times you did each thing mentioned below. Since there are five days in a school week, **the total must add up to 5.**

I did not eat lunch	0	days this past week
I ate a lunch at school that I brought from home	0	days this past week
I ate a lunch at school that I bought at school	0	days this past week
I ate a free lunch that I got at school	0	days this past week
I ate lunch elsewhere	0	days this past week
Total	0	days this past week

Still thinking about LUNCH...during this **PAST WEEKEND** (Saturday and Sunday) tell us the number of times you ate lunch at each type of place listed below. Since there are only two days in a weekend, **the total must add up to 2.**

I did not eat lunch	0	days this past week
I ate lunch at home	0	days this past week
I ate lunch elsewhere	0	days this past week
Total	0	days this past week

And... two questions about DINNER... during this **PAST WEEK** at dinner or supper time tell us the number of times you did each thing listed below. Since there are seven days in a week, **the total must add up to 7.**

I did not eat dinner/supper

0

days this past week

I ate snacks for dinner/supper

0

days this past week

I ate fast food like chicken nuggets, pizza, or burgers for dinner/supper

0

days this past week

I ate a full dinner/supper (such as meat, vegetables, bread, salad, and so on)

0

days this past week

Total

0

days this past week

For the second question about DINNER... think about this **PAST WEEK** and tell us the number of times you ate at each place listed below. Since there are seven days in the week, **the total must add up to 7.**

I did not eat dinner/supper

0

days this past week

I ate dinner/supper at home

0

days this past week

I ate dinner/supper elsewhere

0

days this past week

Total

0

days this past week

Now we want to know about the kinds of FOODS you ate this past week. So, during this **PAST WEEK** (including the weekend) how many days did you eat the following foods? **Be sure to click one button for each item...**

	Number of days LAST week that you ate...							
	Never	Once	Twice	Three times	Four times	Five times	Six times	Every day
Fresh vegetables	☐	☐	☐	☐	☐	☐	☐	☐
Fresh fruit	☐	☐	☐	☐	☐	☐	☐	☐
Fast food (chicken nuggets, pizza, hot dogs, burgers, etc)	☐	☐	☐	☐	☐	☐	☐	☐

Now think about **JUST YESTERDAY**-- see the list below and tell us how many of each kind of drink you had. Be sure to click one box for **EACH TYPE** of drink (click NONE if you didn't have that drink yesterday).

	None, I didn't drink this yesterday	I had 1 or 2 (cans, glasses, bottles) of this drink	I had 3 or 4 (cans, glasses, bottles) of this drink	I had more than 4 (cans, glasses, bottles) of this drink
Soft drinks	☐	☐	☐	☐
Diet soft drinks	☐	☐	☐	☐
Energy drinks (Gatorade, Powerade)	☐	☐	☐	☐
Bottled or glass of water	☐	☐	☐	☐
Sugary drinks (lemonade, chocolate milk, Koolaid)	☐	☐	☐	☐
White milk	☐	☐	☐	☐
100% fruit juices (orange juice)	☐	☐	☐	☐
Other drinks like iced tea, hot chocolate, soy milk, etc)	☐	☐	☐	☐

Participation

PART II. Next, we want to know about your involvement in out-of-school activities...

Be sure to read the instructions--sometimes you can check several options and sometimes you check only one.

Think about when you are **NOT in school** -- check the boxes for ALL the following kinds of activities you participate in. **Check all the activities that apply to you.**

- ☐ Hang out at a park, recreation center, youth center, church center, or similar place
- ☐ Organized physical activities like sports, gymnastics, dance, swimming, weight lifting...
- ☐ Outdoor activities like playing in a park, skateboarding, walking, running, hiking, biking, climbing, hunting, fishing, and so on
- ☐ Youth group activities like Girl or Boy Scouts, church youth groups, Boys/Girls Clubs, 4H activities, and so on
- ☐ Any others not listed? Please write the activity here...

Think about **THIS PAST WEEK when you were NOT in school (after school, weekends)**... In the first column, tell us how many **HOURS** you participated in the activity AND in the second column tell us **HOW MANY FRIENDS** participated with you in that activity. The activity categories are the same as in the previous question.

	HOURS I participated when not in school						Number of friends participated with me				
	None	1	2	3	4	5+	None	1	2	3	4 or more
Hang out at a park or center	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Organized physical activities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Outdoor activities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Youth group activities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hobbies and other activities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Music and art activities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Any others not listed? Please write the activity here...	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Think about the activities you participate **in when you are NOT in school**. Then **RANK the reasons you choose** to participate in those activities. Number 1 is the MOST important reason you choose to participate in those activities, and number 5 is the LEAST important reason that you participate in those activities. To help remind you to rank each item, the survey will force you to rank how important each reason is to you.

	1	2	3	4	5
To be with my friends					
To learn new skills	☐	☐	☐	☐	☐
Because it's fun	☐	☐	☐	☐	☐
To reduce my stress	☐	☐	☐	☐	☐
My parents/guardians/teachers or other adults want me to participate	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

Now think about the **reasons you DO NOT participate** in activities when you are not in school. Then **RANK the reasons why you DO NOT** participate in those activities. Number 1 is the **BIGGEST** reason why you do not participate in those activities, and number 5 is the **WEAKEST** reason that you do not participate in those activities. To help remind you to rank each item, the survey will force you to rank how important each reason is to you.

	1	2	3	4	5
I'm not allowed to participate (no money, no way to get to the activity, too dangerous)	☐	☐	☐	☐	☐
I'm too busy (have chores, have to work or babysit, take private lessons)	☐	☐	☐	☐	☐
I have no interest in participating (I don't like the activities, I'd rather stay home after school)	☐	☐	☐	☐	☐
Social reasons (friends don't participate, I'd rather be alone, I don't feel comfortable with others)	☐	☐	☐	☐	☐
No skills or have health issues (no skills to participate, health conditions limit me, my fitness level is too low)	☐	☐	☐	☐	☐

Think about the following kinds of activities and tell us how many HOURS you participate in each... **The first column** is the time you spend in that activity **during a typical school week**. The **second column** asks about amount of time you typically do that activity **during the WEEKEND**. Please be sure to click a circle in each column for each activity.

	Week DAY Total Hours						Week END Total Hours					
	None	1	2	3	4	5+	None	1	2	3	4	5+
Academic kinds of activities like reading, practicing music, or homework	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Watching TV	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Playing video games	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Engaged in social media, texting, or on the phone	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Now we would like to **choose ONE of the activity categories you participate in** when you are **NOT in school**. The next question will be about the reasons you participate in that type of activity.

- ☐ Organized physical activities like sports, gymnastics, dance, swimming, weight lifting...
- ☐ Outdoor activities like playing in a park, skateboarding, walking, running, hiking, biking, climbing, hunting, fishing, and so on
- ☐ Youth group activities like Girl or Boy Scouts, church youth groups, Boys/Girls Clubs, 4H activities, and so on
- ☐ Any others not listed above? Please write in the activity here...

So, think about the activity category you selected in the previous question... Now, for each of the following statements, choose one number that BEST describes the reason you participate in that activity category. Remember to answer for each statement.

	Reasons You Participate in the Selected Activity (above)				
	Not a reason	A weak reason	Neutral	Somewhat important reason	Very important reason
I can meet new people	☐	☐	☐	☐	☐
The activities are exciting	☐	☐	☐	☐	☐
I am happiest when doing the activity	☐	☐	☐	☐	☐
The activity is a good break from school and other responsibilities	☐	☐	☐	☐	☐
I can hang out with my friends	☐	☐	☐	☐	☐
I want to improve my skills	☐	☐	☐	☐	☐
My parents/guardian really encouraged me to participate	☐	☐	☐	☐	☐
The activities are fun	☐	☐	☐	☐	☐
My friends want me to participate; they pressure me	☐	☐	☐	☐	☐
I want to learn something new	☐	☐	☐	☐	☐
This activity helps reduce my stress	☐	☐	☐	☐	☐
The activity helps to relax me	☐	☐	☐	☐	☐
I can develop new skills	☐	☐	☐	☐	☐
I like being with other people who share my interests	☐	☐	☐	☐	☐

Think of the opportunities in your town to participate in **organized** sport leagues, camps, lessons, and so on. We would like to know at **what ages** you participated in those formal sports programs. So, for each sport listed below, check the boxes that indicate how old you were when you participated. If you participated when you were 6 years old, 7 years old, and 8 years old, then check both of those age boxes (yrs) for that activity.

Mark ALL the Ages When you Participated in the Sports Listed

	Never	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs
Baseball/Softball	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Basketball	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cheerleading	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Dance	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fitness classes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Flag football	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Never	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs
Football	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Golf	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hockey	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lacrosse	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Martial arts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Soccer	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	Never	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs
Swimming	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tennis	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Track/cross country	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Volleyball	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Wrestling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other sport	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

What would you like to do outside of school, but the opportunity does not exist? (for example, you would like to hang out at a youth center, or go swimming but your town doesn't have a center or pool)--Write in what you would like to see in your community in the box below.

Parents

PART III. Lastly, we want to know a little bit about your parents or guardians...

This last section is about your PARENTS/GUARDIANS. So, the following questions ask about what your parents or guardians do -- answer the best you can even if you do not know for sure.

Now we want you to think **about your PARENTS or guardians...** for each of the following items tell us how much you agree or disagree. For each question "They" means your parents or guardians.

	Things Your Parents/Guardians Do...					
	Don't know	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
They set limits on the amount of time I can be on the computer, video games, and/or watch TV	☐	☐	☐	☐	☐	☐
They encourage me to participate in physical activities when I am not in school	☐	☐	☐	☐	☐	☐
They pay attention to or keep track of what I eat and drink	☐	☐	☐	☐	☐	☐
They tend to drink mostly water with meals (rather than soft drinks or wine, etc)	☐	☐	☐	☐	☐	☐
They like to do physical activities with me when I am not in school	☐	☐	☐	☐	☐	☐
They ask me about what activities I have done and how much time I spent doing them	☐	☐	☐	☐	☐	☐
They monitor and keep track of my physical activities when I am out of school	☐	☐	☐	☐	☐	☐
They have a nutrition plan that we all follow	☐	☐	☐	☐	☐	☐
They prepare homemade meals rather than pre-packaged or frozen meals	☐	☐	☐	☐	☐	☐
They are willing to pay for me to be in physical activities	☐	☐	☐	☐	☐	☐
They encourage me to play outside and be active	☐	☐	☐	☐	☐	☐
They control how many snack and 'junk' foods we have in the house	☐	☐	☐	☐	☐	☐
They exercise more 3 or more times a week on a regular basis	☐	☐	☐	☐	☐	☐

Exit

Thank you for helping us with this survey! When you click **SUBMIT** your answers will go to a computer in North Carolina and no one will know who you are or how you answered.

Qualtrics Survey Software
IPanel/Ajax.php?acCon=G...

h3ps://ecu.az1.qualtrics.com/Contro

Have a great school year!

,